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Number 1

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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT, consult Chapter 1800 of the Manual of Patent Examining Procedure and notices 90-95 in the consolidated listing of notices appearing in the Official Gazette of Jan. 6, 1981.

The PCT fees in effect after May 19, 1981 are as follows:

Transmittal fee	\$ 35.00
Search fee	300.00
International Basic Fee (for the first 30 sheets of an international application)	215.00
Basic Supplemental Fee (for each sheet over 30)	4.00
International Designation Fee (for each State for which a national patent is sought, or group of States for which the same regional patent is sought)	50.00

RENE D. TEGTMEYER,
Assistant Commissioner
for Patents.

Board of Appeals Decisions Rendered in the Month of Dec. 1981

Affirmed	166
Affirmed in Part	24
Reversed	70
Total	260

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

3,529,406, Re. S.N. 229,101, Filed Jan. 28, 1981, Cl. 55/500, FILTER FRAME SEAL, Adrian R. Allan, Jr., et al., Owner of Record: *Flanders Filter, Inc., Washington, N.C.*, Attorney or Agent: Donald M. Seltzer, Ex. Gp.: 177

3,672,947, Re. S.N. 320,382, Filed Nov. 12, 1981, Cl. 427/177, METHOD FOR TEXTURIZING YARNS, Paul Luscher, et al., Owner of Record: *PPG Industries, Inc., Pittsburgh, Pa.*, Attorney or Agent: John E. Curley, et al., Ex. Gp.: 162

3,730,137, Re. S.N. 320,381, Filed Nov. 12, 1981, Cl. 118/325, APPARATUS FOR COATING AND IMPREGNATING TEXTURIZED YARN, Paul Luscher, et al., Owner of Record: *PPG Industries, Inc., Pittsburgh, Pa.*, Attorney or Agent: John E. Curley, et al., Ex. Gp.: 162

3,816,794, Re. S.N. 312,808, Filed Oct. 19, 1981, Cl. 315/194, HIGH INTENSITY, GAS DISCHARGE LAMP DIMMER SYSTEM, Carl R. Snyder, Owner of Record: *Esquire, Inc., San Marcos, Tex.*, Attorney or Agent: Frank S. Vaden, III, et al., Ex. Gp.: 256

3,880,783, Re. S.N. 303,999, Filed Sept. 21, 1981, Cl. 260/3, TRANSPARENT MOULDING COMPOSITION OF A POLYCARBONATE AND A RESIN, Volker Serini, et al., Owner of Record: *Bayer Aktiengesellschaft, Leverkusen, Germany*, Attorney or Agent: Arthur G. Connolly, et al., Ex. Gp.: 142

3,969,496, Re. S.N. 311,408, Filed Oct. 14, 1981, Cl. 435/35, USE OF RADIOISOTOPES FOR RAPID

IDENTIFICATION OF MICROORGANISMS, Joseph R. Schrot, Owner of Record: *Biospherics, Inc., Rockville, Md.*, Attorney or Agent: D. C. Roylance, et al., Ex. Gp.: 176

4,001,905, Re. S.N. 284,200, Filed July 17, 1981, Cl. 9/11, STABILIZED SURVIVAL RAFT, James A. Givens, Owner of Record: *Inventor*, Attorney or Agent: George M. Cole, et al., Ex. Gp.: 315

4,057,636, Re. S.N. 314,023, Filed Oct. 22, 1981, Cl. 424/263, ANTIHYPERTENSIVE PYRIDYLGUANIDINE COMPOUNDS, Hans Jorgen Petersen, Owner of Record: *Leo Pharmaceutical Products Ltd., Ballerup, Denmark*, Attorney or Agent: John W. Malley, et al., Ex. Gp.: 125

4,148,976, Re. S.N. 301,367, Filed Sept. 11, 1981, Cl. 429/191, SOLID STATE LITHIUM-IODINE PRIMARY BATTERY, Satoshi Sekido, et al., Owner of Record: *Matsushita Electric Industrial Co., Ltd., Osaka, Japan*, Attorney or Agent: Joseph W. Farley, Ex. Gp.: 111

4,164,525, Re. S.N. 292,768, Filed Aug. 14, 1981, Cl. 261/41B, DEVICE FOR SUPPLYING FUEL TO AN INTERNAL COMBUSTION ENGINE, Gunther Bernecker, Owner of Record: *G. M. C. Research, Inc., Orange, N.J.*, Attorney or Agent: C. Bruce Hamburg, et al., Ex. Gp.: 177

4,191,376, Re. S.N. 277,350, Filed June 25, 1981, Cl. 273/139, HIGHLY SECURE PLAYING CARDS FOR INSTANT LOTTERY AND GAMES, Max Goldman, et al., Owner of Record: *Systems Operations, Inc., Princeton, N.J.*, Attorney or Agent: Stanton T. Lawrence, et al., Ex. Gp.: 334

4,196,821, Re. S.N. 319,687, Filed Nov. 9, 1981, Cl. 220/94R, INSTRUMENT HOUSING, Joseph A. Teti, Jr., et al., Owner of Record: *LaFrance Precision Casting Co., Philadelphia, Pa.*, Attorney or Agent: Harold Pezzner, Ex. Gp.: 241

4,205,252, Re. S.N. 311,155, Filed Oct. 13, 1981, Cl. 313/422, FLAT CATHODE RAY TUBE WITH REPELLER ELECTRODE, Clive M. Sinclair, et al., Owner of Record: *National Research Development Corp., London, England*, Attorney or Agent: Lawrence E. Laubscher, Sr., et al., Ex. Gp.: 256

4,232,746, Re. S.N. 320,529, Filed Nov. 12, 1981, Cl. 172/59, SOIL CULTIVATING IMPLEMENTS, Cornelis van der Lely, Owner of Record: *Inventor*, Attorney or Agent: Penrose Lucas Albright, et al., Ex. Gp.: 334

4,237,928, Re. S.N. 305,786, Filed Sept. 25, 1981, Cl. 137/590, LOW PROFILE TAPERED SUMP FOR RAILWAY TANK CARS, Robert C. Messersmith, Owner of Record: *ACF Industries, Inc., New York, N.Y.*, Attorney or Agent: Henry W. Cummings, Ex. Gp.: 341

4,246,025, Re. S.N. 319,728, Filed Nov. 9, 1981, Cl. 75/37, BENEFICIATION PROCESS FOR OXIDIZED IRON ORE, Edward F. Bertram, et al., Owner of Record: *Alberta Research Council, Edmonton, Alberta, Canada*, Attorney or Agent: Ernest Peter Johnson, Ex. Gp.: 411

4,258,726, Re. S.N. 296,618, Filed Aug. 27, 1981, Cl. 130/27L, ADJUSTABLE GUIDE VANES FOR AN AXIAL FLOW ROTARY SEPARATOR, Fritz Glaser, et al., Owner of Record: *Deere & Co., Moline, Ill.*, Attorney or Agent: H. Vincent Harsha, et al., Ex. Gp.: 333

4,262,278, Re. S.N. 267,094, Filed May 26, 1981, Cl. 340/52.3, DIAGNOSTIC BRAKE SYSTEM WARNING CIRCUIT, Donald W. Howard, et al., Owner of Record: *The Bendix Corp., Southfield, Mich.*, Attorney or Agent: None, Ex. Gp.: 234

4,273,821, Re. S.N. 317,699, Filed Nov. 2, 1981, Cl. 8/215, FIRE PROTECTIVE TAPE, J. Watson Pedlow, et al., Owner of Record: *Inventors*, Attorney or Agent: Robert M. Rodrick, et al., Ex. Gp.: 164

REQUESTS FOR REEXAMINATION FILED

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

3,560,287, Reexam. No. 90/000,130, Requested: Dec. 24, 1981, Cl. 156/218, METHOD AND APPARATUS FOR PROTECTING INSULATED PIPE, Robert W. Helling, Owner of Record: *Ceel-Co., Inc., Lakewood, Colo.*, Attorney or Agent: Fields, Lewis, et al., Ex. Gp.: 160, Requester: Ceel-Co., Inc., Lakewood, Colo.

3,952,776, Reexam. No. 90/000,131, Requested: Dec. 23, 1981, Cl. 138/39, FLUID FLOW DEVICE, James F. Eversole, et al., Owner of Record: *Dresser Ind., Inc., Dallas, Tex.*, Attorney or Agent: Richard M. Beck, Ex. Gp.: 240, Requester: Ford Motor Co., Dearborn, Mich.

4,016,031, Reexam. No. 90/000,128, Requested: Dec. 21, 1981, Cl. 162/313, MANUFACTURE OF COMPOSITE MATERIALS, Greville E. G. Bagg, et al., Owner of Record: *Notional Research Development Corp., London, England*, Attorney or Agent: Cushman, Darby, et al., Ex. Gp.: 170, Requester: Ciba-Geigy Corp., Ardsley, N.Y.

4,231,383, Reexam. No. 90/000,132, Requested: Dec. 23, 1981, Cl. 137/1, MASS FLOW RATE, James F. Eversole, et al., Owner of Record: *Dresser Industries, Inc., Dallas, Tex.*, Attorney or Agent: Richard M. Beck, Ex. Gp.: 341, Requester: Ford Motor Co., Dearborn, Mich.

4,240,184, Reexam. No. 90/000,134, Requested: Dec. 23, 1981, Cl. 24/279, PIPE AND CABLE CLAMPS, John P. Conlan, et al., Owner of Record: *BICC Ltd., London, England*, Attorney or Agent: Eugene F. Buell, et al., Ex. Gp.: 355, Requester: Buell, Blenko, et al., Pittsburgh, Pa.

National Inventors Day

The Patent and Trademark Office and the National Council of Patent Law Associations will sponsor National Inventors Day in the Public Search Room on Saturday, Feb. 6, 1982, from 1:00 p.m. to 5:00 p.m. and Sunday, Feb. 7, 1982, from 10:00 a.m. to 5:00 p.m. The public is invited to view the exhibits on these days and to attend the ceremony at 2:00 p.m. on Sunday, Feb. 7, 1982, during which time a number of inventors will be inducted into the National Inventors Hall of Fame.

In Order to assemble the exhibits it will be necessary to close the Search Room on Friday, Feb. 5, 1982, at 5:00 p.m. The removal of all personal property from the Search Room by the early closing time would be appreciated.

Jan. 5, 1982.

GERALD J. MOSSINGHOFF,
Commissioner of Patents
and Trademarks.

Government-Owned Inventions Notice of Availability for Licensing

The inventions listed below are owned by agencies of the U.S. government and are available for licensing in the U.S. in accordance with 35 U.S.C. 207 to achieve expeditious commercialization of results of federally funded research and development. Foreign patents are filed on selected inventions to extend market coverage for U.S. companies and may also be available for licensing.

Technical and licensing information on specific inventions may be obtained by writing to:

Office of Government Inventions and Patents
U.S. Department of Commerce
P.O. Box 1423
Springfield, Va. 22151

Please cite the number and title of inventions of interest.

DOUGLAS J. CAMPION
Office of Government Inventions and Patents
National Technical Information Service
U.S. Department of Commerce

SN 6-294,096, Enhancement of Color Quality of Lumber During Drying. Filed Sept. 18, 1981 by the Dept. of Agriculture. Inventor: Howard Rosen.

SN 6-302,008, Process for Modifying Cellulosic Fabrics for Improved Heat Transfer Printing. Filed Sept. 15, 1981 by the Dept. of Agriculture. Inventor: Eugene Blanchard.

SN 6-272,842, Zwitterion Compounds as Catalysts in Easy-Care Finishing. Filed by Dept. of Agriculture on June 12, 1981. Inventor: Robert M. Reinhardt.

SN 6-276,768, Bromine-Containing 2,4-Diaminotriazines. Filed June 24, 1981 by the Dept. of Agriculture. Inventor: Leon H. Chance.

SN 6-294,095, New Surface in Cellulosic Fibers by Use of Radiofrequency Plasma of Ammonia. Filed Aug. 19, 1981 by the Dept. of Agriculture. Inventor: Truman L. Ward.

SN 6-290,540, Method for Sampling Flying Insect Populations Using Low-Frequency Sound Detecting & Ranging in Conjunction with a Biologically Active Chemical/Pheromone. Filed Aug. 6, 1981 by the Dept. of Agriculture. Inventor: D. E. Hendricks.

SN 6-308,350, Antimicrobial Glycolic Acid Derivatives. Filed Oct. 5, 1981 by the Dept. of Agriculture. Inventor: August V. Bailey.

SN 6-311,587, Apparatus for Continuous Injection of Chemically-Impregnated Filament. Filed Oct. 15, 1981 by the Dept. of Agriculture. Inventor: Jim E. Dale.

SN 6-308,743, Antimicrobial Glycolic Acid Derivatives. Filed by the Dept. of Agriculture on Oct. 5, 1981. Inventor: August V. Bailey.

SN 6-311,702, Apparatus to Extract Dust and Fine Trash from Opened Cotton. Filed Oct. 15, 1981 by the Dept. of Agriculture. Inventor: Charles Shepard.

SN 6-302,007, Textile Finishing Agents from Reaction Products of Carbamates and Glutaraldehyde. Filed Sept. 15, 1981 by the Dept. of Agriculture. Inventor: John G. Frick.

SN 6-294,203, Nondenaturing Zwitterionic Detergents for Membrane Biochemistry. Filed Aug. 26, 1980 by the Dept. of Health and Human Services. Inventor: Leonard Hjelmeland.

SN 6-180,373, Nitroimidazoles of Low Toxicity and High Activity as Radiosensitizers of Hypoxic Tumor Cells. Filed Aug. 2, 1980 by the Dept. of Health & Human Services. Inventor: W. W. Lee.

Trademark Errata

- In the Official Gazette of September 19, 1978 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 287, "920,181. ANDREA. U.S. Cls. 29, 37, 40, 51, and 52. 9-14-71." should be deleted.
- In the Official Gazette of December 9, 1980 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 93, "986,558. STAR-LINE. U.S. Cl. 46. 6-18-74" should be deleted.
- In the Official Gazette of December 16, 1980 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 127, "986,786. GE. U.S. Cl. 16. 6-25-74" should be deleted.
- In the Official Gazette of December 9, 1980 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 93, "1,010,668. U.S. HOME AND DESIGN. U.S. Cls. 16 and 100. 5-13-75" should be deleted.
- In the Official Gazette of June 2, 1981 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 147, "1,001,070. DECORLIN. INT. 24. 1-7-75" should be deleted.
- In the Official Gazette of June 2, 1981 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 148, "1,001,142. CHEMSAVE. INT. 36. 1-7-75" should be deleted.
- In the Official Gazette of June 9, 1981 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 298, "1,001,394. HAIPEN. INT. Cl. 2. 1-4-75" should be deleted.
- In the Official Gazette of June 30, 1981 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 763, "1,003,778. NUTRI-BACT. U.S. Cl. 6. 2-4-75" should be deleted.

PATENT NOTICES

Certificates of Correction for the Week of Feb. 2, 1982

Re. 30,420	4,266,082	4,284,241	4,294,484
D. 259,254	4,267,296	4,284,634	4,294,810
D. 259,786	4,269,971	4,284,635	4,294,876
3,665,287	4,272,987	4,284,964	4,295,322
3,752,955	4,273,063	4,285,046	4,295,495
4,140,758	4,273,687	4,285,256	4,296,034
4,169,809	4,273,857	4,285,263	4,296,389
4,182,915	4,273,921	4,285,304	4,296,421
4,183,599	4,274,087	4,286,288	4,296,505
4,183,933	4,274,203	4,286,992	4,296,570
4,184,790	4,274,578	4,287,061	4,296,891
4,185,959	4,275,193	4,287,460	4,296,996
4,194,815	4,275,469	4,287,790	4,297,380
4,213,628	4,276,052	4,287,980	4,297,503
4,214,314	4,276,267	4,288,181	4,297,652
4,220,708	4,277,603	4,288,310	4,297,905
4,222,396	4,277,735	4,289,432	4,298,015
4,222,856	4,277,902	4,289,554	4,298,025
4,227,803	4,278,319	4,289,730	4,298,198
4,229,443	4,278,403	4,289,945	4,298,274
4,234,569	4,278,533	4,290,989	4,298,288
4,236,829	4,278,784	4,291,185	4,298,529
4,239,505	4,278,852	4,291,187	4,298,790
4,241,035	4,278,977	4,291,261	4,299,814
4,241,783	4,279,589	4,291,269	4,300,119
4,242,276	4,280,160	4,291,350	4,300,129
4,242,305	4,280,716	4,292,476	4,300,370
4,243,100	4,280,982	4,292,667	4,300,406
4,244,095	4,281,113	4,292,813	4,300,434
4,247,694	4,281,180	4,292,874	4,300,820
4,249,558	4,281,564	4,292,966	4,301,131
4,254,475	4,282,855	4,293,219	4,301,138
4,255,441	4,283,540	4,293,463	4,303,137
4,256,231	4,284,032	4,293,678	4,303,580

Disclaimer

4,028,319.—David A. Jones, Jr., Evanston; James M. Schlatter, Glenview; Richard A. Mikulec, Chicago; Judith A. Reuter, Skokie, and Robert H. Mazur, Deerfield, Ill. 2 and 3-SUBSTITUTED ENKEPHALINS. Patent dated June 7, 1977. Disclaimer filed Nov. 30, 1981, by the assignee, G. D. Searle & Co.

Hereby enters this disclaimer to claims 1-3, 8 and 9 of said patent.

4,050,311.—John Meredith Leach, Port Jefferson-Belle Terre, N.Y. SPHYGMOMANOMETER. Patent dated Sept. 27, 1977. Disclaimer filed Nov. 23, 1981, by the inventor.

Hereby enters this disclaimer to claims 1, 2 and 9 of said patent.

Dedication

3,692,673.—Donald Irvin Hoke, Chagrin Falls, Ohio. WATER-SOLUBLE SULFONATE POLYMERS AS FLOCCULANTS. Patent dated Sept. 19, 1972. Dedication filed Sept. 10, 1981, by the assignee, The Lubrizol Corp.

Hereby dedicates to the Public the entire remaining term of said patent.

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

These patent collections are open to public use and each of the patent depository libraries, in addition, offers the publications of the patent classification system (e.g. The Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions, etc.) and provides technical staff assistance in their use to aid the public in gaining effective access to information contained in patents. With one exception, as noted in the

table following, the collections are organized in patent number sequence.

Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

State	Name of Library	Telephone Contact
Alabama	Birmingham Public Library	(205) 254-2555
Arizona	Tempe: Science Library, Arizona State University	(602) 965-7607
California	Los Angeles Public Library	(213) 626-7555 Ext. 273
	Sacramento: California State Library	(916) 322-4572
	Sunnyvale: Patent Information Clearinghouse*	(408) 738-5580
Colorado	Denver Public Library	(303) 573-5152 Ext. 222
Delaware	Newark: University of Delaware	(302) 738-2238
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4519
Illinois	Chicago Public Library	(312) 269-2814
Louisiana	Baton Rouge: Troy H. Middleton Library, Louisiana State University	(504) 388-2570
Massachusetts	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Detroit Public Library	(313) 833-1450
Minnesota	Minneapolis Public Library & Information Center	(612) 372-6552
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 214, 215
Nebraska	Lincoln: University of Nebraska-Lincoln, Engineering Library	(402) 472-3411
New Hampshire	Durham: University of New Hampshire Library	(603) 862-1777
New Jersey	Newark Public Library	(201) 733-7814
New York	Albany: New York State Library	(518) 474-5125
	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 930-0850
North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
Ohio	Cincinnati & Hamilton County, Public Library of	(513) 369-6936
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 255-7055 Ext. 212
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1321**
	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3138
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
Rhode Island	Providence Public Library	(401) 521-7722 Ext. 226
South Carolina	Charleston: Medical University of South Carolina	(803) 792-2372
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 528-2957
	Dallas Public Library	(214) 748-9071
Texas	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Engineering Library, University of Wisconsin	(608) 262-6845
	Milwaukee Public Library	(414) 278-3043

*Collection organized by subject matter.

**Call only between the hours of 10:00 a.m. and 5:00 p.m.

1015 OG 6

PATENT EXAMINING CORPS RENE D. TEGMEYER, Assistant Commissioner WILLIAM FELDMAN, Deputy Assistant Commissioner CONDITION OF PATENT APPLICATIONS AS OF December 26, 1981

PATENT EXAMINING GROUPS

	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director	6-23-80
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director	12-06-79
Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director	3-02-81
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthetics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director	11-14-80
Coating; Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—	
R. F. WHITE, Director	10-06-80
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director	5-20-80
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director	6-19-80
Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—VACANT	8-07-80
Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—	
A. L. SMITH, Director	12-07-79
Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling.	
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director	10-02-79
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	
DESIGN, GROUP 290—KENNETH L. CAGE, Director	4-02-80
Industrial Arts; Household, Personal and Fine Arts.	
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director	7-01-80
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director	6-17-80
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—	
R. E. AEGERTER, Director	3-17-80
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director	10-22-79
Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—	
G. M. FORLENZA, Director	3-17-80
Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	

Expiration of patents: The patents within the range of numbers indicated below expire during December 1981, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents Numbers 3,158,867 to 3,163,864, inclusive
Plant Patents Numbers 2,455 to 2,464 inclusive

1015 OG 7

DEFENSIVE PUBLICATIONS

PUBLISHED FEBRUARY 2, 1982

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased for 30 cents a sheet.

Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent and Trademark Office makes no assertion as to the novelty of the disclosed subject matter.

T101,501

LIGHT-WEIGHT BASE FOR A BED

James D. Robinson, 3 The Jinnings, Welwyn Garden City, Hertfordshire, England

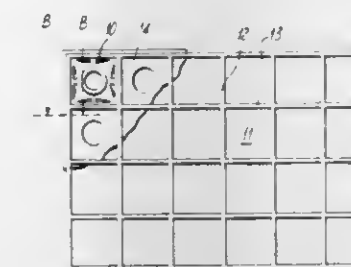
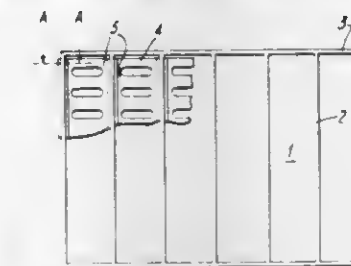
Filed Mar. 5, 1980, Ser. No. 127,303

Claims priority, application United Kingdom, Dec. 21, 1979, 44209/79

Int. Cl.³ A47C 19/02

U.S. Cl. 5—186 R

4 Sheets Drawing. 8 Pages Specification



A light-weight base for a bed is described which includes a mattress-supporting platform (4) supported on a frame (1) of opposed ribs (2) in which the platform (4) is formed from an array of resiliently depressible crested thermoplastics bridges (5) which act as springs and which extend between pairs of opposed ribs (2) and their crests rise above the tops of ribs (2). Bridges (5) may be conveniently injection molded from crystalline polypropylene or propylene/ethylene copolymer in sections 0.5 to 5 mm thick and are preferably integral with fixing means (6) which make push fits into ribs (2). The polypropylene bridges have good resistance to flexing fatigue, are light-weight and, when provided with integral fixing means, are easily assembled on frame (1). These modified bases may be used as seat or back portions of chairs as well.

REISSUES

FEBRUARY 2, 1982

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

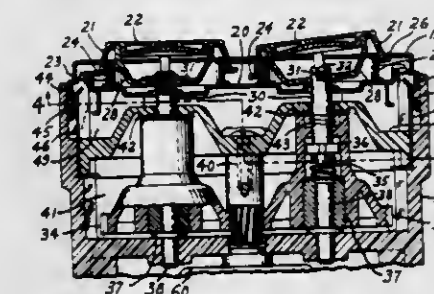
Re. 30,857 ROTARY DRY SHAVER WITH TILTABLE SHEAR PLATES

Tracy B. Tyler, Miami Beach, Fla., assignor to Edwin E. Greigg, Silver Spring, Md., a part interest
Original No. 3,715,803, dated Feb. 13, 1973, Ser. No. 115,546, Feb. 16, 1971. Continuation of Ser. No. 528,499, Nov. 29, 1974, abandoned. Application for reissue Jun. 11, 1976, Ser. No. 695,020

Int. Cl.³ B26B 19/16

U.S. Cl. 30—43.5

12 Claims



1. In a rotary dry shaver, a component housing, a universally tiltably nonrotating cutting element comprising [a flanged apertured shear plate exposedly retained in the housing by said flange positioned under an apertured frame,] an apertured shear plate provided with a radially extended flange, the flange positioned under an apertured frame affixed to the housing, the cutting element exposedly retained by and in said frame by said flange, a rotary cutting member cooperative with the shear plate and coactively tiltably therewith, a driving shaft for the cutting member, means to bias the cutting member into contact with the shear plate, and the said cutting element [tiltably supported axially by means separate from the cutting member and its biasing means] supported in the axial direction and universally tiltably on a single supporting element separate from the cutting member and its biasing means and the means tiltably connecting the driving shaft to the cutting member.

7. In a dry shaver including a housing, at least one cutter guard and a cooperating cutter that is rotatable about its axis, a holder in which said guard is movably mounted, the first spring means for resiliently urging said cutter axially upward (when said shaver is upright) into engagement with said guard which is thereby urged upward in engagement with said mount, the improvement in combination therewith wherein said holder includes a circular aperture defined by a rim having first diameter, said guard has an outer surface which is spherically curved, has diameter corresponding to said first diameter, and is situated within and engaging said rim, said spherical surface having its center situated substantially on said cutter axis, said guard and cutter together being both pivotable in said rim and depressible axially downward against said first spring means.

Re. 30,858 IGNITION SYSTEMS FOR INTERNAL COMBUSTION ENGINES

Eric H. Ford, London, England, assignor to Lumenition Limited, London, England
Original No. 3,605,712, dated Sep. 20, 1971, Ser. No. 801,721, Feb. 24, 1969. Application for reissue Sep. 27, 1978, Ser. No. 946,435

Claims priority, application United Kingdom, Feb. 29, 1968, 946/68; Oct. 22, 1968, 50102/68; Nov. 19, 1968, 54775/68

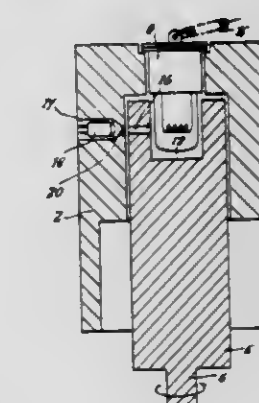
Int. Cl.³ F02P 1/00; F02D 5/04

U.S. Cl. 123—651

10 Claims

1. A device for providing rapid switching of the primary circuit of an ignition coil of an internal combustion engine to

thereby induce a desired voltage in the secondary circuit of the ignition coil, said device comprising a photo-transistor sensitive to infra-red radiation which will switch on or conduct when exposed to the radiation and switch off when the radiation is cut off; a gallium arsenide lamp emitting infra-red radiation; an element which is opaque to infra-red radiation positioned between the gallium arsenide lamp and the photo-transistor, said opaque element having as many equi-spaced apertures therein as there are cylinders in the engine; means for moving the opaque element in timed relation to the engine revolutions; [an amplifier having first and second transistors connected in cascade to the output of the photo-transistor and arranged to switch in inverse relation to one another so that at any one time a transistor is always conducting; and a power transistor connected to the output of the amplifier to be switched in inverse



relation to the second transistor of the amplifier and connected in circuit relationship with the ignition coil such that each time a beam of infra-red radiation is cut off from said photo-transistor, the transistorized amplifier circuit causes] and a switching circuit interconnecting the photo-transistor with the ignition coil and including a first transistor connected to the output of the photo-transistor, a second transistor, and a power transistor connected to the primary circuit of the ignition coil, the first, second and power transistors being interconnected in a manner such that adjacent ones switch on and off in inverse relation to one another and such that at least one is conducting at any one time, whereby the switching circuit, in response to each time a beam of infra-red radiation is cut off from the photo-transistor causes rapid switching of the primary circuit and a resultant production of the desired voltage in [said] the secondary circuit.

Re. 30,859 BOWLING PRACTICE DEVICE

Leslie E. Harvey, 954 Henderson Ave., and Stephan D. Spiva, 1247 Balboa Ct., both of Sunnyvale, Calif. 94086
Original No. 4,046,376, dated Sep. 6, 1977, Ser. No. 698,952, Jun. 23, 1976. Application for reissue Sep. 4, 1979, Ser. No. 72,335

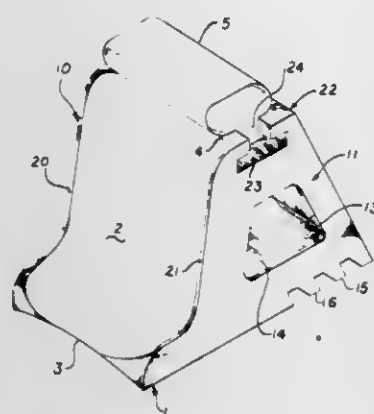
Int. Cl.³ A63D 5/00

U.S. Cl. 273—54 D

17 Claims

9. A bowling practice device comprising means for receiving a rolling bowling ball, said receiving means comprising means having parallel edges for centering said rolling bowling ball with

respect to the longitudinal axis of said receiving means and means forming an upwardly inclined curved surface for reducing the



forward velocity of the ball and returning the ball to the roller thereof.

Re. 30,860

PROCESS FOR TREATING CELLULOSIC MATERIAL WITH FORMALDEHYDE IN LIQUID PHASE AND SULFUR DIOXIDE

Ronald Swidler, Palo Alto, and Katherine W. Wilson, San Diego, both of Calif., assignors to Cotton, Incorporated, New York, N.Y.

Original No. 3,841,832, dated Oct. 15, 1974, Ser. No. 332,332, Feb. 14, 1973. Continuation-in-part of Ser. No. 237,056, Mar. 22, 1972, abandoned, and Ser. No. 706,792, Feb. 20, 1968, abandoned, each is a continuation-in-part of Ser. No. 239,361, Mar. 29, 1972, abandoned. Application for reissue Mar. 2, 1976, Ser. No. 663,196

The portion of the term of this patent subsequent to Dec. 19, 1989, has been disclaimed.

Int. Cl.³ D06M 13/12

U.S. Cl. 8—116.4

14 Claims

13. A process for treating cellulosic fabric-containing material to impart a durable press thereto comprising conveying said material through a first zone to introduce moisture thereinto, conveying the material then through a subsequent treatment zone to subject it to sulfur dioxide vapors, thereafter conveying said material through a subsequent curing zone to subject the material to a curing temperature of above about 65° C., and wherein prior to conveying said material through said curing zone, and prior to or during said treatment with sulfur dioxide vapors, conveying said material through a zone to impregnate it with formaldehyde.

PLANT PATENTS

GRANTED FEBRUARY 2, 1982

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

4,819

EARLY COLORING SPUR-TYPE RED DELICIOUS APPLE TREE

Lester Green, Wenatchee, Wash., assignor to Wells & Wade Fruit Co., Inc., Wenatchee, Wash.

Filed Mar. 12, 1979, Ser. No. 19,873

Int. Cl.³ A01H 5/03

U.S. Cl. Plt.—35

1 Claim

1. A new and distinct variety of apple tree substantially identical with its parent "Oregon Spur", U.S. Plant Pat. No. 2,816, except it colors approximately ten days ahead of the parent variety.

4,820

APPLE TREE

Richard A. Harvey, Selan, Wash., assignor to Columbia & Okanagan Nursery, Inc., Wenatchee, Wash.

Filed Nov. 13, 1979, Ser. No. 93,180

Int. Cl.³ A01H 5/03

U.S. Cl. Plt.—34

1 Claim

1. A new and distinct variety of early ripening apple tree

with yellowish-green, smooth-skinned fruit of medium size as compared with Golden Delicious and Yellow Transparent, a relatively high total solids and acid content, medium size and uniform roundish-conical shape, as shown and described.

4,821

POINSETTIA NAMED V-10 PINK

Paul Ecke, Jr., Encinitas, Calif., assignor to Paul Ecke Ranch, Encinitas, Calif.

Filed Sep. 5, 1980, Ser. No. 185,123

Int. Cl.³ A01H 5/00

U.S. Cl. Plt.—86

1 Claim

1. A new and distinctive poinsettia cultivar, substantially as herein shown and described, characterized by the attractive pink coloration of its many bracts displayed in overlapping arrangement about a tight center to provide a full effect, and by its identity with the variety Gutbier's V-10 with respect to size, appearance and growth, and blooming habits.

PATENTS

GRANTED FEB. 2, 1982

ERRATA

For	See
CLASS	PATENT NO.
181-116	4,313,380
376-252	4,313,791
376-247	4,313,792
376-260	4,313,793
376-352	4,313,794
376-280	4,313,795
376-353	4,313,796
376-441	4,313,797
260-029	4,314,044
376-130	4,314,180
372-018	4,314,210
372-032	4,314,211

PATENTS

GRANTED FEBRUARY 2, 1982

GENERAL AND MECHANICAL

4,313,229

DISPOSABLE RAINWEAR

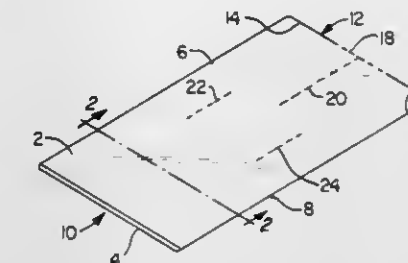
Aida L. Villafane, 1920 Sauco St., Santa Maria Rio Piedras, P.R. 00927

Filed Feb. 6, 1980, Ser. No. 119,050

Int. Cl.³ A41D 3/04, 3/06

U.S. Cl. 2-84

3 Claims



1. A disposable and dispensable article of rainwear for the human body, comprising two sheets of waterproof fabric arranged in surface-to-surface relation with their side edges connected to form a sheath,

- a. the sheath having an open end edge, and a second end edge which is normally closed,
- b. the second end edge of the sheath having at its central part a normally closed tear line,
- c. one of the sheets having therein a normally closed tear line extending perpendicularly from the center of the central tear line toward the open end edge to provide with the central tear line a normally closed but openable T-shaped passage for the head of the wearer, and
- d. said one of the sheets having therein two normally closed tear lines which are parallel to each other and are positioned respectively adjacent the side edges and are spaced from the second end edge and are so positioned and of sufficient length to permit passage of the arms of the wearer.

4,313,230

BELT FOR A CONCEALED QUICK-DRAW KNIFE

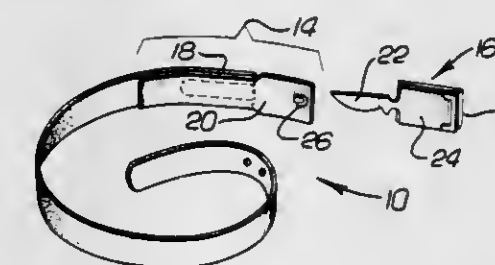
Clarence B. Chovanec, 6447 Amigo Ave., Reseda, Calif. 91335

Filed Jan. 25, 1980, Ser. No. 115,768

Int. Cl.³ A41F 9/00; 24 163 K; 164

U.S. Cl. 2-322

12 Claims



1. An article of apparel being configured and arranged to carry a concealed weapon, said article comprising:

- holster means included within said article of apparel, said holster means having a first curvature in a longitudinal direction, said holster means for concealing and engaging, at least in part, said weapon; and
- a weapon having an elongated blade portion, said blade portion having, at least in part, a second curvature along said longitudinal direction differing from said first curvature, the elongation of said blade portion being generally in said longitudinal direction, said weapon being disposed within said holster means and frictionally retained therein

4,313,231

VASCULAR PROSTHESIS

Kei Koyamada, Morioka, Japan, assignor to Kabushiki Kaisha Tatebe Seishudo, Tokyo, Japan

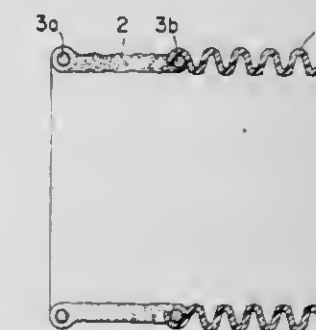
Filed Oct. 30, 1980, Ser. No. 202,092

Claims priority, application Japan, Jun. 16, 1980, 55-83838[U]

Int. Cl.³ A61F 1/24, 1/00

U.S. Cl. 3-1.4

5 Claims



1. A vascular prosthesis comprising: a tubular main body of flexible and compressible character; two cushioning tubes of flexible, compressible, and suturable character secured coaxially to respective opposite ends of the main body; and two reinforcing rings of elastic and relatively stiff character secured coaxially to respective opposite ends of each cushioning tube in substantially imbedded state therein, the cushioning tubes at intermediate parts thereof between the reinforcing rings thereof being radially compressible upon being clamped by ligating means, which is thereby prevented from shifting in the axial direction of the prosthesis.

4,313,232

AN ELASTOMERIC MESH HINGE PRIMARILY FOR REPLACEMENT OF THE FINGER JOINTS

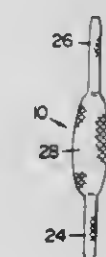
Mutaz B. Habal, 12901 N. 30th St., Box 16, Tampa, Fla. 33612, and Donald L. Leake, 2 Crest Rd., West, Rollings Hills, Calif. 90274

Continuation of Ser. No. 2,545, Jan. 10, 1979, abandoned. This application Oct. 10, 1980, Ser. No. 196,155

Int. Cl.³ A61F 1/03

U.S. Cl. 3-1.91

2 Claims



1. A method for preparing a joint prosthesis of the type primarily intended for use in repairing joints between adjacent long bones of a human, said method comprising the steps of:

- a. trimming opposite end portions of a biocompatible cloth mesh so as to provide an elongate prosthetic blank wherein said opposite end portions extend from a relatively wider central segment;

- b. impregnating said blank with a reinforcing material;
- c. rolling said end portions axially about the longitudinal dimension of said blank; and
- d. applying sufficient additional quantities of said reinforcing material to said rolled end portions so as to eliminate substantially flexing of said opposite end portions with respect to the longitudinal dimension of said blank, whereby said opposite end portions are suitable for attachment in interconnecting relation between adjacent bone structure and said central segment will flex along a single plane.

4,313,233

WATERLESS FLUSH TOILET SYSTEM

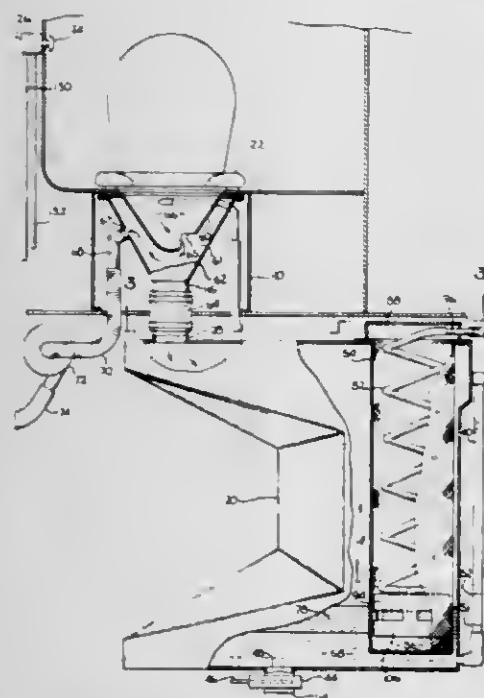
George C. Roberts, Los Angeles, Calif., assignor to Inca-One Corporation, Los Angeles, Calif.

Continuation-in-part of Ser. No. 7,146, Jan. 29, 1979, Pat. No. 4,222,130. This application Jun. 20, 1980, Ser. No. 161,575

Int. Cl.³ E03D 1/00, 9/10

U.S. Cl. 4—321

16 Claims



1. In a waterless flushing toilet system including a toilet, a waste holding tank having a waste inlet and a waste outlet, a supply of nonaqueous flushing fluid stored in said holding tank, said fluid being lighter than and substantially insoluble in water, so that a stratified layer of said fluid is formed on the upper surface of the waste material held in the tank, an improvement comprising:

- a flushing fluid pickup device disposed in said tank for removing a quantity of flushing fluid from said tank to be delivered to said toilet for flushing purposes, said flushing fluid pickup device comprising:
- a pickup float which floats within said liquid waste compartment, said pickup float having at least one flushing fluid inlet disposed within said layer of flushing fluid, said pickup float having an upper pickup float member, and a lower pickup float member coupled to and spaced-apart from said upper member, said upper and lower members defining a plenum containing flushing fluid with said at least one flushing fluid inlet being disposed in said plenum whereby said flushing fluid which is supplied to said toilet is drawn from said flushing fluid within said plenum; and
- a hose having a first end coupled to said pickup float and in communication with said flushing fluid inlet and a second end coupled to a means for supplying said flushing fluid to said toilet wherein said pickup float is suspended by said hose and said hose is substantially in the form of a coil;
- a perforated screen member disposed in said tank which divides said tank into a solid waste compartment and a liquid waste compartment, with said waste inlet and outlet being disposed in said solid waste compartment, and with

said fluid pickup device disposed in said liquid waste compartment, whereby solid and liquid waste arriving from said toilet through said waste inlet are deposited in said solid waste compartment, with said screen member impeding transfer of the solid phase waste from the solid waste compartment to said liquid waste compartment where said flushing fluid is picked up by said pickup device.

4,313,234

TOILET

John M. Stewart, River Drive Park, Canada, assignor to Santerra Industries Ltd., Downsview, Canada

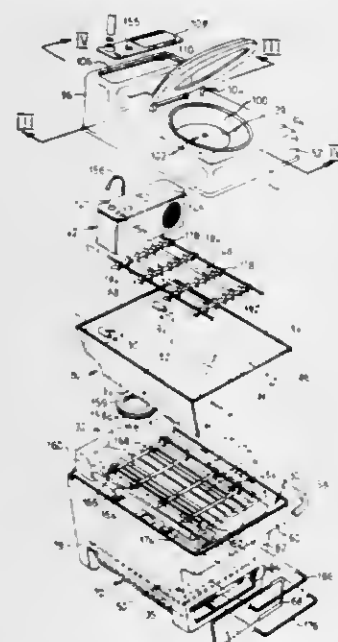
Continuation of Ser. No. 929,098, Jul. 31, 1978, Pat. No. 4,196,477. This application Feb. 25, 1980, Ser. No. 124,365

The portion of the term of this patent subsequent to Apr. 8, 1997, has been disclaimed.

Int. Cl.³ A47K 11/02; C02F 1/02; C05F 11/08

U.S. Cl. 4—449

10 Claims



1. A toilet comprising:

- a housing defining a waste material receiving chamber and adapted to allow air to flow through the chamber from an inlet to an exhaust vent, the housing including a top which provides a seating surface and which has an opening for permitting entry of waste material to said chamber; means normally closing said opening when the toilet is not being used;
- a perforate waste material support disposed in said waste material receiving chamber above a lower region of said chamber, said support being adapted to allow waste material to pass therethrough into said lower region of the chamber;
- a fan unit mounted in said housing so as to be readily removable from externally thereof, said unit comprising: a casing defining a fan compartment having an inlet communicating with said waste material receiving chamber and an outlet; a fan disposed in said compartment and adapted to cause air to flow from said inlet to said outlet; and means in said compartment for heating air passing from said inlet to said outlet; and,
- air conduit means having an inlet engaging and communicating with said fan unit outlet for receiving heated air therefrom, and a plurality of heated air outlets, said air conduit means being arranged to deliver heated air issuing from said heated air outlets in use into the lower region of the waste material receiving chamber for contact with waste material on said support;
- and said air conduit means and fan unit being adapted to co-operate with one another to provide said communication between said inlet of the air conduit means and said fan unit outlet when the fan unit is mounted in said hous-

ing, and to permit said fan unit outlet to be readily separated from said inlet of the air conduit means when the fan unit is removed from the housing and wherein said conduit means comprises an air manifold assembly including a header and a neck portion which extends upwardly from said header and which is formed with said air inlet of the air manifold assembly, said inlet being disposed in communicating relationship with said outlet of the fan unit, whereby heated air is delivered directly from the outlet of said fan compartment into the air manifold assembly.

4,313,235

METHOD OF TREATING COTTON CLOTH OF TWISTED YARN IN LOOM STATE

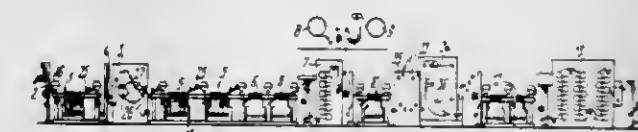
Ljubov A. Gotovtseva, ulitsa 9 Yanvarya, 30, kv. 28; Maia B. Konkova, prospekt Lenina, 73, kv. 29; Tatyana F. Garbuz, ulitsa 9 Zemledelcheskaya, 3, kv. 55; Oleg A. Bunin, ulitsa Tashkentskaya, 85, "D", kv. 11; Evgeny A. Osmnin, ulitsa Gromoboya, 29, kv. 57; Nina A. Zabavina, ulitsa Volodarskogo, 43, kv. 274, all of Ivanovo; Alexei I. Ivanov, ulitsa 1 Maya, 12; Vladimir P. Snopov, ulitsa 1 Polevaya, 30, kv. 19, both of poselok Kamenka Vishugskogo raiona Ivanovskoi oblasti, and Alexandr I. Batkov, ulitsa Baturina, 10, kv. 43, Ivanovo, all of U.S.S.R.

Filed May 27, 1980, Ser. No. 153,671

Int. Cl.³ D06B 3/10, 21/00

U.S. Cl. 8—149.1

3 Claims



1. A method of treating a continuously moving cotton cloth of twisted yarn in loom state comprising the steps of: boiling the continuously moving cloth with simultaneous mercerization in a boiling solution of caustic soda, said boiling of the cloth with simultaneous mercerization being conducted with the cloth being guided alternately through the solution of caustic soda and vapors thereof, with the treatment time ratio of 1:1; then steaming the cloth on a roll, under a tension of 5 to 10 kgf/m; then leaching the cloth; then simultaneously bleaching and dyeing the cloth; then steaming the cloth, with said steaming being conducted from 1 to 2 minutes under tension and for 2 to 10 minutes without tension; then washing and drying the cloth; and subjecting the cloth to stentering in the course of said boiling with simultaneous mercerization in the caustic soda vapor phase, prior to said steaming on the roll, prior to said leaching, and in the course of said leaching.

4,313,236

SAFETY EQUIPMENT FOR BOATS

Alan W. Tupper, Weavers House, Castle Combe, Wiltshire, and Peter R. Flux, Calne, both of England, assignors to Alan William Tupper, Castle Combe, England

Filed Sep. 13, 1979, Ser. No. 75,091

Int. Cl.³ B63C 9/00

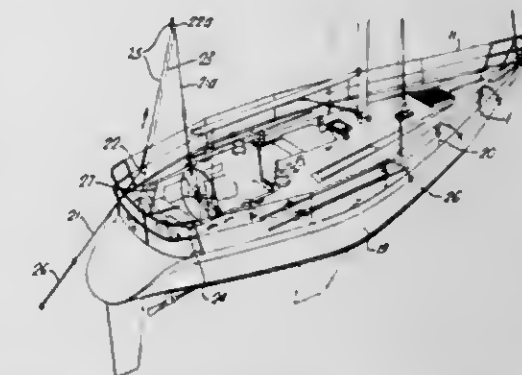
U.S. Cl. 9—14

3 Claims

1. Safety equipment for a boat, which equipment comprises:
 - (a) a life-line for location along a peripheral portion of a boat,
 - (b) support means for rigidly securing the life-line to a boat at a plurality of points along the length of the life-line to hold the line so as to conform to any configuration required by marine design, to which life-line a person can be attached by means of a safety harness,
 - (c) a traversing device at each end and each intermediate attachment point of the life-line for attaching the life-line to the support means while allowing a lanyard attachment means engaged with the life-line to traverse freely each intermediate attachment point in either direction whether

the wearer is inboard or overboard, each traversing device comprising:

- (i) a rotatable wheel which is formed with several recesses in its periphery, the recesses being evenly spaced around the wheel and adjacent recesses being separated by a projecting part of the wheel,
- (ii) a co-operating guide member supported at a peripheral part of the wheel, and adapted to allow rotation of the wheel about its axis with respect to the guide member while locating the life-line with respect to the wheel whereby a lanyard attachment can be received, guided and passed through the traversing device in recesses of said wheel which rotates relative to said guide member,



(d) at least one towing pendant secured at a first end thereof with respect to the boat for towing a person overboard astern of the boat in a head-up position;

(e) latching means at a second end of the pendant in detachable engagement with a traversing device at an end of the life-line and positioned to receive and firmly engage a lanyard attachment engaged with the life-line when such lanyard attachment reaches that traversing device when a person goes overboard, whereupon the second end of the pendant detaches from that traversing device to tow the person astern of the boat as aforesaid.

4,313,237

DRIVEN ROTARY TOOTHBRUSH

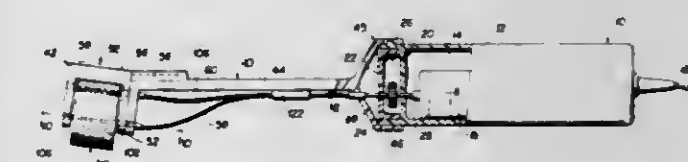
Eric L. Smith, 638 Potomac Ave., Hagerstown, Md. 21740

Filed Mar. 18, 1980, Ser. No. 131,371

Int. Cl.³ A46B 13/02

U.S. Cl. 15—23

16 Claims



1. An electrically operated rotary toothbrush comprising a hollow handle, a drive motor sealed in said handle, an elongated brush support stem having one end adapted to be releasably mounted on said handle, a plurality of elongated drive shafts extending longitudinally of said elongated brush support stem, drive means operably connecting said shafts to said motor for rotation thereby when said brush support stem is mounted on said handle, said drive means including three shaft members mounted for rotation about spaced axes, and means interconnecting said three shaft members for simultaneous rotation about their respective axes by said motor, telescoping stem coupling means for rotatably connecting said elongated shafts one to each of said shaft members while permitting free axial movement therebetween whereby said support stem may be readily mounted upon and removed from said handle,

friction means for releasably retaining the support stem on said handle,
 guide means adapted to align said elongated shafts with said shaft members when the support stem is mounted on the handle,
 a brush head including a plurality of rotary brushes mounted for rotation about spaced generally parallel axes,
 mounting means for releasably supporting said brush head on the other end of said support stem, said mounting means including cooperating means on said stem and said brush head for frictionally retaining the brush head on the stem, and
 brush coupling means rotatably coupling said rotary brushes one to each of said plurality of elongated drive shafts when the brush head is mounted on said support stem.

4,313,238

SHOE CLEANING MACHINE

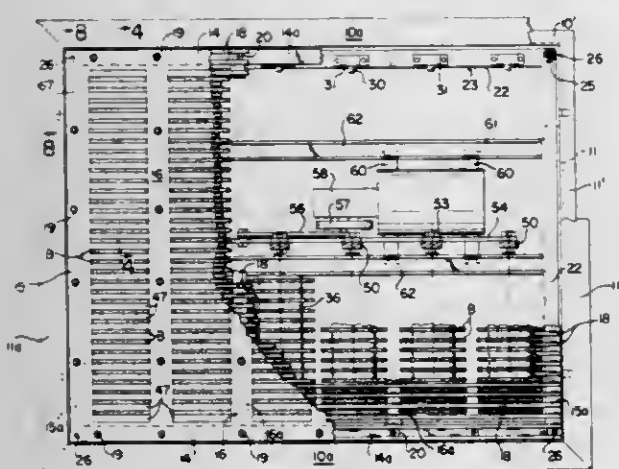
Charles M. Harbin, Wooster, Ohio, assignor to AMCS Corporation, Wooster, Ohio

Filed Mar. 10, 1980, Ser. No. 128,530

Int. Cl.³ A47L 23/22

U.S. Cl. 15—37

11 Claims



1. A shoe cleaning machine adapted to be embedded in the floor, comprising a housing, a rectangular grid frame within the top of the housing having horizontal side strips and flat longitudinally spaced co-planar intermediate transverse strips, longitudinal rods supporting said frame strips, downwardly open transversely spaced longitudinal channels supported on said rods between said transverse strips with their webs in coplanar relation to said frame strips, longitudinal rows of brush bristles projecting between the channels and closely embraced by the legs of said channels, said rows of bristles comprising separate parallel sections extending between said transverse frame strips, said sections each comprising convexly arranged bristles projecting tangentially between said channels, and means for oscillating said bristles.

4,313,239

HINGE MOUNTING PLATE

Ken Tsuneki, Tokyo, Japan, assignor to Sugatsune Industrial Co. Ltd., Tokyo, Japan

Filed Oct. 25, 1979, Ser. No. 88,031

Int. Cl.³ E05D 7/04

U.S. Cl. 16—236

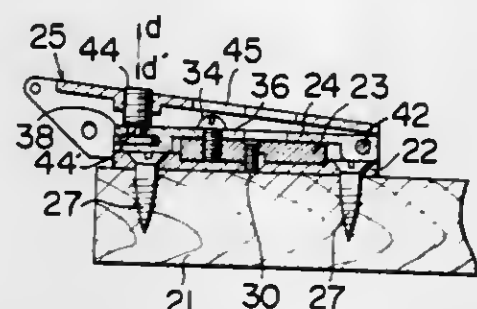
1 Claim

1. A hinge mounting plate for securing a door to a supporting wall (21), said hinge mounting plate comprising in combination:

- an elongated flat rectangular base plate (22) which base plate is to be secured to a wall (21), said base plate having recess grooves (28);
- a hinge supporting arm (25) having an inverted U-shaped cross-section, which supporting arm (25) is to be pivotally secured to a door, said supporting arm (25) having side walls (40) and a rear pivoting end;
- a first control plate (23) of a width narrower than said

base plate (22) with a lower surface disposed over the base plate with engaging means to engage said recess grooves (28) and with an upper surface;

- an elevational guide aperture (33) in said first control plate (23) with a mounting screw (30) fastened to the base plate (22) for holding the first control plate (23) thereto;
- a longitudinal and lateral second control plate (24), with front and rear ends having a lower recess (35) therein so sized that the second control plate (24) is disposed over the upper surface of the first control plate (23) so that the first control plate (23) is in said recess, a first aperture (36) passing through said recess with a first control screw (34) for fastening said second control plate (24) to said first control plate (23), and a second aperture (37) of larger diameter than said first aperture to insert the head of said first control screw (34) therethrough, a third aperture (38) at the front end of said second control plate (24) said third aperture (38) having an enlarged inner portion (38'); and



- a lateral control screw (44) passing through said third aperture (38), said lateral control screw (44) having a neck portion (44') engaged with said enlarged inner portion (38'); and,
- pin pivot means (42) holding said supporting arm (25) to said second control plate (24) at the rear end of said supporting arm (25) and the rear end of said second control plate (24); whereby, the base plate (22) is first secured to a wall (21) by screws, the first control plate is placed over the base plate (22) and engaged with the recess grooves in said base plate, adjusted longitudinally and fastened by the mounting screw (30), the second control plate (24) is then placed over the first control plate (23) so that the first control plate (23) is in the lower recess (35), first control screw (34) in first aperture (36) is fixed after adjusting said second control plate (24), and, lateral control screw (44) in third aperture (38) is used to adjust said supporting arm (25).

4,313,240

ROTARY FEED PUMP FOR A CONTINUOUS MACHINE FOR FILLING SKINS WITH MINCEMEAT

Giovanni B. Righele, Zane', and Giuseppe Scorzato, Marano, both of Italy, assignors to Risco Brevetti S.p.A., Zane', Italy

Filed Apr. 30, 1980, Ser. No. 145,261

Claims priority, application Italy, Apr. 30, 1979, 21460 B/79

Int. Cl.³ A22C 11/08

U.S. Cl. 17—37

4 Claims

1. A rotary pump for a continuous machine for filling skins with mincemeat, comprising a stator provided with a cylindrical cavity in which a rotor rotatable about its own axis is coaxially disposed, said rotor being composed of a raised cylindrical central part and a lowered annular peripheral part such that between said stator and said rotor there is defined an upper annular chamber provided with a filling mouth, a delivery mouth with its axis substantially tangential to said annular chamber in the direction of rotation of the rotor, and a dividing baffle disposed immediately downstream of said delivery mouth in the direction of rotation of the rotor, blades being slidably housed in said peripheral part of the rotor and being caused to slide along the axis of the rotor in accordance with a

4,313,242

AUXILLIARY SEED DISCHARGE FOR COTTON GIN ROLL BOX

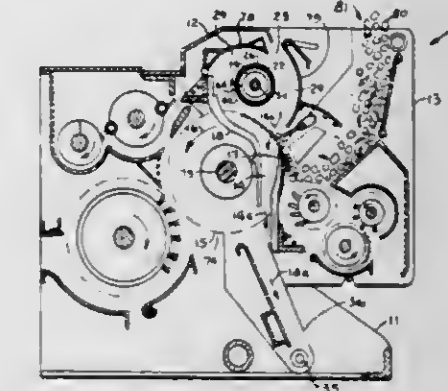
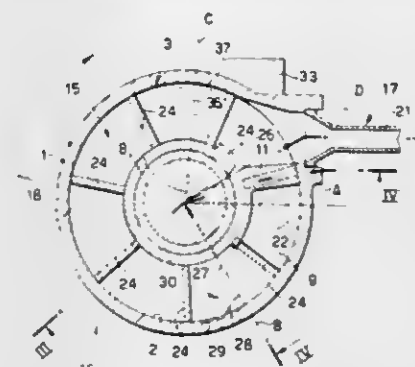
Joe E. Salmon, 2453 Shades Crest Rd., Birmingham, Ala. 35216

Filed May 30, 1979, Ser. No. 44,343

Int. Cl.³ D01B 1/08

U.S. Cl. 19—55 R

26 Claims



the rotor, and with the upper shaped surface of which are engaged the lower ends of said blades, and an upper annular cam complementary to the lower one, and with which are engaged the upper ends of said blades, wherein said dividing baffle and said upper annular cam are rigid with a closure plate for the annular pumping chamber constituted by a single-piece cover mounted on said raised central part by means of a rigid annular collar disposed between said central part of the rotor and said rotor blades.

1. Auxilliary seed discharge means for a saw type cotton gin comprising in combination:

- a main frame having a rotating saw cylinder journaled therein,
- a ginning breast and a huller breast movably mounted on said frame from closed to open positions,
- a roll box in said ginning breast to receive seed cotton introduced through said huller breast,
- spaced gin saws on said saw cylinder projecting through the roll box and arranged to pull seed cotton from the huller breast into the roll box to form a rotating seed roll and to separate lint from seed therein,
- a gravity seed discharge from said roll box,
- circular openings in the end heads of the roll box in the approximate axial center thereof,
- a seed chute rigidly supported from one of said end heads and having circular openings in axial alignment with the openings in said roll box heads,
- a cylindrical casing connected in axial alignment between the said openings in the chute and the adjacent roll box,
- a plate mounted over the circular opening in the opposite end head, said plate having a central circular opening in axial alignment with said openings in said heads,
- a rotatable shaft extending axially through the roll box and outwardly through said casing and said opposite end head into bearings affixed on the outside of said chute and plate,
- a section of constantly tapered helicoid flight the length of said roll box mounted on said shaft and projecting into the core of said seed roll to convey even amounts of seed laterally from the full length thereof when rotated in the same direction and at speeds greater than that of said seed roll,
- a straight section of conveyor flight joining the large end of said tapered flight and extending through said casing into said seed chute,
- a pulley on said shaft independently driven from a power source forward of said shaft, said power source being adapted to drive the shaft at selective speeds.

4,313,241

METHOD FOR OPENING SHELLFISH

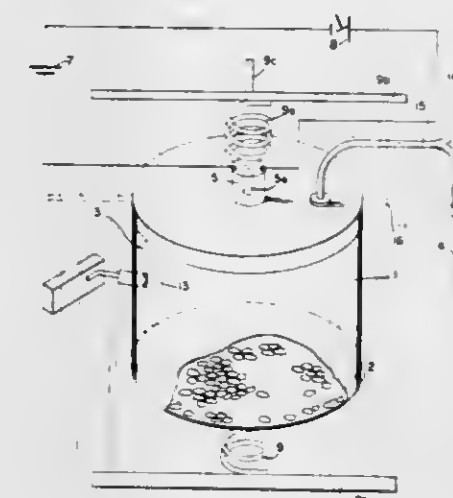
John E. Comparetto, 3306 Glen Carlyn Rd., Falls Church, Va. 22041

Filed Oct. 27, 1978, Ser. No. 955,549

Int. Cl.³ A22C 29/04

U.S. Cl. 17—48

8 Claims



1. The process of opening shellfish comprising placing shellfish in a chamber, closing the chamber, holding the chamber closed with a magnet, passing energy waves through the fluid surrounding the shellfish in the chamber inducing hyperbaric pressures over shellfish, slightly compressing the shellfish, then suddenly releasing the magnet and decreasing pressure to ambient values or to negative values.

4,313,243

SLIDING WEDGE CABLE CLAMP

Ray R. Childress, and Stephen R. Childress, both of P.O. Box 853, Richlands, Va. 24641

Filed Apr. 12, 1979, Ser. No. 29,372

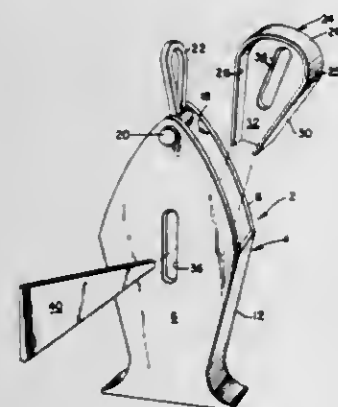
Int. Cl.³ F16G 11/04

U.S. Cl. 24—136 K

1 Claim

1. A sliding wedge cable clamp comprising, a casing having opposed flat front and rear sides and opposed convergent ends connecting said sides, said casing having an open mouth between the convergent

ends providing an entry through which the bight and adjacent standing parts of a cable may be inserted, a wedge thimble slidable in said casing, said wedge thimble having a rounded end adapted to be engaged in the cable bight and convergent sides respectively opposite the convergent sides of the casing whereby application of tension to one of the standing parts of the cable tends to move the wedge thimble so that the convergent sides thereof move towards the convergent sides of the casing whereby to apply forces tending to jam the standing parts of the cable between the wedge thimble sides and the casing sides, said front and rear walls of said casing and said wedge thimble having registering keyway slots therethrough, and a tapered key engaging through said keyway slots, said key comprising an elongate, flat, generally right-triangular member having a relatively short side corresponding to the base of the triangle, one side at right angles to the end and corresponding to the altitude of the triangle, and a diagonal side corresponding to the hypotenuse of the triangle and converging with said one side at an apex



whereby, upon insertion of the key through said keyway slots with the diagonal side of the key disposed away from the mouth of the casing, said wedge thimble is cammed so that the convergent sides thereof move away from the convergent sides of the casing, both of said keyway slots in the casing walls being shorter in length than the end of the key whereby engagement of the diagonal side of the key against an end of either keyway slot in the casing walls prevents the end of the key from entering the interior of the casing, one of the keyway slots in the casing wall being shorter than the other keyway slot in the other casing wall whereby when the apex of the key is inserted first through the shorter slot, the length of insertion thereof is limited to a greater extent than when the apex of the key is inserted through the longer slot, so that the maximum spacing between the convergent sides of the wedge and the convergent ends of the casing is less when the apex of the key is inserted first through the shorter slot than when it is inserted first through the longer slot.

4,313,244

WOVEN SLIDE FASTENER STRINGER WITH MOLDED REINFORCING PROJECTIONS ON UPPER CONNECTING THREADS

Charles A. Authier, Meadville, Pa., assignor to Talon, Inc., Meadville, Pa.

Filed Sep. 10, 1979, Ser. No. 73,964

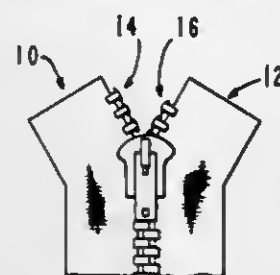
Int. Cl.³ A44B 19/04

U.S. Cl. 24—205.13 R

3 Claims

1. A woven stringer for a slide fastener comprising a plurality of spaced polymer coupling elements each having a head portion and a pair of leg portions extending in generally the same direction from opposite sides of the head portion and terminating in heels, four connecting threads, respective pairs of which have spaced segments embedded in the respective leg portions to join the coupling elements into a train wherein lower connecting threads are disposed adjacent to the heels of

the leg portions and upper connecting threads of the respective pairs of connecting threads are disposed intermediate the heels and the head portions, each coupling element having a pair of integrally molded projections of polymer extending in opposite directions from the respective leg portions of each coupling element along the upper connecting threads, a woven tape having a plurality of warp threads and a weft thread interwoven with the warp threads and the train of coupling elements such that a plurality of loops of the weft thread encircle the four connecting threads and the projections between each adjacent pair of coupling elements,



said projections extending only partially across spaces between adjacent coupling elements and being spaced from the lower connecting threads so as to permit free compression of the lower connecting threads between adjacent coupling elements, and said upper and lower connecting threads having respective lengths thereof substantially free of molded polymer between adjacent coupling elements wherein the lengths of lower connecting threads substantially free of molded polymer are substantially greater in length than the lengths of upper connecting threads free of molded polymer.

4,313,245

STRINGER TAPE FOR SLIDE FASTENERS

Yoshiharu Yamaguchi, Namerikawa, Japan, assignor to Yoshida Kogyo, K.K., Japan

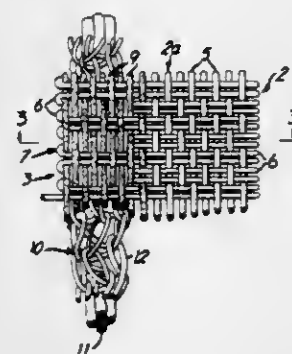
Filed May 24, 1979, Ser. No. 42,108

Claims priority, application Japan, Jun. 10, 1978, 53-79777[U]

Int. Cl.³ A44B 19/00

U.S. Cl. 24—205.16 R

4 Claims



1. A stringer tape for slide fasteners, comprising:

an elongate woven web having on one longitudinal edge a woven tube defining a tubular pocket, said woven tube being formed integrally with said elongate web and including a plurality of warp threads and a single weft thread, said warp threads of said woven tube being made of thermally shrinkable synthetic resin; and

a reinforcing filler extending through said tubular pocket and including an elongate central core and a warp-knit surrounding said elongate central core and extending longitudinally therewith, said warp-knit tube having on its periphery a plurality of longitudinal wales, said warp threads of said woven tube being heat-set and thereby thermally shrunk to clench said warp-knit tube therein so

as to be received in interwale grooves between said wales, whereby said woven tube and said reinforcing filler are firmly joined together.

4,313,246

BELT BUCKLE OR LOCK FOR A SAFETY BELT

Artur Föhl, Schorndorf-Haubersbrunn, Fed. Rep. of Germany, assignor to Repa Feinstanzwerk GmbH, Alfdorf, Fed. Rep. of Germany

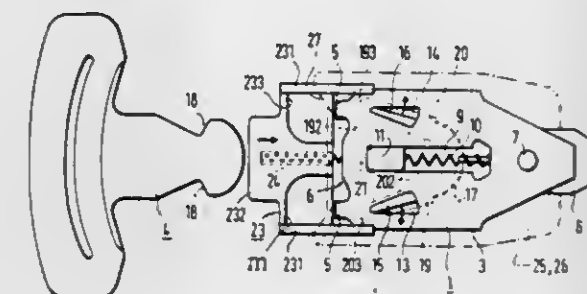
Filed Jul. 16, 1980, Ser. No. 169,632

Claims priority, application Fed. Rep. of Germany, Jul. 23, 1979, 2929803

Int. Cl.³ A44B 11/26

U.S. Cl. 24—230 AT

7 Claims



1. Belt-lock and plug-in tongue for a safety belt comprising a lock-housing having a plug-in opening, a plug-in tongue having two locking edges with one locking edge disposed on each side of the tongue, for insertion of the plug-in tongue with its two locking edges into the plug-in opening, a locking mechanism with two metal locking latches, each having a wedge-shaped cross section, tensioned against each other by a common spring and with one locking latch disposed on each side of the plug-in opening to engage said locking edges on each side of the tongue upon insertion of the tongue into the plug-in opening, said lock-housing formed by two metal plates which are parallel to each other, and form the plug-in openings, said plates having wedge-or triangular shaped cut-outs arranged symmetrically to the path of the plug-in tongue and in which cut-outs said locking latches are retained without use of bearing pins but are movable therein to engage the locking edges of the tongue, a hand-actuated member movable against the force of a spring mounted on the lock-housing, said locking mechanism having disengaging means to move the two locking latches out of engagement with said two locking edges, said hand-actuated member upon pressure exerted thereon movable against said disengaging means to simultaneously move said two locking latches out of engagement with said two locking edges to permit removal of the tongue from the plug-in opening of the lock-housing.

4,313,247

APPARATUS FOR THE MANUFACTURE OF MINERAL INSULATED CABLES

Ivan Stuttard, Oldham, England, assignor to Associated Electrical Industries Limited, London, England

Filed Jan. 30, 1980, Ser. No. 116,935

Claims priority, application United Kingdom, Feb. 8, 1979, 04409/79

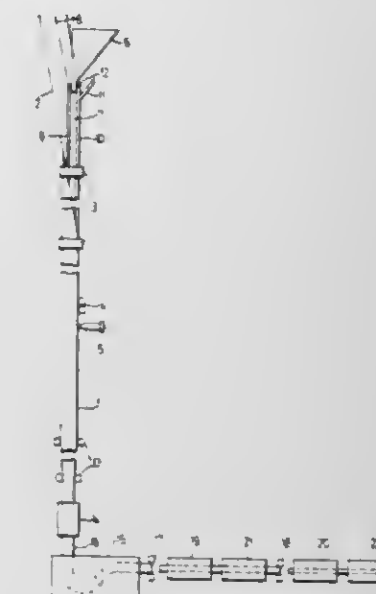
Int. Cl.³ A05B 3/28

U.S. Cl. 29—33 F

10 Claims

1. Apparatus for the manufacture of mineral insulated electric cable which includes means for continuously bending a downwardly travelling strip of ductile metal into the form of a tube and means for seam welding the meeting edges of the bent strip, while the said edges are travelling along a vertically downward path, to form a tubular sheath, a powder delivery tube disposed vertically so as to be located within, and spaced from, the bent strip and formed sheath, and having its outlet end located at a level below that of the welding means, means for feeding powdered insulating material into the said powder delivery tube at a controlled rate, means for feeding at least

one continuous length of conductor wire into the formed sheath, means for guiding each said wire into a desired position within the sheath, means for reducing the diameter of the formed sheath, in a plurality of stages, subsequently to the introduction of the insulant powder and each wire into the sheath, and means for annealing and quenching the sheath after each reduction stage, at least the first reduction and annealing



means being located vertically below the sheath forming and welding means, wherein the said conductor wire feeding means is arranged to feed each length of wire vertically downwards in a predetermined location along the outside of the powder delivery tube, and the said means for guiding each said wire into a desired position within the sheath is located along the exterior of the powder delivery tube.

4,313,248

METHOD OF PRODUCING HEAT TRANSFER TUBE FOR USE IN BOILING TYPE HEAT EXCHANGERS

Jun Fujikake, Yamato-Kooriyama, Japan, assignor to Fukurawa Metals Co., Ltd., Tokyo, Japan

Division of Ser. No. 881,860, Feb. 27, 1978, Pat. No. 4,216,826.

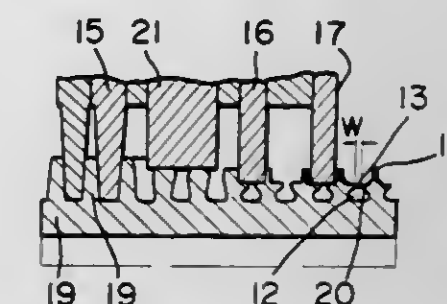
This application May 1, 1979, Ser. No. 34,920

Claims priority, application Japan, Feb. 25, 1977, 52/20084; Feb. 25, 1977, 52/20085; Nov. 25, 1977, 52/143719

Int. Cl.³ B23P 15/26

U.S. Cl. 29—157.3 A

6 Claims



1. A process for producing a heat transfer tube for use in boiling type heat exchangers, comprising the steps of:

- (a) contacting a fin-forming disk tool with the surface of a metal tube in order to form fins having side walls extending upward from said tube to a top fin surface;
- (b) contacting a roller disk tool with said top surfaces of said fins compressing and forcing said top surfaces downward to such an extent that said fins are compressed resulting in widening of said fins near said top surfaces forming shoulders on said fins and cavities between adjacent fins, said roller disk tool having a circumferential surface which contacts said top surfaces of said fins, said surface of said

roller disk tool being positioned directly over said cavities and having a breadth such that a portion of said surface will contact, in equal amounts, a portion of the top surfaces of only two adjacent fins, and said cavities communicating with the outside through narrow gaps formed between adjacent shoulders of said adjacent fins.

4,313,249

METHOD OF MANUFACTURING COMPONENTS ADAPTED TO BE MOUNTED ON A SHAFT

Donald Douthwaite, Stanford-Le-Hope, England, assignor to Ford Motor Company, Dearborn, Mich.

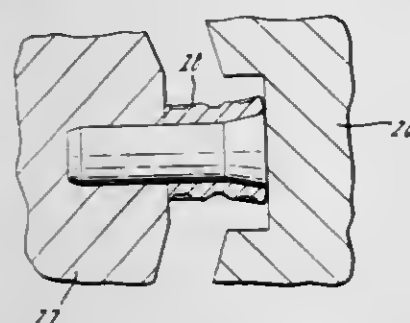
Filed Mar. 23, 1979, Ser. No. 23,427

Claims priority, application United Kingdom, Mar. 23, 1978, 11608/78

Int. Cl.³ B21D 41/02; B22D 19/04

U.S. Cl. 29—159 B

7 Claims



1. A method of manufacturing a steering wheel hub component adapted to be mounted on a shaft which comprises the steps of:

- forcing a tubular insert having a substantially uniform internal diameter into engagement with a mandrel having an external surface at least part of which diverges to a diameter greater than the internal diameter of the insert;
- deforming the insert so that its internal surface is cylindrical at one end and diverges outwardly towards the other end; and
- moulding a rigid steering wheel hub body around the insert while the insert is engaged with the mandrel such that the body is rigidly connected to the insert and the insert with the divergent surface at one end and the cylindrical surface at another end is properly positioned within the hub body; and
- disengaging the mandrel and the insert.

4,313,250

TOOL FOR REPLACEMENT OF GOLF CLUB GRIP

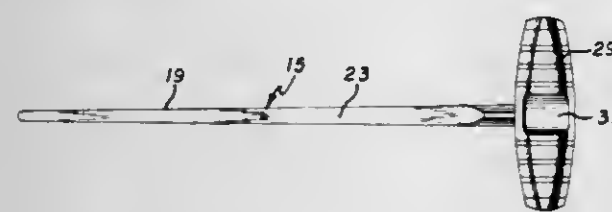
Bronislaw Sokolowski, 44 Aldrich St., Webster, Mass. 01570

Filed Dec. 17, 1979, Ser. No. 104,266

Int. Cl.³ B23P 19/02

U.S. Cl. 29—235

1 Claim



1. A tool for use in removing an old grip from a golf club shaft, comprising:

- (a) a handle provided with an elongated notch, and
- (b) an elongated blade which is parallel with the notch and is tapered to a point at the end farthest from the handle, the blade being provided with a flat surface on the side that faces in the same direction as the notch and a convex arcuate surface on the opposite side, the flat surface extending through substantially the entire length of the

blade, the notch being open at its ends and having a bottom surface that lies approximately on an extension of the flat surface of the blade.

4,313,251

SYSTEM FOR APPLYING ELECTRONIC COMPONENTS TO A CIRCUIT BOARD

Koichi Asai, Nagoya, and Tohsuke Kawada, Chiryu, both of Japan, assignors to Fuji Mfg. Co., Ltd., Aichi, Japan

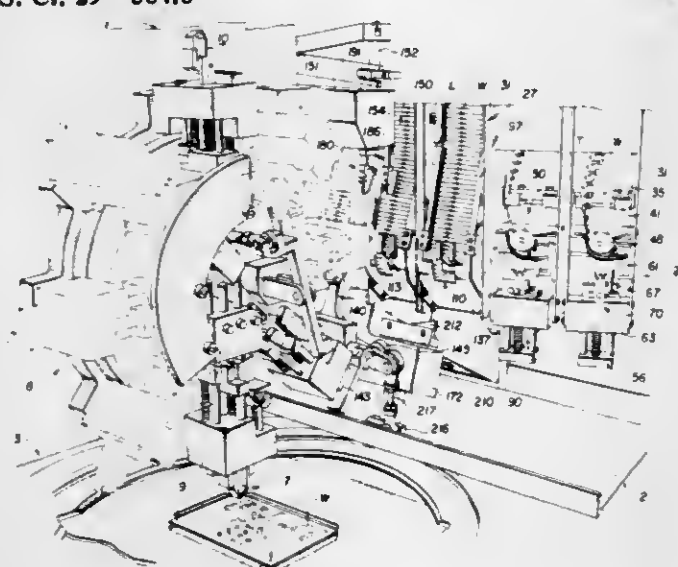
Filed Sep. 6, 1978, Ser. No. 940,141

Claims priority, application Japan, Mar. 24, 1978, 53-34659

Int. Cl.³ B23P 23/00

U.S. Cl. 29—564.6

11 Claims



1. An electronic-component mounting system composed of an electronic-component-mounting machine for mounting electronic components to a printed circuit board and an electronic-component supplying machine for supplying electronic components to said electronic-component mounting machine, said electronic-component supplying machine comprising:

- at least one cartridge for containing radial type electronic components, having respectively therein a container containing a tape, to which each of a pair of lead wires extending in a same parallel direction from a head of said radial type electronic components is stuck at the tip portions thereof; a tape-drawing-out mechanism for pulling out a tape loaded with said components from a basket body; and a lead wire positioning mechanism for positioning one after another said pair of lead wires stuck on said tape in relation to said electronic component mounting machine;
- a cutting mechanism associated with such a cartridge containing radial type electronic components for shearing the positioned lead wires of said radial type electronic components;
- at least one cartridge for containing axial type electronic components having respectively therein a container containing a pair of tapes, to which each pair of lead wires extending in a same axial but opposite direction from a head of said axial type electronic components are respectively stuck at each tip portion thereof, to be pulled out with one end ahead, and a form-rectifying and positioning mechanism associated with such a cartridge containing axial type electronic components for shearing one after another said pair of lead wires stuck on said tapes, rectifying form of said lead wires by bending the same at right angle into a mutually parallelly extending status with a predetermined distance from each other, and positioning the form-rectified lead wires in relation to said electronic component-mounting machine; and
- a table to which said two types of cartridges are attached, in a desired order and in an easily detachable manner, said table and said mounting machine being relatively movable to each other for making desired one of said cartridge confront said mounting machine; and wherein said electronic-component mounting machine is provided

with at least one chuck for commonly receiving both of the radial type electronic components and the axial type electronic components directly from the two types of cartridges irrespective of mixture of types, holding said components at their lead wires, and transferring the held components to right above lead-wire-inserting holes of said printed circuit board into which said held lead wires are to be inserted.

4,313,252

ARRANGEMENT FOR AUTOMATICALLY CHANGING CLAMPING JAWS OF THE CHUCK OF A MACHINE TOOL

Joachim Kuska, Langenhage, and Günter Twiefel, Burgwedel, both of Fed. Rep. of Germany, assignors to Gildemeister AG, Bielefeld, Fed. Rep. of Germany

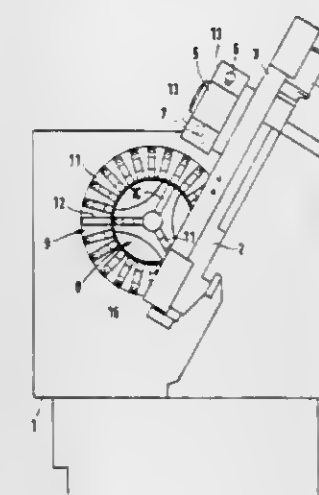
Filed Nov. 5, 1979, Ser. No. 91,054

Claims priority, application Fed. Rep. of Germany, Nov. 13, 1978, 2849188

Int. Cl.³ B23Q 3/155

U.S. Cl. 29—568

12 Claims



1. An arrangement for automatically changing clamping jaws of the chuck of a machine tool having a turning carriage and a cross-slide rest, comprising:

- a clamping jaw magazine having aligning guides for the clamping jaws stored therein and alignable with the clamping jaw guides of the chuck, and
- a transfer device having a transfer element displaceable in the direction of the aligning guides, said transfer element being on the cross-slide rest.

4,313,253

METHOD OF FABRICATING A CHARGE TRANSFER CHANNEL COVERED BY A STEPPED INSULATING LAYER

Donald L. Henderson, Sr., Encinitas, Calif., assignor to Burroughs Corporation, Detroit, Mich.

Division of Ser. No. 61,755, Jul. 30, 1979, abandoned. This application Jan. 18, 1980, Ser. No. 113,388

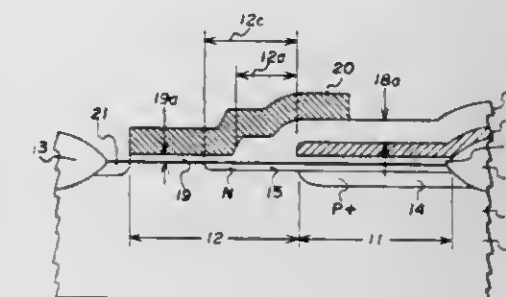
Int. Cl.³ H01L 21/223, 21/26

U.S. Cl. 29—571

7 Claims

- 1. A method of fabricating a memory cell on a semiconductor substrate comprised of dopant impurity atoms of a first type and having a first surface, including the steps of:
 - defining a charge storage region and an adjacent charge transfer channel in said substrate near said first surface;
 - introducing a deep layer of dopant impurity atoms of said first type throughout said charge storage region;
 - introducing a shallow layer of dopant impurity atoms of a second type opposite to said first type throughout said charge storage region and also extending therefrom into a first adjacent portion of said charge transfer channel;
 - forming a relatively thin insulating layer over said charge storage region;

forming a first patterned conductor on said relatively thin insulating layer over said charge storage region; forming a relatively thick insulating layer over said first patterned conductor, and also extending therefrom over a second adjacent portion of said charge transfer channel that lies within said first adjacent portion so that said shallow layer of dopant impurity atoms lies under and



extends beyond said relatively thick insulating layer in said charge transfer channel; forming a relatively thin insulating layer over that portion of said charge transfer channel which is not covered by said relatively thick insulating layer; and forming a second patterned conductor on said relatively thin insulating layer over said charge transfer channel and extending onto said relatively thick insulating layer.

4,313,254

THIN-FILM SILICON SOLAR CELL WITH METAL BORIDE BOTTOM ELECTRODE

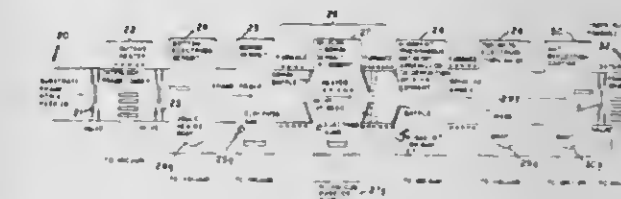
Charles Feldman, Washington, D.C.; Harry K. Charles, Baltimore, and Frank G. Satkiewicz, Ellicott City, both of Md., assignors to The Johns Hopkins University, Baltimore, Md.

Division of Ser. No. 89,496, Oct. 30, 1979. This application Aug. 4, 1980, Ser. No. 174,739

Int. Cl.³ H01L 31/18

U.S. Cl. 29—572

11 Claims



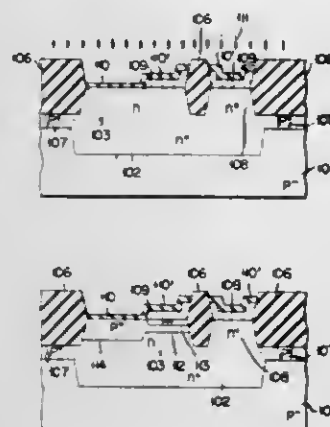
- 1. A method for producing a thin film p-n junction device comprising the steps of:
 - vacuum depositing a first layer of transition metal on an electrically nonconducting substrate material,
 - vacuum depositing a second layer of boron (B) overlying said first layer,
 - heating the materials at a temperature and for a time sufficient to cause the transition metal and the (B) to form a transition metal boride layer,
 - vacuum depositing p-type silicon (Si) on said transition metal boride layer at a substrate temperature between 900°-1300° centigrade and at a rate between 500-5000 Angstroms per minute to a thickness of between 10-30 μm,
 - doping the (Si) with an n-type material to form a p-n junction, and
 - attaching separate electrode means to said n-type material and said metal boride layer respectively.

4,313,255

METHOD FOR MANUFACTURING INTEGRATED CIRCUIT DEVICE

Satoshi Shinozaki, and Shinzi Saito, both of Yokohama, Japan, assignors to VLSI Technology Research Association, Japan
Filed Dec. 21, 1979, Ser. No. 105,937

Claims priority, application Japan, Dec. 23, 1978, 53-160345
Int. Cl.³ H01L 21/425, 21/74
U.S. Cl. 29—576 B 7 Claims



1. A method for manufacturing an integrated device comprising the steps of preparing a semiconductor substrate having an isolated region of a first conductivity type;

forming on a selected portion of said isolated region a polycrystalline silicon layer containing a dopant impurity of said first conductivity type;

forming a silicon dioxide layer over the isolated region, including said doped polycrystalline silicon layer,

subjecting the isolated region, including the silicon dioxide layer and the doped polycrystalline silicon layer, to an ion implantation of an impurity of a second conductivity type having a higher diffusion coefficient than that of the impurity of said first conductivity type, to thereby implant an impurity of said second conductivity type into said layers;

heating said substrate and said layers for a sufficient period to diffuse the impurities of the first and second types to said substrate, whereby the impurity of the first type diffuses into the substrate below the polycrystalline silicon layer to form a first region of first conductivity type, the ion-implanted impurity of the second type diffuses into the substrate below the polycrystalline silicon layer and beyond said first region to form a second region of second conductivity type, and the ion impurity of the second type implanted in the silicon dioxide layer diffuses into the substrate below said silicon dioxide layer to form a third region of second conductivity type.

4,313,256

METHOD OF PRODUCING INTEGRATED MOS CIRCUITS VIA SILICON GATE TECHNOLOGY

Dietrich Widmann, Unterhaching, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jan. 7, 1980, Ser. No. 109,808

Claims priority, application Fed. Rep. of Germany, Jan. 24, 1979, 2902665

Int. Cl.³ H01L 21/31, 21/441

U.S. Cl. 29—579

4 Claims

1. A method of producing integrated n- or p-channel MOS circuits in silicon gate technology with self-adjusting contacts, comprising the steps:

(a) producing structure SiO₂ layers (1) on a p- or n-doped semiconductor substrate (2) for separation of active transistor regions according to the so-called LOCOS or isolplanar technique;

(b) oxidizing the free p- or n-substrate surfaces so as to attain gate oxidation;

(c) depositing a n⁺- or p⁺-doped polysilicon layer (4) over the entire structure surface;

(d) depositing a silicon nitride layer over the entire structure surface;

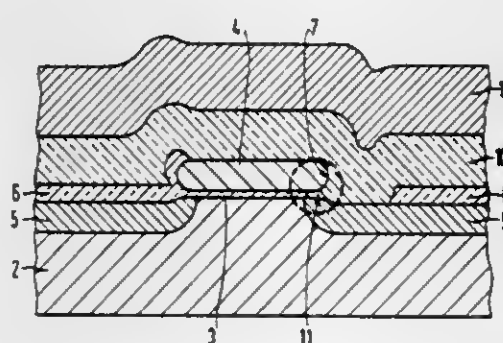
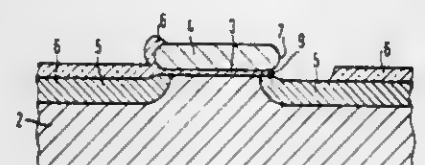
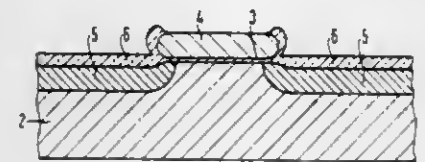
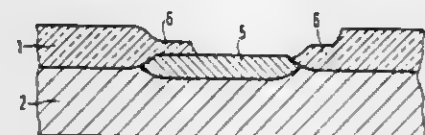
(e) etching the silicon nitride and the polysilicon layers so as to produce nitride-coated polysilicon regions;

(f) producing monocrystalline n⁺- or p⁺-doped source and drain regions (5) in the p- or n-doped substrate (2) by ion implantation;

(g) producing a SiO₂ layer (6) over the monocrystalline n⁺- or p⁺-doped regions (5) by thermal oxidation whereby the oxidation of the polysilicon regions (4) is prevented by the silicon nitride layer positioned over the polysilicon regions (4) and an oxide layer is produced only on the slope surfaces;

(h) removing the nitride masking;

(i) etching contact holes for formation of contacts between monocrystalline n⁺- or p⁺-doped regions (5) and polysilicon regions (4) and/or metal interconnections (12), whereby in the region of buried contacts (9), because of an



isotropic etching attack, overhanging polysilicon edges (7) are formed;

(j) depositing a n⁺- or p⁺-doped polysilicon layer (8) on the entire structure surface whereby the regions (9) beneath the overhanging polysilicon edges (7) are filled with polysilicon (8);

(k) depositing a layer of silicon nitride on the entire structure surface;

(l) etching the silicon nitride layer except at those locations at which contacts to the metal interconnections (12) are provided;

(m) converting the uncovered polysilicon layer (8) into a SiO₂ layer by thermal oxidation, whereby the portions of the polysilicon layer (4) covered with nitride remain unchanged, and, in the region of the buried contacts (9), a polysilicon contact bridge (11) is formed between the monocrystalline n⁺- or p⁺-doped regions (5) and the overhanging edges (7) of the polysilicon region (4);

(n) removing the nitride masking; and

(o) producing a desired metal interconnection pattern (12).

4,313,257

ANNEALING METHODS FOR IMPROVING PERFORMANCE OF A RADIATION SENSOR

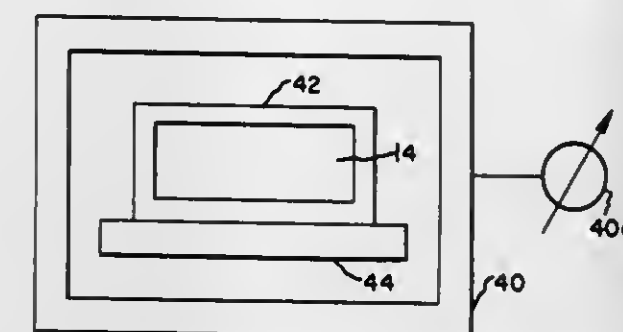
Henry H. Woodbury, Scotia, and Robert S. Lewandowski, Amsterdam, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Nov. 19, 1979, Ser. No. 95,291

Int. Cl.³ G02F 1/01; C09K 11/24

U.S. Cl. 29—592 R

11 Claims



1. A method for fabricating a sensor providing an electrical output responsive to an incident radiation flux, comprising the steps of:

(a) providing a member of a material emitting optical photons responsive to incidence of said radiation flux upon said material;

(b) thermally annealing the member by heating the member to a selected temperature between about 500° C. to about 575° C.; and then cooling the heated member to room temperature; and

(c) positioning a photon detector to receive the optical photon emissions of the annealed member for forming an output signal of said sensor responsive to the incident radiation flux and having a value of hysteresis less than the hysteresis value of a sensor fabricated with a member which has not been thermally annealed.

4,313,258

METHODS AND APPARATUS FOR USE IN MAKING ELECTRICAL INTERCONNECTIONS

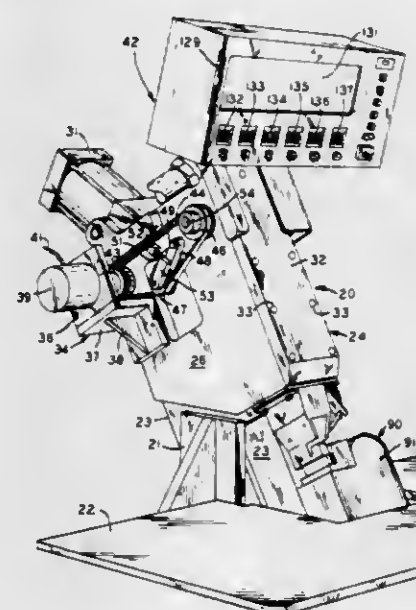
Alan L. Kindig, and Albert J. Wesseldyk, both of Holland, Mich., assignors to General Electric Company, Fort Wayne, Ind.

Filed Oct. 18, 1979, Ser. No. 85,992

Int. Cl.³ H02K 15/00

U.S. Cl. 29—596

11 Claims



1. A method of performing manufacturing operations on an article involving utilization of preselected manufacturing apparatus while it is at least partly controlled by automatic control means, said apparatus being controllable to perform a plurality of distinct operations under the joint influence of an operator

and the automatic control means, said method comprising: selecting a predetermined indicia bearing means for a preselected article; interfacing the predetermined indicia bearing means with the automatic control means and thereby conditioning the automatic control means to become operable for automatically controlling at least one operational aspect of the apparatus during the performance of the plurality of distinct operations; manually conditioning the control means in accordance with information derived from the indicia bearing means; manipulating a preselected article and positioning such preselected article so that a first distinct operation can be performed thereon at a work station of the apparatus; activating the apparatus and performing the first distinct operation on the preselected article with the apparatus performing the first distinct operation under the control of the control means; automatically conditioning the apparatus to perform a second distinct operation on the same preselected article; manipulating the same preselected article relative to the work station in preparation for the performance of the second distinct operation; activating the apparatus and performing the second distinct operation on the preselected article; and continuing to alternately manipulate the article and perform distinct operations thereon with the apparatus until the complete cycle of machine operation as determined by the automatic control means is completed.

4,313,259

METHOD FOR MANUFACTURING AN ELECTROCHEMICAL CELL

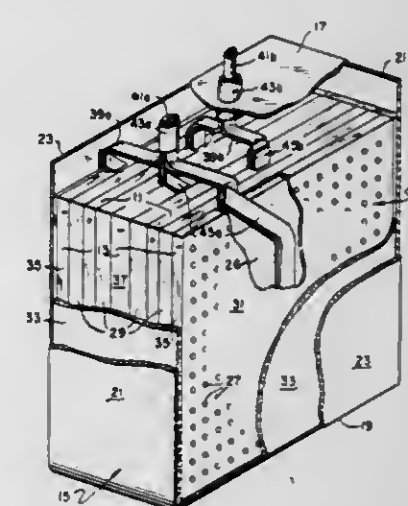
Thomas D. Kaun, New Lenox, and Paul F. Eshman, Bolingbrook, both of Ill., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed May 9, 1980, Ser. No. 148,325

Int. Cl.³ H01M 10/04, 10/28

U.S. Cl. 29—623.2

3 Claims



1. A method of preparing a secondary electrochemical cell including a housing having a top opening, positive electrodes containing a solid transition metal chalcogenide as electrochemically active material, negative electrodes containing an alloy of an alkali metal or an alkaline earth metal as electrochemically active material, a plurality of porous frangible boron nitride felt layer as electrically insulative separators between said electrodes and an electrolytic salt containing metal halides selected from the group consisting of alkali metal halides, alkaline earth metal halides and mixtures thereof said method comprising:

preparing a plurality of positive and negative electrodes of near equal dimensions at major surfaces, each electrode comprising an outer enclosure of rigid electrically conductive metal having perforated major surfaces and edge surfaces defining a compartment containing void volume and the respective electrochemically active material for

said electrodes and providing each electrode with electrical terminal means communicating with said enclosure; immersing said electrodes in said electrolytic salt in molten state to substantially fill the void volume thereof; permitting said electrolytic salt to solidify within the void volume of said electrodes; treating said plurality of porous frangible felt layers with a ceramic powder selected from magnesia or yttria to fill a portion of their porous void volume; assembling an array of said positive and negative electrodes in alternate sequence separated by said treated porous frangible felt layers between major surfaces of electrodes of opposite polarity within a u-shaped sheet of electrically insulative material over edge surfaces of said electrodes, said array assembled with electrodes of like polarity having major surfaces exposed at opposite ends thereof; inserting said assembled array as a unit into the top opening of said cell housing; and sealing said housing top opening while providing electrically insulative feedthroughs for said electrical terminal means of said positive and of said negative electrodes.

4,313,260

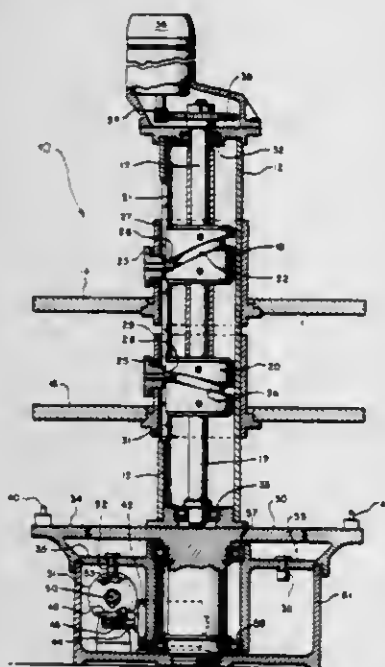
ASSEMBLY MACHINE

Norman H. Yeo, Georgetown, Mass., and Douglas Swanson, McKean, Pa., assignors to Swanson-Erie Corporation, Erie, Pa.

Filed Apr. 2, 1979, Ser. No. 26,023
Int. Cl.³ B23P 19/04

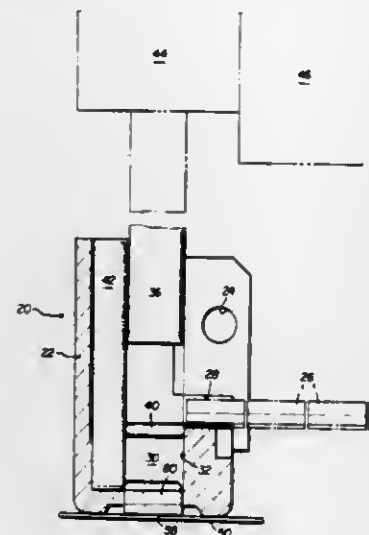
U.S. Cl. 29—792

20 Claims



1. An assembly machine comprising:
a turret having a surface disposed in a plane, said turret being rotatable about an axis;
means for indexing said turret about said axis;
means for intermittently energizing said turret indexing means;
a movable shaft coaxial with said axis;
a first plate mounted to said shaft and adapted to move with said shaft, said first plate disposed in a plane generally parallel to the plane of said turret and being movable relative to said turret; and
means which are mechanically independent of said indexing means and said intermittent energizing means, for driving said shaft in synchronism with the indexing of said turret thereby moving said first plate relative to said turret.

4,313,261
NUT INSTALLATION APPARATUS
Harold A. Ladouceur, Livonia, Mich., assignor to Multifastener Corporation, Detroit, Mich.
Filed Jan. 11, 1980, Ser. No. 111,452
Int. Cl.³ B23P 19/04; B23Q 7/10
U.S. Cl. 29—798 3 Claims



1. A clinch nut installation apparatus for installing generally rectangular nuts in a panel, said nuts including a pilot portion having a generally rectangular end face, a bore extending through said pilot portion end face perpendicular thereto, laterally extending flanges on opposite sides of said pilot portion and panel receiving grooves located between said flanges and said pilot portion, said installation apparatus including a plunger passage extending through an open end of said passage, said plunger passage receiving said nuts for installation in a panel opposite said passage open end, a plunger means reciprocating in said passage, said plunger means transferring nuts received within said passage out through said open passage end into engagement with a panel opposite said passage, said plunger passage having walls generally conforming to the rectangular cross section of said nuts including end walls and side walls conforming to said nut flange portions, the improvement comprising aligned explosion relief channels communicating with said open end, through said passage end walls, said explosion relief channels adapted to receive said nut flange portions when fractured from the pilot portion, said channels each having opposed side walls and a bottom wall generally perpendicular to said passage, one of said side walls of each channel generally aligned with a side wall of said rectangular passage and the opposed said side wall of each channel off-set inwardly from the opposed side passage wall, defining opposed corners in which said channels such that the width of said explosion relief channels is less than the width of the nut flanges, whereby flange portions fractured from said pilot portions are rotated and expelled outwardly through said channels without jamming in said passage.

4,313,262
MOLYBDENUM SUBSTRATE THICK FILM CIRCUIT
Norman S. Barnes, Whitesboro, and Rodman A. Mogle, Clinton, both of N.Y., assignors to General Electric Company, Utica, N.Y.

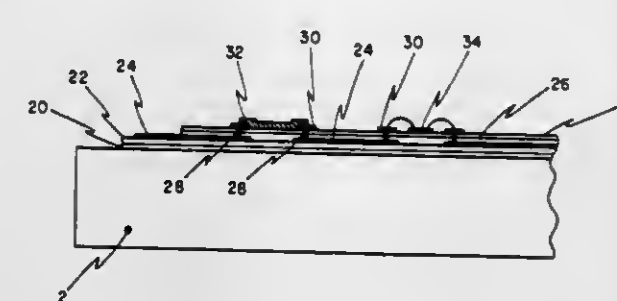
Filed Dec. 17, 1979, Ser. No. 103,984
Int. Cl.³ H05K 3/34

U.S. Cl. 29—840

6 Claims

1. A method of making a large area multilayer printed circuit structure comprising:
a. providing a substrate material made of molybdenum;
b. screen printing a first layer of dielectric material and allowing said dielectric to dry;
c. firing said first dielectric layer;
d. repeating steps b and c until the desired number of dielec-

tric layers have been printed, said dielectric layers having an uppermost dielectric layer with a top surface;
e. screen printing a first conductor circuit over the top surface of the uppermost dielectric layer and allowing said first conductor to dry;
f. firing said first conductor, said first conductor having a top surface;



g. screen printing a second layer of dielectric material over the top surface of said first conductor and the uppermost layer of said first dielectric layers and allowing said second dielectric layer to dry;
h. firing said second dielectric; and
i. repeating steps e, f, g and h until the desired number of dielectric-conductor layers have been printed.

4,313,263

METHOD AND APPARATUS FOR USE IN CO-ORDINATE MEASURING MACHINES

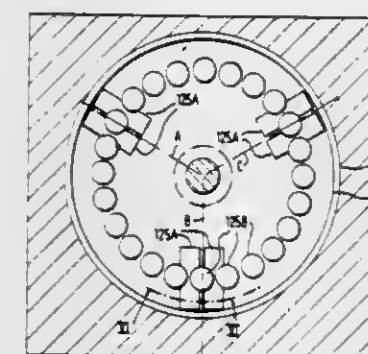
David R. McMurtry, Wotton-Under-Edge, England, assignor to Rolls Royce Limited and Renishaw Electrical Limited, both of, England

Division of Ser. No. 872,312, Jan. 25, 1978, Pat. No. 4,168,576.
This application Aug. 17, 1979, Ser. No. 67,554
Claims priority, application United Kingdom, Feb. 7, 1977, 5010/77

Int. Cl.³ G01B 5/03, 7/03

U.S. Cl. 33—174 L

6 Claims



3. An indexing device comprising two members and having an axis, one of the members having a group of at least three first support elements arranged about said axis, the other member having a group of only three second support elements arranged about said axis, the members being relatively rotatable about said axis to establish alignment between said three second elements and a selected three of the first elements, the first elements having seat surfaces, the second elements having seat surfaces confronting the seat surfaces of the first elements when the alignment is established, the members being movable relatively axially to establish engagement between confronting ones of said surfaces of the first and second elements, the surfaces of the elements of one of said groups defining pairs of convergent surfaces on which the surfaces of the elements of the other group are seatable during the engagement thereby to locate the members positively one on the other and determine the angular and radial relationship of the members, and the surfaces of the elements of one of said groups are straight at least substantially radially in respect of said axis and the sur-

faces of the elements of the other group are convex in two planes which are perpendicular to each other.

4,313,264

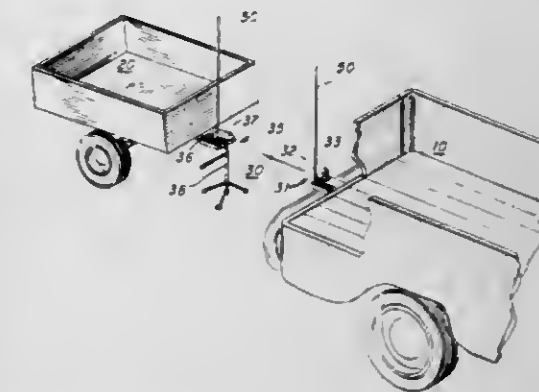
ALIGNMENT AND COUPLING OF VEHICLES

Franklin H. Miller, Sr., P.O. Box 30, Stillvalley Rd., Phillipsburg, RD 1, N.J. 08865

Continuation of Ser. No. 804,557, Jun. 7, 1977, abandoned. This application Jul. 11, 1979, Ser. No. 56,528
Int. Cl.³ G01C 15/00

U.S. Cl. 33—264

10 Claims



1. Apparatus for aligning two initially non-aligned vehicles having a coupling or tongue on at least one of the vehicles, comprising
an indicator unit on each vehicle, each unit being formed by a housing containing at least two telescopically extensible segments, including a base tubular segment that is hingeably positioned in said housing, and a tip segment; and means for mounting the housings with their longitudinal axes spaced equally from the same side of the longitudinal axis of the vehicles on which they are mounted.

4,313,265

PROCESS FOR PREPARING MICROPOROUS STRUCTURED SOLUBLE COFFEE PRODUCT

Daniel E. Dwyer, Jr., Long Valley, N.J., assignor to General Foods Corporation, White Plains, N.Y.

Filed Apr. 10, 1980, Ser. No. 139,060
Int. Cl.³ A23F 5/32, 5/46

U.S. Cl. 34—5

6 Claims

1. A process for preparing a microporous structured freeze-dried coffee product comprising:
(a) prechilling a metal plate in a liquid refrigerant maintained at a temperature of -195° to -73° C.;
(b) quickly immersing the plate in an aqueous extract or solution of coffee solids where a thin layer of the extract adheres to and becomes frozen on the plate;
(c) reimmersing the plate, on which the frozen coffee extract is adhering in said liquid refrigerant;
(d) removing the frozen extract from the plate and collecting the frozen extract in the form of flakes;
(e) grinding the flakes to produce particles; and
(f) freeze-drying the frozen extract particles.

4,313,266

METHOD AND APPARATUS FOR DRYING WAFERS

Johann Tam, Santa Clara, Calif., assignor to The Silicon Valley Group, Inc., Santa Clara, Calif.

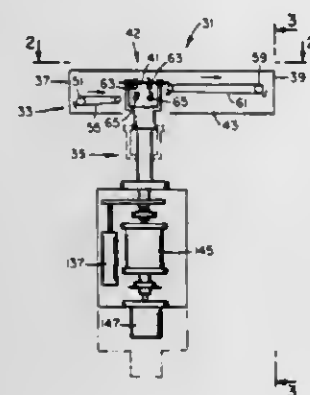
Filed May 1, 1980, Ser. No. 145,867
Int. Cl.³ F26B 5/08

U.S. Cl. 34—8

15 Claims

1. Apparatus for drying moisture from a wafer in a way to prevent stains on the sides of the wafer after the wafer has been washed on both sides, said apparatus comprising, wet wafer conveying means for conveying a wet wafer to a drying station,

dry wafer conveying means for conveying the dry wafer away from the drying station,
wafer holder means for holding the wafer by gripping the wafer on the edges of the wafer at the drying station, said wafer holder means being rotatable during a spin-drying operation and effective to grip the wafer only on the edge of the wafer during the spin-drying operation,
positioning means for lowering the wet wafer holder below



the wet wafer conveying means and dry wafer conveying means,
rotating means for rotating the wafer holder means and wafer to spin-dry the wafer while the wafer is below the wet wafer conveying means and dry wafer conveying means,
and wherein said positioning means are effective to raise the dry wafer to the level of the dry wafer conveying means after the wafer has been spin dried by the rotating means.

4,313,267

THERMAL INSULATION END PANEL ASSEMBLY FOR A PAPER MACHINE DRYER CYLINDER AND STUD CLAMP THEREFOR

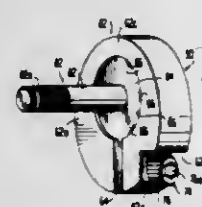
Fred H. Alexy, Glen Falls, N.Y., assignor to AMG Industries, Inc., Glen Falls, N.Y.

Division of Ser. No. 81,239, Oct. 2, 1979, Pat. No. 4,241,518.
This application May 7, 1980, Ser. No. 147,648

Int. Cl.³ F26B 13/04

U.S. Cl. 34—108

2 Claims



1. A stud clamp for clamping an element carried thereby to a protruding bolt head or the like, said stud clamp comprising:
an arcuate clamping body bearing a circular opening on the order of the bolt head diameter for receiving said bolt head and bearing a radial slot opening radially outwardly from said circular opening to form two body halves,
a screw threadably coupling opposite sides of said body at said slot permitting an increase or reduction in diameter of the circular opening by forcing opposed clamping body halves at said slot to move towards and away from each other to releasably clamp said bolt head to said body, and
a stud fixed to said body at one side thereof overlying said circular opening and projecting axially of said circular opening and away from said circular opening for coupling of said stud clamp to said element.

4,313,268 STRETCHING AND FOLDING APPLIANCE

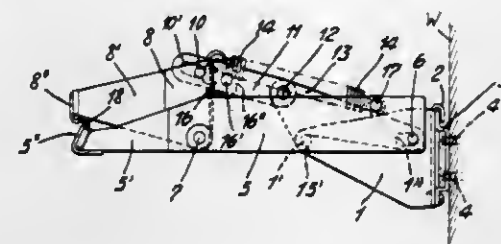
Hermano Fritsch, Steinmürli, CH-8503 Hüttwilen, Switzerland
Filed Feb. 20, 1980, Ser. No. 122,933

Claims priority, application Switzerland, Mar. 2, 1979, 2050/79

Int. Cl.³ D06F 71/40; D06C 3/08

U.S. Cl. 38—12

16 Claims



1. In a stretching and folding appliance having clamp elements pivotable on a bracket for clamping in the workpiece, and toggle levers in working connection with these elements, which by springs about a spring tipping point hold and press the clamping elements into the clamping position, the provision of the one pivotable clamp arm being also displaceably mounted in the bracket and means are provided to secure the clamp arms in the tightened and closed position and elements are provided for the adjustment of the clamp strips which define an insertion opening.

4,313,269

FEEDING MACHINE FOR SHEETS

Jacob van Rumpt, Vught, and Martinus T. Vorstenbosch, Den Dungen, both of Netherlands, assignors to Amko B.V., Kerkdriel, Netherlands

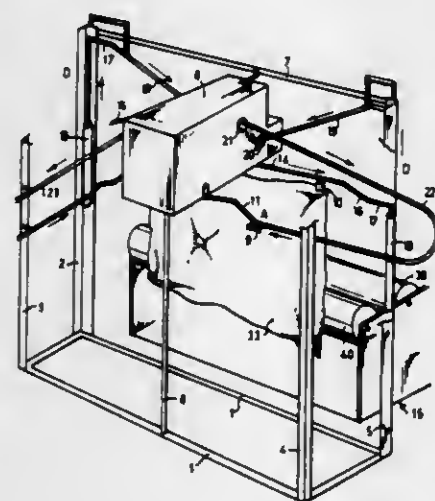
Filed Mar. 8, 1979, Ser. No. 18,663

Claims priority, application Netherlands, Mar. 9, 1978, 7802582

Int. Cl.³ D06F 67/04

U.S. Cl. 38—143

19 Claims



1. Inserting machine, destined to stretch and lay down washed sheets and the like articles, suspended in clamps in a hang-out station, on a feed device of a mangle, characterized in that the clamps (9) are secured to carts (26) which are guided by means of driving members (11,13) along a continuous path having successive stations (A or G, 8, and B through F), said carts moving to a cart spread station (C) and then returning after stretching each time to a central store (8), the sheet, after being stretched (C), being taken over by a loading system (15) which feeds the sheet to a mangle.

4,313,270

ITEM WITH PIVOTING POP-UP

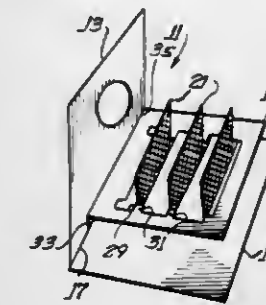
John K. Volkert, Northfield; Ib Peick, Prospect Heights, and Robert B. Volkert, Wilmette, all of Ill., assignors to Compak Systems, Inc., Northfield, Ill.

Filed May 28, 1980, Ser. No. 153,931

Int. Cl.³ G09F 19/00

U.S. Cl. 40—124.1

14 Claims



1. An item of the character described comprising
a first basepiece,
a second basepiece joined to said first basepiece so as to pivot relative to each other along a vertical line,
a die-cut panel having a front surface and a rear surface disposed between said first and second basepieces, said panel having formed therein at least one subpanel,
said subpanel having upper and lower extensions each of which has a pair of substantially parallel lateral edges and said subpanel being connected to the remainder of said die-cut panel only by vertical hinge lines formed respectively along one said lateral edge of each of said extensions,
hinged tabs carried by said other lateral edge of each of said extensions,
means attaching each of said tabs to said first basepiece, and
means interconnecting said remainder of said die-cut panel and said second basepiece so that opening of said item by pivoting one of said basepieces about said vertical line relative to the other causes said subpanel to simultaneously pivot about said vertical hinged connections at each said one lateral edge relative to the plane of the remainder of said die-cut panel and become oriented edge-wise thereto.

4,313,271

ANIMAL MARKER FOR PREVENTING MILK CONTAMINATION

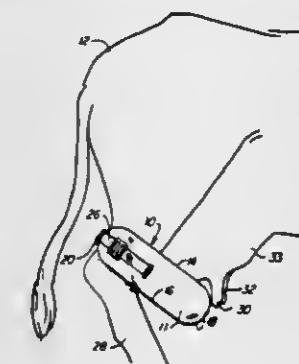
LeRoy Bauer, Rte. 2, Box 54, Shakopee, Minn. 55379

Filed Aug. 18, 1980, Ser. No. 179,179

Int. Cl.³ G09F 3/00; A01K 11/00

U.S. Cl. 40—304

5 Claims



1. A marker to be used in marking milk producing animals to reduce the likelihood of contaminated milk from reaching the market, said marker comprising a marker body having a securing means for attaching the marker to the body of the animal in a position in close proximity to the animal's udder, said marker is elongated and includes a rearward section having said securing means located thereon and a forward anteriorly projecting

section which extends toward the front of the animal from the rearward section and is located in close proximity to the animal's udder, the udder being positioned generally medially thereof when the marker is secured to the animal's leg.

4,313,272

LASER BEAM FIREARM AIM ASSISTING METHODS AND APPARATUS

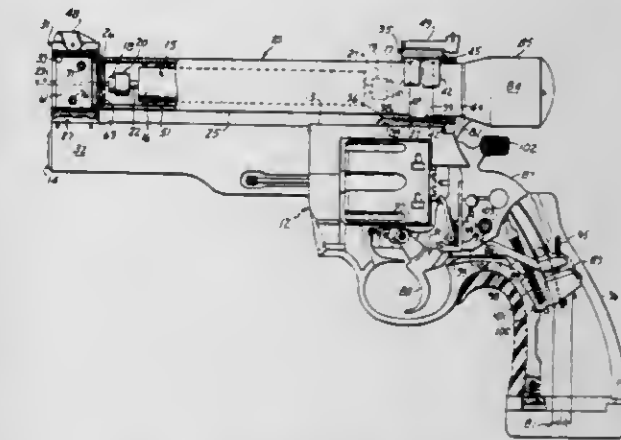
John W. Matthews, Fountain Valley, Calif., assignor to Laser Products Corporation, Fountain Valley, Calif.

Filed Apr. 25, 1979, Ser. No. 33,284

Int. Cl.³ F41G 1/34

U.S. Cl. 42—1 A

85 Claims



1. In a method of assisting the aiming of a firearm with a light beam from a laser, the improvement comprising in combination the steps of:
locating said laser in a tubular member for emission of said light beam through an end of said tubular member;
mounting said tubular member at a first location with only linear freedom of movement relative to said firearm; and
mounting said tubular member at a second location with only angular freedom of movement relative to said firearm.

4,313,273

FIREARMS AND LASER BEAM AIM ASSISTING METHODS AND APPARATUS

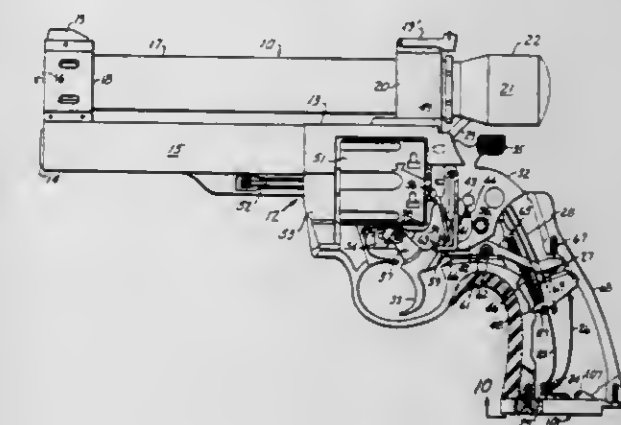
John W. Matthews, Fountain Valley, and Michael J. Fraer, Sierra Madre, both of Calif., assignors to Laser Products Corporation, Fountain Valley, Calif.

Filed Apr. 25, 1979, Ser. No. 33,285

Int. Cl.³ F41G 1/34

U.S. Cl. 42—1 A

41 Claims



11. In a firearm, the improvement comprising in combination:
a firing device;
means including a trigger and a manually cockable and selectively releasable hammer for actuating said firing device;
activable means for providing when activated an aiming mark on a target;

a switch for activating said activable means; control means for said switch coupled to said trigger for inhibiting activation of said activable means in a rest position of said trigger; means coupled to said switch control means and to said hammer for starting activation of said aiming mark providing means through manual cocking of said hammer to provide said aiming mark, including means for decoupling said switch control means from said trigger in response to cocking of said hammer; and means including said trigger for releasing said cocked hammer into actuation of said firing device only after activation of said aiming device and provision of said aiming mark.

4,313,274

FIRING PIN SAFETY DEVICE FOR HAND FIREARMS

Walter Ludwig, Ulm, Fed. Rep. of Germany, and Franziska Schmid, deceased, late of Langenau, Fed. Rep. of Germany (by Hans Schmid, executor), assignors to Carl Walther GmbH, Ulm, Fed. Rep. of Germany

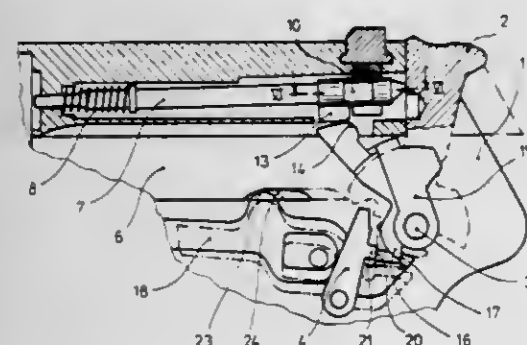
Filed Dec. 11, 1979, Ser. No. 102,527

Claims priority, application Fed. Rep. of Germany, Dec. 21, 1978, 2855224

Int. Cl.³ F41C 17/02

U.S. Cl. 42—70 F

5 Claims



1. In a firing pin safety device for hand firearms, an axially displaceable firing pin, means for securing said firing pin against axial movement, means including a release lever for releasing said firing pin from said securing means to enable said firing pin to be displaced axially, a hammer pivotable between a cocked position and a firing position, a safety lever engageable with said hammer to retain said hammer in a cocked position, a trigger arm actuated by a trigger, and a first abutment on said trigger arm to engage said release lever to disengage said securing means and a second abutment on said trigger arm to engage said safety lever to disengage said safety lever from said cocked hammer when said trigger arm is actuated by the trigger.

4,313,275

CARTRIDGE LOADER

Robert D. Switzer, 149 Highview Dr., Ft. Thomas, Ky. 41075

Continuation-in-part of Ser. No. 905,855, May 15, 1978, Pat. No. 4,202,124. This application Jan. 3, 1980, Ser. No. 109,286

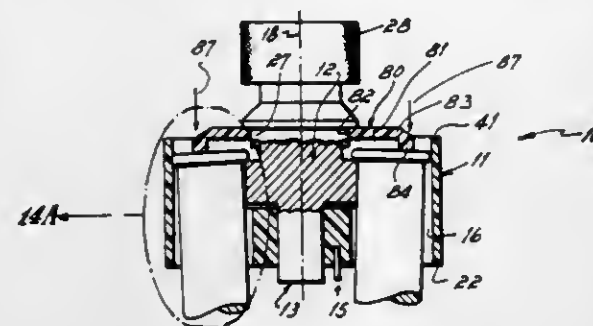
Int. Cl.³ F42B 39/04

U.S. Cl. 42—89

12 Claims

1. An improved cartridge loader comprising a generally star shaped latch on a shaft, said shaft being rotatably carried within a casing, said latch cooperating with a plurality of cartridge bores defined by said casing and positioned circumferentially around said latch, said latch being selectively movable between a capture position at which cartridges are latched in temporarily stored relation with said loader and a release position at which cartridges temporarily stored within said loader are released therefrom, and a resilient bore closure member seated on said shaft and rotatable relative thereto, said bore closure member being

comprised of a plurality of resilient protective arms each of which is at least partially received within a casing bore, each of said protective arms including a contact surface adapted to cooperate with a cartridge's end flange when



said loader is loaded with cartridges, and at least one of said protective arms being of a width that prevents substantial rotation of said closure member relative to said casing as said latch moves between said capture and release positions.

4,313,276

TOY CHAIR CONSTRUCTION KIT

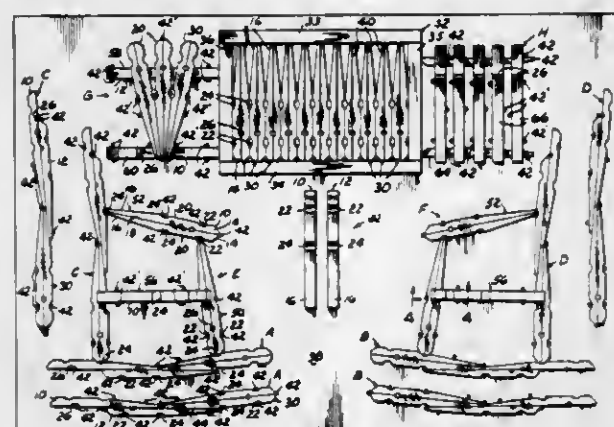
Robert J. Fleming, 813 SE. 60, Oklahoma City, Okla. 73149

Filed Apr. 10, 1980, Ser. No. 138,954

Int. Cl.³ A63H 33/00, 3/52; B60G 11/02

U.S. Cl. 46—16

3 Claims



1. In a toy chair forming kit in combination with a plurality of clothespins, each clothespin being characterized by a pair of separable elongated wooden pin elements rectangular in transverse section with each pin element further characterized by a head end, a lever end and coextensive front and back surfaces, the front and back surfaces each having at least one transverse indentation intermediate its ends, the improvement comprising: a planar rigid workboard having an upper surface; means including side and end members on the workboard upper surface forming an upwardly open rectangular area for encompassing the perimeter of a plurality of juxtaposed pairs of the pin elements when arranged by pairs in back-to-back surface contiguous contact; and, at least one group comprising a plurality of upstanding rods, supported in spaced-apart relation by the workboard remote from the rectangular area and arranged in a predetermined pattern defining the perimeter of a plurality of juxtaposed or abutted pin elements when disposed on the workboard defining one chair side subassembly including front and back legs, a chair arm and chair legs cross brace of a toy chair.

4,313,277

FLOATABLE TOY

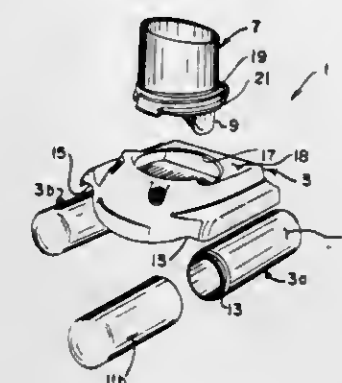
Ronald R. Klawitter, Hermann, Mo., assignor to Steven Manufacturing Company, Hermann, Mo.

Filed Oct. 1, 1979, Ser. No. 80,388

Int. Cl.³ A63H 23/06

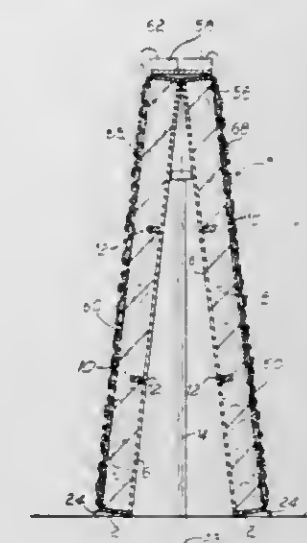
U.S. Cl. 46—95

2 Claims



1. A floatable toy having a pair spaced, water-tight hollow floatable hulls extending in generally longitudinal direction relative to the toy, a support deck secured to and extending between the upper surface of said hulls above the level of the water when the toy is floating on the surface of the water, said support deck having a generally horizontal surface with an opening therein, a one-piece container having a reservoir portion for holding a supply of water above the level of the water on which the toy is floating and a discharge nozzle extending down from said reservoir portion of the container below the surface of the water for the discharge of the water contained in the reservoir portion of the container under the hydrostatic pressure of the water in the reservoir portion of the container in generally horizontal direction to impart a propelling force to said toy, said container having an integral flange extending generally circumferentially therearound and a plurality of integral lugs spaced axially below said flange, said lugs being insertable through said opening in said support deck and cooperating with said flange whereby a portion of said support deck defining said opening is held captive between said adjacent inner faces of said lugs and said flange with the inner face of said flange constituting a bearing surface permitting manual rotation from above of said container together with said nozzle relative to said support deck about a generally vertical axis whereby the propelling force may be selectively directed in any desired direction relative to said toy for steering the toy in any desired direction.

the tray on one end in a more generally vertical disposition under mushroom growing conditions so that the mushrooms



grow from the upright face of the consolidated casing medium, and watering only the top edge of the casing medium.

4,313,279

AGRICULTURAL SYSTEM WITH ARTICULATED MEMBERS

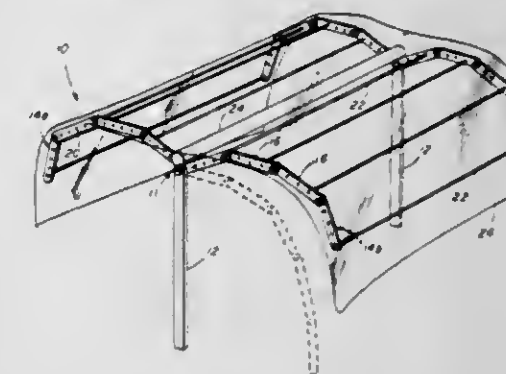
George Greenbaum, 790 Boylston St., Boston, Mass. 02199

Continuation-in-part of Ser. No. 101,499, Dec. 10, 1979. This application Feb. 4, 1980, Ser. No. 118,547

Int. Cl.³ A01G 9/00

U.S. Cl. 47—29

3 Claims



1. An agricultural system which comprises:

- at least two longitudinal vertical supports in spaced-apart parallel relationship;
- two articulated arches secured to each support at the upper portion thereof, the arches defining a V-shaped recess where joined to the vertical support, each of the arches formed of a plurality of uniform apertured segments pinned one to the other, including a first segment and a last segment, the first segment of each arch pinned to the vertical support, each arch adapted to extend from a first open position where the last segment engages the ground, to a closed position where the last segment is adjacent to the upper portion of the vertical support;
- a plurality of longitudinal rod-like horizontal supports in parallel relationship perpendicularly received in the apertures of the segments; the vertical supports, the arches and the horizontal supports forming a skeletal structure; and
- flexible sheet material secured to the structure on the outer surface thereof to define an enclosed atmosphere.

4,313,278

MUSHROOM GROWING

Roy A. W. Pointing, Wokingham, and Richard A. Rucklidge, Angmering, both of England, assignors to W. Darlington & Sons Limited, Hayes, England

Filed Jul. 20, 1979, Ser. No. 59,429

Claims priority, application United Kingdom, Jul. 28, 1978, 31452/78

Int. Cl.³ A01G 1/04

U.S. Cl. 47—1.1

16 Claims

1. A method of growing mushrooms comprising filling a horizontal tray with compost mixed with mushroom spawn, covering the compost with a layer of casing medium, supporting the tray in a horizontal disposition under growing conditions until the mycelium of the spawn has fully colonized the casing medium which is thereby consolidated, then supporting

4,313,280

QUICK OPENING LATCH ARRANGEMENT FOR HINGED VEHICLE WINDOWS

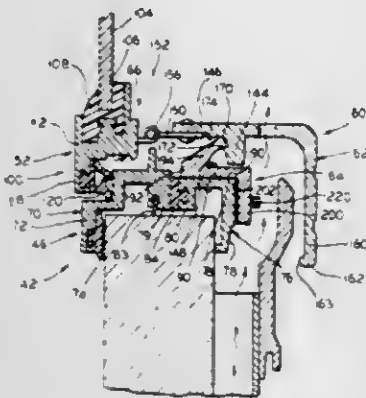
Yale W. Ehret, Elkhart, Ind., and Gerald C. Kasner, Union, Mich., assignors to The Adams & Westlake Company, Elkhart, Ind.

Filed Apr. 10, 1980, Ser. No. 138,912

Int. Cl.³ E05B 65/10

U.S. Cl. 49—141

10 Claims



1. In a window construction including a window frame mounted in a vertical wall and forming a generally quadrilateral window opening in the wall defining upper and lower generally horizontal window opening edges, and a sash frame assembly of a size to close the window opening when aligned with and disposed in same and including a sash frame proportioned to complement the window opening and transparent panel means mounted in the sash frame for closing the window opening when the sash frame assembly is in its closed position, said sash frame including a first sash rail portion pivoted to said window frame for swinging movement of the sash frame assembly outwardly of the window opening to open the window opening, said sash frame including a lower rail portion formed to seal off the window opening at the window opening lower edge, and a latch assembly for releasably latching the sash frame lower rail portion to the window frame for holding the sash frame assembly in its closed position,

the improvement wherein said latch assembly comprises: an elongate latch bar of generally right angled transverse cross-sectional configuration along the length thereof defining a base flange portion forming one side of said bar and having a generally planar web defining a depending rib extending the length of said bar along a median portion of said base flange portion and a planar terminal edge portion coplanar with said base flange portion and spaced from one side of said rib,

means for hinging said base flange edge portion to the sash assembly lower rail portion for pivotal movement about a horizontal axis disposed at the level of the sash assembly lower rail portion,

said bar configuration defining a depending flange portion on the other side of said rib and spaced therefrom,

said latch assembly further comprising an elongate keeper member secured to the window frame along the lower edge of same,

said keeper member comprising:

a keeper bar having a base flange forming one side of the keeper bar and underlying said latch bar base flange portion in the latched position of the latch assembly,

said keeper bar base flange portion having integral therewith a keeper thrust flange portion along its outer side edge that is angled upwardly and inwardly of the window opening an acute angle surmounted with a horizontal rectilinear bead of cylindrical configuration defining a central axis that is below the level of and is spaced inwardly of said hinging means axis in said latched position of the latch assembly,

said bead exceeding semi-cylindrical shaping in circumference,

said bead axis being spaced inwardly of the window opening

a predetermined distance from said hinging means axis in said latched position of the latch assembly,

said latch bar base flange along said one side of said rib defining a concave latching seat of cylindrical configuration struck about an axis that is at said predetermined distance from said hinging means axis in said latched position of the latch assembly,

said latch bar seat being tangent with the underside of said latch bar terminal edge portion along one edge of same and defining with said rib one side an external snap action rectilinear corner that is spaced from said hinging means axis, in said lateral position of the latch assembly, a distance that exceeds said predetermined distance but is less than said predetermined distance plus the radius of said bead,

said latch bar seat having a circumference that is on the order of one hundred degrees in circumference, said rib side downwardly of said snap action corner defining a cam surface that downwardly of said latch bar base flange portion converges toward the plane of said latch bar depending flange portion,

said keeper bar bead axis being elevational positioned relative to said hinging means axis such that said latch bar base flange portion is horizontally disposed and said latch bar depending flange portion is vertically disposed when said keeper bar bead is seated in said latch bar seat,

said latch bar depending flange portion extending below the level of said seat axis a distance that exceeds said predetermined distance, and provides a lever for upwardly swinging of said latch bar about said hinge means axis that is on the order of twice said predetermined distance.

4,313,281

GATE OPENING AND CLOSING APPARATUS AND METHOD

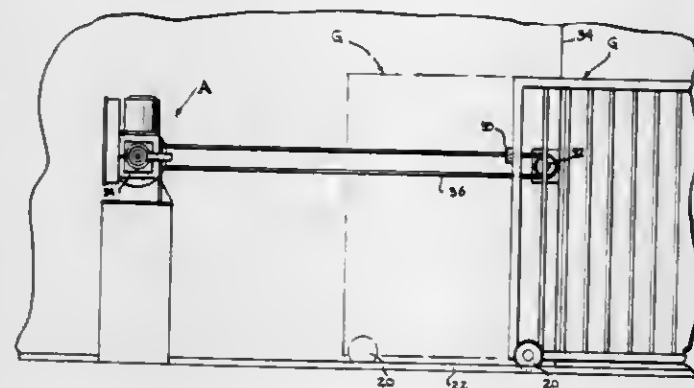
Moscow K. Richmond, 2819 Butler Ave., Los Angeles, Calif. 90064

Filed Mar. 3, 1980, Ser. No. 126,316

Int. Cl.³ E05F 15/00

U.S. Cl. 49—280

37 Claims



1. An apparatus for shifting a gate from a closed position to an open position and from the open position to the closed position with respect to an access opening, said apparatus comprising:

(a) a housing,

(b) motive means associated with said housing,

(c) a drive member operatively connected to said motive means and capable of being connected to a gate for causing shifting movement of same,

(d) a locking mechanism operatively associated with said drive member and being in engagement with said drive member to prevent same from causing shifting movement of said gate when said motive means is not energized and to prevent shifting movement of said gate even from manual attempt to move said drive member, said locking mechanism also being opened and unengageable with said drive member when said motive means is energized to

permit movement of said gate when said motive means is energized, and

(e) a manually operable release member operatively connected to said locking mechanism and to said drive member, said release member being effective to prevent engagement between said locking mechanism and said drive member so that said locking member does not prevent shifting movement of said gate, said release member also being simultaneously operable to prevent said drive member from being operable by said motive means when said release member is actuated to thereby override said apparatus and permit easy manual shiftable movement of said gate.

4,313,282

WINDOW CRANK ASSEMBLY

Edmund Hagemann, Wolfsburg, and Herbert Wildschütte, Brunswick, both of Fed. Rep. of Germany, assignors to Volkswagenwerk AG, Wolfsburg, Fed. Rep. of Germany

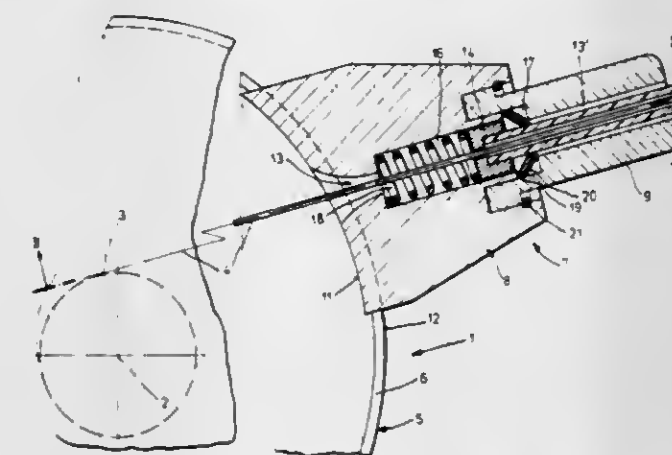
Filed Nov. 13, 1979, Ser. No. 93,928

Claims priority, application Fed. Rep. of Germany, Nov. 15, 1978, 2849445

Int. Cl.³ E05F 11/48

U.S. Cl. 49—352

11 Claims



1. In a window crank assembly for raising and lowering a window pane, including a stationarily supported cable drum having a core; a housing accommodating the cable drum and having an opening; a cable slung about the core and passing through the opening and being connected to the window pane; drive means for rotating the core for exerting a pulling force on the cable; a cable conduit accommodating a length portion of the cable and having opposite ends; first and second fittings supporting opposite ends of the cable conduit; at least the first fitting being arranged in the vicinity of the cable drum at a predetermined distance from the core; the improvement comprising a guide segment member supporting said first fitting against pressing forces exerted thereon by said cable conduit; said first fitting being swingably arranged on said guide segment member for motion in a predetermined plane; said opening in said housing comprising a slot extending parallel to said plane, whereby freedom of lateral motion of said cable is provided for following any swinging motion of said first fitting.

4,313,283

SHARPENER FOR INDUSTRIAL KNIFE BLADES

Leward N. Smith, Milbrook at Coldwater Rd., Remus, Mich. 49430

Filed Sep. 27, 1979, Ser. No. 79,353

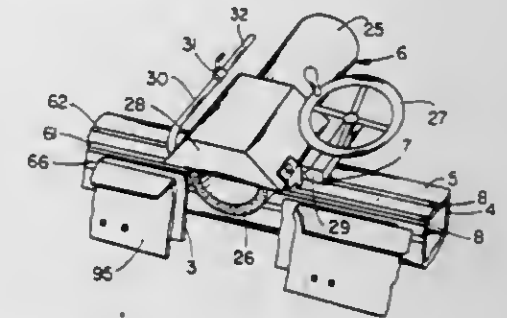
Int. Cl.³ B24B 3/55, 7/02

U.S. Cl. 51—56 R

27 Claims

1. A sharpener for industrial knife blades comprising: a main frame including means for releasably retaining a knife blade in a fixed relationship therewith, and an elongate beam having a way surface; said way surface being substantially planar and inelastically deformable; grinding means for sharpening a cutting edge of the knife blade; said grinding means having rollers which are abut-

tly supported on the way surface and slideably mount the grinding means on the beam for translation thereon along a plane substantially parallel with said knife blade cutting edge; and



means urging said rollers and said beam together, whereby repeated translation of said grinding means along said beam causes said rollers to impress a concave track in said way surface, wherein said rollers are retained and guided for accurate grinding of the knife blade.

4,313,284

APPARATUS FOR IMPROVING FLATNESS OF POLISHED WAFERS

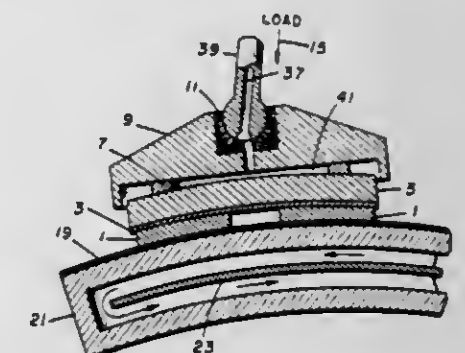
Robert J. Walsh, Ballwin, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed Mar. 27, 1980, Ser. No. 134,714

Int. Cl.³ B24B 7/04

U.S. Cl. 51—131.4

5 Claims



1. Apparatus for improving polished wafer flatness comprising:

a thin deformable carrier disc mounted to a resilient ring which is mounted to a rotatable pressure plate, said pressure plate, resilient ring, and first carrier surface forming a chamber, said chamber in communication with a vacuum means for deforming said carrier disc into an inwardly convex shape toward the chamber; said deformed carrier having wafers mounted on a second surface which is concave; said wafers rotatably engageable with a polishing pad mounted turntable having an internal cooling means for dissipating heat from the polishing pad and first surface of the turntable, the turntable second surface being cooler than the first surface during polishing resulting in a thermal bow of the turntable toward the second surface.

4,313,285

STABILIZING DEVICE

Bertil Jonasson, Box 45, S-340 22 Eneryda, Sweden

Filed Apr. 21, 1980, Ser. No. 142,501

Claims priority, application Sweden, Apr. 25, 1979, 7903613

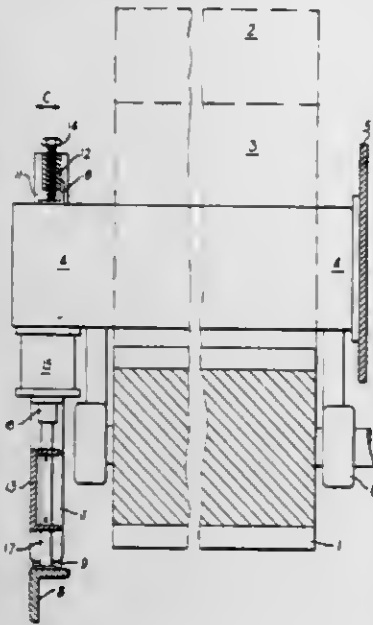
Int. Cl.³ B24B 21/00

U.S. Cl. 51—135 R

6 Claims

1. A belt sanding machine, comprising, a frame,

a contact drum for receiving a sanding belt and holding it against a workpiece during operation of the machine, an elongated member supporting said contact drum, said elongated member having one end permanently fastened to the frame of the machine, actuating means operable between the frame of the machine and the elongated member for applying a deflection force to the elongated member, and



stop means attached to the machine frame for preventing excessive deflection of the elongated member by said actuating means, said stop means and said actuating means being operable to fix and stabilize the elongated member at an accurate predetermined position, a support member which carries said stop means and is pivotally connected to said frame.

4,313,286

PIPE SUPPORT COUPLING AND METHOD OF USING SAME

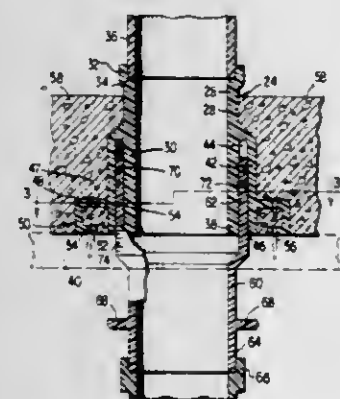
Gerold J. Harbeck, 2807 S. Military Trail, Lake Worth, Fla. 33463

Filed Nov. 16, 1979, Ser. No. 94,928

Int. Cl.³ E04B 5/48

U.S. Cl. 52-220

10 Claims



1. A device adapted to be embedded in the masonry floor of a building structure for supporting piping in connected relationship thereto, either connected thereto at the ends thereof or extending therethrough, said device comprising:

(a) a substantially rigid unitary member including a continuous wall defining a first tubular portion having a first end and a second end, said first tubular portion having a concentric, spaced-apart sleeve formed integrally therewith extending to said second end to form a recess between said first tubular portion and said sleeve, and a second tubular portion having one end thereof slidably mounted in said recess in sealing engagement with said sleeve, and the

other end thereof adapted to be joined to one end of said piping, and

(b) anchor means integrally formed with said unitary member and extending radially outward therefrom, said anchor means being substantially surrounded by said masonry floor to maintain said unitary member in position relative to said floor.

4,313,287

INTERNALLY TENSIONED STRUCTURAL MEMBER AND METHOD OF ASSEMBLING SAME

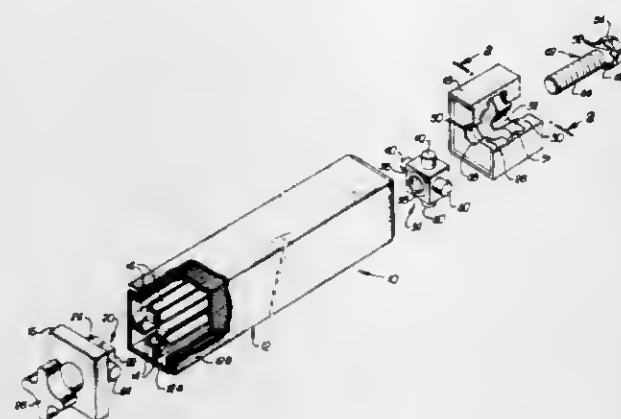
Byron A. Romig, Jr., 3920 Eagle Rock Blvd., Los Angeles, Calif. 90065

Filed Jan. 25, 1980, Ser. No. 115,502

Int. Cl.³ E04C 3/10

U.S. Cl. 52-223 R

21 Claims



1. A structural member comprising: an elongated body shell formed by fibers and a bonding medium, said body shell having an interior surface defining an opening extending throughout said body shell between two ends thereof; a pair of end caps disposed across said ends; and at least one elongated band disposed within said body shell connecting said caps and pulling said end caps toward each other and against said body shell, said band contacting said interior surface substantially throughout the length thereof, thereby strengthening and rigidifying said body shell.

4,313,288

MACHINE FOR PACKAGING VARIOUS ARTICLES BETWEEN TWO JUXTAPOSED PLASTICS MATERIAL SHEETS

Lamberto Tassi; Gianni Tosarelli, and Aris Ballestrazzi, all of Vignola, Italy, assignors to Sitma - Societa Italiana Macchine Automatiche S.p.A., Spilamberto, Italy

Filed Jun. 12, 1979, Ser. No. 47,692

Claims priority, application Italy, Jun. 13, 1978, 24510 A/78

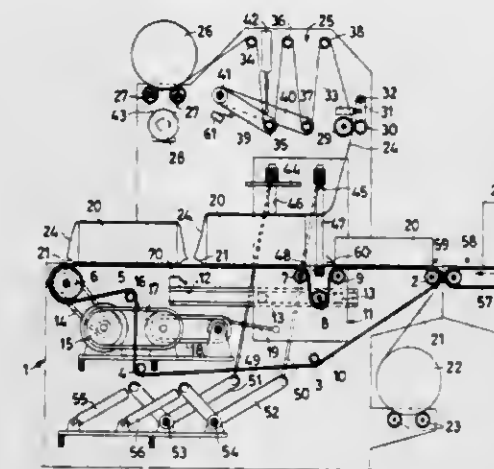
Int. Cl.³ B65B 57/12, 9/02

U.S. Cl. 53-74

1 Claim

1. A machine for packaging sundry articles between juxtaposed sheets of a plastics material, comprising a conveyor belt movable along a working path of horizontal orientation for carrying a bottom sheet fed on said conveyor belt along said working path to receive the articles to be packaged, means for feeding a top sheet above the article to be packaged along said working path and a welding unit situated above the top sheet and capable of being lowered until engaging a counterwelding unit positioned beneath the bottom sheet to perform a double-seam welding transversally of the sheets with a severing cut therebetween, at every interval between an article and its next, characterized in that for the feed of the top sheet there is provided a feeding unit including a payoff drum, means for controllably driving said drum, a feeding roller, means for controllably driving said feeding roller, a pressure roller, means for moving said pressure roller toward and away from said feeding roller so as to selectively clamp and release the top

sheet, a succession of idle rollers inserted between said drum and said feeding roller to provide a series of alternate sheet loops in said top sheet, means for shifting at least one of said idler rollers relative to the adjoining rollers and in a direction away from the top sheet to define a freed sheet span, said succession of rollers including an additional roller yieldably urged toward a normal working position which is adapted to form a sheet loop and which is withdrawable from its normal working position as a consequence of a pull exerted on the top sheet, means for lowering and raising said welding unit toward and away from said counterwelding unit, and a control system including first means responsive to the arrangement of the articles to be packaged in a preselected position for actuating (a) the withdrawal of said pressure roller from said feeding roller so as to release the top sheet from said feeding roller whereby the sheet span is freely withdrawable by said welding



unit whenever said unit drops toward said counterwelding unit, (b) the shift of said at least one idler roller in a mode to provide the freed sheet span and (c) lowering of said welding unit toward said counterwelding unit, second means responsive to the attainment of engagement between said welding unit and said counterwelding unit for subsequently actuating (a) engagement of said pressure roller with said feeding roller, (b) driving of the latter and (c) gradual shifting of said at least one idler roller in an opposite mode toward the sheet and into contact with the sheet to exert a withdrawing pull on the top sheet so that subsequent movement of said roller away from the freed sheet will form a sheet span, and third means for actuating said drum in a sheet payoff direction in response to the shift of said additional idler roller from its normal working position as a consequence of said gradual shifting of said at least one roller in said opposite mode and the actuation of the driving of the feeding roller.

4,313,289

APPARATUS FOR MANUFACTURING GAS-FILLED BALLS WITH PRECISION

William D. Birdsong, Jr., 2534 Wessex Lane, Chattanooga, Tenn. 37421

Division of Ser. No. 918,718, Jun. 26, 1978, Pat. No. 4,251,073.

This application Nov. 13, 1980, Ser. No. 206,351

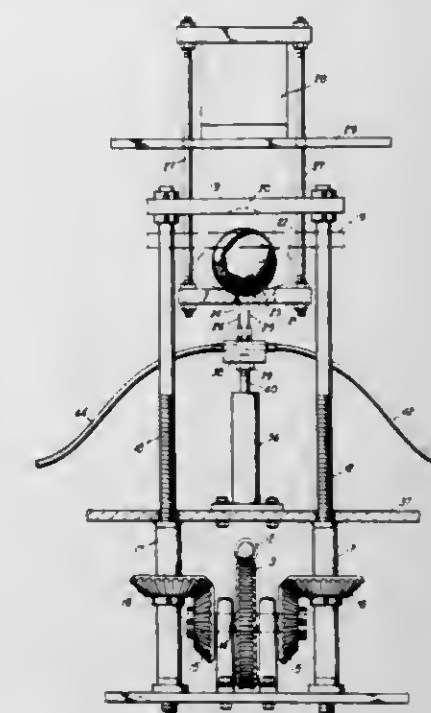
Int. Cl.³ B65B 31/08

U.S. Cl. 53-84

5 Claims

1. In an apparatus for manufacturing inflated hollow balls with high uniformity in performance characteristics, a relatively stationary ball rest element on which a ball may be seated, a ball compressing crosshead arranged in opposing relationship to the ball rest element, means to drive said crosshead toward said rest element with a ball positioned between the rest element and crosshead for compressing the ball a predetermined amount, means to inject a sealant and a gaseous inflating medium into the ball compressed between the rest element and crosshead, and a load cell connected with said ball rest element and responding to the force thereon due to the

compression of the ball by said crosshead whereby a signal produced by the load cell can control said means to drive said



crosshead and said means to inject a sealant and a gaseous inflating medium into the ball.

4,313,290

APPARATUS FOR PACKING

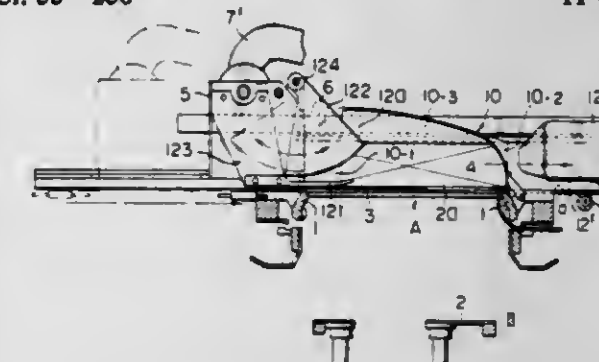
Michio Furuya, Kashiwa, and Susumu Sakamoto, Tokyo, both of Japan, assignors to Tokyo Automatic Machinery Works, Ltd., Tokyo, Japan

Filed Dec. 4, 1979, Ser. No. 100,182

Int. Cl.³ B65B 11/18, 7/02

U.S. Cl. 53-230

11 Claims



1. Apparatus for packing a product having two opposed ends, two opposed sides, a top surface, and a bottom surface, said apparatus comprising:

(a) a packing sheet lapping section for lapping a packing sheet around said product, said lapping section having a leading and a trailing side, said packing sheet having opposed end portions adapted to extend beyond said opposed ends of said product, each end portion including an upper edge adapted to extend beyond the top product surface, a lower edge adapted to extend beyond the bottom surface of said product and opposed leading and trailing side edges;

(b) a product transfer path located adjacent to said leading side of said lapping section;

(c) a pusher located adjacent to said trailing side of said lapping section, said pusher adapted to move said product along said transfer path;

(d) first folding means located adjacent said trailing side of said lapping section for folding side edges of said packing sheet end portions over said product ends and simultaneously upwardly folding upper edges of said end portions above said top surface of said product, said first folding means comprising at least one generally upright support member mounted on a moveable frame, folding pawls

which extend adjacent to the bottom surface of said product, said folding pawls being mounted on said generally upright support member, said first folding means further comprising swinging members positioned above said pawls, said swinging members being adapted to swing along said product ends, said swinging members being attached to rotatable shafts which are rotatably mounted upon said moveable frame, and means for moving said frame and swinging said members so that said pawls fold said side edges and said swinging members upwardly fold said upper edges;

- (e) second folding means for folding lower edges of said end portions over said product ends; and
(f) third folding means for folding said upper edges of said end portions over said product ends after they have been upwardly folded, said second and said third folding means being positioned along said transfer path.

4,313,291

METHOD FOR REFURBISHING AND PROCESSING PARACHUTES

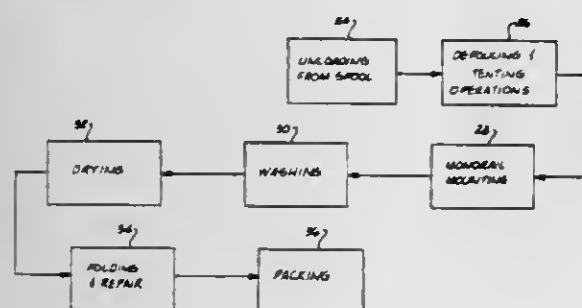
Russell T. Crowell, Titusville, Fla., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Division of Ser. No. 862,878, Dec. 12, 1977, Pat. No. 4,244,810.
This application May 30, 1980, Ser. No. 154,663

Int. Cl.³ D06F 31/00

U.S. Cl. 53—429

4 Claims



1. A method for refurbishing and processing a parachute of the type having a canopy including a plurality of gore sections with radial lines delineating between adjacent gore sections extending through a common point to define an apex portion comprising the steps of:

- arranging said parachute canopy in a partially-open tented configuration for defouling and inspection thereof;
- providing an overhead conveyor;
- suspending said parachute horizontally from said conveyor by attaching every n th radial line to said conveyor with said apex portion conveyed forwardmost where n is defined by $n=2G+1$, where G is the desired number of gore section depending from either side of the point of attachment to said conveyor;
- providing a washing station wherein said parachute is washed;
- providing a drying station wherein said parachute is dried;
- providing a folding station wherein said canopy is removed from said conveyor and folded for packing; and
- sequentially conveying said parachute canopy suspended from said overhead conveyor in a generally horizontal path to said washing, drying and folding stations.

4,313,292

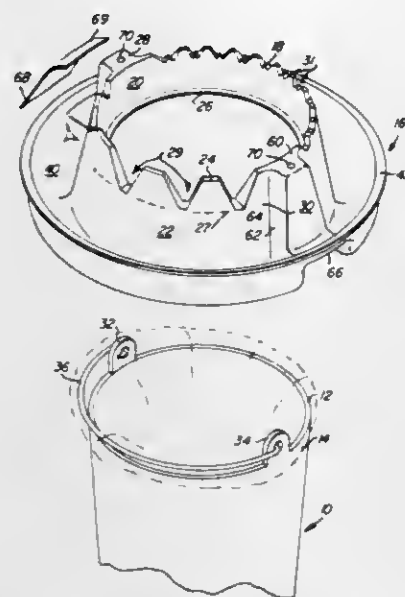
METHOD AND APPARATUS FOR ENUMERATIVE DISPLAY AND DISPOSAL OF SURGICAL SPONGES

Rose M. McWilliams, 1065 S. Josephine, Denver, Colo. 80209
Filed Mar. 5, 1979, Ser. No. 17,903

Int. Cl.³ B65B 67/04, 67/12

U.S. Cl. 53—474

7 Claims



1. A method of counting and disposing of surgical sponges comprising:
providing an article having a predetermined number of notched portions to be used in conjunction with a bucket, a disposable lining means in said bucket;
fitting said article over said disposable lining means in said bucket to be supported on a rim of said bucket;
placing one sponge in each of said notch portions until said predetermined number of notch portions each have one sponge; and then
removing sponges from said notch portions and placing them in said disposable lining means.

4,313,293

CLUTCH-BRAKE DEVICE FOR CUTTING MACHINES

Shigeo Nagai, Ueda, Japan, assignor to Nissin Kogyo Kabushiki Kaisha, Nagano, Japan

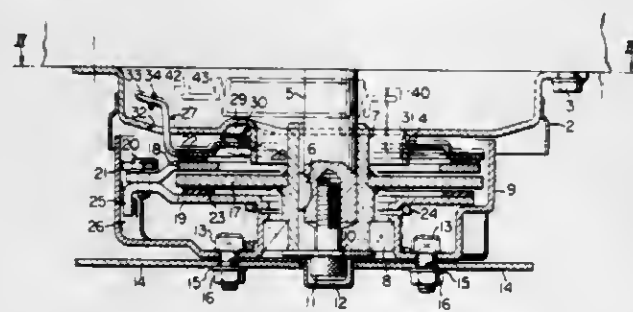
Filed Sep. 9, 1980, Ser. No. 185,519

Claims priority, application Japan, Oct. 18, 1979, 54-134622

Int. Cl.³ A01D 69/10

U.S. Cl. 56—11.3

7 Claims



1. A clutch-brake device for cutting machines comprising:
an engine case; a first cover secured to said engine case; an output shaft connected to an engine and projecting outwardly from said engine case through said first cover; a second cover rotatably mounted on said output shaft; a cutting blade secured to said second cover; a disk connected to said output shaft for rotation therewith; a brake and clutch assembly mounted on said output shaft for rotation and axial movement, said assembly including a brake plate and a clutch plate disposed in parallel with each other with said disk interposed therebetween, said brake and clutch plates being connected with each other at their radially outer peripheral portions; a plurality of axial recesses formed in said second cover; a plurality of guide

pieces projecting from said brake and clutch assembly and being in axially slidable but non-rotatable engagement with said recesses in said second cover for driving connection between said brake and clutch assembly and said second cover; first means for urging said brake and clutch assembly into frictional driving engagement with said disk; a brake lever provided on said first cover for rotation and axial sliding movement and disposed between said first cover and said brake and clutch assembly in opposing relation to the latter; and second means for urging said brake lever to rotate relative to said first cover into a released condition so that said brake lever is moved away from said brake and clutch assembly to place the latter into frictional engagement with said disk and at the same time out of engagement with said brake lever; said second cover enclosing said disk, said brake and clutch assembly, and said first means for preventing the entrance of external substances as cut by said cutting blade.

4,313,294

CONSTANT FLOAT ATTACHMENT APPARATUS

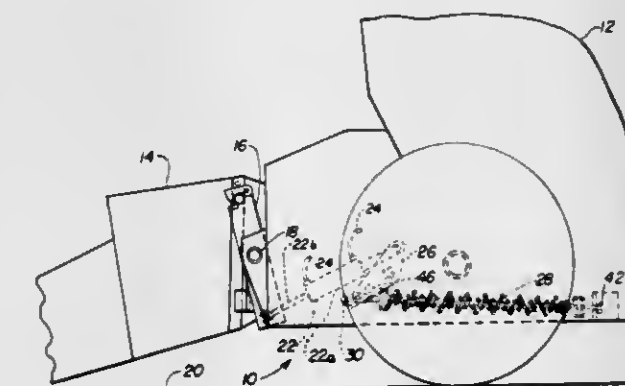
Wayne B. Martenas, New Holland, Pa., assignor to Sperry Corporation, New Holland, Pa.

Filed Sep. 11, 1980, Ser. No. 186,353

Int. Cl.³ A01D 35/12, 67/00

U.S. Cl. 56—15.8

6 Claims



1. Apparatus for lifting and floating attachments on a crop harvesting machine comprising:
an attachment lift arm connected to a first pivot point on the machine;
means connected for pivoting the lift arm, said means including a fluid operated piston;
resilient means connected for urging the lift arm into a float position;
a pivot arm interconnecting the piston and the resilient means, the pivot arm having a first end connected to the piston and having a second end connected to the resilient means, the pivot arm connected to a second pivot point on the machine between the first and second ends of the pivot arm; and
a stop on the machine for engagement with the second end of the pivot arm.

4,313,295

BLADE HOUSING MOUNT FOR RIDING MOWERS

Loren F. Hansen, and Ronald M. Stolley, both of Lincoln, Nebr., assignors to Outboard Marine Corporation, Waukegan, Ill.

Filed Feb. 11, 1980, Ser. No. 120,258

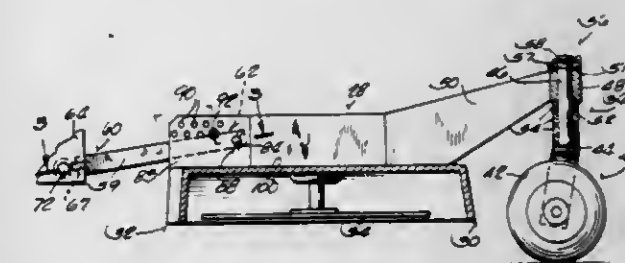
Int. Cl.³ A01D 35/26

U.S. Cl. 56—15.8

10 Claims

1. A riding mower comprising a prime mover having a chassis supported on a rotatable wheel for movement over the ground, a blade housing carrying a cutter blade and having first and second end portions, a ground engaging wheel mounted on said first end portion of said blade housing for partially supporting said blade housing and for gaging the distance above the ground at which said first end portion of said blade housing travels, a push arm having first and second ends, means mounting said first end of said push arm on said

prime mover chassis for pivotal movement of said push arm relative to said prime mover chassis about a first generally horizontal axis, and means mounting said second end of said push arm on said blade housing for permitting upward pivotal movement of said second end portion of said blade housing relative to said push arm about a second axis and selectively



preventing downward pivotal movement of said second end portion of said blade housing relative to said push arm and thereby transferring a portion of the weight of said blade housing to said prime mover chassis and controlling the minimum distance above the ground at which said second end portion of said blade housing travels.

4,313,296

COTTON STRIPPER

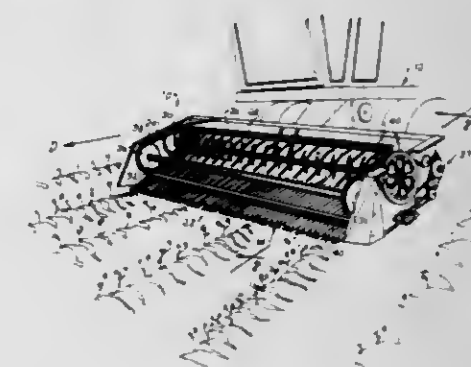
L. E. Mitchell, Jr., P.O. Box 1367, Levelland, Tex. 79336

Filed Feb. 1, 1979, Ser. No. 8,787

Int. Cl.³ A01D 46/12

U.S. Cl. 56—34

10 Claims



1. In a cotton stripper having
 - a transport means attached to the stripper for moving the stripper through the cotton field in a direction of draft,
 - a conveyor on the stripper traverse of the direction of draft,
 - a plurality of parallel fingers on the stripper extending along the direction of draft from the conveyor forward and downward terminating with
 - finger tips near the ground, and
 - side shields on the stripper extending on both sides of the fingers;
 the improved structure comprising in combination with the above:
 - a rear shaft on the stripper parallel to and above the conveyor,
 - rear sprockets on each end of the rear shaft,
 - a hydraulic motor connected to the sprockets for rotating the rear shaft,
 - front sprockets mounted and adjacent each side shield
 - having a common axis parallel to the rear shaft,
 - chains running around the sprockets adjacent each side shield, and
 - at least two brush bars parallel to the rear shaft attached to and extending between the chains,
 - said hydraulic motor rotating the rear shaft so that the speed of the chain on the stripper is less than the speed of the stripper on the ground.

4,313,297

BLADE MOUNTING FOR A ROTARY MOWER

Martin Maier, Gottmadingen, Fed. Rep. of Germany, assignor to Klöckner-Humboldt-Deutz AG Zweigniederlassung Fahr, Gottmadingen, Fed. Rep. of Germany

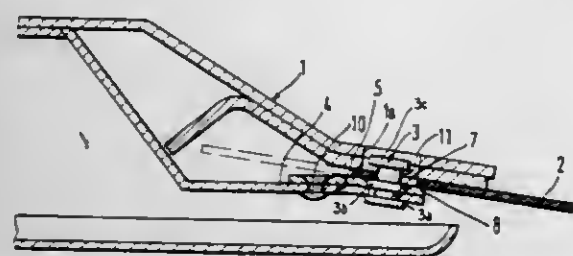
Filed May 16, 1980, Ser. No. 150,356

Claims priority, application Fed. Rep. of Germany, May 18, 1979, 2920244

Int. Cl.³ A01D 55/18, 55/22

U.S. Cl. 56—295

4 Claims



1. A blade-mounting assembly for a rotary mower comprising:
- a cutting plate rotatable about a substantially vertical rotary axis;
 - at least one blade disposed along the underside of said cutting plate;
 - a leaf spring extending radially outwardly and underlying said blade, said leaf spring being formed with a keyhole-shaped opening having a large-diameter circular portion and a rectilinear portion extending from said circular portion of a width less than the diameter of said circular portion;
 - a retaining pin having a narrow waist of a diameter less than the external diameter of said pin on opposite sides of said waist and receivable in said rectilinear portion for pivotally mounting said blade on said cutting plate; and
 - a retaining plate having a bore of a diameter corresponding to said external diameter and engaging said pin while being riveted to said leaf spring to prevent movement of said pin along the rectilinear portion of said keyhole-shaped opening.

4,313,298

TAPING INSTALLATION

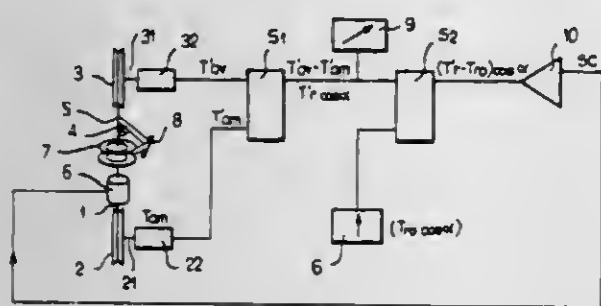
Pierre Van Meenen, Rainvillers, France, assignor to Societe Anonyme Filica, Sainte Genevieve, France

Filed Dec. 26, 1979, Ser. No. 106,910

Int. Cl.³ B65H 81/00, 81/08

U.S. Cl. 57—3

5 Claims



1. A wire taping installation comprising a device supplying the wire, a device for receiving the taped wire, a tapping device fed with tape, two pulleys round which the wire to be taped passes, the tape being applied against said wire between the two pulleys round which said wire passes, electrical pick-ups respectively associated with each said pulley, said pick-ups supplying T_{am}, T_{av} signals proportional to the T_{am} and T_{av} tensions imparted by the wire as sensed at said pulleys, a first subtractor receiving said T_{am}, T_{av} signals so as to form a difference signal, a second subtractor, said difference signal being compared in said second subtractor with a theoretical value quantity, amplifier means, said difference signal being

applied to said amplifier supplying a control signal to a device for regulating the tension of the tape.

4,313,299

METHODS AND APPARATUS FOR CHANGING BOBBINS IN FLYER SPINNING FRAMES

Siegfried Günkinger, Heiningen; Hans-Peter Weeger, Hattenhofen; Kurt Kriebbaum, and Wolfgang Igel, both of Ebersbach, all off, Fed. Rep. of Germany, assignors to Zinser Textilmaschinen Gesellschaft mit beschränkter Haftung, Ebersbach, Fed. Rep. of Germany

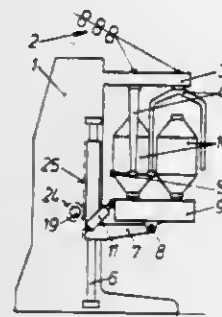
Filed Aug. 31, 1979, Ser. No. 71,505

Claims priority, application Fed. Rep. of Germany, Sep. 2, 1978, 2838398

Int. Cl.³ D01H 9/04

U.S. Cl. 57—267

8 Claims



1. An apparatus for changing bobbins in flyer spinning frames having locally stationary, rotatably suspended flyers, a bobbin rail having spindles supported on said frame for both tilting and up and down movements and bobbins rotatably supported on said tiltable bobbin rail, reversible drive means for moving said bobbin rail up and down, means for tipping said bobbin rail outwardly from said frame, control means for reversing the driving direction of said drive means, a plurality of switching devices operatively associated with said drive means, said plurality of switching devices including a switching device actuatable in a position for tipping said bobbin rail outwardly of said spinning frame for operatively conditioning said drive means to raise said bobbin rail, a switching device actuatable in a position of said bobbin rail for removal of said bobbins and for operatively conditioning said drive means to stop further movement of said bobbin rail, and a manually operative switching device actuated by an operator after the removal of the filled bobbins and placing the empty tubes on the spindles for operatively conditioning said drive means to lower said bobbin rail.

5. A method of changing bobbins in flyer spinning frames having a head and locally stationary, rotatable suspended flyers, a bobbin rail having spindles supported on said frame for both tilting and up and down movements and bobbins rotatably supported on said tiltable bobbin rail, comprising the steps of:

- moving said bobbin rail down by a reversibly driving means, when said bobbins are filled,
- selectively actuating a plurality of switching devices for tilting said bobbin rail outwardly of said spinning frame and for operatively conditioning said drive means to raise said bobbin rail,
- tilting said bobbin rail outwardly from said frame by a bobbin rail tilting means,
- moving said bobbin rail up by said reversibly driving means, actuating a switching device in a position of said bobbin rail for removal of said bobbins and for operatively conditioning said drive means to stop further movement of said bobbin rail,
- removing the filled bobbins and placing empty bobbins on the spindles,
- actuating a manually switching device for operatively conditioning said drive means to lower said bobbin rail,

tilting said bobbin rail inwardly to said frame by said bobbin rail tilting means, moving said bobbin rail up to a starting position by said reversibly driving means.

4,313,300

NOX REDUCTION IN A COMBINED GAS-STEAM POWER PLANT

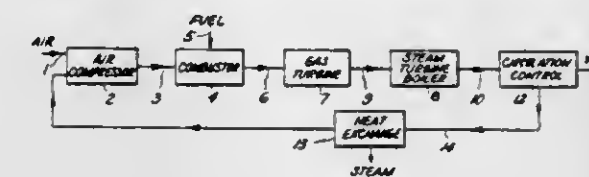
Colin Wilkes, Scotia, and Bruce W. Gerhold, Rexford, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Jan. 21, 1980, Ser. No. 113,635

Int. Cl.³ F02C 6/18

U.S. Cl. 60—39.02

7 Claims



1. A method of operating a combined gas-steam power plant with improved control of NO_x emissions comprising compressing air in an air compressor, introducing said compressed air and fuel into a combustor and burning the resulting mixture therein, employing the combustor exhaust gases to operate a gas turbine, employing the gas turbine exhaust gases to operate a steam boiler, venting a portion of the steam boiler exhaust gases, cooling the remaining portion of the steam boiler exhaust gases to about the desired air compressor inlet temperature, introducing said cooled steam boiler exhaust gases into said air compressor, and controlling the relative rate of venting and introduction to said air compressor such that said cooled steam boiler exhaust gases comprise up to about 30% of the fluid flowing through said air compressor.

4,313,301

ROTATING FLUIDIZED BED HEAT EXCHANGER

William H. Belke, Peoria; Alexander Goloff, East Peoria, and George B. Grim, Washington, all of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

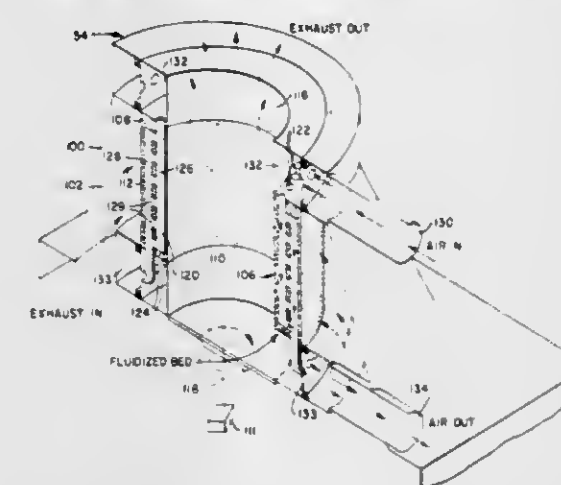
PCT No. PCT/US79/00937, § 371 Date Oct. 25, 1979, § 102(e) Date Oct. 25, 1979, PCT Pub. No. WO81/01194, PCT Pub. Date Apr. 30, 1981

PCT Filed Oct. 25, 1979, Ser. No. 102,196

Int. Cl.³ F02C 7/08; F28D 13/00

U.S. Cl. 60—39.51 H

30 Claims



30. In a gas turbine engine (12) including a compressor (20), a combustor (26), a gasifier turbine (22), a first shaft (14) mounting said compressor (20) adjacent a first end thereof and said gasifier turbine (22) adjacent the other end thereof, said turbine (22) having blades positioned in the path of exhaust gases exiting said combustor (26) to drive said first shaft (14) and said compressor (20), a power turbine (40) having blades

positioned in the path of exhaust gases exiting said gasifier turbine (22), a second shaft (42) driven by said power turbine (40) for delivering output work, a heat exchanger (54) for receiving compressed gas from said compressor (20), heating said compressed gas therein and passing said heated compressed gas to said combustor (26) and for receiving exhaust gas from said power turbine (40), cooling said exhaust gas while transferring some of its heat to said compressed gas and exhausting the resulting cooled exhaust gas, the improvement comprising:

- a rotatable fluidized bed heat exchanger (54) comprising:
 - a. a first elongated perforated wall (108);
 - b. a second perforated wall (110) spaced apart and substantially co-extensive with said first perforated wall (108);
 - c. enclosing walls (109) defining with said first and second perforated walls (108, 110) a fluidization chamber (112);
 - d. a fluidizable bed of pulverulent solid particles (114) in said chamber (112);
 - e. means (111) for rotating said chamber (112) about an axis (118) to cause the particles (114) to centrifugally gravitate toward said first perforated wall (108);
 - f. means (102) for feeding said exhaust gas into said chamber (112) through said first perforated wall (108) and out of said chamber (112) through said second perforated wall (110), said exhaust gas heating and having flow characteristics suitable for fluidizing said particles (114) in said chamber (112);
 - g. at least one tube (120) in said chamber (112) extending substantially co-extensively with said walls (108, 110) for passing said compressed gas therethrough, said at least one tube (120) directing the flow of said compressed gas longitudinally within said chamber (112) from an inlet (122) generally adjacent said second perforated wall (110) to an outlet (124) generally adjacent said first perforated wall (108), whereby said compressed gas flows counter-currently to said exhaust gas, said compressed gas is heated by the heated bed particles and said exhaust gas and said exhaust gas is cooled; and
 - h. means (134, 80) for directing said heated compressed gas to said combustor.

4,313,302

HYDRAULIC POWER BOOSTERS FOR VEHICLE BRAKING SYSTEMS

Glyn P. R. Farr, Leek Wootton, England, assignor to Girling Limited, Birmingham, England

Continuation of Ser. No. 907,584, May 19, 1978, abandoned.

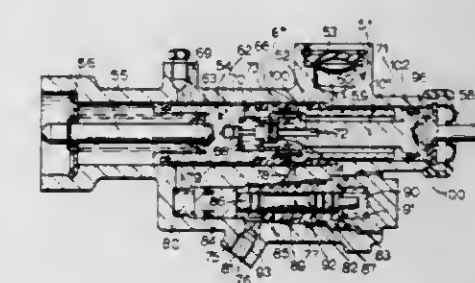
This application Aug. 29, 1980, Ser. No. 182,581

Claims priority, application United Kingdom, May 19, 1977, 21047/77; Oct. 5, 1977, 41350/77

Int. Cl.³ B60T 13/00

U.S. Cl. 60—547 R

12 Claims



1. An hydraulic booster for a vehicle braking system comprising a housing having a bore, and a boost piston working in said bore to actuate a master cylinder piston, a pedal-operated input piston, and a second piston relative to which said input piston is movable, and said housing is provided with a boost chamber for subjecting said boost piston to hydraulic pressure, and a control chamber is defined between said input piston and said second piston, a boost-pressure control valve being pro-

vided for controlling a supply of hydraulic pressure to said boost chamber, said boost-pressure control valve being responsive to pressure in said control chamber, wherein a recuperation valve is located in said control chamber for controlling communication between said control chamber and a reservoir, said recuperation valve closing upon relative movement of said input piston towards said second piston, further movement of said input piston in the same direction causing pressurization of fluid trapped in said control chamber, a reservoir chamber in said housing providing communication between said reservoir and said recuperation valve, first seal means disposed between said boost chamber and said reservoir chamber, second seal means disposed between said control chamber and said reservoir chamber, said seal means being arranged that said control and booster chambers are separated from each other by said reservoir chamber so that upon failure of either of said seal means, fluid from the respective control or boost chamber flows directly into said reservoir chamber and cannot flow from said boost chamber directly into said control chamber or vice versa depending on which of said seal means fails, without first flowing into said reservoir chamber.

4,313,303

BRAKE FORCE BOOSTER, ESPECIALLY FOR MOTOR VEHICLES

Reinhard Resch, Stuttgart, Fed. Rep. of Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

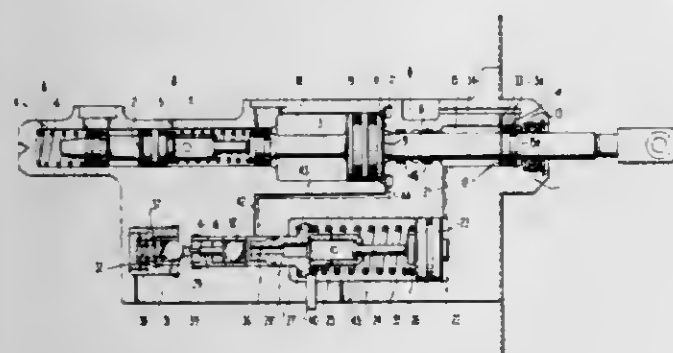
Continuation of Ser. No. 786,772, Apr. 12, 1977, abandoned.

This application Dec. 26, 1978, Ser. No. 973,012

Int. Cl.³ B60T 13/20

U.S. Cl. 60—556

13 Claims



1. A brake force servo-device, comprising a servo-housing, a selectively actuatable control piston means arranged in a cylinder space in the servo-housing, a connecting valve means operatively connected with the selectively actuatable control piston means and with a pressure medium source, said control piston means being operable to displace a flow medium out of the cylinder space for an actuation of the connecting valve means, and working piston means arranged in a working pressure space means adapted to receive a pressure medium from the pressure medium source, the working piston means is acted upon by the pressure medium from the pressure medium source with the pressure of the pressure medium being controlled by the connecting valve means, characterized in that the control piston means is constructed as a one piece differential piston having an annular step and an end face spaced from the annular step, the end face projects into the working pressure space means of the working piston means and is in direct mating engagement with an end face of the working piston means during operation of the brake force servo-device so that a pressure acts on an entire surface of the end face of the differential piston, a first seal means is provided for sealing the control piston means within an area of entry of the control piston means into the servo-housing, a second seal means is provided for sealing the control piston

means in proximity of the end face of the control piston means projecting into the working pressure space means, the first and second seal means defining an annular space therebetween for forming the cylinder space from which the pressure medium is displaced by the control piston means,

the connecting valve means is actuated by pressure medium displaced by the annular step of the control piston means out of the annular space, and in that the pressure source connecting valve means is provided for controlling a supply of the pressure medium to the working pressure space means, the connecting valve means includes a connecting valve piston means having a control pressure space in communication with the annular space, a valve seat piston means acted upon by the connecting valve piston means is provided for actuating the pressure source connecting valve means, and a valve spring means is disposed between the valve seat piston means and the connecting valve piston means, the control piston means produces a control pressure in the control pressure space which acts on a side of the connecting valve piston means opposite the valve seat piston means so as to cause a displacement of the connecting valve piston means and the valve seat piston means, and in that

the valve spring means produces a force which acts on a side of said connecting valve piston means opposite the control pressure space, said force opposing the force provided by the control pressure in the control pressure space acting upon the connecting valve piston means for a displacement of the connecting valve piston means and the valve seat piston means so as to enable an actuation of the pressure source connecting valve means.

4,313,304

RADIANT ENERGY COLLECTION AND CONVERSION APPARATUS AND METHOD

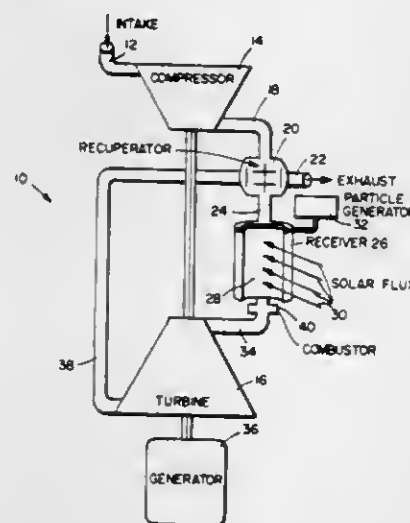
Arlon J. Hunt, Oakland, Calif., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jul. 26, 1979, Ser. No. 61,165

Int. Cl.³ F03G 7/02

U.S. Cl. 60—641.8

15 Claims



1. A method for producing power from solar radiation flux, including the steps of: disbursing radiant energy absorbent vaporizable particles in a fluid stream; passing the fluid stream and disbursed vaporizable particles past the solar radiation flux to heat the particles and the fluid; allowing the particles to vaporize by absorbing solar radiation flux; and

allowing the heated stream to expand through means to produce power.

6. A method of transferring energy including the steps of: providing a hot fluid stream having hot solar radiation vaporizable particles of submicron diameters disbursed therein; vaporizing said particles by solar radiation; providing a cooler fluid stream having cooler solar radiation vaporizable particles of submicron diameters disbursed therein, which particles can be vaporized by said solar radiation; passing the hot fluid stream adjacent the cooler fluid stream to warm the cooler fluid and cooler particles by heat transfer from the hot fluid stream in a heat exchange relationship.

4,313,305

FEEDBACK ENERGY CONVERSION SYSTEM

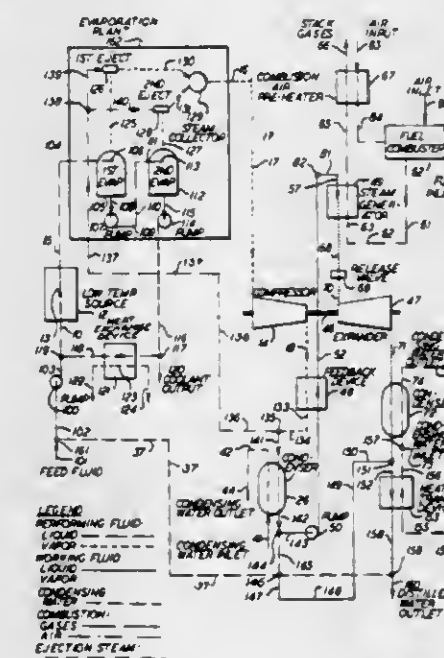
Dan Egosi, 7 Ben Gurion Blvd., Tel Aviv, Israel

Filed Sep. 18, 1979, Ser. No. 76,664

Int. Cl.³ F01K 17/00

U.S. Cl. 60—648

57 Claims



1. A method for increasing the ratio of thermal energy output to heating value of fuel consumed in a heat pumping process which includes delivering a first input stream of thermal energy from a low temperature source to a flow of performing fluid, mechanically compressing said vaporized performing fluid, delivering heat from said compressed performing fluid as at least one output stream of thermal energy at a temperature level higher than that of the low temperature source, consuming fuel to generate a second input stream of thermal energy, and converting part of said second input stream of thermal energy to mechanical energy for performing said mechanical compression, the heating value of the fuel consumed being less than the corresponding output heat delivered, wherein the improvement comprises:

feeding back part of the stream of output heat as a third input stream of thermal energy to the process and converting said third input stream of thermal energy into mechanical energy for performing part of the work of mechanically compressing said vaporized performing fluid, thereby reducing the consumption of fuel otherwise required to produce an equivalent amount of mechanical energy without reducing the total work input required for said mechanical compression.

32. Heat pumping apparatus for providing an increased ratio of thermal energy output to heating value of fuel consumed, the apparatus including means for delivering a first input stream of thermal energy from a low temperature source to a flow of performing fluid in the liquid state, means for evaporating at least part of the flow of performing fluid, mechanical compressor means having an input connected to the evaporat-

ing means for compressing the vaporized part of the performing fluid at a temperature higher than temperature of the low temperature source, heat engine means for consuming fuel as a second input stream of thermal energy and for delivering at least part of the mechanical energy required for driving the mechanical compressor, and means connected to the output of the mechanical compressor means for delivering a greater quantity of heat from said compressed performing fluid as at least one output stream of thermal energy than the heating value of the fuel consumed, wherein the improvement comprises:

means coupled to said means for delivering at least one output stream of thermal energy for returning part of said at least one output stream as a third input stream of thermal energy and

means for converting said third input stream of thermal energy into mechanical energy for performing part of the work of mechanically compressing said vaporized performing fluid, thereby reducing the amount of fuel otherwise required to produce an equivalent amount of mechanical energy.

4,313,306

LIQUIFIED GAS WITHDRAWAL APPARATUS

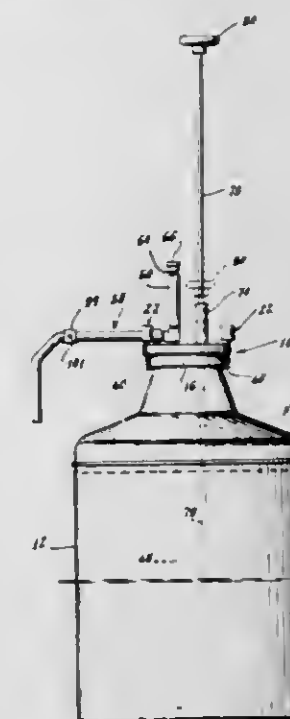
Douglas P. Torre, 7 Parkview Ave., Rowayton, Conn. 06853

Filed Apr. 21, 1980, Ser. No. 142,864

Int. Cl.³ F17C 7/02

U.S. Cl. 62—51

7 Claims



1. Liquefied gas withdrawal apparatus for removing liquefied gas coolant from an enclosed reservoir adapted to receive a quantity of said liquefied gas coolant, said apparatus comprising:

a delivery tube having one end adapted to be immersed in the liquefied gas coolant within said reservoir and capable of conducting the coolant outwardly of said reservoir; means for selectively pressurizing said reservoir in the presence of the coolant to thereby force coolant along said delivery tube, said means including reciprocable rod means selectively slidable in heat exchange relation into and out of said reservoir for contact with said liquefied gas coolant to increase the boiling rate of said coolant and build up pressure in said reservoir; valve means in communication with said delivery tube for selectively blocking the other end of said delivery tube to prevent conduction of said coolant from said reservoir; and

vent means normally open to the atmosphere in communication with the space above the level of coolant in said

reservoir, said reciprocable rod means being received within said vent means to close said vent means to the atmosphere when said rod means is selectively slidable in heat exchange relation into and out of said reservoir.

4,313,307

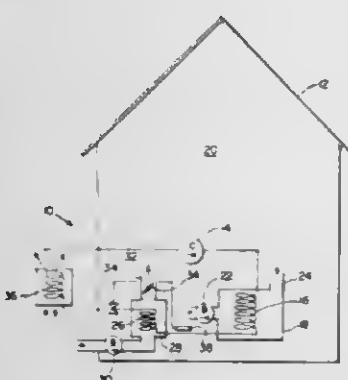
HEATING AND COOLING SYSTEM AND METHOD
Francis J. Sisk, Apollo, Pa., assignor to Electric Power Research Institute, Inc., Palo Alto, Calif.

Continuation of Ser. No. 832,283, Sep. 12, 1977, abandoned. This application Jun. 1, 1979, Ser. No. 44,684

Int. Cl.³ F25B 7/00, 27/02

U.S. Cl. 62—79

3 Claims



1. A method of operating a compression-expansion cycle refrigerating machine for transferring heat from a volume of air within an enclosure to ambient air, the enclosure comprising a mobile refrigerating compartment, and the refrigerating machine including a condenser coil outside the enclosure, an evaporator coil within the enclosure and a subcooler coil connected in a series between the condenser coil and evaporator coil, including the steps of compressing a working fluid, transferring heat from the compressed fluid to the ambient air for condensing the fluid by directing a stream of relative moving ambient air in heat exchange relationship with the condenser coil during movement of the compartment, directing a stream of air for extraction from the volume within the enclosure to the ambient air in heat transfer relationship with the condensed fluid for transferring heat to the stream of air and for subcooling the condensed fluid, said air being extracted from the volume along a path in heat exchange relationship with the subcooler and thereafter to ambient air whereby heat extracted from the subcooled condensed fluid is expelled to ambient air, creating a partial vacuum by movement of the compartment relative to ambient air for extracting air from the compartment along said path in heat exchange relationship with the subcooler coil, reducing the pressure of the subcooled fluid to cause it to expand into a gas while undergoing a reduction in temperature, and transferring heat from the volume of air to the expanded gas with the heat from the subcooled condensed fluid being transferred to the stream of air directed to ambient air for increasing the Coefficient of Performance and Capacity of the refrigerating machine.

4,313,308

TEMPERATURE CONTROL WITH UNDERCOOL PROTECTION

James P. Boratgis, Lee Hill Rd., and Earle S. Pittman, 2269 Mariposa, both of Boulder, Colo. 80302

Filed Sep. 8, 1980, Ser. No. 184,965

Int. Cl.³ F25B 49/00, 29/00

U.S. Cl. 62—126

11 Claims

1. In refrigerator electronic control apparatus for controlling the temperature in and providing a malfunction signal for a refrigeration unit associated with a refrigerated chamber, the combination comprising:

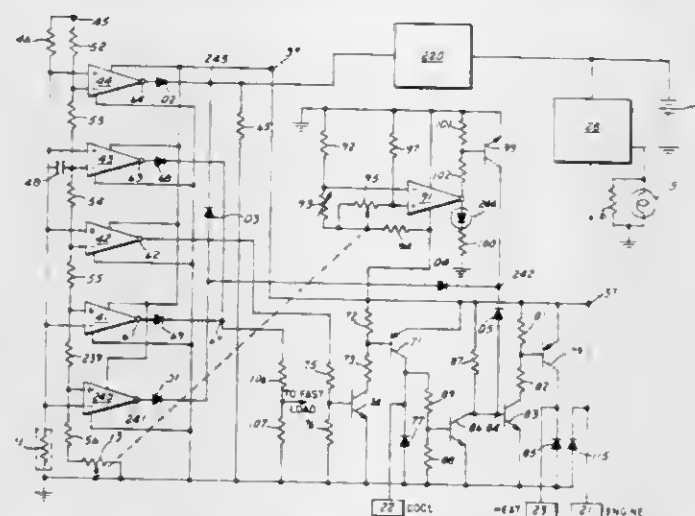
- temperature sensor means for said chamber;
- temperature selector means for said chamber having a range of temperature settings; and

electronic circuit means including:

temperature reference means operatively associated with said temperature selector means, said temperature reference means establishing a plurality of temperature reference points at selected temperature increments above and below a set point,

a comparator associated with each of said temperature reference points, each comparator responsive to an output of the associated set point and to an output of said temperature sensor means, and

control means including a plurality of solid state control elements, each control element responsive to an output of one of said comparators for alternately effecting the actuation of a heat load device in said refrigeration unit when the temperature in said chamber is a selected temperature increment below said set point and effecting the actuation of a cool load device in said refrigeration unit when the temperature in said chamber is a selected temperature increment above said set point to automatically maintain the temperature in said chamber



within a selected temperature range and for also effecting the actuation of a malfunction indicator and disabling a prime mover load device to stop said refrigeration unit in the event of a malfunction in said refrigeration unit when the temperature in said chamber exceeds a selected maximum temperature reference point above said set point and, in the alternative, when the temperature in said chamber exceeds a selected minimum temperature reference point below said set point in a first operating mode, there being shut-off means operatively associated with said temperature selector means including a control element for disabling any heating operation by said refrigeration unit when said temperature is below a selected low temperature and for preventing the actuation of said malfunction indicator due to an undercool condition when the temperature in said chamber exceeds said selected minimum temperature reference point below said set point in a second operating mode, said selected low temperature being below said selected minimum temperature reference point.

4,313,309

TWO-STAGE REFRIGERATOR

Robert D. Lehman, Jr., c/o Vacuudyne Industries Corp., 31 Heisser Ct., Farmingdale, N.Y. 11735

Filed Nov. 23, 1979, Ser. No. 96,644

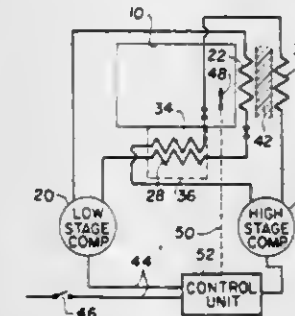
Int. Cl.³ F25B 7/00

U.S. Cl. 62—175

1 Claim

1. Improvements in the operational mode of refrigerating unit of the type used in a room environment and having wall means bounding a freezer compartment for the storage of materials requiring refrigeration, said unit being comprised of a high stage refrigeration system having coil means respectively providing refrigerant compression and evaporation phase changes, and a low stage refrigeration system having coil

means respectively similarly providing refrigerant compression and evaporation phase changes but at lower temperatures, said operational mode including said low stage evaporation coil means being located in refrigerating adjacent relation to said freezer compartment and said condenser coil means thereof and said high stage evaporation coil means being located in heat exchange relation to each other and both said coil means also being located in adjacent relation to said freezer compartment, said improvements in said aforesaid operational mode comprising a temperature-sensitive probe operatively disposed in said freezer compartment, and control means connected from said probe in controlling relation to both said high



and low stage refrigeration systems so as to simultaneously terminate the operation of both said systems upon the achievement of a selected temperature in said freezer compartment such that incident to the termination of the operation of said high stage refrigeration system there is a corresponding termination of the dissipation of heat from the condenser coil means thereof, whereby there is obviated the adverse effect of said high stage condenser coil heat dissipation and both said systems are nevertheless maintained in proper condition to again resume simultaneous operation due to the cooling by said freezer compartment of said coil means in heat exchange relation with each other during said non-operating periods of said systems.

4,313,310

COOLING SYSTEM

Kyoji Kobayashi, Sagami-hara; Takaichi Kosaka, Hino; Sigeki Takahara, Kawasaki, and Akira Tamura, Chiba, all of Japan, assignors to Fujitsu Limited and Fuji Kaden Co., Ltd., both of Japan

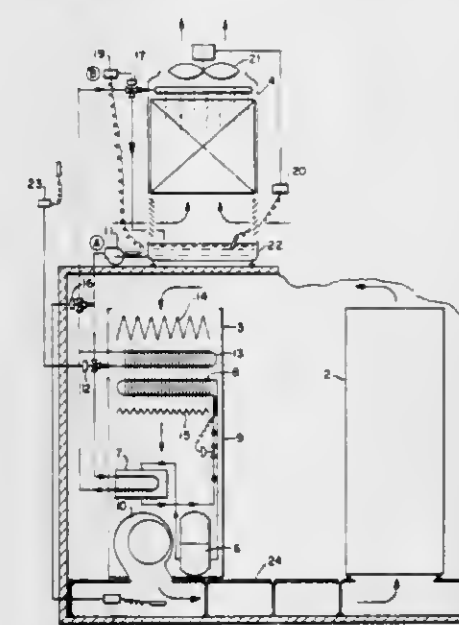
Filed Sep. 3, 1980, Ser. No. 183,736

Claims priority, application Japan, Sep. 7, 1979, 54-115003

Int. Cl.³ F25B 39/04, 25/00

U.S. Cl. 62—175

8 Claims



1. A cooling system comprising:
air conditioning apparatus comprising:
a compressor;
a condenser;

means for connecting said compressor and condenser;
an evaporator;
means for connecting said evaporator to said condenser and said compressor; and
a blower for blowing air passing over said condenser;
an outdoor cooling tower operatively connected to said condenser, for cooling and circulating cold water in a circulation path to and from said condenser;
a cold water switching valve operatively connected in said cold water circulation path; and
a cold water coil connected to said cold water circulation path through said cold water switching valve;
said cold water switching valve selectively switching said cold water circulation path to one of said condenser and said cold water coil in accordance with the temperature of the outdoor air.

4,313,311

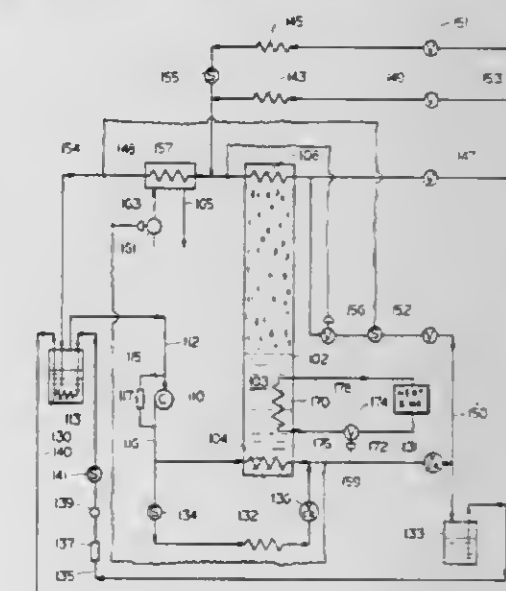
VAPOR GENERATING AND RECOVERING APPARATUS
James W. McCord, 9101 Nottingham Pkwy., Louisville, Ky. 40222

Filed Jun. 4, 1979, Ser. No. 44,955

Int. Cl.³ F25B 41/00; B01D 3/00

U.S. Cl. 62—197

13 Claims



1. In a vapor generating and recovering apparatus for vaporizing a liquid and condensing a vapor, including a housing having at least one compartment therein, said compartment having a liquid and a vapor therein, the improvement comprising:

a heating and cooling system in heat transfer relation with said liquid and said vapor in said compartment, said system including a main condenser in heat emitting relation with said liquid; a main evaporator in heat absorbing relation with said vapor; means to compress a refrigerant, said means to compress being in fluid communication on its high pressure side with said main condenser and on its low pressure side with said main evaporator, said system including expansion means disposed between said main condenser and said main evaporator; and, a first heat exchanger disposed within the liquid zone of said compartment in heat exchange relation with a heat exchanger source outside said heating and cooling system, said first heat exchanger including a heat transfer fluid disposed solely therein to remove heat from said compartment transferring said heat outside said compartment to means to remove heat from said heat transfer fluid, said fluid being independent of said liquid to be vaporized and said refrigerant in said heating and cooling system.

4,313,312

WATER PRODUCING AIR CONDITIONING SYSTEM

Toshio Ito; Hiromasa Matsunaka; Yoshio Hirayama, and Nobuyoshi Takahashi, all of Amagasaki, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

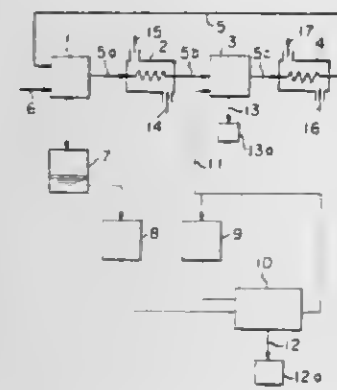
Filed Mar. 24, 1980, Ser. No. 133,432

Claims priority, application Japan, Mar. 22, 1979, 54-34001

Int. Cl.³ F25D 23/00

U.S. Cl. 62—271

6 Claims



1. A system for producing water and conditioning air, comprising:

- a water producing means including means for introducing ambient air, means for adsorbing moisture from said ambient air on an adsorbent to produce hot dry air, means for evaporating said adsorbed moisture to produce steam and means for condensing said steam;
- means connected to said water producing means for utilizing said condensed steam and producing waste water;
- first heat exchanger means connected to said water producing means and adapted to heat exchange said hot dry air with ambient air to produce dry air at ambient temperature and heated air of ambient humidity;
- evaporative cooling means connected to said first heat exchanger means and said means for utilizing said condensed steam, said evaporative cooling means being adapted to contact said dry air at ambient temperature with at least a portion of said waste water to produce cool humid air; and
- means for utilizing said cool humid air to condition the air within a volume.

4,313,313

APPARATUS AND METHOD FOR DEFROSTING A HEAT EXCHANGER OF A REFRIGERATION CIRCUIT

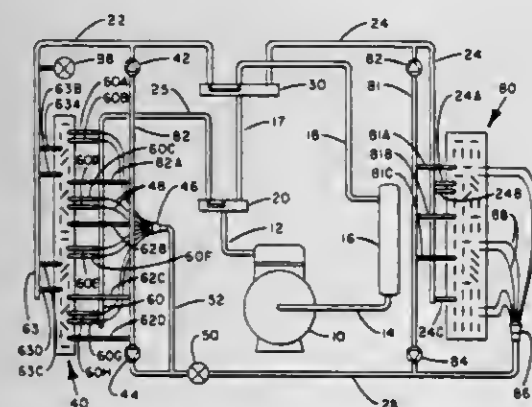
Ronald F. Chrostowski, Liverpool; Rudy C. Bussjager, Syracuse, and James J. del Toro, North Syracuse, all of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Jan. 17, 1980, Ser. No. 112,876

Int. Cl.³ F25B 47/00

U.S. Cl. 62—278

5 Claims



1. A reversible refrigeration system adapted for heating and cooling having a compressor, an indoor heat exchanger, an

- outdoor heat exchanger, a reversing valve and an expansion device associated with each heat exchanger which comprises: a three-way valve connected to the compressor and to the reversing valve;
- an interconnecting line for conducting refrigerant between the indoor heat exchanger and the outdoor heat exchanger;
- a first header connected to the reversing valve for supplying refrigerant to the outdoor heat exchanger when the refrigeration system is in the cooling mode of operation and for receiving refrigerant discharged from the outdoor heat exchanger when the refrigeration system is in the heating mode of operation;
- a second header connected to conduct refrigerant from the outdoor heat exchanger to the interconnecting line when the refrigeration system is in the cooling mode of operation and connected to the reversing valve for conducting refrigerant from the outdoor heat exchanger to the reversing valve when the refrigeration system is in the heating mode of operation;
- an intermediate header assembly including feeder tubes and an intermediate header, the header being connected to the three-way valve and to the feeder tubes, at least some of the feeder tubes being connected to the circuits of the outdoor heat exchanger, said intermediate header serving to conduct refrigerant between circuits of the outdoor heat exchanger when the refrigeration system is in the cooling mode of operation; and
- wherein the expansion device associated with the outdoor heat exchanger is connected to the outdoor heat exchanger through the feeder tubes of the intermediate header whereby upon the three-way valve being appropriately positioned and while the reversing valve is in the heating mode of operation gaseous refrigerant from the compressor may be directed by the three-way valve through the intermediate header assembly to the circuits of the outdoor heat exchanger to effect defrost of said heat exchanger.

4,313,314

AIR CONDITIONER/HEAT PUMP CONVERSION APPARATUS

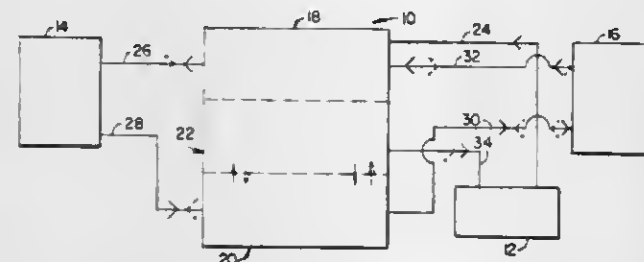
Joseph E. Boyanich, Hixson, Tenn., assignor to Alan Ruderman, Chattanooga, Tenn., a part interest

Filed Aug. 7, 1980, Ser. No. 176,253

Int. Cl.³ F25B 13/00

U.S. Cl. 62—324.1

7 Claims



1. Apparatus for directing a refrigerant from a compressor to a first heat exchanger located within a building and a second heat exchanger located outside the building selectively to cool and heat the first heat exchanger with said refrigerant, said apparatus comprising a housing, a first passageway formed in said housing for receiving high pressure gaseous refrigerant from the outlet of said compressor, means defining first and second cavities in said housing, means communicating said first cavity with said first passageway, means communicating said second cavity with the low pressure inlet side of said compressor, a reversing valve having operator means slideably mounted for movement in said cavities between two positions, means for moving said operator means selectively to one of said positions, a second passageway in said housing communi-

4,313,316

CONDENSER PURGE SYSTEM

Isaiah Vardi, Rehovot; Yigal Kimchi, Ramat Gan, and Jonathan Ben-Dror, Hadar Am, all of Israel, assignors to Tadiran Israel Electronics Industries Ltd., Tel Aviv, Israel

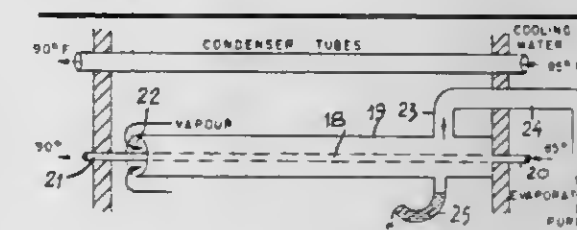
Filed May 15, 1980, Ser. No. 150,137

Claims priority, application Israel, May 16, 1979, 57307

Int. Cl.³ F25B 43/04

U.S. Cl. 62—475

1 Claim



1. In a chiller of the type using water as a refrigerant and an aqueous lithium bromide, or a similar compound, as an absorbant, wherein non-condensable gases and water vapor are purged from a condenser comprising a tube bundle to an evaporator, the improvement which comprises:

- a condenser tube having an inlet means for receiving a cold coolant thereby defining a cold end of the chiller, and an outlet means for removing a warmed coolant thereby defining a warm end of the chiller;
- a concentric tube surrounding the condenser tube, thereby defining an annular space between the condenser tube and the concentric tube, said concentric tube having an inlet means at the warm end for receiving water vapor and non-condensable gas into said annular space, and an outlet means for removing condensed water at the cold end, and an outlet means for removing vapor and non-condensable gases at the cold end, said outlet means for vapor and non-condensables being in communication with said evaporator.

4,313,317

BOREHOLE LOGGING TOOL CRYOSTAT

Sylvain Janssen, Neuilly; Jean Tournet, Montrouge; Alain Zardiansky, Velizy, and Roland Allesch, Antony, all of France, assignors to Schlumberger Technology Corp., Houston, Tex.

Filed Jun. 19, 1980, Ser. No. 161,059

Claims priority, application United Kingdom, Jun. 21, 1979, 21750/79

Int. Cl.³ F25B 19/00

U.S. Cl. 62—514 R

18 Claims

1. A cryostat for a high-sensitivity photon detector and adapted for use in a borehole logging tool, comprising:
- an evacuable housing of generally tubular form;
 - an elongate single-phase heat sink of solid, thermally-conductive material disposed within said housing for thermal contact with a photon detector to be maintained at cryogenic temperatures;
 - means for establishing thermal contact between said heat sink and a cooling means separate from said cryostat, prior to use of the cryostat;
 - at least one rigid thermal shielding means made of a thermally conductive material, disposed within and in a spaced relationship from said housing, said thermal shielding means disposed in a spaced relationship from said heat sink;
 - the thermal shielding means and heat sink having substantially the same heat energy capacity; and
 - means for mounting said heat sink and thermal shielding means in said housing, said mounting means having low thermal conductivity and includes means for permitting

4,313,315

COMPRESSOR REFRIGERATION CIRCUITS

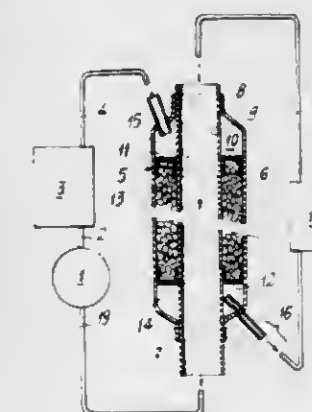
Gabriele Calderoni, Varese, and Gian A. Gavina, Pavia, both of Italy, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 19, 1980, Ser. No. 122,082

Int. Cl.³ F25B 43/04

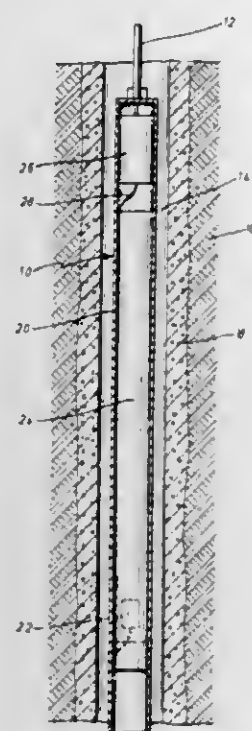
U.S. Cl. 62—475

5 Claims



1. A closed refrigeration circuit which comprises in series a compressor, a condenser, a drier-filter containing a drying-filtering material, a capillary tube, an evaporator, a conduit connecting the evaporator to the condenser and traversing the drier-filter, and a refrigerant fluid for circulation in operation through said series-arranged elements, said drier-filter thereby also serving as a heat exchanger.

differential changes in length of said housing relative to said heat sink whereby, in use, said detector is maintained



at cryogenic temperatures by absorption and retention of heat by said heat sink and thermal shielding means.

4,313,318

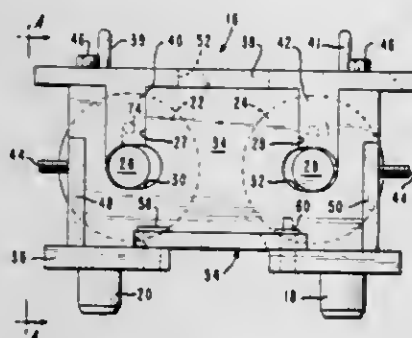
ADJUSTABLE KELLY BUSHING FOR DOWNHOLE DRILLING SYSTEM

Homan C. Tullos, Lafayette, La., and Dewey W. Woods, Livingston, Tex., assignors to Tullos & Woods Tools, Inc., Lafayette, La.

Continuation-in-part of Ser. No. 9,149, Feb. 5, 1979, Pat. No. 4,258,802. This application Jan. 31, 1980, Ser. No. 117,084
Int. Cl.³ E21B 17/00, 3/04

U.S. Cl. 64—23.6

16 Claims



1. An adjustable kelly bushing for use with a drill string provided with a kelly at its upper end, comprising:

- a base;
- support means provided on said base including a plurality of vertical slots formed therein and a pair of shafts mounted in said vertical slots;
- a pair of rollers rotatably mounted on said shafts for receiving and guiding the kelly therebetween, said rollers being adapted to permit vertical movement of the kelly relative to said base but to preclude rotational movement of the kelly;
- insert means adapted to be received in each of said slots and provide a set of apertures wherein said shafts are contained;
- at least one pair of said apertures corresponding to one of said shafts being adapted to permit said shaft to assume different horizontal positions therein; and
- means for adjusting the position of said one shaft in its corresponding apertures to vary the spacing between said rollers to accommodate different sized kellys.

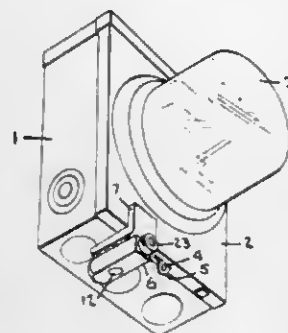
4,313,319 LOCK AND KEY COMBINATION WITH MASTERING CONCEPT

Paul Z. Haus, Jr., 787 Hartwell St., Teaneck, N.J. 07666, and John A. Signorelli, 2150 E. 29th St., Brooklyn, N.Y. 11229

Filed Apr. 14, 1980, Ser. No. 140,255
Int. Cl.³ E05B 67/36

U.S. Cl. 70—34

23 Claims



1. A plunger-type lock having an elongated body with a central, longitudinally extending bore, extensible locking members movable inwardly and outwardly of said body, key-operable plunger means reciprocable longitudinally of said bore for alternately locking said locking members outwardly of said body and permitting said locking members to move inwardly of said body, said body having a key seating face at one end of said bore which faces away from said plunger means and which is exposed at the exterior of said body, said face being at a predetermined distance from a portion of said plunger when the latter is in the position thereof which locks said members outwardly of said body, whereby a key having a plunger means operating portion spaced said predetermined distance from the portion thereof which engages said face can engage said portion of said plunger and move said plunger means longitudinally of said bore, and shaped means on said body and extending from said face for engaging a surface of a key and preventing seating on said face of said last-mentioned key when said last-mentioned key has a configuration which prevents receipt of said shaped means therein.

4,313,320

RIM LOCK WITH CLASSROOM FUNCTION

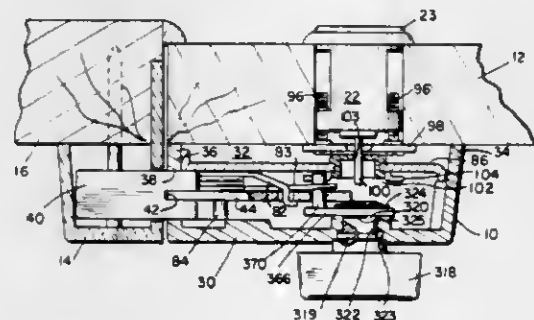
Walter E. Best, and William R. Fosbee, both of Indianapolis, Ind., assignors to Best Lock Corporation, Indianapolis, Ind.

Filed Nov. 30, 1978, Ser. No. 965,186

Int. Cl.³ E05B 65/06, 65/10

U.S. Cl. 70—134

9 Claims



1. A dead bolt rim lock providing classroom function, comprising a case having a front wall, a dead bolt including an integrally connected draw plate, mounted for sliding movement between a projected locking position and a retracted unlocked position, said draw plate extending rearward in the case and having a cross slot therein, a crank arm mounted for rotation in a plane between the front wall and draw plate, a crank pin on said crank arm extending into said slot, said crank pin having a forward centered position substantially on a longitudinal center line intersecting the axis of rotation

of the crank arm when the bolt is in projected position and having a rearward centered position when the bolt is in retracted position, the cross slot having an inner end to contain the crank pin in such centered positions, and extending one way transversely of said center line to allow the pin to move out lengthwise of the slot as the pin swings through 180° between its said centered positions,

a turnknob spindle rotatably mounted through the front wall of the case, the crank arm being mounted on the inner end of the spindle, and a turnknob on the spindle, said crank arm being mounted on said spindle by means providing rotational lost motion therebetween through an angle at least equal to the throw of the crank pin between its centered positions,

means to limit rotation of the turnknob relative to the case, said lost motion and rotation limiting means being so related that the turnknob is operative to retract the bolt and inoperative to advance it.

4,313,321

FUEL TANK LOCK

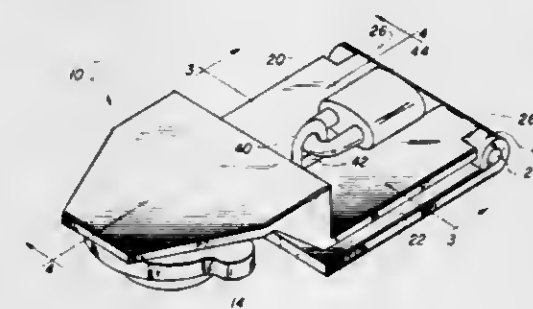
Donald F. Wasser, 214 S. Chestnut, St. Elmo, Ill. 62458

Filed Dec. 5, 1979, Ser. No. 100,427

Int. Cl.³ B65D 55/14

U.S. Cl. 70—159

3 Claims



1. A locking means for a fuel tank having a fuel cap comprising first and second plates joined along one edge by a hinge, said first plate opposite said hinge extending beyond said second plate substantially the width of said fuel cap and matching the curvature of the tank, means for bolting said second plate to the fuel tank, said hinge spacing the first plate from the second plate such that the first plate overlies the means for bolting, said second plate adapted to be bolted to the fuel tank such that the first plate overlies the fuel cap without enclosing it when said first and second plates are hinged closed to prevent removal of the fuel cap, means for shackling said first and second plates closed, said means for shackling the first and second plates closed comprising a staple, a hasp and a padlock, said staple attached to the second plate and said first plate having a slot forming the hasp through which the staple passes whereby the fuel cap cannot be removed and whereby the means for bolting cannot be removed without unshackling the shackling means, said locking means further including a gasket which is attached between said first and second plates and which is attached to the first plate substantially parallel to said hinge.

4,313,322

STRAIGHTENING MACHINE FOR METAL PLATE AND STRIP

Hans Malinowski, and Klaus P. Pielsticker, both of Dusseldorf, Fed. Rep. of Germany, assignors to Schloemann-Siemag Aktiengesellschaft, Dusseldorf, Fed. Rep. of Germany

Filed Nov. 27, 1979, Ser. No. 97,801

Claims priority, application Japan, Jun. 1, 1979, 54/6754

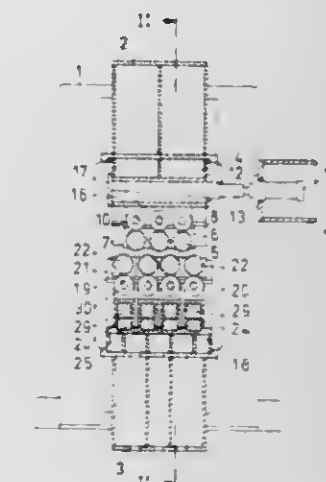
Int. Cl.³ B21D 1/02

U.S. Cl. 72—164

7 Claims

1. A straightening machine for straightening metal plate and strip, the machine comprising a frame on either side of the machine,

cross-members rigidly connecting the frames, an upper set and a lower set of straightening rollers arranged between the cross-members to define a gap between them for a workpiece to be straightened, a plurality of back-up rollers spaced along the length of each straightening roller, back-up roller bearing supports, each support supporting a plurality of rollers, wherein each support supporting rollers associated with one of the sets of straightening rollers extends in the direction of material feed through the ma-



chine and supports back-up rollers of different straightening rollers, and each support supporting rollers associated with the other of the sets of straightening rollers extend at right angles to the direction of material feed and supports back-up rollers all of the same straightening roller, a displaceable wedge means for moving each of the bearing supports towards the roll gap, and biasing means for biasing the straightening rollers, back-up rollers and bearing supports away from the roll gap against the wedge means.

4,313,323

METHOD FOR MANUFACTURING POLY-V PULLEYS

Yukio Kanemitsu, Kobe, Japan, assignor to Gosbi Kaisha Kanemitsu Doko Yosetsu-sho, Akashi, Japan

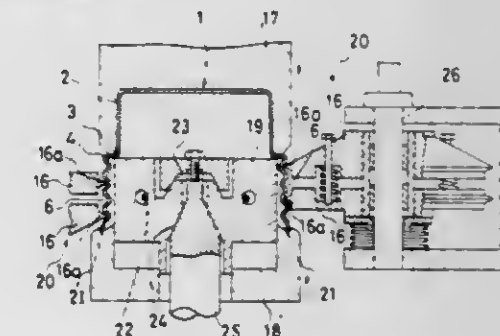
Filed Apr. 30, 1980, Ser. No. 145,100

Claims priority, application Japan, Sep. 4, 1979, 54/113820

Int. Cl.³ B21H 1/00

U.S. Cl. 72—84

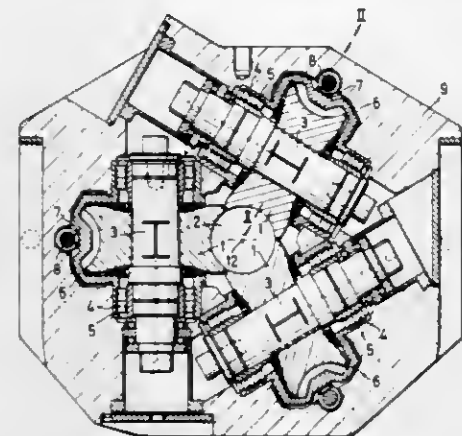
8 Claims



1. An improved method for manufacturing a poly-V pulley for use with a poly-V belt, from a cup-shaped blank having a substantially cylindrical flange wall, comprising the steps of: corrugating the flange wall to form a plurality of roughly dimensioned grooves, innermost edges of the grooves defining an inner surface of the flange wall; axially compressing the corrugated flange wall between a pair of press forms; and, pressing a rotatable finishing roller into each of the compressed grooves of the corrugated flange wall to form a plurality of poly-V grooves of predetermined shape; wherein the improvement comprises the steps of: supporting the flange wall from the inside, during the axial compression, by an inner form having an even outer

surface which contacts the inner surface of the flange wall;
supporting the flange wall from the outside during the axial compression by inserting an auxiliary roller into each of the grooves in the outer surface of the flange; and,
allowing the auxiliary rollers to move axially so as to remain in engagement with the grooves as the flange wall is compressed.

pass in accordance with measurements of said mandrel diameter made prior to insertion whereby said rolls are maintained at



4,313,324

REVERSIBLE BENDING MACHINE

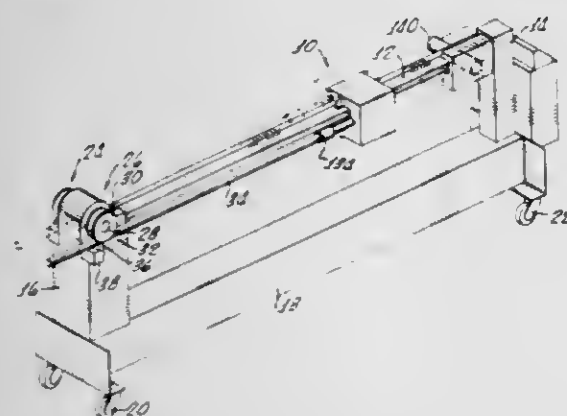
John Pearson, Vista, Calif., assignor to Eaton-Leonard Corporation, Carlsbad, Calif.

Filed Apr. 25, 1979, Ser. No. 33,158

Int. Cl.³ B21D 7/04

U.S. Cl. 72-149

11 Claims



1. A reversible bending machine comprising a bending head having first and second sets of bending dies, a carriage for moving an elongated workpiece in a direction toward said bending head, and means for supporting said carriage for pivotal motion relative to said bending head about a carriage axis extending in said direction so as to selectively position a workpiece at one or the other of said sets of bending dies said carriage including a workpiece holder offset from said carriage axis, said bending dies including at least one die mounted for motion about a bend axis, and including means for mounting said workpiece holder with a limited freedom of motion radially of said bend axis.

4,313,325

PUSH BENCHES

Karl-Hans Staat, Homberg, and Theodor Zacharias, Meerbusch, both of Fed. Rep. of Germany, assignors to Kocks Technik GmbH & Co., Düsseldorf, Fed. Rep. of Germany

Filed Oct. 11, 1979, Ser. No. 83,775

Claims priority, application Fed. Rep. of Germany, Nov. 11, 1978, 2848990

Int. Cl.³ B21B 17/04

U.S. Cl. 72-208

5 Claims

1. A push bench for the production of tube blooms having a plurality of roll stands arranged one behind the other in the direction of pushing, of which at least the last said roll stands participating in reduction of the tube bloom have radially adjustably supported rolls, each said roll stand having radially adjustably supported rolls comprising a roll housing, a plurality of rolls in said housing surrounding a pass line, a mandrel rod for insertion centrally of said pass line and means in said housing moving each of said plurality of rolls radially relative to a mandrel rod each time a mandrel is inserted in the

a preselected radial distance from the periphery of said mandrel rod.

4,313,326

CONTINUOUS ROLLING LINES AND METHODS FOR ROLLING WIRES OR BARS

Ali Bindernagel, Wermelskirchen, and Ernst O. Blos, Hochdahl, both of Fed. Rep. of Germany, assignors to Kocks Technik GmbH & Co., Düsseldorf, Fed. Rep. of Germany

Filed Apr. 28, 1980, Ser. No. 144,384

Claims priority, application Fed. Rep. of Germany, Jun. 21, 1979, 2924954

Int. Cl.³ B21B 1/18

U.S. Cl. 72-230

5 Claims



1. A continuous rolling line for the hot rolling of wire or bars, particularly of alloy steels and difficulty deformable metals and/or alloys comprising at least one repeater rolling unit of at least two stands receiving metal for rolling, an adjustable rolled stock loop incorporated between said at least two stands of said repeater rolling unit, and at least one multi-stand continuous rolling block unit spaced from said repeater rolling unit receiving rolled stock directly from said rolled stock loop of the repeater rolling unit in a traction and compression free manner and forming the exit section of said lines.

4,313,327

EXTRUSION DIE FOR FORMING MULTI-PASSAGE TUBULAR MEMBERS

Joseph M. O'Connor, Chicago, Ill., assignor to Peerless of America, Inc., Chicago, Ill.

Filed Dec. 31, 1979, Ser. No. 108,810

Int. Cl.³ B21C 23/08

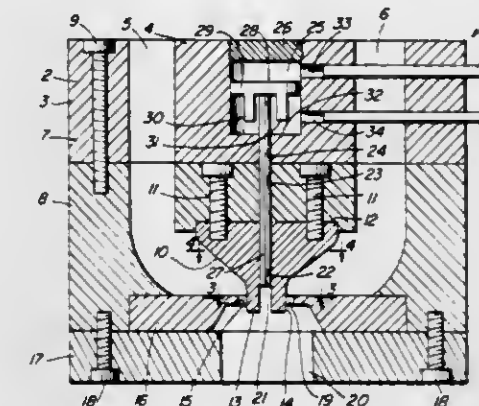
U.S. Cl. 72-265

10 Claims

1. An extrusion die for the extrusion of an elongated multi-passageway tubular member having a partition wall disposed between two adjacent, longitudinally extending passageways, said die comprising

- a. a body portion,
 - (1) mounted on one side of said body portion, and
 - (2) having an opening extending therethrough,
- c. a core
 - (1) mounted on said body portion, and
 - (2) having a portion disposed in said opening in spaced

relation to said die plate in position to define an annular passage through said opening in said die plate
d. said portion of said core having another passageway
(1) opening outwardly therethrough away from said body portion, and
(2) extending transversely thereacross for interconnecting opposite sides of said first mentioned passageway, and
e. said body portion having passage means therein for feeding tube-forming material therethrough into surrounding



relation to said portion of said core for passage outwardly from said die plate through said first mentioned and other passageways to thereby form an extruded, elongated tubular member having a longitudinally extending, internal partition wall disposed between two adjacent, longitudinally extending passageways, and
f. means mounted in said core for interrupting the flow of said tube-forming material through said other passageway and thereby forming an opening through said partition wall.

4,313,328

PROVIDING CARDAN AND UNIVERSAL JOINT-TYPE SHAFTS WITH GEARING

Manfred Janssen, Krefeld; Karl Austermann, Duesseldorf, and Volker Schmidt, Muelheim, all of Fed. Rep. of Germany, assignors to Mannesmann Aktiengesellschaft, Düsseldorf, Fed. Rep. of Germany

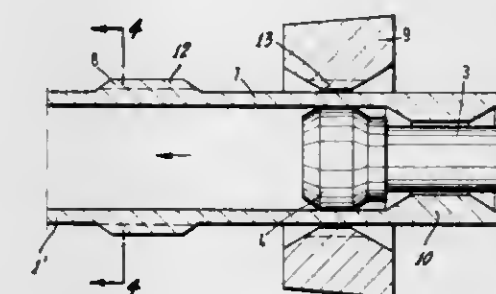
Filed Jun. 20, 1980, Ser. No. 161,354

Claims priority, application Fed. Rep. of Germany, Jun. 25, 1979, 2925927

Int. Cl.³ B21C 37/20

U.S. Cl. 72-276

2 Claims



1. Method of providing universal, joint-type or cardan shafts with gearing, comprising the steps of:
providing a tubular blank with local, annular, radially inwardly and/or radially outwardly extending protrusions; and
imparting upon the protrusions gear profiles by means of drawing under utilization of a plug and of an annular-drawing die, radially aligned with the plug, at least one of the dies and the plug being configured for gear drawing.

4,313,329

UNLOADING APPARATUS

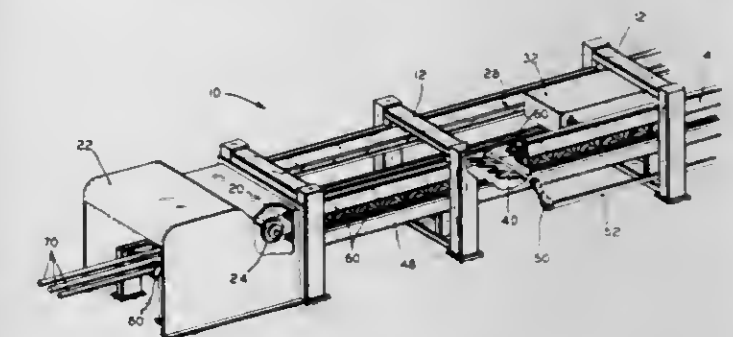
Robert D. Caswall, Jr., and George W. Kaase, both of Perrysburg, Ohio, assignors to Abbey-Etna Machine Company, Perrysburg, Ohio

Filed Dec. 5, 1979, Ser. No. 100,428

Int. Cl.³ B21C 1/27, 1/32, 35/00

U.S. Cl. 72-290

5 Claims



1. A horizontal, longitudinally extending drawbench for producing lengths of stock material, comprising:
(a) a longitudinally extending frame having a longitudinal axis;
(b) a draw carriage longitudinally movably mounted on said frame for drawing said stock material from a shaping die and releasing the lengths of stock material;
(c) a longitudinally movable conveying means disposed directly beneath said draw carriage to move released lengths of stock material parallel with the longitudinal axis of said frame; and
(d) means disposed beneath said draw carriage in alignment with said conveying means for receiving and transferring the released lengths of stock material onto said conveying means.

4,313,330

PIPE BENDING APPARATUS

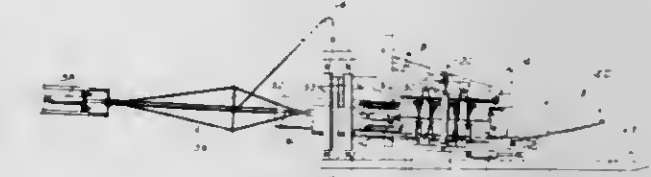
James D. Cummings, Rte. 2, Box 22, San Marcos, Tex. 78666

Filed Mar. 10, 1980, Ser. No. 128,576

Int. Cl.³ B21D 9/05

U.S. Cl. 72-307

11 Claims



1. In an apparatus for bending pipe of the type having a housing section and an upper bending die connected to the housing section, the combination comprising:
a pair of flexible, external bending shoe assemblies carried by said housing and adapted for engaging the outer surface of a portion of the pipe to be bent;
a flexible mandrel aligned between said external bending shoe assemblies, said mandrel inserted into said pipe and adapted for engaging the inner surface of the portion of the pipe to be bent; and
a positioning assembly connected to said mandrel and said housing, said assembly arranged to accurately position the mandrel within the pipe and selectively position the pipe with respect to said apparatus.

4,313,331

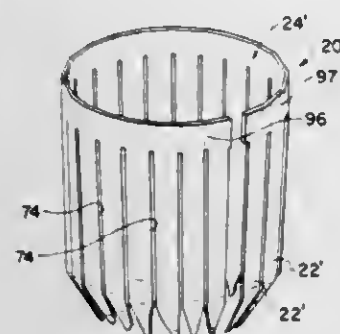
METHOD OF MANUFACTURING A METALLIC RETAINING RING FOR A TUBE

Paul Mode, Westfield, N.J., assignor to Nycoll Company, Fanwood, N.J.

Division of Ser. No. 912,003, Jun. 2, 1978. This application Sep. 5, 1979, Ser. No. 72,663
Int. Cl.³ B21D 53/36

U.S. Cl. 72-368

8 Claims



1. A method of manufacturing a metallic retaining ring for a tube, the retaining ring having a plurality of axially extending inwardly biased gripping fingers, said method comprising the steps of:

- cutting a flat metallic plate to form a flat web portion and a plurality of substantially parallel, laterally spaced elongated fingers depending from and integral with said flat web portion;
- bending said fingers out of the plane of said web portion so that at least a portion of each of said fingers is inclined with respect to the surface of said web portion; and
- bending said web portion around a substantially circular form so as to cause bending of said web portion at a plurality of locations along the lateral width of said web portion to form a multi-sided ring having a plurality of substantially straight side portions with adjacent side portions defining a plurality of corners.

4,313,332

ROTARY FORGING MACHINE

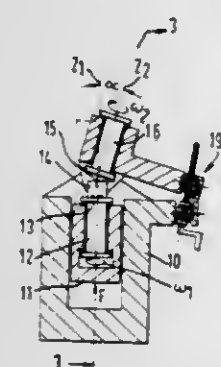
William A. Penny, Brockenhurst, and Robert A. C. Slater, London, both of England, assignors to The City University and The Worshipful Company of Pewterers, both of London, England

Filed Jan. 29, 1980, Ser. No. 116,542
Claims priority, application United Kingdom, Feb. 1, 1979, 03561/79

Int. Cl.³ B21J 13/02

U.S. Cl. 72-406

15 Claims



1. A rotary forging or upsetting machine comprising:
- a machine frame for operatively positioning a plurality of machine elements;
 - a first platen and a second platen operatively disposed at an angle relative to each other within said machine frame;
 - means for operatively rotating both platens about indepen-

dent intersecting axes relative to each other and said machine frame;

- adjustment means for operatively adjusting the angle between the first and second platens while said platens are rotating; and
- displacement means for applying a force to at least one platen to operatively move it towards the other platen.

4,313,333

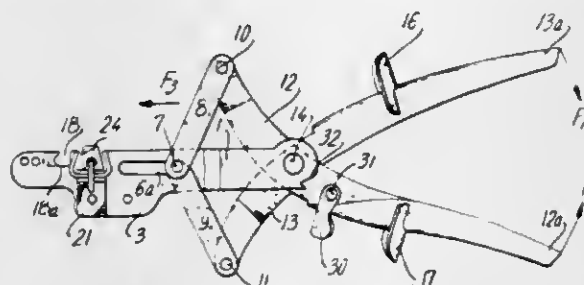
PLIERS FOR POSITIONING CLIPS FORMING CONNECTING RINGS BETWEEN A WIRE NETTING AND SUPPORT WIRES

Roger Malagnoux, and Pierre Grebal, both of Val d'Oise, France, assignors to Societe d'Exploitation des Etablissements Pierre Grebal, Val d'Oise, France

Filed Jan. 30, 1980, Ser. No. 116,891
Claims priority, application France, Jan. 30, 1979, 79 02301
Int. Cl.³ B21D 7/06

U.S. Cl. 72-410

7 Claims



1. A device for positioning clips which form connecting rings between a wire netting and support wires, which comprises:

- a first plate and a second plate forming the body of said device, each of said plates being provided with a recess;
- a fixed spacer part interposed between a portion of one end of each of said plates;
- a mobile part guidable between said plates, said spacer part having substantially the same thickness as said mobile part;
- a pin displaceably journaled in said plates and rigidly connected to said mobile part;
- actuating means for displacing said pin and guiding said mobile part, said actuating means including two arms pivotally interconnected near a front end thereof closest to said plates, and means for operatively connecting said front ends of said arms to said pin; and
- a clip supply magazine mountable to said device for providing clips to one of said recesses to enable deformation of a clip between said mobile part and said fixed spacer part.

4,313,334

STRIKER STARTING MECHANISM OF HYDRODYNAMIC UNIT

Viktor N. Chachin, ulitsa Kulman, 15, kv. 91; Vladimir K. Kolos, ulitsa Kulman, 26, kv. 50; Viktor V. Botyan, ulitsa Lenina, 11/35, kv. 11; Vladimir I. Luzgin, ulitsa Plekhanova, 63, kv. 52, and Vyacheslav A. Kashperko, prospekt Partizansky, 28, korpus 2, kv. 134, all of Minsk, U.S.S.R.

Filed Nov. 19, 1979, Ser. No. 95,390

Int. Cl.³ B21J 7/28

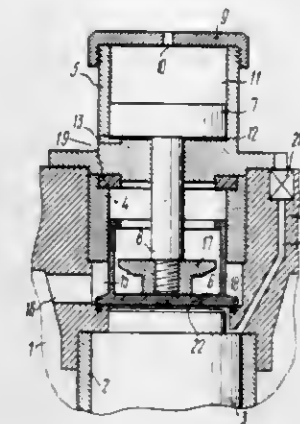
U.S. Cl. 72-453.1

3 Claims

1. A striker starting mechanism of a hydrodynamic unit, comprising: a shaft in which said striker is movable; a compressed gas receiver enveloping said shaft; a lid closing spaces of said receiver and said shaft; a control cylinder and a working cylinder arranged in series one after the other, each cylinder having a piston, said working cylinder being mounted in said lid, and a circular space defined by the end of said working cylinder and the end of said shaft and communicating with the space of said receiver; a rod interconnecting the pistons of said cylinders, the piston of said working cylinder being mounted

for movement relative to said rod; a compressed medium acting upon the piston of said control cylinder to set said piston in

rack structure and for frictionally locking said force applying structure at a selective location around said rack structure upon tilting of said base.



motion and, via said rod, acting upon the piston of said working cylinder.

4,313,335

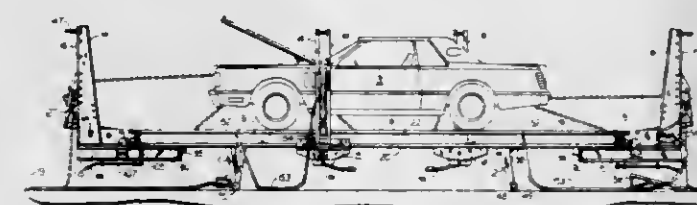
VEHICLE WORK RACK STRUCTURE

Leonard F. Eck, McPherson, Kans., assignor to Kansas Jack, Inc., McPherson, Kans.

Filed Nov. 23, 1979, Ser. No. 96,758
Int. Cl.³ B21D 1/14; B66F 7/16, 7/22

U.S. Cl. 72-457

7 Claims



1. A work rack for correcting misshapen vehicle frame and body portions comprising:

- (a) a rack structure having a vehicle supportive upper surface and with generally continuous front end, rear end and opposite side rack portions having an outer perimeter margin and an inner margin, the inner margin forming an interior opening whereby a vehicle straddles said opening for work access to the vehicle underside;
- (b) front and rear supportive foot members affixed to said rack structure for positioning said rack structure above a floor surface;
- (c) at least one force applying structure having an elongate base extending under one of said rack portions and under said supportive upper surface and having outer and inner rollers secured to said base and respectively engaging said outer and inner rack margins and mounting said base to said rack structure for selectively free translation around said rack structure to a position for exerting a force on a selected area of said vehicle;
- (d) said elongate base being substantially slung from said rack structure by said rollers and shiftable upwardly and downwardly relative thereto at selective locations around said rack structure upon application of force from said force applying structure;
- (e) said force applying structure including a standard mounted on said base, upstanding therefrom and positioned outwardly of the rack structure outer margin; and a force applying means mounted on said force applying structure for operative connection to the vehicle to exert a force thereon and correct misshapen frame and body portions; said force applying means upon exerting a tensioning force on said vehicle, causing said force applying structure to swing slightly toward said vehicle and tilt said base to disengage said outer rollers from said outer rack margin and means mounted on said base for abutting said

4,313,336

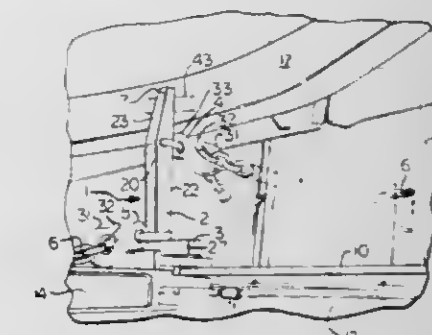
ANCHOR STRUCTURE

Leonard F. Eck, and Michael Lamb, both of McPherson, Kans., assignors to Kansas Jack, Inc., McPherson, Kans.

Filed Oct. 15, 1979, Ser. No. 84,874
Int. Cl.³ B21D 1/14

U.S. Cl. 72-458

3 Claims



1. An anchor structure for exerting force against vehicle structural members during straightening operations thereof and comprising:

- (a) a generally upstanding bar member having an upper end portion, an intermediate portion and a bottom end; said bar member being of a rigid material to resist bending forces applied thereto;
- (b) a base member rigidly secured to said bottom and extending laterally therefrom in a transverse direction to a direction of pull for resting upon a supportive surface, said base member being elongate in shape to form an inverted T-shaped structure with said bar member whereby said bar member and said base member rock forwardly and rearwardly on said supportive surface;
- (c) a lower attachment hook swingably secured to said bar member at said bottom end and upward of said base member and extending therefrom generally perpendicular to a long direction of said base member;
- (d) an upper attachment hook swingably secured to said bar member at said intermediate portion and extending therefrom generally perpendicular to the long direction of said base member and opposite to the direction of extension of said lower attachment hook;
- (e) a first elongate tension member connected to said lower attachment hook and extending away therefrom in a direction opposite to the desired direction of pull, said first tension member having a remote end for securing to an anchor spaced from said bar member and preventing outward movement of base member away from said anchor; and
- (f) a second elongate tension member connected to said upper attachment hook and extending away therefrom in the desired direction of pull, said tension member having a remote end portion for securing to a pulling means spaced from said bar member whereby said pulling means is operable to exert a pulling force on said second tension member and swing said bar member upper end portion theretoward, said upper end portion being engageable against a vehicle structural member to exert a pulling force thereon.

4,313,337

APPARATUS FOR EVALUATING THE IMPACT RESISTANCE OF SYNTHETIC RESINOUS PRODUCTS

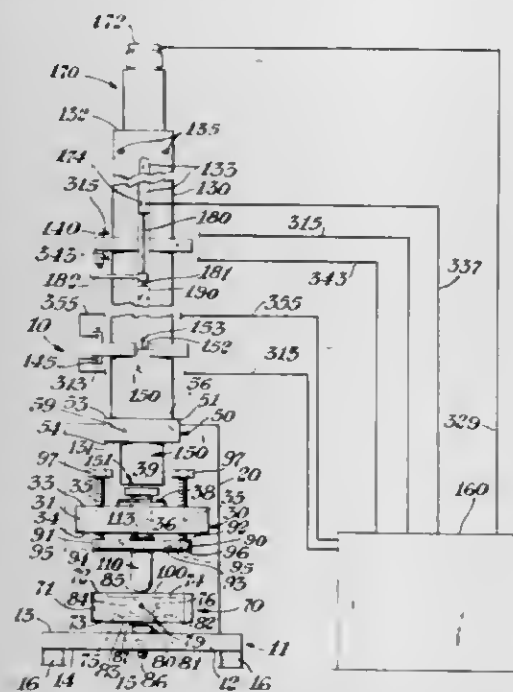
U. Hla Myint, Kowloon, Hong Kong, assignor to The Dow Chemical Company, Midland, Mich.

Filed Mar. 17, 1980, Ser. No. 130,756

Int. Cl.³ G01N 3/34

U.S. Cl. 73-12

8 Claims



1. An improved impact testing apparatus of the type used for the evaluation of synthetic resinous products or test pieces in which a support means serves as a base in cooperative combination with a peripherally supporting sample support means, a slidably supported sample impacting means which is oriented generally normal to the sample support means, and a means for varying the height to which the sample impacting means is raised and dropped thereby imparting an impact energy to an impact region of a test piece, said impact region being a generally central unsupported surface portion of the test piece, and repeatedly imparting the impact energy until failure of the test piece occurs, wherein the sample support means is a ring pedestal which is connected to the support means and a peripherally supporting reversible sample receiving means having a first end and an opposing second end, the peripherally supporting reversible sample receiving means being supported by the ring pedestal so as to define a first support diameter when the first end of the peripherally supporting reversible sample receiving means is remote from the ring pedestal and a second support diameter when the second end of the peripherally supporting reversible sample receiving means is remote from the ring pedestal.

4,313,338

GAS SENSING DEVICE

Atsushi Abe, Ikoma; Hisahito Ogawa, Katano; Masahiro Nishikawa, Amagasaki; Satoshi Sekido, Yahata, and Shigeru Hayakawa, Hirakata, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Aug. 14, 1979, Ser. No. 66,332

Claims priority, application Japan, Aug. 18, 1978, 53/101100; Aug. 18, 1978, 53/101101; Aug. 23, 1978, 53/103026

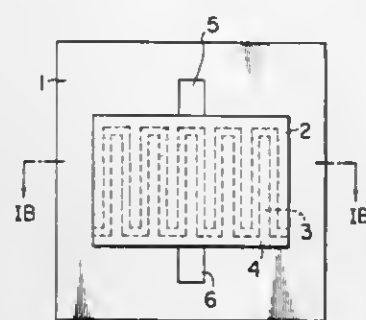
Int. Cl.³ G01N 27/12

U.S. Cl. 73-23

18 Claims

1. A gas sensing device comprising: a substrate of an electrically insulating material, a film deposited on one surface of said substrate, said film being comprised of an aggregate of ultrafine particles having a mean diameter of between about 10 and several hundred angstroms and a resistance of said film varying as a function of the pressure of a gas to be detected, a heating means for heating said film to a predetermined

temperature in accordance with the gas to be detected, and



a pair of electrodes disposed on said surface of the substrate for measuring the resistance of said film.

4,313,339

RHEOMETER AND RHEOLOGICAL MEASURING METHOD

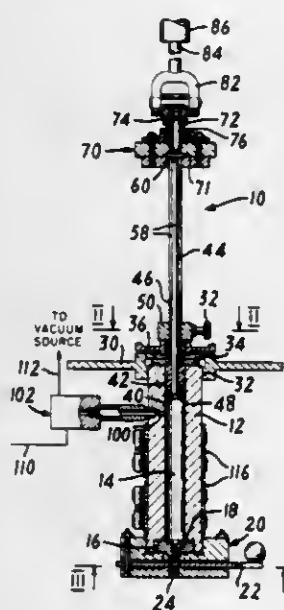
Walter A. Nichols, Richmond, and George L. Mathe, Bon Air, both of Va., assignors to Philip Morris Incorporated, New York, N.Y.

Filed Mar. 19, 1980, Ser. No. 131,745

Int. Cl.³ G01N 11/04

U.S. Cl. 73-56

22 Claims



13. A method of measuring the rheological properties of a material comprising the steps of:

- (a) loading the material to be tested into a chamber having a discharge orifice;
- (b) occluding the discharge orifice to retain the material within the chamber and mixing the material while it is so retained; and
- (c) forcing the mixed material out of the chamber through the discharge orifice in a controlled manner and monitoring the discharge to determine the rheological properties.

4,313,340

DEVICE FOR MEASURING THE SOLIDS CONTENT OF A LIQUID

Manfred Schniewind, Essen, Fed. Rep. of Germany, assignor to Ihle Ingenieurgesellschaft mbH, Düsseldorf, Fed. Rep. of Germany

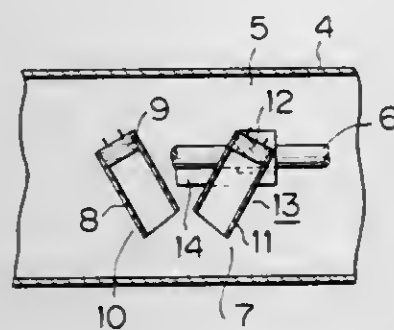
Filed Feb. 8, 1980, Ser. No. 119,956

Claims priority, application Fed. Rep. of Germany, Mar. 31, 1979, 2913058

Int. Cl.³ G01N 15/04

U.S. Cl. 73-

transmitting means disposed in the toner hopper for generating an ultrasonic acoustic wave;
receiving means disposed in the toner hopper and in operative relation to said transmitting means for receiving the wave generated by said transmitting means after reflection from toner contained in the hopper and for producing a signal in representative accordance with the received wave; and



circuit means connected to said receiving means for converting said signal into an indication of the level of toner contained in the hopper, said transmitting and receiving means being so disposed in the hopper that the toner contained therein covers at least a portion of said transmitting and receiving means when the level of toner is at a maximum and said transmitting and receiving means are uncovered when the level of toner has receded to the predetermined point for replenishment.

4,313,344

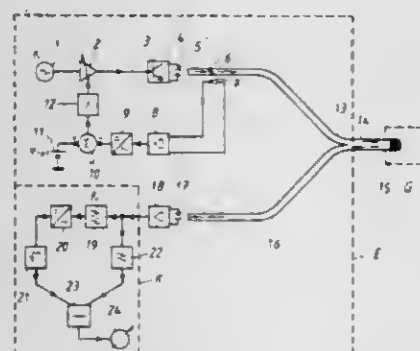
FIBER OPTICAL TEMPERATURE MEASUREMENT DEVICES

Torgny Brogardh, and Lars Sander, both of Vasteras, Sweden, assignors to Asea Aktiebolag, Vasteras, Sweden
Filed Nov. 30, 1979, Ser. No. 98,844

Claims priority, application Sweden, Dec. 5, 1978, 7812480
Int. Cl.³ G01J 5/28

U.S. Cl. 73—355 R

15 Claims



1. Fiber optical measuring device for measuring the temperature of a temperature sensitive object, comprising:
means for radiating light;
a transducer reflecting light from said means for radiating light and including said temperature sensitive object emitting temperature induced radiation, said reflected light and said emitted radiation respectively representing a reference signal and a measuring signal and forming a composite signal;
detector means for detecting said composite signal and providing a composite output signal;
separating means responsive to said composite output signal for separating said reference signal and said measuring signal to produce an electrical reference signal and an electrical measuring signal, respectively;
at least one optical fiber for interconnecting said means for radiating light and said transducer, and for interconnect-

ing said detector means and said transducer to transmit said composite signal;
means for combining said electrical reference and said electrical measuring signal to provide an output signal representative of the temperature of said temperature sensitive object compensated for instabilities in said transducer, detector means, separating means, and said at least one optical fiber; and
wherein said means for combining further includes circuit means responsive to said electrical reference signal for generating another output signal representative of the square root thereof, and said another output signal and said electrical measuring signal are combined to produce said output signal.

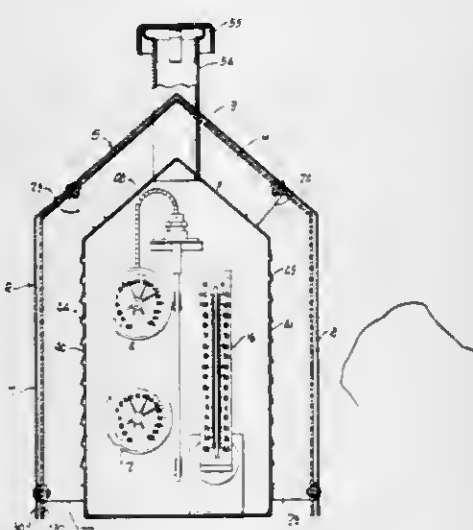
4,313,345

OUTDOOR WEATHER INSTRUMENTATION STATION

Alan C. Abele, P.O. Box 173-1, Zelienople, Pa. 16063
Division of Ser. No. 18,737, Mar. 8, 1979, Pat. No. 4,233,841.
This application Jun. 2, 1980, Ser. No. 155,613
Int. Cl.³ G01D 11/24

U.S. Cl. 73—431

16 Claims



1. An outdoor weather instrumentation station comprising, an instrument housing adapted to receive at least one weather instrument therein, a weather instrument disposed in said housing, an exterior housing radiation shield disposed over the roof and down and completely around the sides of the instrument housing to shield the instrument housing from the sun such that the sun cannot shine on any part of said housing, and means for securing the radiation shield in spaced relation to the instrument housing to provide an air space therebetween.

4,313,346

ACCELEROMETERS

Norman F. Shillam, Farnborough, England, assignor to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England
Filed Mar. 3, 1980, Ser. No. 126,255

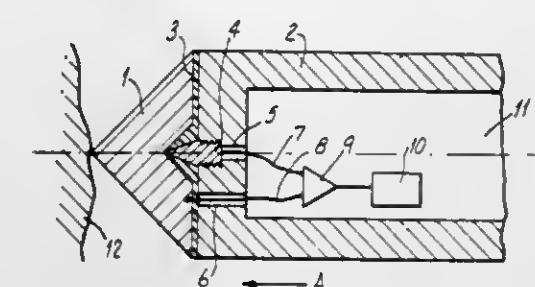
Claims priority, application United Kingdom, Mar. 1, 1979, 07291/79
Int. Cl.³ G01P 15/08

U.S. Cl. 73—517 R

5 Claims

1. An accelerometer including a thermocouple circuit which comprises a movable member and a second member, part of said second member abutting a part of said movable member, wherein abutting parts of said members include a cutting portion and wherein said parts are composed of dissimilar metals,

and recording means connected to the members for recording a thermoelectric signal generated when said cutting portion



cuts the abutting part of said other member during acceleration.

4,313,347

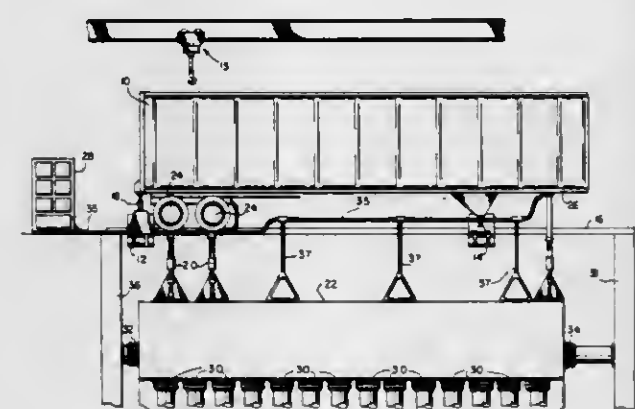
ENVIRONMENTAL TESTING SYSTEM

Frederick H. Hull, Ft. Washington, Pa., assignor to The Budd Company, Troy, Mich.

Filed Apr. 7, 1980, Ser. No. 137,729
Int. Cl.³ G01N 29/04

U.S. Cl. 73—669

8 Claims



1. An environmental testing system for a product comprising:

- a seismic mass;
- a series of mounts having air cushioning means thereon for supporting said seismic mass;
- a pit having a floor, a pair of side walls and a pair of end walls for receiving said seismic mass therein said mounts being connected between said seismic mass and said floor, said side walls and said end walls;
- means including a plurality of actuators adapted to be connected between said seismic mass and said product under test;
- means including servo valves for driving said actuators to vibrate said product under test with the reaction forces generated by said seismic mass being absorbed by said seismic mass on said air cushioning means; and
- said seismic mass having a "T" shaped cross section including a top section extending parallel to said floor of said pit and a leg section extending downwardly from the center of said top section towards said floor of said pit whereby said seismic mass is supported on said air mounting means at its center of gravity.

4,313,348

METHOD OF STRESS GRADING TIMBER LENGTH

Borge S. Madsen, North Vancouver, Canada, assignor to South African Inventions Development Corp., Pretoria, South Africa
Filed Apr. 25, 1980, Ser. No. 143,962

Claims priority, application South Africa, May 2, 1979, 79/2112
Int. Cl.³ G01N 3/20

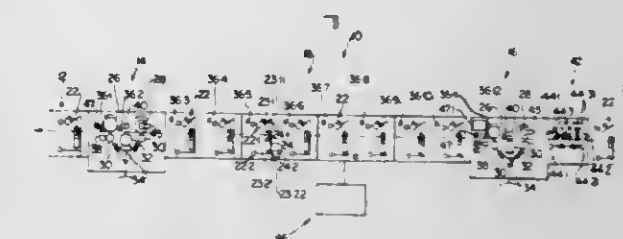
U.S. Cl. 73—852

15 Claims

1. A method of stress-grading a timber length in terms of its

load-bearing ability when loaded as a simple beam, which comprises

measuring the minimum stiffness of the timber length;
measuring the clear stiffness of the timber length; and



using the independent predictors constituted by said minimum stiffness and said clear stiffness in conjunction to classify the timber length into a particular grade according to its load-bearing ability when loaded as a simple beam.

4,313,349

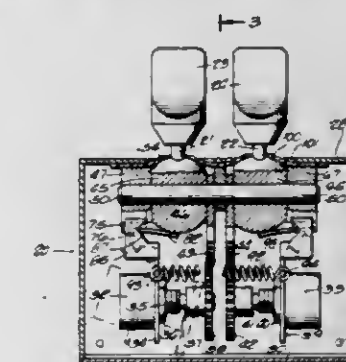
SEALED ELECTRICAL CONTROL DEVICE FOR X-RAY APPARATUS

Christopher J. Heitman, Milwaukee, and Joseph A. Becker, Waukesha, both of Wis., assignors to General Electric Company, Schenectady, N.Y.

Filed Jan. 2, 1980, Ser. No. 109,022
Int. Cl.³ G05G 1/04

U.S. Cl. 74—507

5 Claims



1. A device for controlling an x-ray beam collimator comprising:

- a frame member for being mounted in a fixed position, an element having a spherical surface, said element being supported from the frame member for rotation relative to said member and a manually engageable lever extending from said element for rotating said element,
- first gear means rotatable with said spherical element about the rotational axis of said element,
- pivotally mounted bracket means and a potentiometer mounted on said bracket means, said potentiometer having an operating shaft extending from it,
- second gear means fastened to the potentiometer shaft for meshing with said first gear means when said pivotal bracket means is in one of its angular positions and for being unmeshed when said bracket means is in other of its angular positions,
- spring means for urging said bracket means into a position where said gear means are caused to mesh,
- a wall member on which said frame member is supported, said wall member having a hole into which the spherical surface of said element protrudes and through which said operating lever extends, and a pliant generally planar element interposed between said frame member and wall member, said pliant element having a hole through which said lever extends and which provides a marginal region around said hole that is deflected by said protruding spherical surface to form a lip seal therewith.

4,313,350

ANTI-SCALD APPARATUS FOR A TUB AND SHOWER SINGLE CONTROL FAUCET

Robert J. Keller, III, Chester, Va.; Brian G. Fox, Dover Center, and Benjamin A. Korec, Cambridge, both of Canada, assignors to KEL-WIN Manufacturing Co., Inc., Chester, Va.

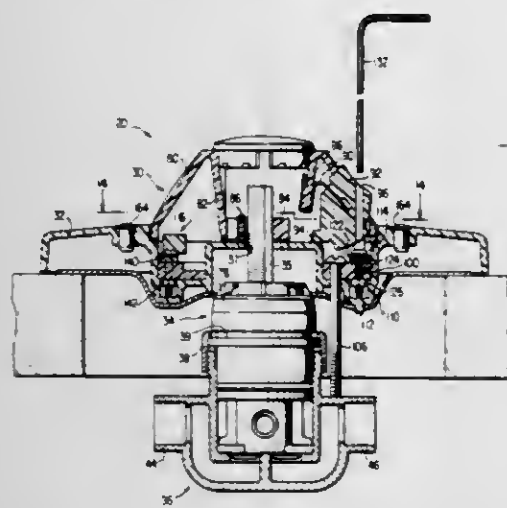
Division of Ser. No. 906,072, May 15, 1978, Pat. No. 4,220,175.

This application Feb. 21, 1980, Ser. No. 123,156

Int. Cl.³ G05G 1/08; F16K 51/00

U.S. Cl. 74—526

4 Claims



1. In an anti-scald apparatus for a tub and shower single control faucet, the combination which comprises:
 - a cover plate member, said cover plate member having a substantially circular groove therein,
 - a slotted ring member received in said substantially circular groove of said cover plate member,
 - a plurality of stop members selectively positionable on said slotted ring member,
 - means to orient said slotted ring member with respect to said cover plate member,
 - and a handle member rotatably mounted with respect to said cover plate member and means extending through said handle member to adjust the position of at least one of the stop members on said slotted ring member.

4,313,351

MULTIPLE-POWER GEAR DRIVE TRANSMISSION AND DRIVE ASSEMBLY INCLUDING SUCH TRANSMISSION, AND BRAKE ENERGY ACCUMULATOR

Faust Hagin, Munich, Fed. Rep. of Germany, assignor to Maschinenfabrik Augsburg-Nürnberg Aktiengesellschaft, Fed. Rep. of Germany

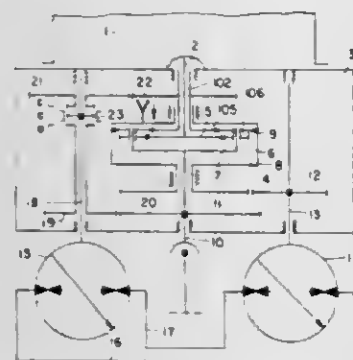
Filed Mar. 6, 1979, Ser. No. 18,357

Claims priority, application Fed. Rep. of Germany, Mar. 8, 1978, 2810086

Int. Cl.³ F16H 47/04, 37/06

U.S. Cl. 74—687

19 Claims



1. In a multiple-power gear drive transmission comprising a planetary differential gear drive including at least first, second and third drive elements; a gear drive input shaft connected

with at least one of said drive elements; a gear drive output shaft connected with another of said drive elements; a first positive-displacement machine operable in both directions being coupled to a third of said drive elements for controlling the direction of rotation and speed of rotation thereof; and a second positive-displacement machine being energy-transmissively coupled with said first positive-displacement machine; the improvement comprising said planetary differential gear drive includes two sun gears having different diameters; a web gear being arranged on dual planetary gears, said dual planetary gears meshing with said sun gears and with an internal gear wherein said larger sun gear is connected with said gear drive input shaft; and shift couplings for selectively connecting said second positive-displacement machine in dependence upon the speed of rotation of said gear drive output shaft with either said gear drive output shaft or with the smaller sun gear.

4,313,352

PEDAL FOR A BICYCLE

Shinpei Okajima, Sakai, Japan, assignor to Shimano Industrial Company Limited, Osaka, Japan

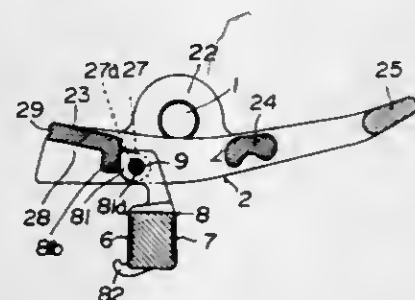
Filed Nov. 2, 1979, Ser. No. 90,856

Claims priority, application Japan, Nov. 11, 1978, 53-155527[U]

Int. Cl.³ G05G 1/14

U.S. Cl. 74—594.4

1 Claim



1. A pedal for a bicycle, which is supported rotatably to a crank arm, said pedal comprising:
 - a pedal shaft;
 - a pedal body supported rotatably to said crank arm through said pedal shaft, said body being vertically displaced at the center downward with respect to said shaft, and said pedal body being provided at an upper surface thereof and at both sides of said pedal body longitudinally of the bicycle with at least first and second foot bearing surfaces and at a portion lower than said foot bearing surfaces with bearings for journaling a support;
 - a support having at one end reflectors and being supported swingably to said pedal body at a portion between said foot bearing surfaces by said bearings at a remaining end of said support, said support being adapted to swing between a position where said support is substantially vertical with respect to a plane including said first and second foot bearing surfaces, projecting downwardly from a lower surface of said pedal body, and a position where said support is substantially horizontal with respect to said plane, said support being restricted in one rotational direction by an abutment on said bearings which engages a continuous portion of said first foot bearing surfaces when said support is vertical;
 - under said first surface a receiving chamber for receiving said support when said support is horizontal to said plane; and
 - a retaining means located on one of said pedal body and support, a remaining of said pedal body and support being provided with an engaging means for receiving said retaining means only when said support swings into a horizontal plane, said engaging and retaining means being disengageable releasing said support to assume a vertical orientation.

4,313,353

CONTROL SYSTEM FOR AN AUTOMATIC TRANSMISSION

Ernst-August Honig, Wolfsburg, Fed. Rep. of Germany, assignor to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Fed. Rep. of Germany

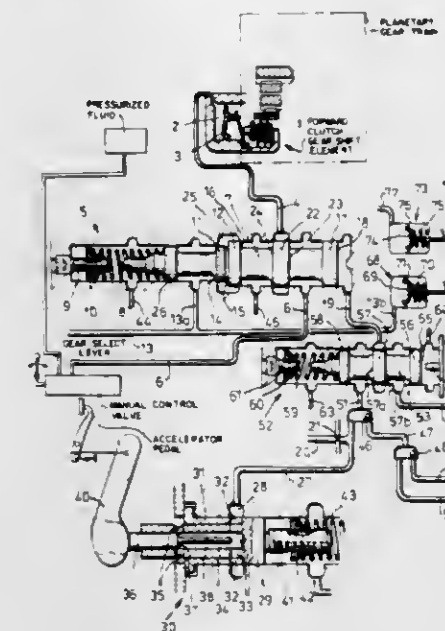
Filed Oct. 10, 1979, Ser. No. 83,383

Claims priority, application Fed. Rep. of Germany, Oct. 13, 1978, 2844665

Int. Cl.³ B60K 41/04, 41/10

U.S. Cl. 74—868

8 Claims



1. In a control system for an automatic transmission of a motor vehicle having an accelerator pedal, said transmission having a mechanical planetary gear train with at least one hydraulically actuatable gear shift element, a gear select lever having a plurality of selectable forward drive positions, a source of first pressurized hydraulic fluid, a manual control valve means, responsive to the position of said accelerator pedal and the speed of said vehicle, for controlling the supply of said first fluid from said manual control valve to said selected element, said main control valve comprising a piston having a first piston surface, said piston being displaceable between a first position for connecting said supply of first fluid and a second position for interrupting said supply of first fluid, spring means acting on said piston, and means communicating with said main control valve for delivering an accelerator pedal position-dependent second fluid pressure for acting on said first piston surface in opposition to said spring means, wherein upon release of said accelerator pedal said second fluid pressure is reduced such that said spring means moves said piston into said second position; the improvement wherein said piston has a second piston surface opposed to said first piston surface, and means for providing a vehicle speed-dependent third fluid pressure for acting on said second piston surface in opposition to said accelerator pedal position-dependent pressure only when said piston is in said second position.

4,313,354

DOWNSHIFT VALVE IN HYDRAULIC TRANSMISSION CONTROL SYSTEM

Kazuyoshi Iwanaga, Yokohama; Kazuhiko Sugano, Tokyo, and Kunio Ohtsuka, Yokohama, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Nov. 8, 1978, Ser. No. 958,925

Claims priority, application Japan, Aug. 30, 1978, 53-105898

Int. Cl.³ B60K 41/10, 41/06

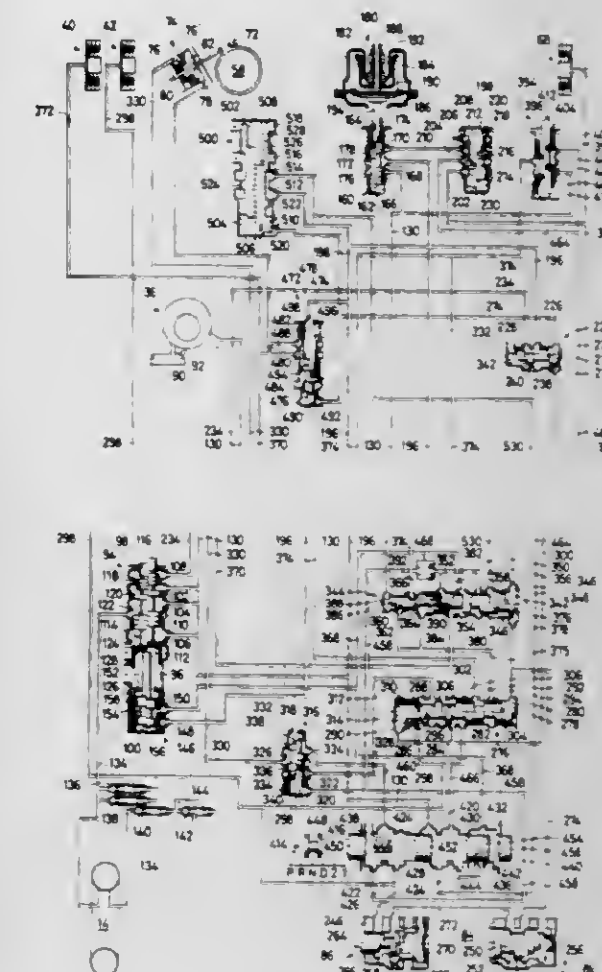
U.S. Cl. 74—869

6 Claims

1. A downshift valve in a hydraulic control system for an automatic power transmission in which the hydraulic control

system includes at least one shift valve which is responsive to a governor pressure variable with vehicle speed and a throttle pressure variable with engine load and which is operable between a lower gear ratio condition and a higher gear ratio condition depending upon the relationship between the governor pressure and the throttle pressure, comprising

a valve element which is constantly communicated with and exclusively responsive to the governor pressure and the



throttle pressure and movable into and out of a predetermined position providing communication between said shift valve and a source of said throttle pressure for forcing the shift valve to be in said lower gear ratio condition thereof, the governor pressure being effective to urge the valve element to move away from said predetermined position of the valve element; and biasing means urging the valve element to move toward said predetermined position thereof.

4,313,355

METHOD AND APPARATUS FOR MANUFACTURING PLASTIC LENSES

Ronald K. Becker, Arlington, and Donald R. Korb, Boston, both of Mass., assignors to Syntex (U.S.A.) Inc., Palo Alto, Calif.

Division of Ser. No. 875,394, Feb. 6, 1978, Pat. No. 4,202,226.

This application Oct. 19, 1979, Ser. No. 86,470

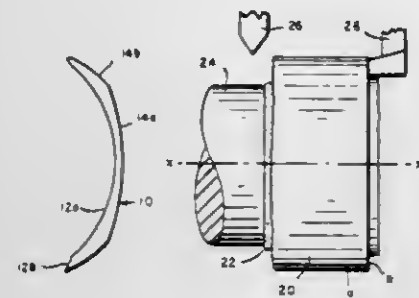
Int. Cl.³ B23B 1/00, 5/40

U.S. Cl. 82—1 C

16 Claims

1. The method of making contact lenses comprising supporting a lens blank at one end for rotation about a predetermined axis, turning the side surface of the blank down to a true cylinder of predetermined diameter, facing the distal end of the blank in a plane perpendicular to the axis of rotation to form an annular surface of predetermined radial width, generating a concave surface at said end of predetermined depth at the center with respect to the plane of the annular surface leaving a predetermined portion of said annular surface intact, reversing the blank, generating a convex surface at the opposite end

on a radius centered on the axis of rotation at the concave side of the blank corresponding to the depth of the concave surface plus the thickness at the center of the lens to be made and



thereafter generating a convex surface at said end on a radius centered on the axis of rotation at the concave side which is greater than the radius of curvature of the concave surface and less than that of said convex surface.

4,313,356

METHOD OF REMOVING FRONT AND REAR SEGMENTS OF WIRE ROD

Gerd Artz, Ratingen, Fed. Rep. of Germany, assignor to Fried. Krupp Gesellschaft mit beschränkter Haftung, Essen, Fed. Rep. of Germany

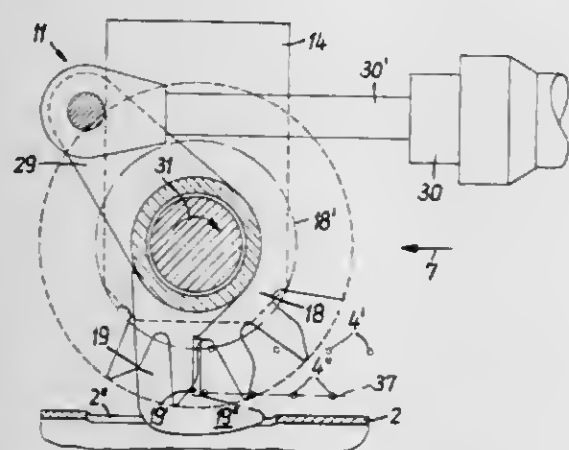
Filed Mar. 20, 1980, Ser. No. 132,302

Claims priority, application Fed. Rep. of Germany, Apr. 28, 1979, 2917305

Int. Cl.³ B21F 11/00

U.S. Cl. 83—37

6 Claims



1. A method of removing front and rear segments of a rolled wire which is fed in the form of winding packages to a collecting device and is subdivided by separating procedures into good and scrap windings, said method including the steps of: spirally placing the windings of successive winding packages around a guide element; transporting said windings parallel to the longitudinal extension of said guide element; continuously and repeatedly separating the scrap windings of the front and rear segments of respective winding packages in such a way that said separated scrap windings drop from said guide element; and temporarily hindering participation of a respective good winding and a respective scrap windings of a rear segment in their transport movement toward said collecting device for the purpose of separating a respective scrap winding from the windings.

4,313,357 WORKPIECE SUPPORT AND DISCHARGE SYSTEM FOR POWER SQUARING SHEARS

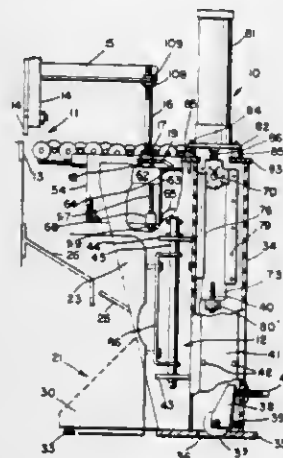
Paul F. Hawkins, Greensboro, N.C., assignor to Wysong & Miles Company, Greensboro, N.C.

Filed May 15, 1980, Ser. No. 150,006

Int. Cl.³ B26D 7/27

U.S. Cl. 83—81

18 Claims



1. A vertically displaceable and tiltable workpiece support table for power shears, said shears having a stationary blade and a movable blade movable relative to the stationary blade to provide a shearing action along the shearing edges of said blades, said stationary blade having a shearing edge which is normally horizontally disposed at a predetermined level, comprising a displaceable table top, a frame for supporting said displaceable table top on the back side of the power shears with the table disposed rearwardly of the stationary blade and normally in a level position at substantially the same level as the shearing edge of said stationary blade, said frame including a pair of horizontally spaced upright side members each having an inner vertically disposed planar surface which is parallel to and faces the planar surface of the other upright member, a pair of vertically displaceable brackets, one of said brackets being supported on each of said planar surfaces, each of said brackets having a horizontally disposed roller receiving track section, and a vertically disposed roller receiving track section,

first roller means rotatably mounted adjacent the inner planar surface of each of said side members and disposed in the vertically disposed roller receiving track section of one of said vertically displaceable brackets for guiding said bracket in vertical displacement between predetermined upper and lower limits, said table top having a top work support surface, a front, a back, and parallel opposite sides connecting said front and back,

second roller means rotatably mounted on each of the opposite sides of said table top, said second roller means being spaced at equal distances from the front of said table and closer to the front than to the back, said second roller means on each side of said table top being received in the horizontally disposed roller receiving track section of one of the vertically displaceable brackets and movably guided therein,

vertical guide ways on each side of said frame rearwardly of said vertically displaceable brackets, rear table support means journaled on each side of said table adjacent said back,

the rear table support means on each side of said table being engaged in an adjacent one of said vertical guide ways for vertical reciprocation between upper and lower limits, the lower limit of movement of said rear table support means being substantially lower than the lower limit of movement of the horizontal track sections of said vertically displaceable brackets whereby the rear portion of said table top is displaceable downwardly a greater distance from the normal level position of said table top than the

distance which the front portion of said table top is displaceable so that the table top tilts down rearwardly when the rear portion of said table top is displaced downwardly a greater distance than the front portion of said table top, means equalizing the vertical movement of said rear table support means in said vertical guide ways on the opposite sides of said frame,

actuating rod means connectable between the movable blade of said shear and said vertically displaceable brackets for depressing said vertically displaceable brackets and consequently said table top downwardly as said movable blade descends for shearing a workpiece, and

power lifting means mounted on each side of said frame and connected with said rear table support means for normally holding said table top in its normal level position, said power lifting means being automatically operable to permit descent of said table top when said movable shear descends for shearing a workpiece, and automatically operable to lift said table top when the movable shear blade ascends to a predetermined upper level after shearing a workpiece.

4,313,358

DYNAMICALLY BALANCED TRIM PRESS

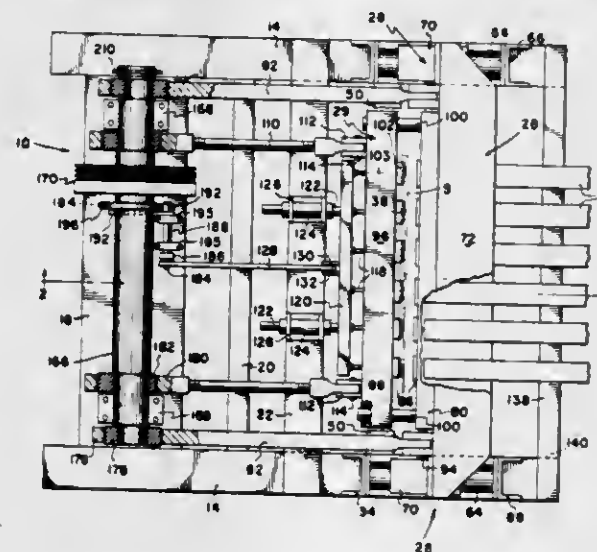
Gaylord W. Brown, Beaverton, Mich., assignor to Sweetheart Plastics, Inc., Wilmington, Md.

Filed Sep. 10, 1979, Ser. No. 73,690

Int. Cl.³ B26D 7/18

U.S. Cl. 83—97

8 Claims



1. Trim apparatus for severing articles which have been differentially pressure-formed in a thermoplastic sheet from the thermoplastic sheet comprising:

a frame; means on said frame for successively indexing a continuous thermoplastic sheet having articles formed therein downstream to a trim station;

a pair of dynamically balanced trim platens, including a pair of trim dies, mounted on said frame for movement between spaced apart positions and closed positions in which said trim dies engage opposite sides of said sheet to sever an article at said trim station from said sheet;

one of said platens including an opening therethrough for receiving the article as it is being trimmed and for passing the article after it is trimmed;

one of said trim dies comprising a female die having a passage therethrough in alignment with said opening for receiving said article as it is being trimmed and for passing said article;

article receiver means, stationarily mounted on said frame and received by said opening for receiving the articles from said female trim die and said one platen;

ejector means, mounted on the other of said platens for movement relative thereto, for moving the article through

said die passage to said receiver means after said article is severed from said sheet;

first and second opposing sheet severing means mounted on said frame, downstream of said trim station, for to-and-fro relative movement toward and away from each other between positions in which at least one of said sheet severing means is spaced from a portion of the sheet downstream of the trim station and positions in which said first and second sheet severing means engage opposite sides of said sheet to sever the terminal end portion of said sheet from the remainder of the sheet; and

means for moving said sheet severing means in timed relation with movement of said trim die members to sever the terminal portion of said sheet a predetermined time after said trim die members engage the sheet at the trim station.

4,313,359

DEVICE FOR CUTTING VERTICAL PAPER SHEETS

Miroslav Smoravek, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

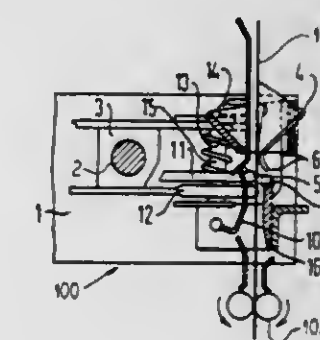
Filed Jun. 3, 1980, Ser. No. 156,100

Claims priority, application Fed. Rep. of Germany, Jun. 27, 1979, 2925936

Int. Cl.³ B41J 11/70; B26D 1/20; B23D 19/02

U.S. Cl. 83—157

9 Claims



1. A device for cutting vertical paper sheets comprising a planar surface over which paper is conducted having a cutting edge, a carriage means having a cutting wheel journaled on the carriage for running along said cutting edge and a pressure roller for running over said planar surface, a bar engageable by said carriage adjacent said cutting edge and having mounted thereto a chute means for receiving paper past said cutting edge, and means for rotating said bar in response to engagement by said carriage when said cutting wheel is running along said cutting edge such that the chute means and pressure roller serve to hold the paper against the cutting edge during cutting.

4,313,360

HARMONIC GENERATOR FOR ADDITIVE SYNTHESIS OF MUSICAL TONES

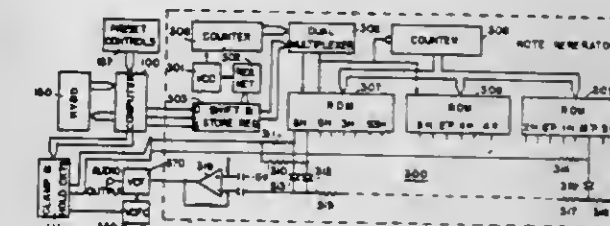
Alfred H. Faulkner, 1324 Portesuello Ave., Santa Barbara, Calif. 93105

Filed Mar. 26, 1980, Ser. No. 134,251

Int. Cl.³ G10H 1/08, 5/06

U.S. Cl. 84—1.21

10 Claims



1. In an electronic organ of the additive-synthesis type, a tone generator for producing a series of harmonics comprising:

chamber means in the housing for providing a servo-assist during a right-hand turning of the steering wheel means, a second working pressure chamber means in the housing for providing a servo-assist during a left-hand turning of the steering wheel means, the valve housing including a first valve connection means for connecting the valve housing with a pump pressure line, a second valve connection means for connecting the valve housing with a pressure medium return line, a third valve connection means for connecting the first working pressure chamber means with a pressure medium source, and a fourth valve connection means for connecting the second working pressure chamber means with a pressure medium source, and control means provided on the valve control member and cooperable with control means of the valve housing for controlling a throttling of the valve connection means of the respective working pressure chamber means, characterized in that the valve control member includes two coupling elements mounted in the valve housing so as to be movable relative to each other, a resilient means for respectively mutually supporting the coupling elements, gear means for connecting a first of the coupling elements to the steering wheel means, and in that the control means provided on the valve control member is arranged on the other of the coupling elements, further characterized in that at least one modulating pressure surface means is provided which is cooperable with the other of said coupling elements, means are provided for exposing the at least one modulating pressure surface means to a modulating pressure proportional to a pressure of one of the working pressure chamber means, said modulating pressure surface means being adapted to urge said other coupling element into a position with respect to the valve housing so as to increase the pressure of said one working pressure chamber means upon an occurrence of a pressure surge triggered by an external shock applied to the servo-mechanism.

4,313,366

ELECTROMAGNETIC VALVE ASSEMBLY

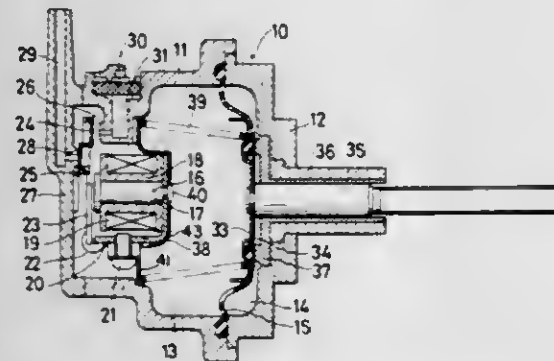
Masami Inada, and Kougou Aoki, both of Kariya, Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan
Filed Dec. 20, 1979, Ser. No. 105,575

Claims priority, application Japan, Dec. 25, 1978, 53/177833[U]

Int. Cl.³ F15B 13/044

U.S. Cl. 91—459

9 Claims



1. An electromagnetic valve assembly comprising:
 - a housing;
 - a diaphragm member provided in said housing and defining first and second chambers therein;
 - first heat conductive plate means secured to said diaphragm member;
 - a heat conductive output member secured to said first heat conductive plate means and extending outside of said housing;
 - heat conductive spring means one end of which is engaged with said first heat conductive plate means, said spring means being positioned within said first chamber and normally biasing said diaphragm member in one direction;
 - a solenoid coil having a central core member with a projec-

tion extending therefrom, said coil positioned in said first chamber and energized in response to an electric signal; a movable contact operatively associated with said solenoid coil movable in response to an energization of said solenoid coil,

a first and second pressure source;

first valve means controlling fluid communication between said first chamber and said first pressure source in response to movement of said movable contact;

second valve means controlling fluid communication between said first chamber and said second pressure source in response to movement of said movable contact;

second heat conductive plate means having a central U-shaped cup portion with an outwardly projecting radial flange portion positioned between said solenoid coil and an opposite end of said spring means for transmitting heat generated by said solenoid coil to said spring means such that said spring means contacts said flange portions; and said second heat conductive plate means forming a hole for receiving said projection of said central core member.

4,313,367

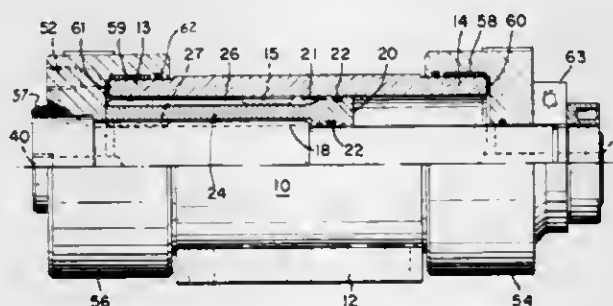
ROTARY ACTUATOR

Paul P. Weyer, 48811 284th Southeast, Enumclaw, Wash. 98022
Continuation-in-part of Ser. No. 93,680, Nov. 13, 1979. This application May 8, 1980, Ser. No. 147,861

Int. Cl.³ F01B 3/00

U.S. Cl. 92—33

12 Claims



1. A rotary actuator of the type having axially movable piston means and rotary shaft means with helical torque transfer means interconnecting the axially movable piston means with the rotary shaft means to provide rotation in response to axial movement of the piston means, the improvement comprising:

actuator cylinder means;

said shaft means mounted in the cylinder means;

bearing means mounting the cylinder means and shaft means at opposite ends thereof for rotation relative to one another;

said piston means axially movable within the cylinder means, said piston means including motion conversion means coupled to the cylinder means and shaft means for converting axial motion of the piston means into relative rotary motion between the shaft and cylinder means; and said bearing means each including a radially outer circumferential flange which extends axially over the cylinder means, radial and thrust bearing members positioned between the cylinder means and the flanges whereby large radial and thrust loads on the shaft means or the cylinder means can be withstood without increasing the length of the cylinder means.

4,313,368

RECIPROCATING PISTON

Maurice Promeyrat, Sevrin, France, assignor to Societe Civile Promeyrat-Casteilla, Gagny, France

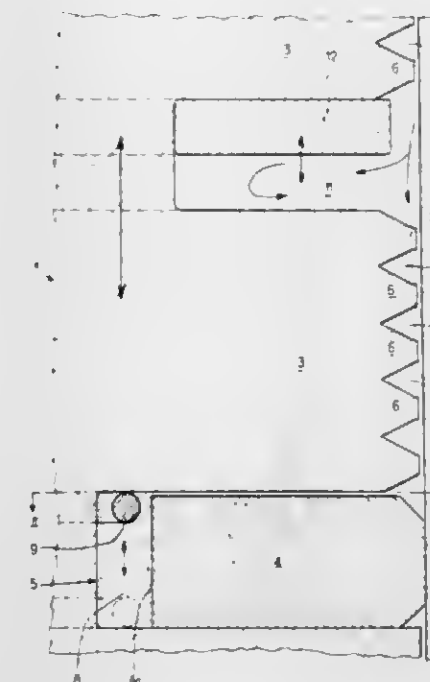
Filed May 17, 1979, Ser. No. 39,808

Claims priority, application France, Jun. 1, 1978, 78 16444

Int. Cl.³ F16J 1/02, 1/08

U.S. Cl. 92—159

6 Claims



1. A reciprocating piston for heat engines, compressors, and other like industrial machines having a co-operating piston and cylinder, comprising:

a piston body having a longitudinal axis and including an upper bead, said piston body being provided in a direction radially transverse to said longitudinal axis with a transverse annular groove having an inner portion and a radial hole extending radially inwardly from said inner portion of said annular groove;

a first ring housed in said transverse annular groove having a rear inner facing surface spaced from said inner portion of said transverse annular groove;

at least one decompression chamber formed in said transverse annular groove between said rear inner facing surface of said first ring and said inner portion of said transverse inner groove; and

a movable split ring housed in said decompression chamber formed in said transverse annular groove, said split ring being continuous between split ends thereof, said split ring having at one of its ends thereof a branch bent substantially radially inwardly engaged within said radial hole for maintaining said split ring in a circumferential direction axially of said longitudinal axis of said piston body for permitting said ring to have radial and axial movement;

said upper bead having on its periphery projecting ribs and recessed portions spaced from the inner wall of its said cooperating cylinder, said projecting ribs alternating with said recessed portions;

said projecting ribs having a diameter related to the diameter of the inner wall of said cylinder such that the initial diametrical clearance between said outer rib periphery axially of said piston in its cold condition and said inner wall periphery of said cylinder is substantially equal to half the clearance usually provided with a conventional piston and said inner wall of said cylinder such that during running-in said projecting ribs are pressed against the inner wall of said cylinder whereby said projecting ribs may become compressed and contract so that said recessed portions absorb such compressions by lubricating said projecting ribs with driving fluid that they retain.

4,313,369

PAINTING PLANT AND METHOD FOR PAINTING ARTICLES WITH REDUCED RUNNING COST

Mitsuo Tsuruta, Tokyo, and Hachiro Haga, Zushi, both of Japan, assignors to Nissan Motor Company Ltd., Yokohama, Japan

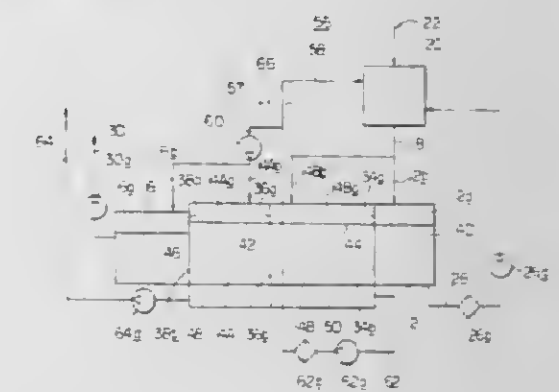
Filed Jul. 5, 1979, Ser. No. 54,903

Claims priority, application Japan, Jul. 12, 1978, 53-84803

Int. Cl.³ B05C 15/00

U.S. Cl. 98—115 SB

4 Claims



1. A painting plant for painting articles, comprising:
 - (a) first and second painting booths connected in series, said articles being conveyed from the first painting booth to the second painting booth for successive painting operations;
 - (b) a cleaning booth arranged upstream of the first painting booth for cleaning said articles prior to conveyance into the first painting booth;
 - (c) a setting booth arranged downstream of the second painting booth for setting or curing paint or the like applied to said articles in the first and second painting booths;
 - (d) air-conditioning means for conditioning temperature and humidity of ambient fresh air entering said means;
 - (e) conditioned air feed inlet means interconnecting the air-conditioning means to at least one of the setting booth, the cleaning booth, the first painting booth and the second painting booth for feeding conditioned air to said booths; and
 - (f) air recirculating means for transmitting air from at least one of the booths to the air-conditioning means for reuse, wherein said air recirculating means includes a first conduit system transmitting air from said cleaning booth to said air-conditioning means, a second conduit system for transmitting air from said first painting booth to the air-conditioning means, said first and second conduit systems being mutually independent, wherein each of said conduit systems includes a duct, a blower positioned in the duct for moving the air to said air-conditioning means, and a filter positioned in said duct for filtering the air passing therethrough, and wherein said second conduit system further includes a branch conduit for directing a portion of the returning air in the second conduit system to the second painting booth and the setting booth.

4,313,370

PASTEURIZING SYSTEM FOR CARBONATED SOFT DRINKS

Sigmund P. Skoli, Elmwood Park; William C. Ore, Elmhurst; David M. Kemp, Naperville, and Harry G. Mojonner, River Forest, all of Ill., assignors to FMC Corporation, Chicago, Ill.

Filed Jun. 2, 1980, Ser. No. 155,301

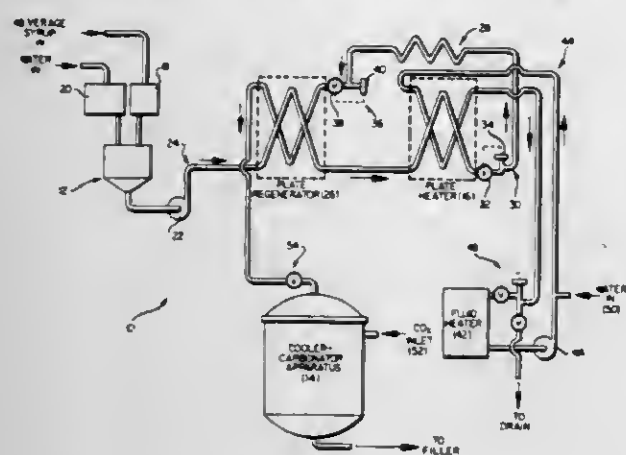
Int. Cl.³ A23L 2/00

U.S. Cl. 99—323.1

6 Claims

1. A pasteurizing system for soft drinks comprising: supply means providing a flow of prepared beverage liquid; means for cooling and carbonating said liquid; heat exchange means disposed flowpathwise between said supply means and said means for cooling and carbonating the beverage liquid; first fluid transport means including a holding tube between said heat exchange means and said means for cooling and carbonat-

ing the beverage liquid for providing a closed, beverage circuit from said supply means to said heat exchange means and from said heat exchange means to said means for cooling and car-



bonating the beverage liquid; and second fluid transport means for providing a closed circuit for a heat exchange medium, in communication with said heat exchange means.

4,313,371

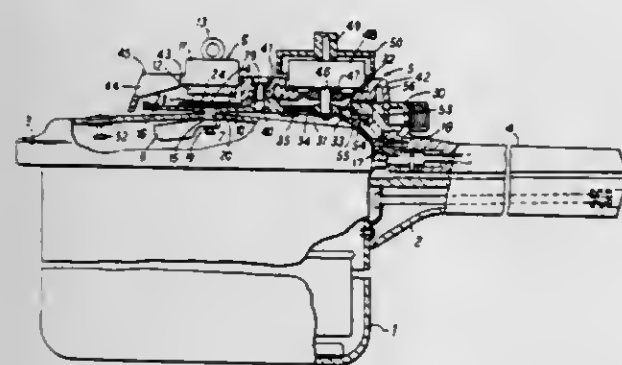
PRESSURE COOKER RELIEF VALVE AND PRESSURE COOKERS INCORPORATING SUCH ASSEMBLIES
Frederick P. Jackson, Barrowford, and Brian Newell, Brierfield, both of England, assignors to The Prestige Group Limited, London, England

Filed May 11, 1978, Ser. No. 905,026
Claims priority, application United Kingdom, May 27, 1977, 22613/77

Int. Cl.³ A47J 27/08

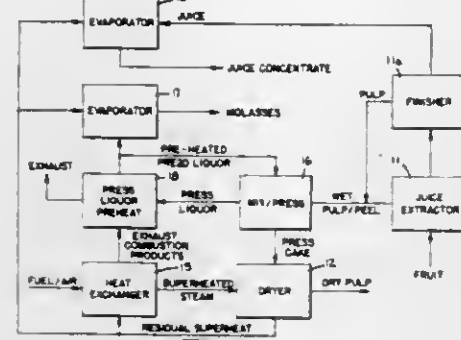
U.S. Cl. 99—337

22 Claims



1. A pressure cooker the casing thereof carrying a pressure relief valve assembly comprising a relief valve having a valve member and a valve seating defining a valve port opening into the interior of the cooker, said valve port having an axis, means for biasing said valve member against said valve seating to close said valve port under the pressure of said biasing means, timer means which can be preset for acting on an operating member after a predetermined time period, said operating member being mounted for relative reciprocal motion in opposite first and second linear directions generally normal to said valve port axis, said timer means having an actuating member which moves to permit movement of said operating member in a first of said linear directions, said operating member being mechanically connected to means for relieving the pressure of the biasing means, and said pressure relieving means being a wedge carried by said operating member movable beneath said biasing means by movement of said operating member in said first direction to lift said biasing means and open said cooker interior to atmosphere through said valve port.

4,313,372
CITRUS PROCESSING SYSTEM AND METHOD
Gordon P. Gerow, Davenport, Fla., and John H. Blake, Portola Valley, Calif., assignors to FMC Corporation, Chicago, Ill.
Division of Ser. No. 944,044, Sep. 20, 1978. This application Jan. 14, 1980, Ser. No. 111,569
Int. Cl.³ A23N 1/00, 15/00
U.S. Cl. 99—483 5 Claims



1. A citrus fruit processing system comprising a juice extractor adapted to receive the citrus fruit and having a juice output and a wet peel and pulp output,
a means for removing liquor from the wet pulp and peel output coupled to said juice extractor and adapted to receive the wet pulp and peel therefrom, said means for removing liquor having a liquor output and a press cake output,
a dryer coupled to said press cake output and having a dried solids output and a steam output,
a heat exchanger coupled to said steam output and having a superheated steam output, said heat exchanger having an isolated combustion chamber which operates to transfer heat to steam passing therethrough without contact between said steam and combustion products produced in said chamber,
said superheated steam output being coupled to said dryer whereby wet peel and pulp introduced into said dryer is heated by superheated steam until a major portion of the moisture therein is vaporized and emitted through said steam output,
a juice evaporator coupled to said juice output and to said steam output of said dryer, and having a concentrated juice output, said juice evaporator operating to dehydrate the juice,
means for preheating liquor coupled to said means for removing liquor, said means for preheating being connected to receive the exhaust combustion products from said heat exchanger combustion chamber whereby the liquor is preheated by the combustion products, and,
a second evaporator coupled to said means for preheating liquor and to said steam output of the dryer, said second evaporator operating to dehydrate the liquor.

4,313,373
APPARATUS FOR PITTING DATES OR THE LIKE
Viktor Fehlmann, Möriken, Switzerland, assignor to Ferrum AG, Rapperswil, Switzerland
Continuation of Ser. No. 115,879, Jan. 28, 1980, abandoned, which is a continuation of Ser. No. 933,825, Aug. 15, 1978, abandoned. This application Sep. 24, 1980, Ser. No. 190,360
Claims priority, application Switzerland, Aug. 8, 1977, 10128/77

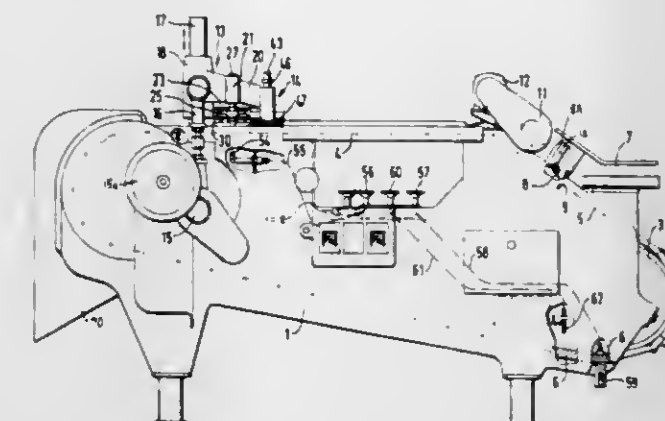
Int. Cl.³ A23N 4/03

U.S. Cl. 99—549

10 Claims

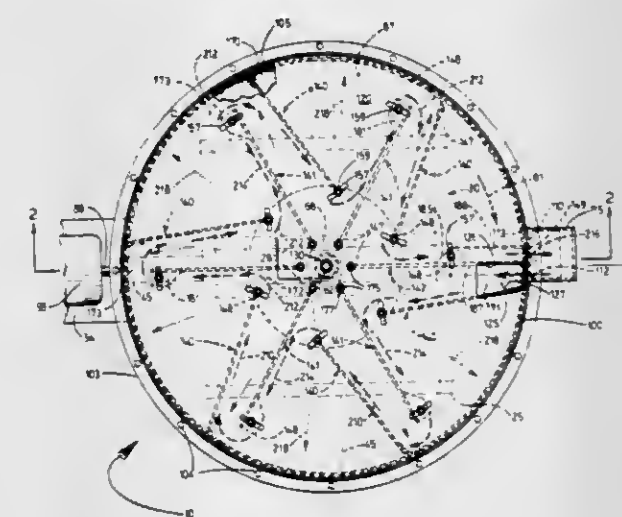
1. In an apparatus for pitting elongated drupaceous fruits of the type having first and second end portions, especially dates, the combination of a series of supporting elements having elongated sockets for reception of fruits; means for transporting said elements serially in a predetermined direction and along a predetermined path to a first station where the fruits

are admitted into at least some of the sockets in successive supporting elements of said series so that one end portion of each admitted fruit extends into the respective socket whereby some of the admitted fruits are normally received in the respective sockets to a lesser first extent and the remaining admitted fruits are received in the respective sockets to a greater second extent, thereupon to a second station and then to a third station; means for orienting at least those fruits which extend into



the respective sockets to said lesser first extent so that the other portion of each such fruit extends substantially counter to said direction, said orienting means being located between said first and second stations; means for centering at said second station those fruits which are received in the respective sockets of the supporting element to said first extent so that the centered fruits are free to penetrate deeper into the respective sockets; and means for removing pits from fruits in the sockets of the supporting element at said third station.

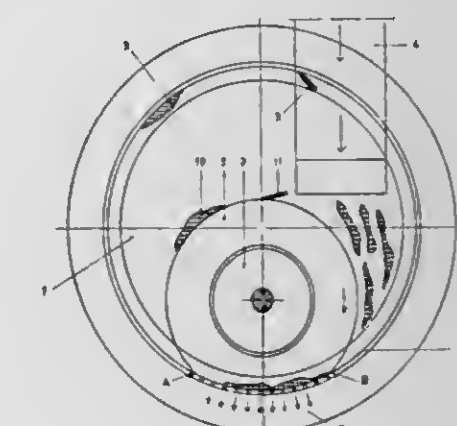
4,313,374
MACHINE FOR HULLING NUTS
William J. Tjerrild, Acampo, Calif., assignor to Tenneco West, Inc., Bakersfield, Calif.
Filed Mar. 5, 1980, Ser. No. 127,498
Int. Cl.³ B02B 3/00
U.S. Cl. 99—612 13 Claims



1. A machine for hulling nuts comprising:
A. a disc having a center, a periphery, and an abrading surface;
B. means mounting the disc for rotation about a substantially erect concentric axis with the abrading surface upwardly disposed;
C. powered means for rotating the disc in a predetermined direction;
D. means for delivering nuts to be hulled to the abrading surface; and
E. a plurality of elongated, nut-directing vanes mounted in adjacent upwardly spaced relation to the abrading surface defining debris passages between the vanes and the surface, said vanes having inner ends adjacent to the center of

the disc and outer ends outwardly thereof, successive vanes being oppositely angularly related to respective radii of the disc to define a successive inwardly and outwardly extended reciprocal path of movement of the nuts over the abrading surface.

4,313,375
BARK PRESS
Väinö T. Saalasti, Arinatie 4, 00370 Helsinki 37, Finland
Filed May 30, 1979, Ser. No. 43,710
Claims priority, application Finland, May 30, 1978, 781706
Int. Cl.³ B30B 9/02
U.S. Cl. 100—37 16 Claims



1. A method for substantially reducing the concentration of entrapped water contained in bark material comprising the steps of feeding said bark material to a bark press provided with a gap formed between an inner face of a rotating relatively large and rigid perforated drum and an outer face of at least one relatively small and compressible resilient presser roll eccentrically mounted within the drum, independently rotating in compressive relationship said at least one presser roll against a portion of said inner face of said perforated drum thereby distorting an arcuate portion of said outer face of said at least one presser roll and applying substantial pressure against a portion of said inner face of said perforated drum abutting said arcuate portion of said at least one presser roll to cause expulsion of entrapped water contained in said bark through the perforations located in that portion of said drum which abuts said at least one pressure roll wherein compressive forces are being exerted upon said bark material; and feeding the bark along the length of the drum so that the bark is compressed several times before exiting.

4,313,376
IMPRINTER
Jack G. Swope, St. Ignace, and Harry C. Weiss, Moran, both of Mich., assignors to Rennco Incorporated, Homer, Mich.
Filed Mar. 11, 1980, Ser. No. 129,435
Int. Cl.³ B41F 1/00, 17/00
U.S. Cl. 101—27 7 Claims

1. In an imprinting apparatus using an imprint ribbon for permitting imprinting of data on a weblike packaging substance, said apparatus including a frame, spool-supporting shaft means rotatably supported on the frame and mounting thereon a spool of said ribbon, take-up reel means rotatably mounted on the frame for winding therearound the used ribbon, guide means disposed for movably guiding the ribbon in a preselected path as the ribbon is withdrawn from the spool and is moved toward said take-up reel means, said guide means maintaining said ribbon straight during a selected part of said path, imprinting means associated with said selected part of the ribbon path for effecting imprinting on said weblike packaging substance, said imprinting means including stationary and movable pressing heads having opposed faces disposed on opposite sides of said ribbon as located in the selected part of

said path, said movable pressing head being slidably guided for linear displacement in a direction substantially perpendicular to said ribbon, said movable pressing head also having type means associated with the face thereof, and motor means connected to said movable pressing head for linearly reciprocating same between extended and retracted positions, said movable pressing head when in said extended position being disposed in pressing engagement with said stationary pressing head so as to press said ribbon and said weblike packaging substance therebetween, said movable pressing head when in said retracted position being spaced from both said stationary pressing head and said ribbon, the improvement comprising:

a rotatable drive roller disposed in direct driving engagement with said ribbon downstream of said imprinting means but upstream of said take-up reel means for effecting displacement of said ribbon along said path, and withdrawal of ribbon from said spool, in response to rotation of said roller;

primary motion-transfer means drivingly connected between said movable pressing head and said drive roller for causing intermittent unidirectional rotation of the latter in response to reciprocating movement of said movable pressing head, whereby said ribbon is intermittently and unidirectionally movably displaced along said path through a preselected distance;

said primary motion-transfer means including one-way means for effecting intermittent unidirectional rotation of said drive roller only when the movable pressing head is

ing head is positioned at or closely adjacent said extended position; and
secondary motion-transfer means drivingly connected to said take-up reel means for causing intermittent unidirectional rotation thereof.

4,313,377

INK SUPPLY DEVICE FOR HAND LABELER

Yo Sato, Tokyo, Japan, assignor to Kabushiki Kaisha Sato Kenkyusho, Japan

Division of Ser. No. 830,806, Sep. 6, 1977, Pat. No. 4,213,389.

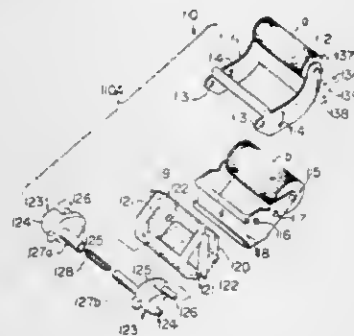
This application Dec. 17, 1979, Ser. No. 104,109

Claims priority, application Japan, Jun. 6, 1976, 51-105836; Dec. 11, 1976, 51-148314

Int. Cl.³ B41K 1/42, 5/00

U.S. Cl. 101-295

7 Claims



1. An ink supply device for a hand labeler:

said labeler comprising: an operating lever, which is movable between two positions; a printing head, including type surfaces adapted to be inked and opposable to a platen; a platen opposable to said type surfaces; moving means for moving said printing head and said platen together and apart;

said ink supply device comprising: a support holder connected with said operating lever for being moved past said type surfaces as said operating lever moves between its said positions;

guide means connected with said support holder for guiding said ink supply device to move along a pathway across and past said type surfaces;

an ink roller support frame; two ink rollers, arrayed generally parallel to each other and parallel to said type surfaces, and both being rotatably attached to and supported on said support frame; elastic means for urging at least one of said ink rollers with respect to said support holder toward said type surfaces;

retaining means connected to said support frame and extending to said support holder for retaining said support frame to said support holder; said retaining means comprising a pin extending from said support frame into a receptacle therefor in said support holder; biasing means for normally urging said retaining means pin to extend to said support holder receptacle; a pressable knob separate from said retaining means pin and connected with said retaining means pin for moving said pin in opposition to the urging by said biasing means upon pressing upon said knob, thereby to separate said retaining means from said support holder.

4,313,378

NO-LOCK PRINTING PLATE ASSEMBLY USING FLEXIBLE PLATES

Gordon Etchell, Downers Grove, and Cyril W. Frank, Brookfield, both of Ill., assignors to Pathfinder Graphic Associates, Inc., Berwyn, Ill.

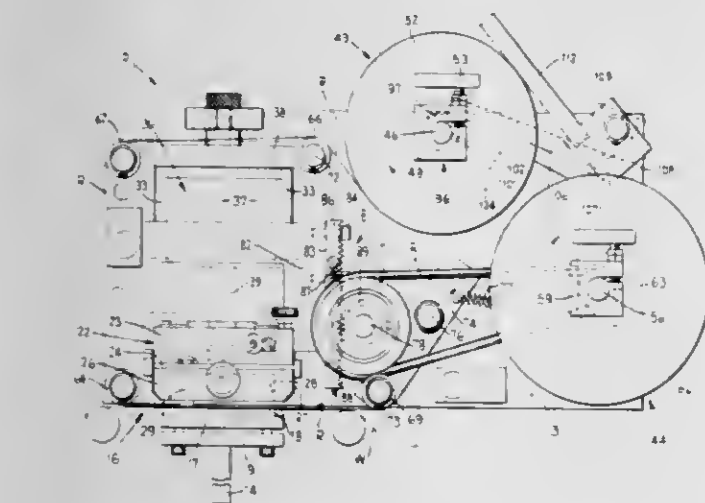
Continuation-in-part of Ser. No. 115,101, Jan. 24, 1980, abandoned. This application Sep. 19, 1980, Ser. No. 188,935

Int. Cl.³ B41F 27/12

U.S. Cl. 101-415.1

8 Claims

1. A "no-lock" printing plate assembly comprising, in com-



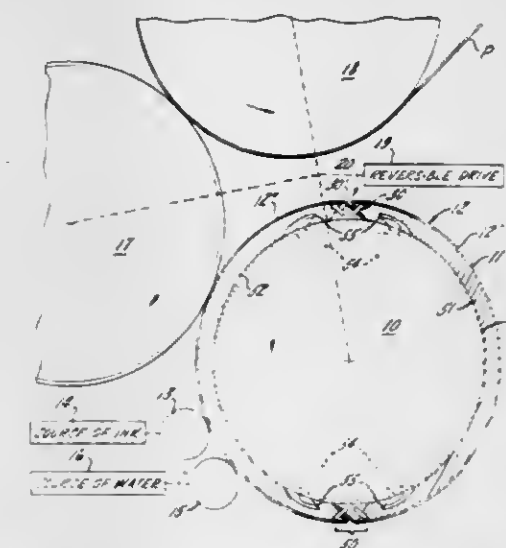
being linearly displaced in one direction, said one-way means enabling the drive roller to remain stationary when the movable pressing head is being linearly displaced in the opposite direction;

said primary motion-transfer means also including a linear gear rack mounted on said movable printing head and disposed in meshing engagement with a rotatable gear, said rotatable gear being drivingly interconnected to said drive roller through said one-way means;

said primary motion-transfer means further including lost-motion means associated therewith for permitting at least limited linear displacement of the movable pressing head in said one direction without causing a corresponding rotation of the drive roller, whereby said lost-motion means results in the rotation of the drive roller occurring over only a fraction of the stroke of the movable pressing head in said one direction;

said lost-motion means comprising connecting means coaxing between said gear rack and said movable pressing head for permitting limited relative reciprocal movement therebetween in a direction substantially parallel to the direction of movement of said movable pressing head, biasing means coaxing with said gear rack for normally maintaining same in an end position relative to the movable pressing head, and stationary stop means positioned for engagement with said gear rack to movably displace same against the urging of said biasing means when said movable press-

bination, a drive, a plate cylinder coupled to the drive and having a smooth outer plate-supporting surface interrupted by an axial groove defining leading and trailing edges spaced parallel to one another to form a gap, at least the leading edge having an associated flat, angularly undercut end face making an acute angle with respect to the outer surface, a register pin rigidly anchored with respect to the undercut end face and projecting in the circumferential direction therefrom, a plate formed of a thin sheet of resilient material having a smooth undersurface and bent over adjacent the ends to define leading and trailing edge portions, the width of the gap being at least 5 times but not greater than 50 times the plate thickness, the edge portions of the plate being spaced and dimensioned for insertion successively into the groove into a non-bottoming condition in which the bends are peripherally spaced from one another to provide clearance between them, both the leading and trailing edge portions having respective longitudinal notches aligned with one another and of the same axial width as the pin for purposes of register, the bend adjacent the leading edge being in the form of a sharply bent crease making an acute



angle so that when the leading edge portion is hooked over the leading edge in circumferential register it engages the undercut end face with the notch therein in axial register with the pin, the bend adjacent the trailing edge of the plate being in the form of an obtuse angle so that when the trailing edge portion of the plate is tucked into the groove it extends beyond the register pin with the notch therein in axial register with the pin, the trailing edge portion of the plate being bent at a sufficiently wide obtuse angle so that it is outwardly sprung causing the trailing edge of the plate to be in continuous resilient pressing engagement upon the leading edge portion thereby to insure that the latter is maintained in sharply bent condition captive against the undercut end face, and at least a second cylinder in running engagement with the plate so that during the initial revolutions the smooth undersurface of the plate is "ironed" into increasingly intimate engagement with the smooth outer plate-supporting surface accompanied by the taking up of at least a portion of the clearance between the bends and cyclically renewing a vacuum seal under the plates tending to hold the plate in position notwithstanding the effect of centrifugal force tending to dislodge it.

4,313,379

VOLTAGE-CODED MULTIPLE PAYLOAD CARTRIDGE

David W. Wallace, Austin, Tex., assignor to Tracor, Inc., Austin, Tex.

Continuation of Ser. No. 82,401, Oct. 16, 1979, abandoned. This application Oct. 18, 1979, Ser. No. 83,181

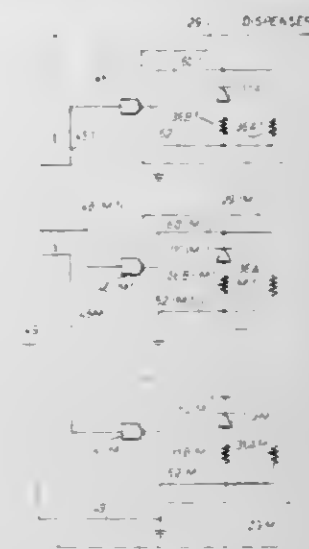
Int. Cl.³ F42C 11/00

U.S. Cl. 102-217

28 Claims

1. A multiple payload cartridge connectible to a source of firing signals by two connecting wires comprising:
a first and a second squib each respectively connected in a

parallel electrical branch between the two connecting wires;
a zener diode having a predetermined breakdown voltage connected in series in the branch containing the second



squib, the zener diode preventing the flow of current through the branch with the second squib until a firing signal of a predetermined polarity and a voltage magnitude greater than the predetermined breakdown voltage is applied thereacross.

4,313,380

DISTRIBUTED CHARGE FOR SEISMIC PROSPECTING

Samuel T. Martner, and Maurice E. Arnold, Jr., both of Tulsa, Okla., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Filed Sep. 15, 1978, Ser. No. 942,568

Int. Cl.³ F42D 1/02, 3/06

U.S. Cl. 181-116

6 Claims



1. A distributed charge for seismic prospecting, to be used to match a velocity V of seismic waves in a medium comprising:
a plurality of connected lump charges each connected below to a short but effective length of a linear explosive with velocity of detonation V_p which in turn is connected below to a longer piece of a nonexploding linear deflagrator with velocity of propagation V_n ; where V_n is considerably less than V_p , said linear deflagrator terminating below in a blasting cap which is in contact with the adjacent lump charge below;
said linear explosive and said linear deflagrator forming the sole active chemical means between adjacent lump charges;

the length of any one of said lump charges plus one length of said linear explosive plus one length of said linear deflagrator between said adjacent lump charges being designated as D, which length is predetermined such that the time lapse between explosion of two adjacent lump charges is at least approximately D/V.

4,313,381

MOORING SYSTEM

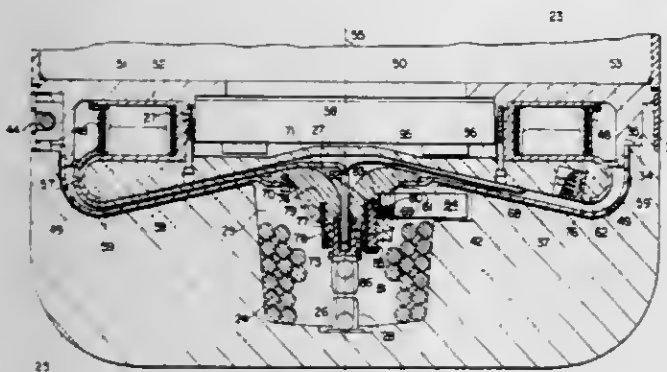
Daniel R. Tolliver, Laurel, and W. Gordon Haug, Bethesda, both of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 26, 1979, Ser. No. 97,269

Int. Cl.³ F42B 22/18

U.S. Cl. 102—413

25 Claims



1. A mooring system for mooring a device in water at a preselected depth below the water surface from an anchor resting on the ocean floor comprising:

- a buoyant device;
 - a weight defining an anchor;
 - means detachably securing the anchor to the device;
 - additional means coupling the device and anchor comprising:
 - a resilient line secured at a first portion thereof to the anchor;
 - a mooring line secured between a second portion of the resilient line and the device;
 - a non-rotating storage spool in the device storing the mooring line;
 - means positioned in the device for initiating payout of the mooring line after the device has passed a first depth; and
 - means positioned in the device for terminating payout of the mooring line at the preselected depth to which the buoyant device has ascended and which is between the first depth and the water surface;
- whereupon after launching of the device and anchor in water, the securing means detaches the anchor from the device permitting the anchor to separate from the device to the extent of the resilient line as the device and anchor descend, said initiating means permits payout of the mooring line from the storage spool after the device descends through the first depth, and said terminating means terminates payout of the mooring line and ascent of the device after the device has ascended to the preselected depth.

4,313,382

SETTING ARRANGEMENT FOR ALIGNMENT AND GAP BETWEEN TWO RAIL ENDS

Patrick Bommart, Rueil-Malmaison, France, assignor to C. Delachaux, S.A., Geonevilliers, France

Filed Jan. 21, 1980, Ser. No. 113,791

Claims priority, application France, Jan. 24, 1979, 79 01798

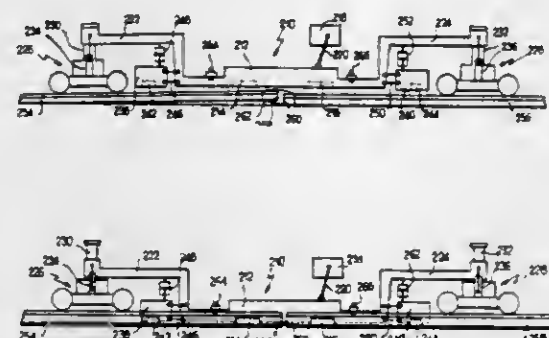
Int. Cl.³ E01B 29/46

U.S. Cl. 104—1 R

7 Claims

1. An improved apparatus for adjusting the alignment and gap size defined between two rail butt ends of the type in which a rigid housing straddles the two rails and provides an access area around the two rails; a first pair of presses attached in alignment to the housing; a second pair of presses also at-

tached in alignment to the housing and arranged in such a manner with respect to the first pair of presses that the first pair of presses are situated between the second pair of presses to form two units each of which unit is formed by one of the first pair of presses and one of the second pair of presses and each of which units can clamp one of the two rails to be connected respectively; a retractable unit for the adjustment of the size of the gap defined between the two rail ends movably mounted on the rigid housing, the retractable unit movable between a rest position where it is supported on the housing and a working position where it is situated in the access area of the housing, and including a frame mounted thereon, which, when the retractable unit is in the work position, is movable in a direction parallel to that of the rails, removable locking means for



4,313,383

GUIDEWAY UNITS FOR ELEVATED GUIDEWAYS

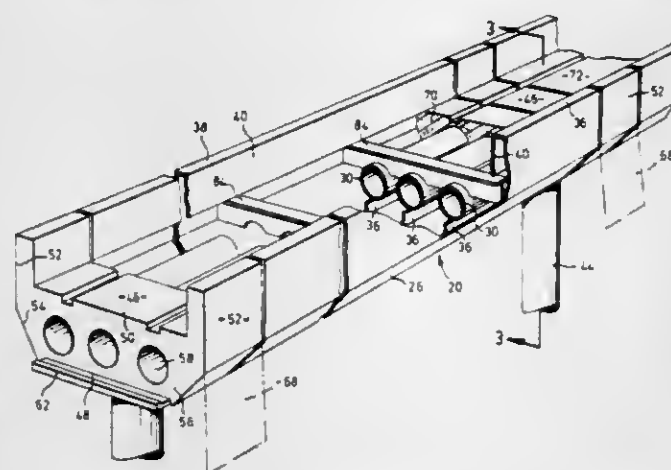
Stephen Parazader, 44 Oak Ave., Dundas, Ontario, Canada L9H 4Y9

Filed Oct. 23, 1979, Ser. No. 87,612

Int. Cl.³ E01B 25/08

U.S. Cl. 104—124

9 Claims



1. A guideway unit for use in combination with a settable material in the construction of an elevated guideway, the unit comprising:

an elongated closed end watertight metal channel constituted by a bottom metal wall member, spaced side metal wall members, and end metal wall members closing the respective ends of the channel for the retention of settable material therein, the said channel having respective interior walls provided by the said wall members;

at least one elongated metal hollow tubular void-forming member extending the length of the channel in the interior thereof, and connected at its respective ends to the end metal wall members so as to constitute longitudinal reinforcement for the channel, each hollow void-forming member being spaced from the channel interior walls and being connected to a channel interior wall along its length by at least one longitudinal web member fastened to the tubular member external wall and to the respective channel interior wall;

and set settable material filling the metal channel and surrounding each hollow void-forming member and the respective longitudinal web member so as to enclose them; the metal channel constituting permanent formwork for the settable material and together with the set settable material constituting a composite slab with composite action between the channel and the set settable material, the metal tubular void-forming members providing tension reinforcement for the composite slab; and

the set settable material having an upper surface capable of providing or supporting a roadway for vehicles moving on the guideway.

4,313,384

PEDESTAL LINER FOR RAILWAY VEHICLE AND METHOD OF MAKING SAME

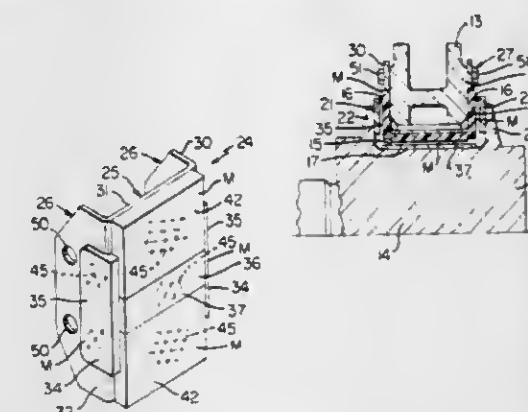
Homer N. Holden, Sylva, N.C.; Donald L. Kleykamp, Dayton, Ohio; William F. Moore, Villa Park, Ill., and Julien C. Mathieu, Waynesville, N.C., assignors to Dayco Corporation, Dayton, Ohio

Filed Jul. 10, 1980, Ser. No. 167,292

Int. Cl.³ B61F 5/32

U.S. Cl. 105—225

25 Claims



1. In a pedestal liner for a railway vehicle wherein said vehicle comprises; pedestal trucks comprising pairs of pedestal legs; a journal box disposed between each associated pair of pedestal legs; each journal box having a vertically disposed planar guide surface and a pair of spaced vertically disposed parallel side surfaces disposed on opposite sides of said guide surface; said pedestal liner being roughly U-shaped and comprising; a bight and a pair of parallel legs and being adapted to be disposed between an associated pedestal leg and journal box and fastened to the associated pedestal leg; a roughly U-shaped metal support comprising the main structural portion of said liner; said metal support also having a bight and a pair of parallel legs; antifriction polymeric material for said parallel legs of said liner supported by said metal support and adapted to engage said side surfaces; and antifriction polymeric material for said bight of said liner supported by said metal support and adapted to engage said guide surface; said antifriction polymeric material being ultra high molecular weight polymeric material; the improvement in which, said antifriction polymeric material for said parallel legs and at least a portion

of said bight of said liner comprises an insert comprised of said antifriction polymeric material and being carried by said metal support, said insert having a pair of roughly parallel members which have outer portions disposed outwardly of and parallel to said parallel legs of said support with said outer portions being adapted to engage said side surfaces, said parallel members comprising said antifriction polymeric material for said parallel legs of said liner, said insert having an arm extending transverse its members with said arm having an outer portion which is adapted to engage said guide surface with said arm comprising at least a portion of said antifriction polymeric material for said bight, and said insert being adapted to be readily installed on and removed from said metal support and held in position by said metal support to define said pedestal liner.

21. In a method of making a pedestal liner for a railway vehicle wherein said vehicle comprises; pedestal trucks comprising pairs of pedestal legs; a journal box disposed between each associated pair of pedestal legs; each journal box having a vertically disposed planar guide surface and a pair of spaced vertically disposed parallel side surfaces disposed on opposite sides of said guide surface; said method comprising the steps of; forming a metal support to define a roughly U-shaped configuration therein wherein said support has a bight and a pair of parallel legs extending from opposite side edges of said bight; supporting antifriction polymeric material on said bight of said metal support for engaging said guide surface; supporting antifriction polymeric material on said parallel legs of said metal support for engaging said side surfaces; said antifriction polymeric material being ultra high molecular weight polymeric material; the improvement comprising the steps of; forming an insert which has a pair of roughly parallel members and an arm extending transverse said parallel members, said insert comprising at least a portion of said antifriction polymeric material, providing cutout means in at least one of said bight and parallel legs of said metal support such that said cutout means defines holding surfaces of said metal support, disposing said insert within said cutout means to thereby hold said insert in position employing said holding surfaces, said insert upon being disposed within said cutout means having outer portions of its parallel members disposed outwardly of and parallel to said parallel legs of said support with said outer portions being adapted to engage said side surfaces of said journal box and said arm of said insert having an outer portion which is adapted to engage said guide surface of said journal box.

4,313,385

FOLDING FURNITURE

Patrick W. Fitzgerald, 13 Thrd Ave., Filton, Bristol, England Filed Jun. 14, 1979, Ser. No. 48,439

Claims priority, application United Kingdom, Jun. 19, 1978, 27321/78

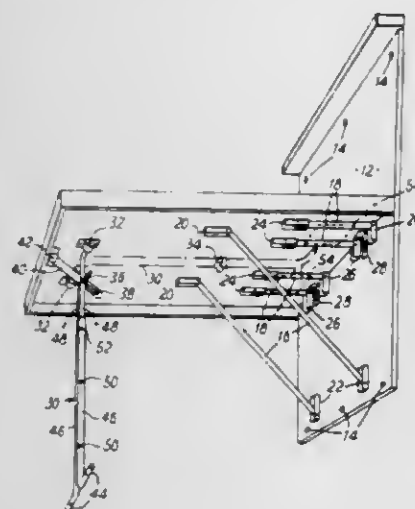
Int. Cl.³ A47C 5/04

U.S. Cl. 108—38

4 Claims

1. An improved article of furniture of the kind which includes an elongate leaf, which is normally used in an extended condition in a horizontal plane, pivotally mounted or adapted for pivotal mounting to an upright support at one end of the leaf by a linkage comprising longer and shorter arms pivotally attached at one end to the leaf at respectively outer and inner positions with respect to the upright support, and pivotally attached or adapted for pivotal attachment at their other ends to respectively lower and upper positions on the upright support so that the leaf may be hinged between the extended condition and a collapsed condition in a vertical plane alongside said upright support; wherein the improvement comprises a leg hinged to the other end of the leaf remote from said upright support so that it can be swung between an inoperative position substantially flat against the leaf which allows the leaf to be moved into the collapsed condition and an operative position in which it depends from the leaf for engagement with

the floor so as to support said other end of the leaf and maintain it in the extended condition, the leg having provision for adjustment of its length to match the height at which the leaf is supported at said one end, two pairs of said shorter arms being provided in parallel, the arms of each pair being spaced apart and unconnected with each other, at least the outer arm of each pair lying laterally outwardly of the longer arms, and channel elements on the underside of the leaf arranged to



receive lengthwise the shorter arms when the leaf is in the extended condition, the shorter arms being close fit within the channels so as to be laterally located thereby and provide lateral support for the leaf, said shorter arms being pivotally connected at their ends to channel members so that each shorter arm is received lengthwise in one or more said channels when the leaf is in either the extended or the collapsed condition.

4,313,386

SYSTEM FOR TRANSPORT OF MIXTURES OF SOLID PARTICULATE FUEL AND AIR, AND ROTARY DISTRIBUTOR SUITABLE FOR USE THEREIN

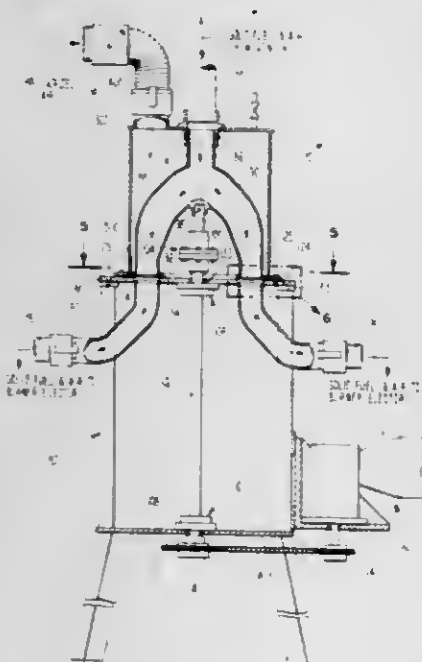
Donald M. Boldt, Green Lane, Pa., and Elton McClellan, Harlem, GA, assignors to The Keller Corporation, Hatfield, Pa.

Filed Nov. 1, 1979, Ser. No. 90,100

Int. Cl.³ F23K 3/02

U.S. Cl. 110-104 R

6 Claims



1. Distributor apparatus for delivering a stream of particulate solid fuel particles and air from a single stationary source thereof to a plurality of burner-ejector supply conduits in sequence, comprising:

a stationary bottom plate having a plurality of outlet delivery openings extending therethrough, said openings being disposed at different angular positions about a vertical axis

through said stationary plate and each being adapted to communicate with the inlet end of a different one of said burner-ejector supply conduits;

a rotatable distributor assembly mounted for rotation above said bottom plate and about said axis;

said rotatable distributor assembly comprising distributor inlet means having an inlet opening through which said axis extends for receiving said stream of solid fuel particles and air from said source, at least two distributor conduit arms each communicating at one of its ends with said distributor inlet means for receiving said stream and dividing it among said arms, and a rotatable upper plate having a plurality of feed openings each extending therethrough and each positioned at the other end of one of said arms so as to receive the portion of said stream traversing its associated arm, said upper plate being positioned to rotate in closely-confronting relation to the upper side of said bottom plate;

said feed openings being spaced from said axis at radii such as to become successively aligned with different ones of said outlet delivery openings in said bottom plate, and to feed the portions of said stream traversing said arms into said different delivery openings as said rotatable distributor assembly is rotated about said axis; a housing enclosing said rotatable distributor assembly to seal it from the ambient atmosphere; pressurized air inlet means for said housing; and means for pressurizing the interior of said housing with air by way of said air inlet means.

4,313,387

METHOD AND APPARATUS FOR CONTROLLING A SOLID FUEL BURNING FURNACE

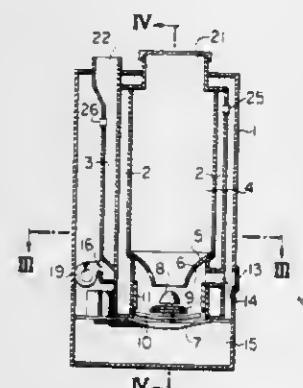
Kanichi Sato, Asahikawa, Japan, assignor to Hokkai Danro Yugen Kaisha, Asahikawa, Japan

Filed Feb. 25, 1980, Ser. No. 124,113

Int. Cl.³ F23H 5/20

U.S. Cl. 110-192

10 Claims



1. A method for controlling a solid fuel burning furnace according to an operational pattern, said furnace having a burning chamber for said fuel and a fuel supply and discharge mechanism composed of a fuel supply means to supply said fuel to said burning chamber and an ash discharge means to remove ash from said burning chamber, said method controlling the burning condition inside said burning chamber by operating said fuel supply and discharge mechanism and including:

said fuel supply and discharge mechanism rejecting an operation signal if received during a time T_1 counted from the start of a predetermined operation of said fuel supply and discharge mechanism, said fuel supply and discharge mechanism accepting the operation signal when received after the lapse of said time T_1 , and said fuel supply and discharge mechanism operating even in the absence of the operation signal after the lapse of the time T_2 from said start, wherein

T_1 is a time during which the fire force can be maintained after the completion of one operation of said fuel supply and discharge mechanism; and,

T_2 is a time during which the burning source can remain with the burning continuing after the completion of one operation of the said fuel supply and discharge mechanism.

4,313,388

MODULAR HOOK ASSEMBLY FOR STAGGERED NEEDLE CUT PILE TUFTING MACHINES

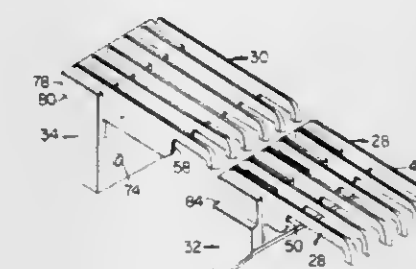
Aubrey H. Biggs, Chattanooga; Ian Slattery, Hixson, and Jack G. Workman, Chattanooga, all of Tenn., assignors to Spencer Wright Industries, Inc., Chattanooga, Tenn.

Filed Jun. 6, 1980, Ser. No. 156,913

Int. Cl.³ D05C 15/00

U.S. Cl. 112-79 R

9 Claims



1. A modular hook assembly for a staggered needle tufting machine having two transverse rows of spaced needles, the needles in one of the rows being staggered intermediate the needles in the other row, said assembly supporting a first series of hooks having a shank including a mounting portion at one end and a blade extending from the shank to define a throat therebetween and terminating at a bill for cooperation with the needles in one of said rows, and a second series of hooks having a shank including a mounting portion at one end and a blade extending from the shank to define a throat therebetween and terminating at a bill for cooperation with the needles in the other of said rows, said assembly comprising a first body member having means for receiving and securing the mounting portion of said first hooks in spaced side-by-side disposition, a second body member having means for receiving and securing the mounting portions of said second hooks in spaced side-by-side disposition, the spacing between the adjacent first hooks being substantially the same as the spacing between adjacent second hooks, said first and second body members having means defining complementary reference surfaces disposed relatively to the disposition of said first and second hooks for co-operative engagement of said body members and for location of the bills of said first hooks intermediate and spaced in the direction of said blades from the bills of the second hooks by the stagger of said needles, and means for securing said body members together as a unit in said co-operative engagement.

4,313,389

SEWING MACHINE WITH A PATTERN SELECTING DEVICE

Susumu Hanyu, Hachioji; Shyuzo Morimoto, Hino, and Yasuro Sano, Hachioji, all of Japan, assignors to Janome Sewing Machine Co. Ltd., Tokyo, Japan

Filed Mar. 10, 1980, Ser. No. 129,208

Claims priority, application Japan, Mar. 26, 1979, 54-38904

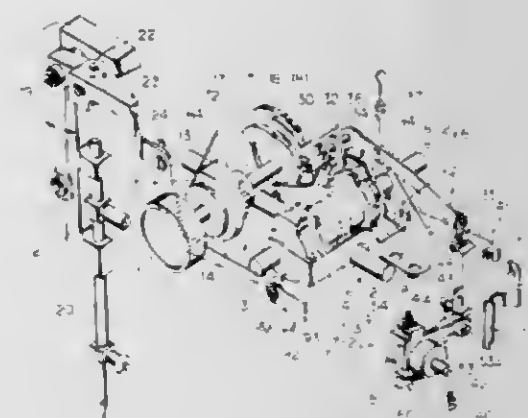
Int. Cl.³ D05B 3/02

U.S. Cl. 112-158 A

3 Claims

1. A sewing machine, comprising a machine housing; a main shaft rotatably mounted in said housing; a needle bar with a needle, said main shaft being operatively connected to said needle bar for vertical reciprocating movement thereof; a fabric feeding device operatively connected to said main shaft; a swingable support mounted in said housing for supporting said needle bar; pattern controlling means rotatable by said main shaft and including needle bar control cams for controlling the swingable movement of said needle bar and fabric feed

control cams operatively connected to said fabric feeding device for controlling the movement thereof; first pattern selecting means including a pattern selecting cam and a first follower operatively connected therewith, said first follower being connected to said needle bar and operated by said pattern selecting cam to selectively engage said needle bar control cams, a feed setting cam and a second follower associated therewith, said second follower being operatively connected to said fabric feeding device and adapted to set said device for the feeding movement in response to a position of said second follower with respect to said feed setting cam, a feed selecting cam and a third follower operatively connected therewith, said third follower operated by said feed selecting cam to selectively engage with or disengage from said feed control cams for controlling the movement of said fabric feeding device; said pattern selecting cam, said feed setting cam, and said feed



selecting cam being coaxially mounted on a manually rotated shaft, said feed setting cam displacing said second follower into an operative position during a first complete rotation of said said feed setting cam and displacing said second follower into an inoperative position during the next rotation of said feed setting cam, said feed selecting cam displacing said third follower into an inoperative position in which said third follower is disengaged from said feed control cams during a first complete rotation of said feed selecting cam and displacing said third follower into an operative position in which said third follower engages one of said feed control cams during the next rotation of said feed selecting cam; and second pattern selecting means operatively connected to said third follower, said second pattern selecting means being manually operated to selectively engage or disengage said third follower with one of said feed control cams.

4,313,390

TANKER CONSTRUCTION

Shigeto Yunoki, Tokyo, and Masataka Makizono, Sakado, both of Japan, assignors to Yamashita-Shinnihon Steamship Co., Ltd., Tokyo, Japan

Filed Feb. 26, 1980, Ser. No. 124,943

Claims priority, application Japan, Mar. 14, 1979, 54-029788

Int. Cl.³ B63B 39/03

U.S. Cl. 114-74 R

2 Claims

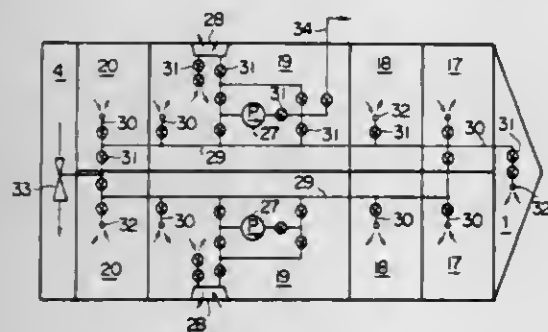
1. A tanker for carrying a liquid cargo in bulk over the water, comprising:

an outer hull shell defined by a hull bottom, a pair of hull sides and a deck, said hull shell containing a bow part with a forepeak tank, a stern part with a machinery room, and a midship tank part between said bow part and said stern part;

an inner bottom in said midship tank part spaced from said hull bottom and extending horizontally across the full breadth of the tanker;

bulkhead means for dividing the space within said midship tank part to form a plurality of cargo tanks and one or more segregated deep ballast tanks above said inner bottom, and also to form a plurality of segregated double

bottom ballast tanks under said inner bottom, said bulkhead means comprising two rows of parallel longitudinal bulkheads extending the full length of said midship tank part from said stern part to said bow part and dividing the region of said midship tank part above said inner bottom into a central tank area flanked by two wing tank areas, a center girder located between said hull bottom and said inner bottom and extending longitudinally from said stern part to said bow part, and a plurality of transverse bulkheads extending transversely across the full breadth of the ship for dividing said center tank area into plurality of central cargo tanks and for dividing each of said wing tank



areas into a plurality of wing tanks, at least one of said wing tanks functioning as a wing cargo tank and at least one of said wing tanks between two adjacent ones of said transverse bulkheads functioning as a wing segregated deep ballast tank, said center girder and said plurality of transverse bulkheads dividing the space between said hull bottom and said inner bottom into a plurality of segregated double bottom ballast tanks; cargo pumping means for loading or unloading said liquid cargo into or from said cargo tanks; and ballast pumping means for ballasting or deballasting said deep ballast tanks and said double bottom ballast tanks.

4,313,391

MAST SHROUD SYSTEM

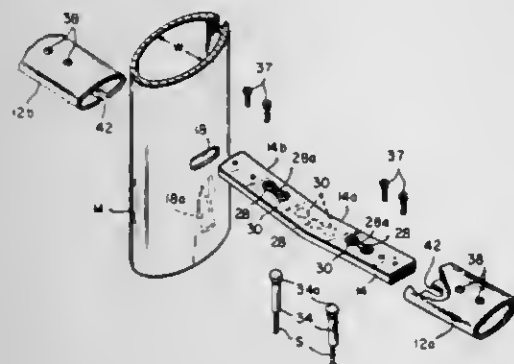
Eric R. D. Hall, Marion, Mass., assignor to Schaefer Marine, Inc., New Bedford, Mass.

Filed Jan. 25, 1980, Ser. No. 115,217

Int. Cl.³ F16B 1/00

U.S. Cl. 114—90

10 Claims



1. A mast shroud system comprising

- A. an elongate rigid bracket for interlocking reception in aligned openings in a boat mast so that the bracket ends extend an appreciable distance out from opposite sides of the mast and the bracket is fixed against rotation about its longitudinal axis,
- B. means defining a pair of terminal-receiving pockets in said bracket, said pockets being spaced apart on opposite sides of the transverse center line of the bracket, each pocket having an opening which extends entirely through the bracket so that a terminal secured to the end of a line can seat in the pocket with the line extending out of the pocket through said opening,

- C. a pair of tubular spreaders for telescopically engaging over the opposite ends of the bracket, and
- D. means for removably securing the telescoped spreaders to the bracket.

4,313,392

SYSTEM FOR DEPLOYING AND RETRIEVING SEISMIC SOURCE ASSEMBLY FROM MARINE VESSEL

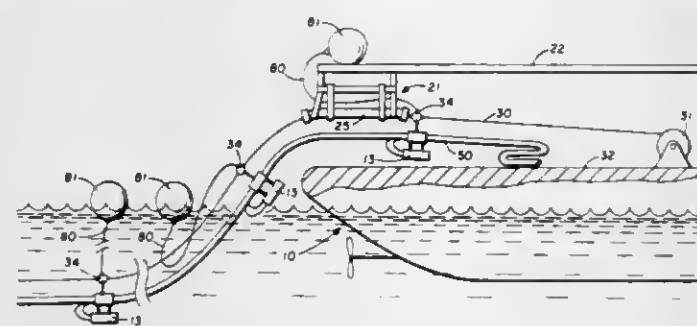
Robert O. Guenther, Irving, and Donald F. Huffhines, Richardson, both of Tex., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Aug. 20, 1979, Ser. No. 68,312

Int. Cl.³ B63B 21/66

U.S. Cl. 114—244

5 Claims



1. A system for deploying and retrieving a seismic source assembly from a marine vessel having at least an upper deck and a lower deck, said system comprising:

- a guide structure affixed to the underside of said upper deck;
- a strain absorbing element comprising a chain passing through said guide structure and adapted to be deployed and retrieved from said lower deck;
- at least one connector means affixed to and positioned at a desired position on said strain absorbing element having two sections, each section having an internal groove conforming essentially to a portion of a link of said chain whereby when said sections are positioned together in an operable position on said chain, said grooves will receive a link of said chain;
- means to secure said sections together;
- means for attaching a seismic source to said at least one connector means; and wherein said guide structure comprises
- a track means through which said strain absorbing element and said at least one connector means affixed thereto passes, means to mount said track means to said underside of said upper deck, and wherein said track means has a continuous open slot throughout its lower length adapted to receive said seismic source attaching means as said at least one connector means passes through said track means whereby said strain absorbing element and said at least one connector means can pass through said track means with said seismic source attached to said at least one connector means.

4,313,393

INDICATOR DEVICE FOR DETECTING THE AMOUNT OF SEBUM IN HAIR AND SCALP AND METHOD THEREFOR

Frank D. Barbuscio, Wayne; LeRoy Hunter, Randolph; Joseph C. Hourihan, Little Falls; Mary C. Inglis, Nutley; Helen E. Oberstar, Montville, and Hosny Saad, Ramsey, all of N.J., assignors to American Cyanamid Company, Stamford, Conn.

Continuation of Ser. No. 746,452, Dec. 1, 1976, abandoned. This application Sep. 19, 1978, Ser. No. 943,909

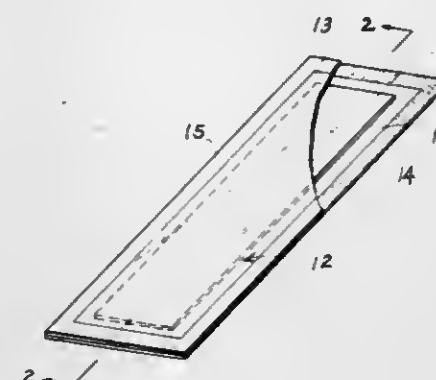
Int. Cl.³ G01N 21/01

U.S. Cl. 116—200

1 Claim

1. An indicator device for contact with human hair or scalp for determining the oiliness thereof, comprising (a) an oil-absorbent sheet material capable of absorbing sebum from the hair and scalp, said oil-absorbent sheet material being dyed on

a surface with (b) an oil-soluble dye, soluble in sebum, capable of giving a visual physical color change in the area when placed in contact with sebum to form a spot of differing color when the dye dissolves the sebum of a size proportional to the amount of sebum absorbed by the oil-absorbing material, and (c) a non-adhering oil-permeable transparent sheet material



permeable to said sebum adjacent to and superimposed over said dyed surface, said oil-permeable sheet forming part of an envelope enclosing said dyed oil-absorbent sheet, and allowing passage of sebum when brought into contact with sebum, whereby said sebum is absorbed by said absorbent sheet material to effect said visual physical color change which is visible through said transparent envelope surface.

4,313,394

PRINTING APPARATUS

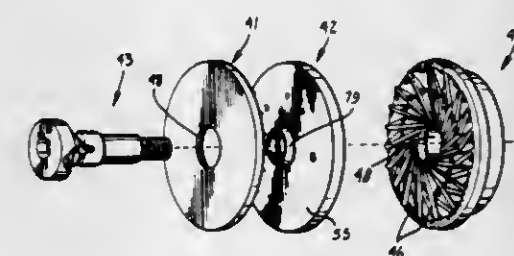
Steven F. North, Norcross, and Robert B. Sprow, Dunwoody, both of Ga., assignors to Western Electric Company, Inc., New York, N.Y.

Filed Mar. 20, 1980, Ser. No. 132,042

Int. Cl.³ B05C 5/00

U.S. Cl. 118—323

6 Claims



1. Apparatus for printing encoded markings on elongated material comprising a first disc having a plurality of raised lands extending between central and peripheral disc regions; a second disc mounted to said first disc flush against said raised lands with at least one side wall of each of said lands being canted at an oblique angle with respect to said second disc; means for rotating said first and second discs together about an axis extending through said first disc central region; and means for channeling a liquid marking medium to said first disc central region, whereby upon rotation of the discs liquid marking medium channeled to the first disc central region may be propelled outwardly therefrom by centrifugal force along rotary leading canted side walls of said raised lands and into channels of wedge-shaped cross-sectional configuration bounded by the juncture of the canted, rotary leading side walls of the first disc raised lands and the second disc and onto elongated material moved past the apparatus as small well-defined streams.

4,313,395

MECHANISM FOR PERFORMING WORK ALONG AN UPWARDLY FACING PORTION OF A WORKPIECE

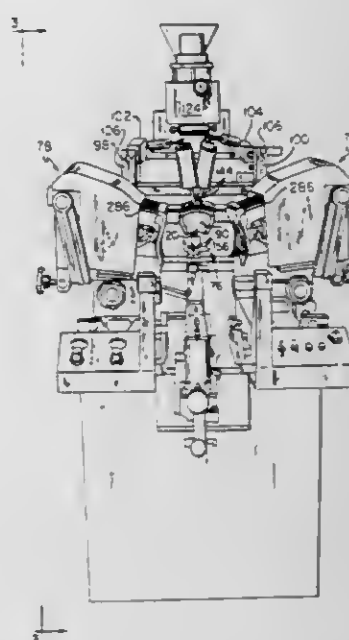
Sinville Runions, Booneville, Miss., assignor to International Shoe Machine Corporation, Nashua, N.H.

Division of Ser. No. 27,561, Apr. 6, 1979. This application Apr. 7, 1980, Ser. No. 137,875

Int. Cl.³ B05C 5/02

U.S. Cl. 118—411

2 Claims



1. A mechanism for performing work along an upwardly facing portion of a workpiece having a segment that is inclined upwardly and forwardly and a remainder that is not so inclined comprising: a tool, located above the workpiece portion, mounted for forward movement and for heightwise movement; forward moving means for causing the tool to move forwardly in a tool stroke from a rearward tool position wherein the tool is at the rearward end of said workpiece portion to a forward tool position wherein the tool is at the forward end of said workpiece portion; force applying means for imparting a prescribed yieldable downward force to the tool during the tool stroke to cause the tool to be yieldably urged against the workpiece portion under the prescribed force; relief means for relieving said prescribed force to thereby diminish from the prescribed force the force applied by the tool against the workpiece portion; a control member actuable to actuate the relief means; and an actuating member so constructed and arranged as to actuate the control member during that portion of the tool stroke wherein the tool is moving along and against said workpiece portion segment.

4,313,396

MILKING PLANT

Hans K. Olofsson, Huddinge, Sweden, assignor to Alfa-Laval AB, Tumba, Sweden

Filed May 21, 1980, Ser. No. 151,802

Claims priority, application Sweden, May 25, 1979, 7904586

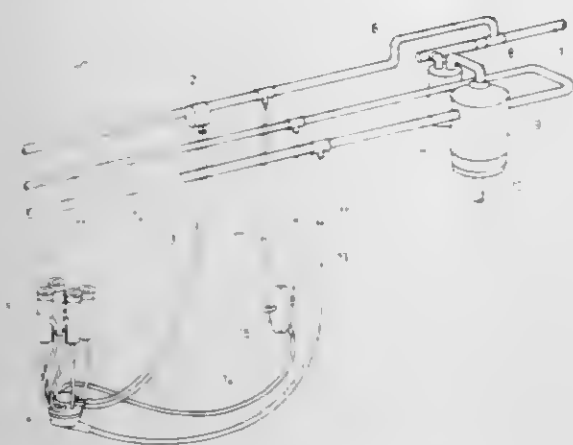
Int. Cl.³ A01J 5/04

U.S. Cl. 119—14.44

4 Claims

1. In a milking system, the combination of a cluster of teat cups, a first pipe line, means operatively connecting said first pipe line to the cluster for pulsating the teats, a second pipe line, means operatively connecting said second pipe line to the cluster to receive milk therefrom, a vacuum source connected to said first pipe line for producing a low vacuum therein, an

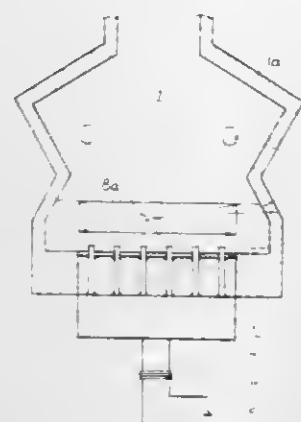
ejector leading from said first pipe line, and means through which the ejector communicates with the second pipe line to



maintain in said second line a vacuum higher than said low vacuum.

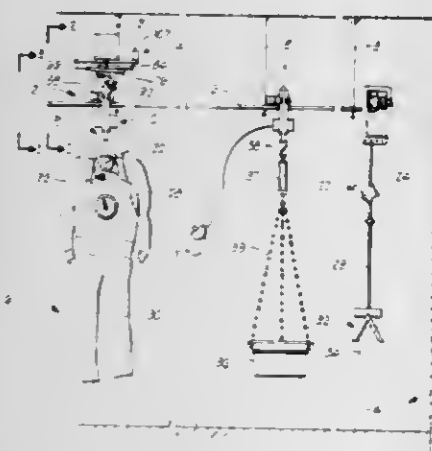
4,313,398
STEAM GENERATOR
Hermann Ostendorf, Krefeld, Fed. Rep. of Germany, assignor to Deutsche Babcock Aktiengesellschaft, Oberhausen, Fed. Rep. of Germany
Filed Oct. 22, 1979, Ser. No. 87,006
Claims priority, application Fed. Rep. of Germany, Nov. 22, 1978, 2850536

Int. Cl.³ B09B 3/00
U.S. Cl. 122—4 D 9 Claims



I. In a steam generator, a combination comprising means defining a combustion chamber having a bottom wall; a plurality of steam-generating tubes extending through said chamber at a level above said bottom wall; means for admitting particulate combustible material into said chamber; a plurality of air-admitting nozzles extending through said bottom wall and having outlets located above the same so that air admitted through said nozzles causes the particulate combustible material to form a fluidized-bed in said chamber; and adjusting means for adjusting the spacing between said outlets and said tubes, so as to vary the level at which said fluidized-bed is located; said tubes being located in said fluidized bed or in an inert bed layer below said fluidized bed dependent on operating capacity.

4,313,397
APPARATUS FOR MOTIVATING ANIMALS TO MOVE
Donnie D. Markum, 810 Adobe, Amarillo, Tex. 79111
Filed Jan. 22, 1980, Ser. No. 114,265
Int. Cl.³ A01K 15/00, 29/00; B61B 3/00
U.S. Cl. 119—29 22 Claims



3. An apparatus for motivating an animal to move within an enclosed area, comprising:

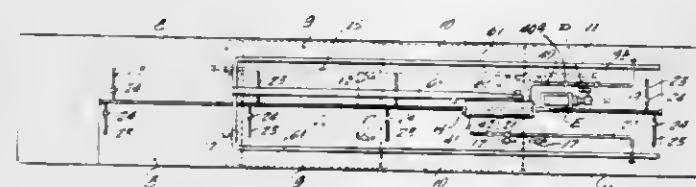
a track disposed within the enclosed area;
a carriage movably mounted on said track;
drive means for moving said carriage along said track;
actuating means for actuating said drive means, said actuating means including:

a docking member mounted on said track, said docking member having a movable switch-engaging element movable from a first position to a second position;
switch means connected to said carriage for coacting with said movable switch-engaging element when said carriage is positioned adjacent said docking member; and
animal-walking means, connected to said carriage, for causing the animal to move when said actuating means actuates said drive means to move said carriage along said track.

4,313,399
TECHNIQUE FOR HANDLING VISCOUS LIQUIDS IN TRANSIT OR STORAGE

Robert B. Black, 2925 Denver St., Corpus Christi, Tex. 78404
Continuation-in-part of Ser. No. 46,240, Jun. 7, 1979, Pat. No. 4,271,789, and a continuation-in-part of Ser. No. 58,779, Jul. 19, 1979, which is a continuation-in-part of Ser. No. 794,044, May 5, 1977, abandoned, which is a division of Ser. No. 568,699, Apr. 16, 1975, abandoned, which is a division of Ser. No. 369,084, Jun. 11, 1973, abandoned, said Ser. No. 46,240, is a continuation-in-part of Ser. No. 813,667, Jul. 7, 1977, Pat. No. 4,197,831, which is a continuation of Ser. No. 620,327, Oct. 7, 1975, abandoned, which is a continuation-in-part of Ser. No. 462,094, Apr. 18, 1974, Pat. No. 4,025,291, which is a division of Ser. No. 192,262, Oct. 26, 1971, Pat. No. 3,844,270. This application May 29, 1980, Ser. No. 154,423

Int. Cl.³ F22B 1/00
U.S. Cl. 122—4 R 39 Claims



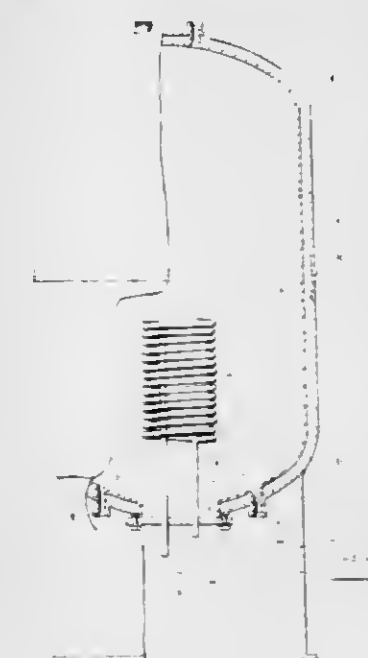
1. Equipment for handling a liquid cargo on a vessel having one or more cargo tanks or compartments, comprising a hydrocarbon burning prime mover of the type in which the exhaust gas contains a substantial amount of free oxygen, heat exchange mechanism including first passage means for the cargo liquid carried in said tanks and other passage means

having indirect heat exchange relation to the cargo liquid in said first passage means, a secondary combustion chamber associated with said other passage means, a conduit for delivering the exhaust gas from said prime mover into the secondary combustion chamber, means for introducing fuel into the secondary combustion chamber, a cargo liquid pump driven by said prime mover, and connections between the pump and said first passage means in the heat exchange mechanism providing for circulation of the liquid from the tanks to and through said first passage means and thence back into the tanks.

4,313,400
LINED METAL TANK WITH HEAT SHIELD, INDIRECT FIRED WATER HEATER AND METHOD OF MAKING SAME

Robert Walker, Pawtucket, R.I., and Joseph A. Lane, Tauton, Mass., assignors to Amtrol Inc., West Warwick, R.I.
Continuation-in-part of Ser. No. 46,763, Jun. 8, 1979, Pat. No. 4,241,843. This application Apr. 22, 1980, Ser. No. 142,722
The portion of the term of this patent subsequent to Dec. 30, 1997, has been disclaimed.

Int. Cl.³ F22B 1/02
U.S. Cl. 122—31 R 11 Claims



I. An indirect fired water heater comprising:
(a) a multi-section metallic outer tank wherein the sections are welded together;
(b) a liner of foam insulating material disposed on the interior of said multi-section outer tank, said foam insulating liner having a smooth interior without any inwardly deformed regions;
(c) heat shield means disposed between said outer tank and said foam insulating liner adjacent the welded junctions of said outer tank to prevent damage to or destruction of said foam insulating liner caused by heat generated during the welding operation;
(d) said foam insulating liner having retaining means for securement of said heat shield means adjacent each welded junction, said retaining means not inwardly deforming said foam insulating liner in the region of each welded junction and securing said heat shield means in position even when said outer tank is not in place;
(e) an inner tank of nonmetallic material disposed inside of said foam insulating liner;
(f) means to place water to be heated within said inner tank and to withdraw same therefrom; and
(g) heat exchange means located within said inner tank to transfer heat from a fluid passing therethrough to said water within said inner tank.

4,313,401
REGULATOR FOR AN INTERNAL COMBUSTION ENGINE

Walter Monn, Via Monte Tabor 8, 6512 Giubiasco, Switzerland
Filed Jan. 30, 1979, Ser. No. 7,930
Claims priority, application Fed. Rep. of Germany, Feb. 2, 1978, 2804432; Switzerland, Dec. 1, 1978, 12292/78
Int. Cl.³ F01P 1/08

U.S. Cl. 123—414 20 Claims



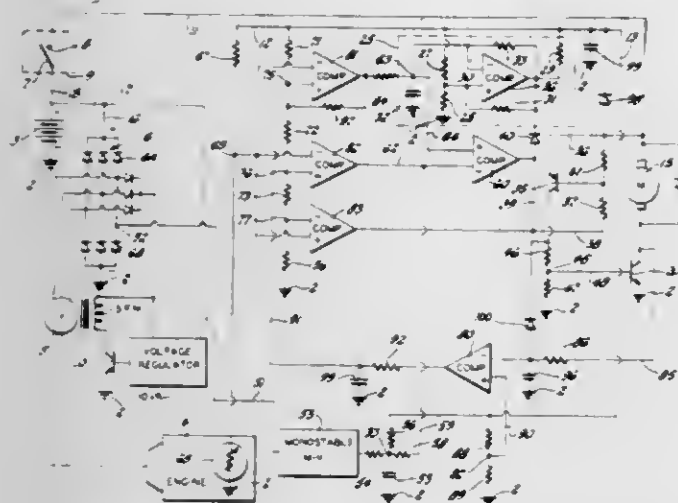
1. A regulator for an internal combustion engine having at least one working cylinder space, said regulator comprising:
a housing for connection to said engine;
a rotary slide valve rotatably mounted in said housing to rotate about a rotation axis, said rotary slide valve having at least one passageway for alternatively connecting the cylinder working space with intake and discharge channels in said housing as said valve is rotated in said housing; and
cooling means for cooling said rotary valve, said cooling means including:
a coolant fluid inlet into which coolant fluid is introduced in said valve at a first radial position with respect to said rotation axis;
a first cooling channel portion extending from said inlet to a second radial position located further from said rotation axis than said first radial position; and
a second cooling channel portion extending from said second radial position to a third radial position located radially inward of said second radial position so that coolant is first conducted from an interior part of said valve outwardly to an exterior part of said valve, and is then conducted inwardly to an interior part of said valve.

4,313,402
INTERNAL COMBUSTION ENGINE RADIATOR COOLING FAN DRIVE MOTOR CONTROL SYSTEM
Richard N. Lehnhoff, Kettering, and William C. Staker, Springfield, both of Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 30, 1979, Ser. No. 98,800
Int. Cl.³ F01P 7/02 5 Claims

U.S. Cl. 123—41.12
1. An internal combustion engine radiator cooling fan drive motor control circuit adaptable for use with a direct current generating system including a dynamoelectric generator driven by the engine for effecting drive motor energization in such a manner that the average supplied drive motor power is directly proportional to engine speed while the engine temperature is within a range between a predetermined first value and a predetermined higher second value and the engine is operating within a selected speed range, comprising:
means for effecting the periodic energization and deenergization of said drive motor at a predetermined frequency and in such a manner that the ratio of the period of energization to the period of deenergization provides a predetermined drive motor energization duty cycle;
means for producing a signal of a magnitude directly proportional to engine speed; and

means responsive to said signal while the engine temperature is within the range between said predetermined first and second values for extending said drive motor energization duty cycle by an amount directly proportional to engine speed within a selected engine speed range whereby the



average supplied drive motor power is directly proportional to engine speed while the engine temperature is within the range between the predetermined first and second values and said engine is operating within said selected speed range.

4,313,403

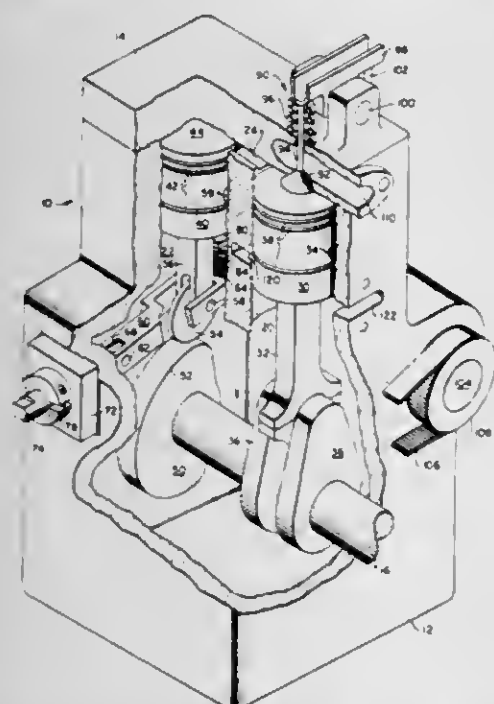
INTERNAL COMBUSTION ENGINE

Norman Bie, Jr., 304 W. Bay Dr., Largo, Fla. 33540

Filed Sep. 7, 1979, Ser. No. 73,390

Int. Cl.³ F02B 25/12

U.S. Cl. 123—53 B



1. In an internal combustion engine having intake means for admitting fuel and air into the engine and exhaust means for exhausting products of combustion therefrom:

- an engine block having a combustion chamber adapted to receive a charge of fuel and air;
- a working piston is sealing engagement with said combustion chamber for converting the energy of combustion into useful work, said working piston reciprocating between a top dead center position whereby the volume of the combustion chamber is diminished, and a bottom dead center position whereby the volume of the combustion chamber is enlarged;
- compression means in communication with said combustion chamber for compressing the charge only when said working piston is close to its top dead center position, said compression means comprising an auxiliary piston is seal-

ing engagement with said combustion chamber, said auxiliary piston reciprocating between a top dead center position whereby the volume of said combustion chamber is diminished and a bottom dead center position whereby the volume of said combustion chamber is enlarged, the net volume of said combustion chamber depending on the relative positions of said pistons;

timing means operatively interconnecting said working piston and said compression means to synchronize their operations, said timing means comprising a rotatably driven cam having a contoured cam surface, a cam follower comprising a roller urged against said cam surface, and a connecting rod connecting said auxiliary piston and said cam follower, said connecting rod having a bifurcated lower end and said roller being journaled therein; and positioning means for adjustably positioning said cam follower with respect to said cam surface, whereby the relative timing of the instant each piston reaches its top dead center position may be changed to vary the compression ratio of the engine, said positioning means comprising a positioning arm connected between said cam follower and an adjustable pivot, said positioning arm comprising a slotted yoke embracing said roller and said bifurcated end of said connecting rod and joined thereto by means of a pivot pin.

4,313,404

INTERNAL COMBUSTION ENGINE

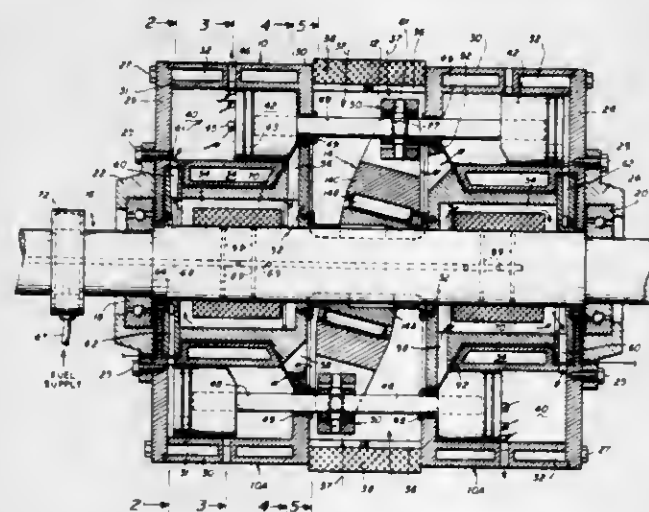
Horst K. Kossel, 22 Whipoorwill Dr., Shrewsbury, Mass. 01545, assignor to H. St. Pierre; H. Marc and H. K. Kossel, all of Worcester, Mass.

Filed Apr. 30, 1979, Ser. No. 34,866

Int. Cl.³ F02B 75/26

30 Claims U.S. Cl. 123—58 BB

18 Claims



1. An internal combustion engine comprising; an engine block having means defining a plurality of cylinders arranged in a circular locus and means defining a power transfer compartment adjacent the cylinder, output shaft means, means supporting the output shaft means in a rotatable position in the engine block, a plurality of pistons received each in a cylinder and each having connecting means extending therefrom and into the power transfer compartment, said engine block having means defining at least one exhaust port and intake port for the cylinder, rotor means secured to the output shaft means rotatable therewith and having at least one intake passage for coupling an air-gas mixture to one end of the cylinder over the piston via the intake port, and an eccentrically-operated power transfer means disposed in the power transfer compartment for converting linear piston action into rotary output shaft means action including an inner member fixed with the output shaft means and an outer member coupled to the connecting

means permitting undulation of the power transfer means with the outer member non-rotating relative to the output shaft means,

said rotor means also including an air intake passage at one side of the rotor means to permit air flow into the cylinder under the piston at an opposite end of the cylinder, a transfer passage at the opposite side of the rotor means coupling from the opposite end of the cylinder to the intake passage, and means coupling fuel to the transfer passage wherein the fuel and air mix for coupling under pressure to the intake passage,

said means coupling fuel including fuel coupling lines within the output shaft means and a porous member through which the fuel particles pass to the transfer passage wherein the air under pressure passes over the porous member to the intake passage.

4,313,406

MULTI-CYLINDER INTERNAL COMBUSTION ENGINE
Haruhiko Iizuka, Yokosuka, and Fukashi Sugawara, Yokohama, both of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

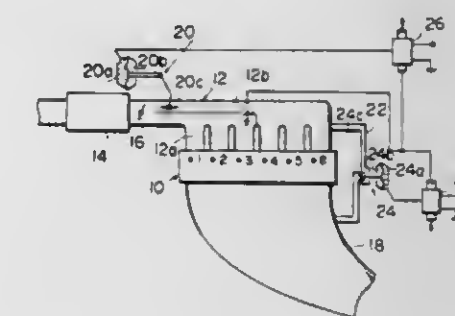
Filed Nov. 16, 1979, Ser. No. 94,887

Claims priority, application Japan, Nov. 17, 1978, 53-141175

Int. Cl.³ F02D 17/02

U.S. Cl. 123—198 F

5 Claims



1. An internal combustion engine comprising:
 - (a) a plurality of cylinders split into first and second groups;
 - (b) an intake passage provided therein with a throttle valve, said intake passage divided downstream of said throttle valve into first and second branches leading to said first and second cylinder groups, respectively;
 - (c) a stop valve provided at or near an entrance of said intake passage second branch;
 - (d) an exhaust passage for said first and second cylinder groups;
 - (e) an EGR passage communicating between said exhaust passage and said intake passage second branch;
 - (f) an EGR valve provided in said EGR passage; and
 - (g) control means, responsive to engine load conditions, for disabling said second cylinder group, closing said stop valve, and opening said EGR valve during the occurrence of high engine load conditions, said control means effective for closing said EGR valve and opening said stop valve with a delay relative to the closing of said EGR valve when the engine load changes from the low load conditions to a high load condition.

4,313,405

INTERNAL COMBUSTION ENGINE

Othmar Skatsche; Heinz Fachbach; Gerhard Thien; Karl Kirchweber; Josef Greier, all of Graz, Austria, and Hans List, 126, Heinrichstrasse, Graz, Austria, assignors to Hans List, Graz, Austria

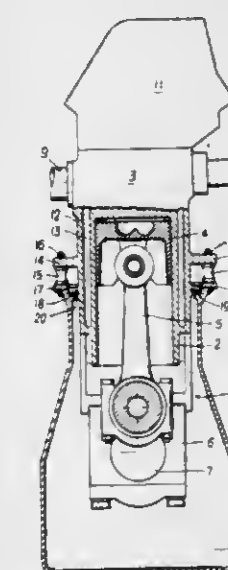
Filed Dec. 13, 1979, Ser. No. 103,291

Claims priority, application Austria, Dec. 18, 1978, 9052/78

Int. Cl.³ F16M 1/02; F02B 77/00

U.S. Cl. 123—195 C

2 Claims



1. An internal combustion engine comprising a crankshaft and crankshaft main bearings, a metallic engine unit support which supports said crankshaft main bearings, and a cylinder-head mounted on said engine unit support, which are engine parts directly affected by body resonance and sound vibration, a metallic crankcase supporting said engine support, at least one vibration absorbing and power transmitting element located between said engine parts which are directly affected by sound vibration and said crankcase, a sealing element located in a joint between said engine unit support and said crankcase, said element sealing an encapsulated upper dry engine region oil-tightly against a lower oil-wetted engine region, and an elastic filling element bridging at least a part of said joint, said filling element underlying said sealing element and supporting the latter, and said sealing element consisting of a viscous material forming an adhesive compound with metal and which is resilient after curing.

4,313,407

INJECTION NOZZLE FOR AIR-COMPRESSING DIRECT INJECTION INTERNAL COMBUSTION ENGINES

Eckart Müller, Nürnberg, Fed. Rep. of Germany, assignor to Maschinenfabrik Augsburg-Nürnberg Aktiengesellschaft, Nürnberg, Fed. Rep. of Germany

Continuation of Ser. No. 864,604, Dec. 27, 1977, abandoned.

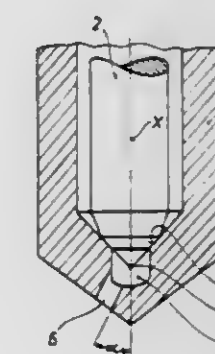
This application Jan. 8, 1980, Ser. No. 110,495

Claims priority, application Fed. Rep. of Germany, Dec. 24, 1976, 2658783

Int. Cl.³ F02B 3/00

U.S. Cl. 123—276

2 Claims



1. A fuel injection nozzle for use with an internal combustion engine wherein the engine includes a reciprocating piston having a cavity which forms a combustion chamber in the top surface of the piston which cavity has a wall in the shape of a

surface of revolution wherein means are provided for causing air to swirl in the cavity as the piston reciprocates, the nozzle comprising:

- a hollow nozzle body with a nozzle needle positioned therein along the longitudinal axis of the body, said hollow nozzle body including a convex exterior surface at one end thereof, which exterior surface is a surface of revolution about the longitudinal nozzle axis; said nozzle body further including a concave, interior surface which is also a surface of revolution about the nozzle axis and is closed at one end by the nozzle needle when the nozzle needle is sealed to form a hollow space, and
- a discharge opening extending from the concave inner surface through the convex exterior surface, said discharge opening having a longitudinal axis which extends obliquely with respect to the longitudinal axis of the hollow nozzle body;
- said discharge opening being elongated in cross section taken normal with respect to the longitudinal axis of the discharge opening wherein the transverse length of the opening is greater than the transverse width wherein fuel ejected through the opening forms a stream having a leading edge which conforms to the surface of the combustion chamber wall;

whereby

fuel pushed through the discharge opening by the nozzle needle at high engine loads emerges in a wide flat spray which impinges upon the wall of the combustion chamber along a line which spreads over the wall of the combustion chamber as a film due to swirl of air in the combustion chamber, and whereby

fuel pushed through the discharge opening by the nozzle needle at low engine loads substantially mixes in the swirl of air before impinging on the wall of the combustion chamber.

4,313,408

DEVICE FOR THE CONTROL OF THE TRAVELING SPEED OF A MOTOR VEHICLE

Harald Collonia, Königstein, Fed. Rep. of Germany, assignors to VDO Adolf Schindling AG, Frankfurt, Fed. Rep. of Germany

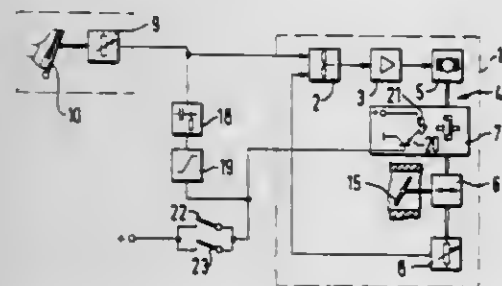
Division of Ser. No. 894,371, Apr. 7, 1978. This application Oct. 22, 1979, Ser. No. 86,828

Claims priority, application Fed. Rep. of Germany, Mar. 30, 1977, 2714113; Dec. 2, 1977, 2753702; Dec. 2, 1977, 2753703; Dec. 9, 1977, 2754826

Int. Cl.³ F02D 11/10

U.S. Cl. 123—340

6 Claims



1. A device for the control of the traveling speed of a motor vehicle with a regulating unit actuatable by the vehicle driver, particularly a gas pedal, and means for transmission of the movement of the same to an element, particularly the throttle valve, which influences the fuel-air mixture, comprising

- a regulating unit,
- a first electrical position encoder being coupled with said regulating unit, said first position encoder having an output with an output signal,
- means for influencing the air-fuel mixture of the vehicle,

an electrical adjusting device including a positioning actuator, the latter being connected with said means, a second electrical position encoder being coupled with said positioning actuator, said second electrical position encoder having an output with an output signal, an electrical controller including said electrical adjusting device and having a desired value input connected with the output of said first electrical position encoder and applied with the output signal of said first electrical position encoder and having an actual value input connected with the output of said second electrical position encoder and applied with the output signal of said second electrical position encoder, said adjusting device includes a coupling means operatively connected to said positioning actuator, said element and said regulating unit constitute corresponding members, means for detecting a resetting speed of one of said members, means for triggering said coupling means in a sense of disconnection thereof sooner than actuation of the vehicle clutch and/or of the vehicle brake, said triggering means being operatively connected to said detecting means and for triggering said coupling means in the sense of disconnection upon exceeding a certain predetermined value of the resetting speed.

4,313,409

CENTRIFUGAL RPM GOVERNOR FOR FUEL-INJECTED INTERNAL COMBUSTION ENGINES

Niro Makino, Toyota, Japan, assignor to Nippondenso Co. Ltd., Kariya, Japan

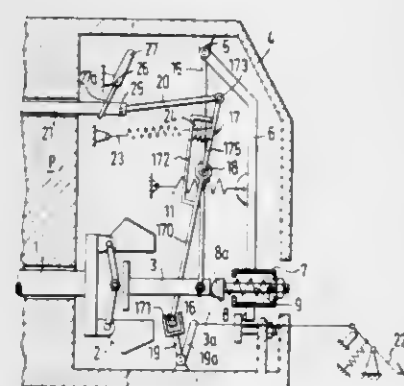
Filed Oct. 24, 1979, Ser. No. 87,895

Claims priority, application Japan, Oct. 24, 1978, 53-146546[U]

Int. Cl.³ F02D 31/00

U.S. Cl. 123—373

3 Claims



1. A centrifugal rpm governor for fuel-injected Diesel engines, comprising

- a control member displaceable in position by the force of flyweights,
- a control linkage arranged to transmit a signal indicative of the change in position of said control member onto a supply quantity adjustment member,
- a shut-off lever associated with said supply quantity adjustment member arranged to be moved into an operational position by a tension spring to turn off said engine,
- a deviation spring means arranged to prevent overstressing of said control linkage upon actuation of said shut-off lever, and said deviation spring means including a holding spring and a deviation spring, said holding spring being disposed on said shut-off lever so that said shut-off lever is held by said holding spring, both in said operational position and a shut-off position and that the force with which said shut-off lever is held in its shut-off position is greater than the force of said deviation spring.

4,313,410

INTERNAL COMBUSTION ENGINE WITH FUEL INJECTOR

Kazuya Kunii; Saburo Tsutsumi, both of Yokohama, and Shizuo Ishizawa, Yokosuka, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Division of Ser. No. 27,141, Apr. 4, 1979, Pat. No. 4,269,153.

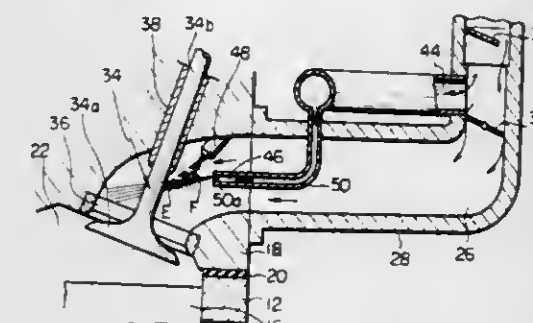
This application Oct. 17, 1980, Ser. No. 197,822

Claims priority, application Japan, May 15, 1978, 53/50416

Int. Cl.³ F02B 15/00

U.S. Cl. 123—432

3 Claims



1. An internal combustion engine having a combustion chamber and an intake valve seatable on a valve seat, comprising:

- means for defining an intake passageway through which the combustion chamber is communicable with atmospheric air, a throttle valve being pivotally disposed in said intake passageway;
- a fuel injector including a fuel injection nozzle which is projected into the intake passageway downstream of the throttle valve and immediately upstream of the combustion chamber;
- means defining a straight elongate opening located adjacent the nozzle of said fuel injector, the axis of said straight elongate opening intersecting the axis of the nozzle of said fuel injector at a predetermined angle;
- means defining an additional air passage through which said elongate opening is communicable with said intake passageway upstream of said throttle valve said straight elongate opening defining means including a pipe projecting into the intake passageway downstream of said throttle valve, said pipe being formed with a straight elongate portion in which said straight elongate opening is formed, the tip of said straight elongate portion being located immediately upstream of the combustion chamber.

4,313,411

FUEL FEEDING DEVICE FOR AN INTERNAL COMBUSTION ENGINE

Akinobu Moriyama, Yokosuka; Mitsumasa Inoue, Yokohama; Masaaki Saito, Yokosuka, and Yoshihisa Kawamura, Fujisawa, all of Japan, assignors to Nissan Motor Company, Yokohama, Japan

Filed Oct. 5, 1979, Ser. No. 82,335

Claims priority, application Japan, Oct. 9, 1978, 53-124420; Nov. 22, 1978, 53-161216[U]

Int. Cl.³ F02M 61/14

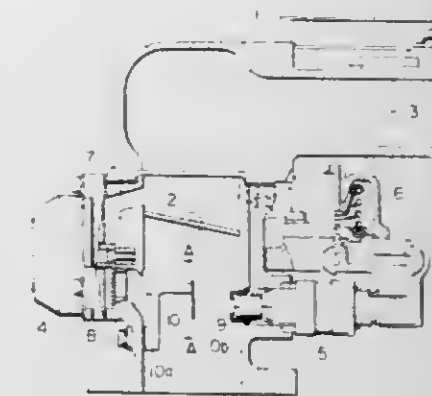
U.S. Cl. 123—445

6 Claims

1. A fuel feeding device for a multi-cylinder type internal combustion engine, comprising:

- a tubular throttle body having an intake passage;
- a throttle valve provided within said intake passage;
- a bypass formed around said throttle valve, said bypass having an air passage inlet to said intake passage upstream of said throttle valve and an air passage outlet to the intake passage downstream of said throttle valve;
- an air regulator for regulating air flow through said bypass;
- a valve having a nozzle for injecting fuel into said intake passage downstream of said throttle valve; and
- an atomizer located near said air passage outlet, said atomizer having at a base portion thereof a support portion

fixed to said tubular throttle body said atomizer further having a reflecting planar surface disposed between said



air passage outlet and said nozzle of said fuel injecting valve, said nozzle facing said reflecting planar surface.

4,313,412

FUEL SUPPLY CONTROL SYSTEM

Akio Hosaka, Yokohama, and Masaharu Asano, Yokosuka, both of Japan, assignors to Nissan Motor Company Limited, Yokohama, Japan

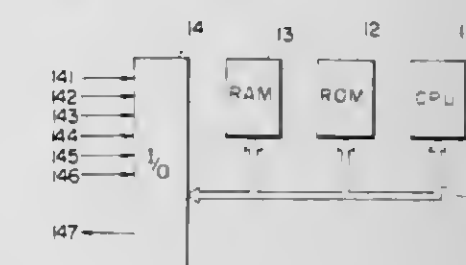
Filed Mar. 18, 1980, Ser. No. 131,094

Claims priority, application Japan, Mar. 19, 1979, 54-31191

Int. Cl.³ F02B 3/00

U.S. Cl. 123—480

7 Claims



1. In a fuel supply control system for use in an internal combustion engine, said system using a stored program type digital computer for calculating a basic amount of fuel and said system modifying the basic amount of fuel in accordance with various correction factors dependent upon engine operating conditions so as to determine an actual amount of fuel to be supplied to the engine, an improvement in the fuel supply control system comprising:

- means for summing all correction factors dependent upon engine temperature; and
- means for multiplying the sum of said correction factors by said basic amount of fuel so as to determine said actual amount of fuel, said fuel supply control system further including means for increasing or decreasing each of said correction factors by a value proportional to the amount of fuel supplied to the engine or the intake air flow rate.

4,313,413

FUEL VAPORIZATION PROMOTING DEVICE FOR AN INTERNAL COMBUSTION ENGINE

Takeo Miyoshi, Toyota, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Nov. 14, 1979, Ser. No. 93,999

Claims priority, application Japan, Sep. 7, 1979, 54-114100

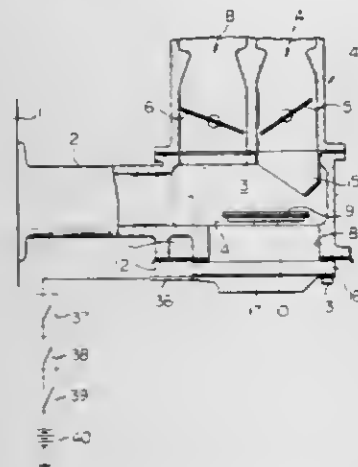
Int. Cl.³ F02M 31/00

U.S. Cl. 123—549

16 Claims

1. A fuel vaporization promoting device for an internal combustion engine having an intake manifold with a collecting portion, and a carburetor arranged above the collecting portion, said device comprising:

a power source;
a thin plate-shaped heater vessel having a substantially flat upper face and a substantially flat lower face;
a heater element contained within the heater vessel;
resilient means also contained within the heater vessel, said resilient means interacting with said heater element to provide a good thermal connection between the heater element and both the upper and lower faces of the heater vessel;
means for selectively connecting the heater element to the power source; and



supporting means interconnecting the lower face of said heater vessel in spaced relation above a bottom wall of said collecting portion for forming an air gap between said lower face of said heater vessel and said bottom wall of said collecting portion, said supporting means having a cross-sectional area which is substantially smaller than the surface area of said lower face of said heater vessel, whereby the upper and lower faces of the heater vessel effectively supply heat for promoting vaporization of fuel in the collecting portion of the intake manifold.

4,313,414

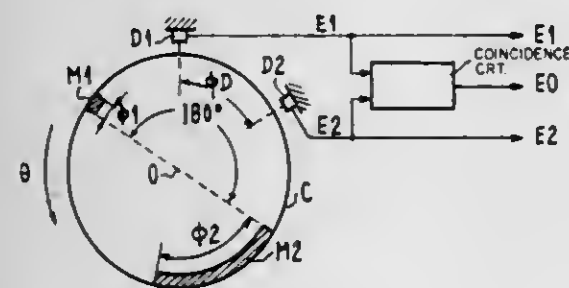
SHAFT POSITION SENSOR FOR AN INTERNAL COMBUSTION ENGINE EQUIPPED WITH AN ELECTRONIC IGNITION SYSTEM

Pierre Planteline, Paris, France, assignor to Thomson-CSF, Paris, France

Filed Jan. 14, 1980, Ser. No. 111,994
Int. Cl.³ F02P 5/04, 1/00

U.S. Cl. 123-643

5 Claims



1. A shaft position sensor for synchronizing the electronic ignition system of a multicylinder internal combustion engine said electronic ignition system comprising at least one double-channel automatic advance circuit, an electronic distributor, and a plurality of spark generators connected to respective ones of the spark plugs mounted in said cylinders, said sensor comprising:

(1) electromechanical sensing means including: a set of conducting members, rotated synchronously about an axis of rotation of the engine, said set of members including at least two main members and at least one auxiliary member angularly displaced ahead of one of the main members by a given angle; and first and second fixed proximity detec-

tors, spatially disposed with regard to the course of the members, the relative angular spacing of said detectors being equal to the difference between the value of the maximum dynamic lead angle and the value of the static lead angle; and,

(2) electronic means for processing the signals generated by said detectors, said processing means including: a temporal coincidence circuit connected to the output signals of said detectors; and a circuit for inhibiting the electric signals resulting from the passage of said auxiliary member past said detectors.

4,313,415

EXHAUST GAS RECIRCULATION SYSTEM IN COMPRESSION-IGNITION INTERNAL COMBUSTION ENGINE

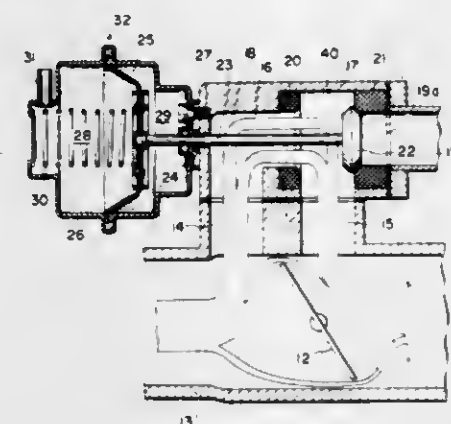
Motohiro Shinzawa, Zushi, Japan, assignor to Nissan Motor Co., Ltd., Tokyo, Japan

Filed Apr. 25, 1980, Ser. No. 143,737

Claims priority, application Japan, Jun. 14, 1979, 54-81322[U]
Int. Cl.³ F02M 25/06

U.S. Cl. 123-569

9 Claims



1. A system for recirculation of exhaust gases in a compression-ignition internal combustion engine having an induction passage for air flow to the engine, an exhaust passage for exhaust gas flow from the engine and a throttle valve disposed in the induction passage, the system comprising:

an exhaust gas recirculation passage connecting the exhaust passage with the induction passage downstream of the throttle valve,

a by-pass passage connecting two portions of the induction passage to detour the throttle valve,

said exhaust gas recirculation passage and said by-pass passage being arranged to join together forming a junction portion having a first inlet opening from said by-pass passage, a second inlet opening from said exhaust gas recirculation passage and an outlet communicating with the induction passage downstream of the throttle valve,

valve means disposed in said junction portion, said valve means having a first position where said second inlet is closed and said first inlet is open to connect said by-pass passage to the induction passage downstream of the throttle valve and a second position where said first inlet is closed and said second inlet is open to connect said exhaust gas recirculation passage to the induction passage downstream of the throttle valve,

a plurality of sensors each for sensing a parameter of engine operating conditions and producing an electric signal representing the sensed parameter, and

valve actuating means for shifting the position of said valve means between said first and second positions in accordance with an engine operating condition indicated by the signals produced by said sensors.

4,313,416

WOK BURNER

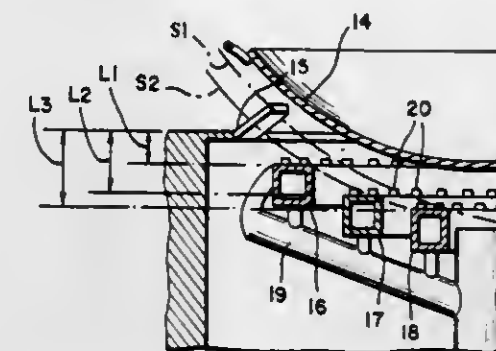
Ka K. Lau, 3636 Veteran Ave., Los Angeles, Calif. 90034

Filed Sep. 4, 1979, Ser. No. 72,320

Int. Cl.³ F24C 3/00; F27D 11/00; H05B 3/68

U.S. Cl. 126-39 E

1 Claim



1. A wok burner wherein the rounded convex bottom of the wok has a given radius of curvature, said burner comprising:

(a) heating means comprising a series of concentric rings of decreasing radii when viewed in plan and at successively lower levels when viewed in elevation to define a concave surface of radius of curvature at least equal to the radius of curvature of said wok for receiving said wok, said rings having jet gas openings for emitting gas, and

(b) supporting flanges circumferentially spaced about the periphery of said heating means for holding said wok with its bottom convex exterior surface received at least partially within said concave surface so that the central and outer areas of the bottom of said wok are substantially uniformly spaced from said heating means whereby the bottom of said wok receives substantially uniform heat over a major portion of its surface.

4,313,417

PORTABLE SPACE HEATER

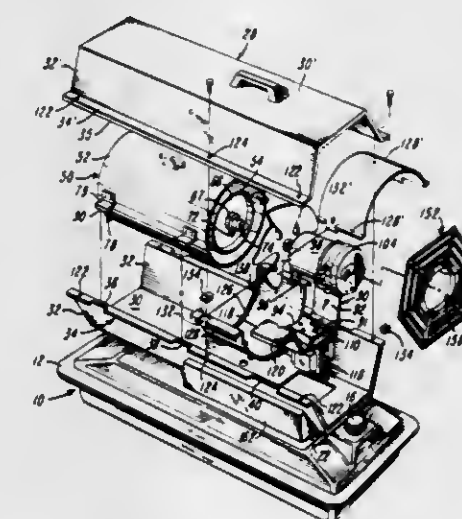
Eugene C. Briggs, and Robert F. Shaftner, both of Bowling Green, Ky., assignors to Koehring Company, Milwaukee, Wis.

Filed Jul. 9, 1979, Ser. No. 56,014

Int. Cl.³ F24H 3/02, 1/00

U.S. Cl. 126-110 B

29 Claims



1. A portable heater comprising a housing composed of separate parts including a lower part having a bottom and side wall portions defining a trough, components of said heater including a combustion chamber assembly and a support, said support positioning in a sense transverse to said lower part, said combustion chamber assembly and said support having in connection therewith means for seating to and interfittng with means in connection with said side wall portions of said lower part in a drop fit thereof to said lower part, said support mounting thereon a motor and a fan blade assembly for powering said heater and developing therein a pressured flow of air to and about said combustion chamber assembly and means for deliv-

ering fuel and igniting the fuel in delivery thereof to the combustion chamber of said assembly, said interfittng means being constructed and arranged to position said combustion chamber assembly and said support and said fan blade assembly in a substantially direct alignment on and within said lower part of said housing and to inhibit relative longitudinal and lateral motion therebetween.

4,313,418

DAMPER CONTROL

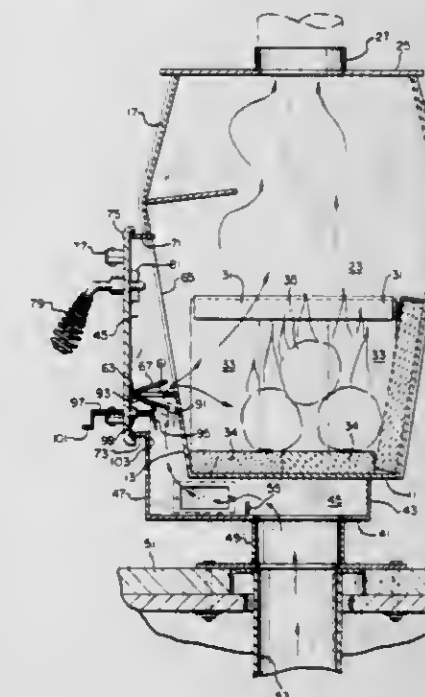
Charles I. Schrader, Eugene, Oreg., and Janice E. Schrader, 2296 Debra Dr., Springfield, Oreg. 97477, assignors to Janice E. Schrader, Springfield, Oreg.

Filed Mar. 18, 1980, Ser. No. 131,477

Int. Cl.³ F24C 1/14

U.S. Cl. 126-287

7 Claims



1. A wood stove having a main housing defining an interior fuel combustion chamber within which fuel is burned and combustion air delivery means defining an air passageway for the passage of combustion air upwardly beneath the main housing and to the fuel combustion chamber,

said combustion air delivery means providing a damper opening communicating with the interior combustion chamber of the housing,

a damper door pivotally mounted to said combustion air delivery means for movement from a closed position relative to said damper opening to various open positions, means defining a main fuel receiving opening at the front of the stove through which fuel is deposited into the fuel combustion chamber,

a stove door for closing the fuel receiving opening and being mounted for movement from a closed position to an open position, and

damper control means carried by said stove door for controlling the position of said damper door.

4,313,419

SOLAR HEATING SYSTEM

Floyd A. Lyon, Brookville; William H. Yale, and Donald Lyon, both of Locust Valley, all of N.Y., assignors to Halm Instrument Co., Inc., Glen Head, N.Y.

Filed Apr. 21, 1980, Ser. No. 142,337

Int. Cl.³ F24J 3/02

U.S. Cl. 126-421

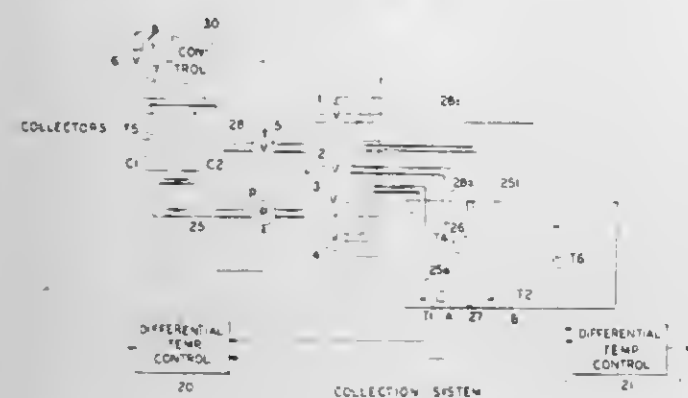
2 Claims

1. Solar heating collection system comprising:

a solar collector building heating means,

a double storage means comprising first and second storage means connected to the collector and the building heating means,

the first storage means having a capacity for approximately one days operation,
the second storage means having a capacity for several days operation,



and means connected to control operation of the storage means so that the storage means which is coolest is heated first, wherein the first and second storage means are in the same enclosure and have an insulated barrier between them, said insulated barrier being in a fixed location relative to said enclosure.

4,313,420

SOLAR HEATED BUILDING

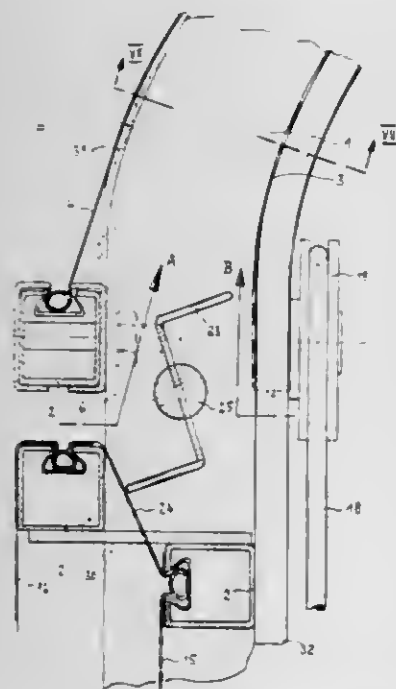
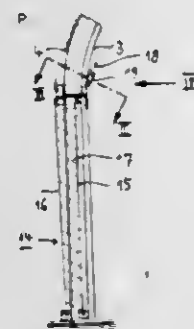
Guenter Poeschl, Schwaikheim, Fed. Rep. of Germany, assignor to Helmut Lamm, Fed. Rep. of Germany

Filed Dec. 13, 1979, Ser. No. 103,203

Claims priority, application Fed. Rep. of Germany, Dec. 20, 1978, 2855154

Int. Cl.³ F24J 3/02

U.S. Cl. 126—429



1. A solar heated building comprising:
a frame;
an inner wall supported by the frame;
an outer wall of generally transparent material supported by

the frame and spaced outwardly of said inner wall thereby defining a passage therebetween;
said passage having an inlet for flow of air into the passage and an outlet in communication with the interior of the building for flow of air from the passage into the interior of the building;

said inner and outer walls being positioned for incidence thereon of solar radiant energy, whereby on flow of air through said passage the latter may be heated by said solar radiant energy prior to flowing into the interior of the building;

ventilation means comprising an opening in the outer wall, an opening in the inner wall, and means for blocking and unblocking flow of air from outside the building into the building through said openings, said inlet being in flow communication with said openings in the inner and outer walls; and

valve means at said inlet movable through a series of positions and being so sized and configured relative to said inlet and said ventilation means as to block flow of air from both the interior and the exterior of the building into the passage when in a first position, to enable flow of air only from the exterior of the building into the passage when in a second position, to enable flow of air only from the interior of the building into the passage when in a third position, and to enable flow of air from both the interior and the exterior of the building into the passage when in a fourth position.

4,313,421

SOLAR HEATING APPARATUS FOR SWIMMING POOLS

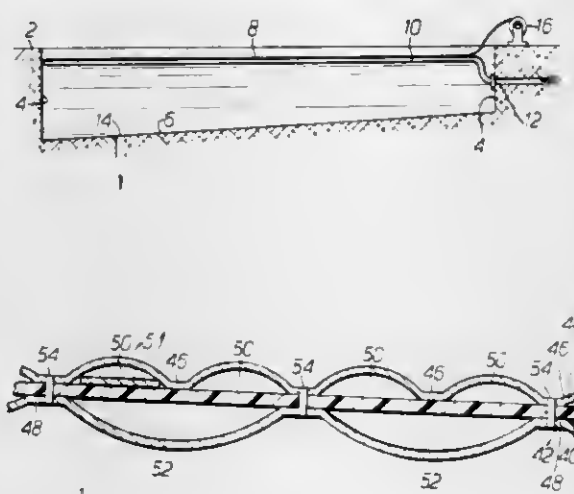
19 Claims John M. Trihey, Bayswater, Australia, assignor to Vulcan Australia Limited, Burwood, Australia

Continuation of Ser. No. 940,347, Sep. 6, 1978, abandoned. This application Jul. 22, 1980, Ser. No. 171,108

Int. Cl.³ F24J 3/02; E04H 3/19

U.S. Cl. 126—415

6 Claims



1. A cover for a swimming pool, said cover comprising first and second layers of plastics material joined together at join zones, to define a plurality of spaces therebetween, said spaces being inflatable whereby when inflated said cover floats when placed on the surface of a pool with said second layer lowermost, at least said second layer being distended away from said join zones and having downwardly projecting crests when inflated which contact the surface of the pool and support said join zones above the surface of the pool to define airspaces between the surface of the pool and adjacent crests, and wherein drainage holes are provided extending through the first and second layers at said join zones communicating between the top surface of the cover and the airspaces defined between adjacent crests in said second layer and the surface of the pool, and spiral springs are provided operably connected to said layers and having a predetermined spring force to unroll

the cover upon inflation of said spaces and to roll up the cover upon deflation of said spaces.

4,313,422

COLLAPSIBLE STRUCTURAL ASSEMBLY ESPECIALLY SUITABLE AS A SOLAR CONCENTRATOR

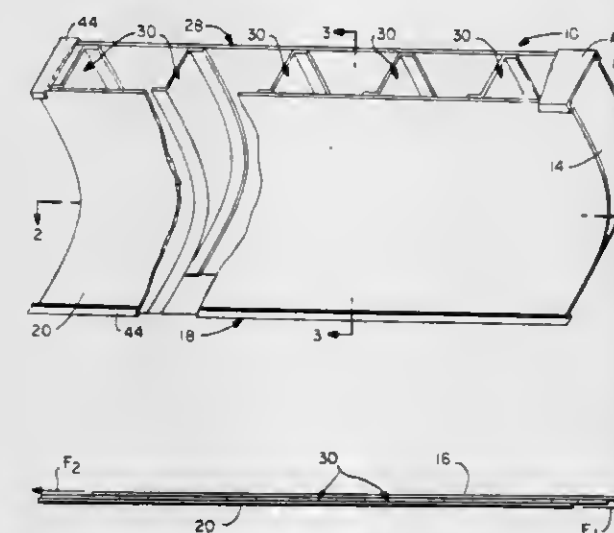
John F. McEntee, Boulder Creek, Calif., assignor to Acurex Solar Corporation, Mountain View, Calif.

Filed Sep. 25, 1980, Ser. No. 190,497

Int. Cl.³ F24J 3/02; G02B 5/10

U.S. Cl. 126—426

1 Claim



1. A collapsible solar concentrator especially suitable as part of an overall solar collector, said solar concentrator comprising: an elongated, flexible backing sheets having a frontside and an opposite backside; an elongated, flexible front sheet having a light reflective frontside and an opposite backside disposed in confronting relationship with the frontside of said backing sheet; means located between and connected with said sheets so as to support the sheets as a single unit so that said unit is capable of movement between a collapsed position such that the sheets lie flat and adjacent to one another with the support means therebetween and a second extended position such that said sheets have parabolic cross sections in predetermined parallel planes extending through the sheets perpendicular thereto, said support means including a plurality of integrally formed and longitudinally spaced elongated ribs located between and extending widthwise across said sheets, each of said ribs having opposite lengthwise edge sections respectively fixedly attached to the confronting sides of said sheets, an intermediate section located between said edge sections and joined to the latter by hinge lines extending the length of said edge and intermediate sections, all of said hinge lines forming part of said ribs displaying a predesigned curved configuration when said sheets are in said collapsed position which determines said parabolic cross-sections of said sheets when the latter are in said extended position, said ribs serving as structural reinforcement between said sheets when the latter are maintained in said extended position; and means for maintaining said sheets in said extended position.

4,313,423

SOLAR COLLECTOR WITH HEAT PIPE

Faramarz S. Mahdjuri, Via S. Sebastiano 33, Bergamo, Italy

Filed May 21, 1979, Ser. No. 40,522

Claims priority, application Switzerland, Jun. 2, 1978, 6034/78

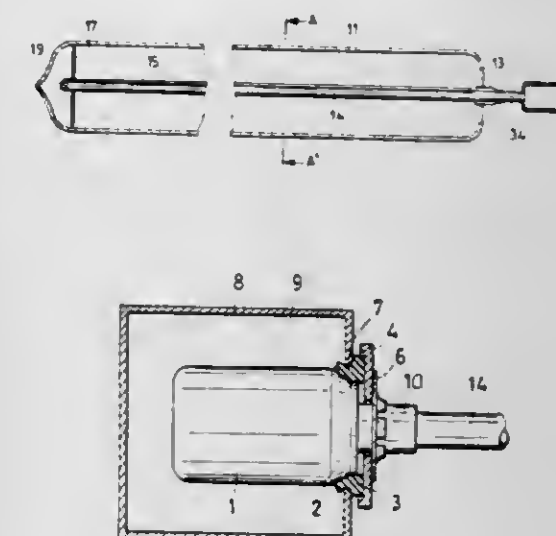
Int. Cl.³ F24J 3/02

U.S. Cl. 126—433

10 Claims

1. A collector for solar radiation, said collector comprising an elongated tube having a closed end and an open end, and a vaporizable heat-transferring medium therein, absorber means at one end of said tube and a condenser connected to said open end of said tube, said condenser having a conical end portion and a larger cross-sectional dimension than that of said elon-

gated tube; a flow channel having a heat-transfer medium therein, said flow channel having a planar wall portion having an exterior surface and an opening therein; a resilient annular gasket, said gasket including a tubular portion and a flange portion, said tubular portion extending through said opening in



said wall portion with said flanged portion abutting said wall portion around said opening, and clamp means carried by said condenser externally of said channel drawing said condenser conical end portion against the planar wall portion while pressing said flange portion against said exterior of said wall portion thereby sealing said condenser within said flow channel.

4,313,424

SOLAR HEATING SYSTEM

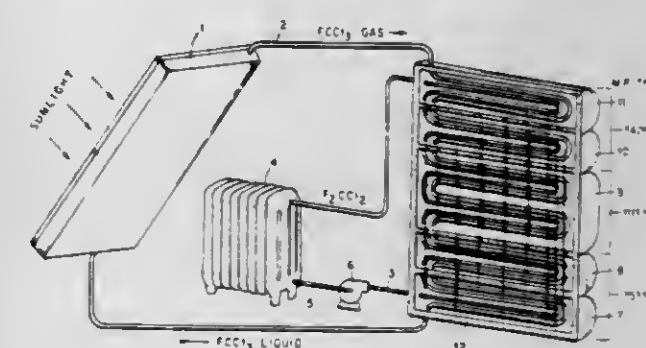
James M. Schreyer, Oak Ridge, and George F. Dorsey, Concord, both of Tenn., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed May 16, 1980, Ser. No. 150,394

Int. Cl.³ F24J 3/02

U.S. Cl. 126—433

5 Claims



1. In combination, solar-collector means for supplying heated vaporized refrigerant at a range of temperatures, said range reflecting variations in the climatic and atmospheric conditions to which said panel is exposed, a heat-storage device including a generally vertical array of insulated compartments respectively containing heat-storage materials having different melting points which collectively (a) span said range and (b) define a decreasing stepwise gradient from the top compartment to the bottom compartment, natural-convection loop means for conveying heated refrigerant from said panel downwardly through said array for condensation therein, and for returning liquid refrigerant to said panel, a heat exchanger for heating an enclosure, and means for circulating a heat-exchange fluid through said

array of compartments countercurrently to said refrigerant and through said heat exchanger.

4,313,425

SPECTRAL CONVERTOR

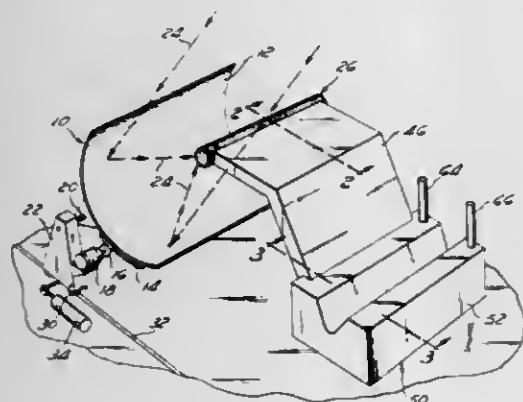
Lawrence E. Crackel, 1245 S. Welch Cir., Lakewood, Colo. 80228, and Lloyd S. Oglesby, 945 Lincoln St., Denver, Colo. 80203

Filed Feb. 28, 1980, Ser. No. 125,258

Int. Cl.³ F24J 3/02; C25B 3/00; H01M 6/30

U.S. Cl. 126—438

14 Claims



1. A spectral convertor comprising:

- a solar radiation concentrator able to receive and to direct full spectrum solar radiation and concentrate said solar radiation in a given area;
- a heat collector mounted within a given area, said heat collector comprising an internal chamber enclosed by a thin wall, said thin wall permitting conduction of the energy of said full spectrum solar radiation into said internal chamber as heat;
- a substance located within said chamber, said substance being reactive to said full spectrum solar radiation which results in the radiating from said substance a desired range of optical radiation frequencies;
- a window mounted within said thin wall, said window permitting passage of said desired range of optical radiation frequencies;
- filter means located adjacent said window, said filter means permitting passage of said desired range of optical radiation frequencies and being reflective of all other radiation frequencies;
- an optical management system for collecting and collimating said desired range of optical radiation frequencies; and
- a chemical dissociation cell, conducting said collimated beam into said cell, using said collimated beam within said cell to produce a chemical change within a compound contained within said cell.

4,313,426

SOLAR ENERGY COLLECTOR

William P. Niedermeyer, 1024 Mt. Mary Dr., Green Bay, Wis. 54301

Continuation-in-part of Ser. No. 886,217, Mar. 13, 1978, abandoned. This application Nov. 19, 1980, Ser. No. 208,220

Int. Cl.³ F24J 3/02

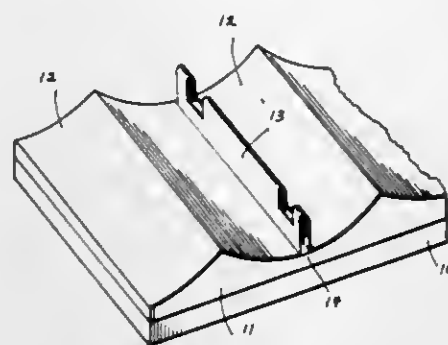
U.S. Cl. 126—438

3 Claims

- 1. A concentrating solar energy collector including: a continuous shaped sheet, a support surface, and an underlying support;
- said continuous sheet integrally forming a plurality of reflectors and heat absorbers;
- said reflectors being parabolically curved with an absorber at the nadir of each reflector;
- said absorber being an inverted generally u-shaped channel;

a closure along the open edge of the channel to provide a closed conduit;

inlet and outlet means at the ends of each absorber;



a pair of manifolds operatively associated with the inlet and outlet means so that heat-absorbing fluid may flow from manifold to manifold through the absorbers.

4,313,427

HEAT EXCHANGER

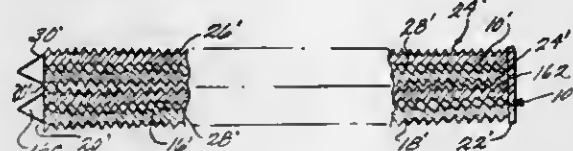
Roy E. McAlister, 5285 Red Rock, North, Phoenix, Ariz. 85018

Division of Ser. No. 6,240, Jan. 24, 1979, which is a continuation of Ser. No. 774,501, Mar. 4, 1977, abandoned. This application Dec. 4, 1980, Ser. No. 213,080

Int. Cl.³ F24J 3/02

U.S. Cl. 126—441

8 Claims



- 1. A solar energy heat exchanger comprising a plurality of thin imperforate webs of rigid heat conducting material,
- each of said webs having a pair of relatively wide opposed surfaces bounded in one direction by a pair of spaced relatively thin edges so as to provide said web with a cross-sectional configuration which is elongated in a direction transverse to said one direction,
- said webs being generally transversely aligned and disposed in a layer formation in which each of the surfaces of each web is disposed in facing relation to the opposite surface of an adjacent web in the layer formation,
- each pair of facing surfaces including passage defining portions and force transmitting portions,
- certain of the webs having both end edges thereof sealingly secured to the corresponding end edges of an adjacent web so as to define with the passage defining portions of the facing surface associated therewith first fluid passage means having a flow direction extending generally in said one direction along said webs,
- certain of said webs having at least one end edge thereof disposed out of sealing engagement with a corresponding end edge of the adjacent web so as to define with the passage defining portions of the facing surfaces associated therewith solar energy passage means extending transversely inwardly of the aforesaid one end edges of said webs toward the opposite end edges thereof,
- means on the aforesaid one end edges of said webs for facilitating passage of solar energy into said solar energy passage means for absorption and multiple reflection therein,
- means on said opposite end edges of said webs for retarding the passage of solar energy from said solar energy passage means outwardly of said opposite end edges,
- the force transmitting portions of each pair of facing surfaces being disposed in force transmitting relation with respect to one another in the direction said facing surfaces face one another so that forces created by the fluid pressure

and temperature conditions within said fluid passage means tending to deform said webs in said facing directions are resisted to thereby prevent deformation which would otherwise occur in the absence of said force transmitting relationship and permit the utilization of wall thicknesses less than that required to be self-sustaining in order to prevent such deformation, and

means for directing first fluid means into and out of said first fluid passage means.

4,313,428

DIVERTER/BYPASS VALVE

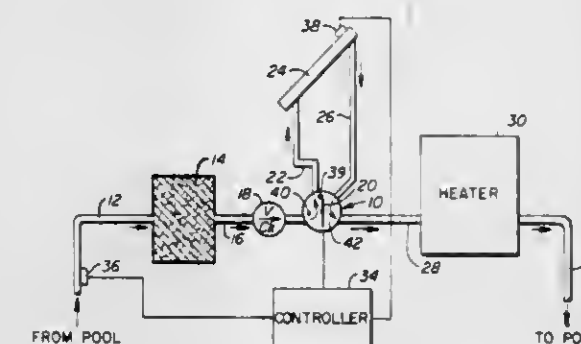
Enrique A. Goldenberg, 140 Mount Lassen Dr., San Rafael, Calif. 94903

Filed Feb. 4, 1980, Ser. No. 118,352

Int. Cl.³ F16K 1/22

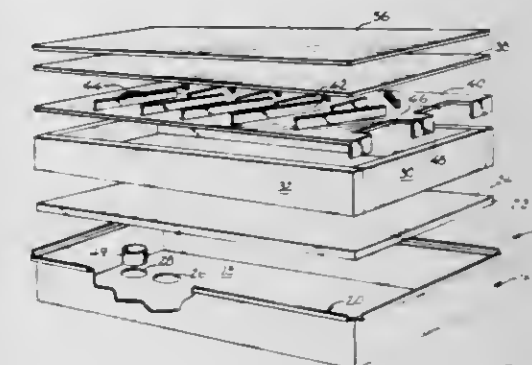
U.S. Cl. 126—422

14 Claims



1. A diverter/bypass valve comprising:

- a housing including a chamber which is rotationally symmetric about one axis;
- a damper mounted within the housing so that the damper is rotatable about the axis of the chamber;
- a pair of movable stops adapted to enable the damper to rotate in a preferred direction and to stop in either of two positions, one such position being a diversion position and the other such position being a bypass position;
- a primary inlet in the housing having an axis offset from the axis of the chamber so that the fluid entering the chamber through the primary inlet tends to rotate the damper in the preferred direction;
- a diversion outlet located in the housing so that the damper prevents fluid communication from the primary inlet to the diversion outlet through the chamber when the damper is in its bypass position, and allows such communication in its diversion position;
- a diversion inlet located in the housing so that the damper prevents fluid communication from the primary inlet to the diversion inlet through the chamber in both its diversion and bypass positions, and prevents fluid communication from the diversion outlet to the diversion inlet through the chamber in its diversion position; and
- a primary outlet located in the housing so that the damper allows fluid communication from the diversion inlet to the primary outlet through the chamber when the damper is in its diversion position, and allows fluid communication from the primary inlet to the primary outlet through the chamber when the damper is in its bypass position, so that a fluid entering the chamber with the damper in the diversion position exits the chamber through the diversion outlet, while fluid entering the chamber through the diversion inlet exits the chamber through the primary outlet, and a fluid entering the chamber with the damper in the bypass position leaves the chamber directly through the primary outlet.



- 1. Self-contained solar heat collecting unit adapted to be placed against a structure, said unit comprising an elongate enclosure having an inner backing and upstanding side walls whose interior surfaces are lined with insulation, and an outer transparent glazing,
- supported within said enclosure, an inner, elongate heat-conductive panel having an outer surface and an inner surface confronting and spaced from said backing, said panel being dimensioned to form with the insulation-lined interior surfaces of said backing and side walls, an elongate inner air plenum,
- a plurality of upstanding heat-conductive baffles mounted on said panel's outer surface in heat-conductive relationship therewith, and arranged thereon for creating air turbulence in a stream of air flowing in an end-to-end direction across said outer surface,
- an outer elongate solar collecting heat-conductive panel supported in said enclosure by said baffles, in heat-conductive relationship therewith, at a position spaced from said outer surface, said outer panel being dimensioned to form with said inner panel's outer surface and insulation-lined interior surfaces of said side walls, an elongate outer air plenum,
- means in said inner panel, adjacent one end of said unit, communicating said inner and outer plenums, and
- an inlet and an outlet adjacent the unit's other end communicating the exterior of said enclosure with said inner and outer plenums, respectively.

4,313,430

SOLAR ENERGY ABSORBING-HEAT EXCHANGER DEVICE

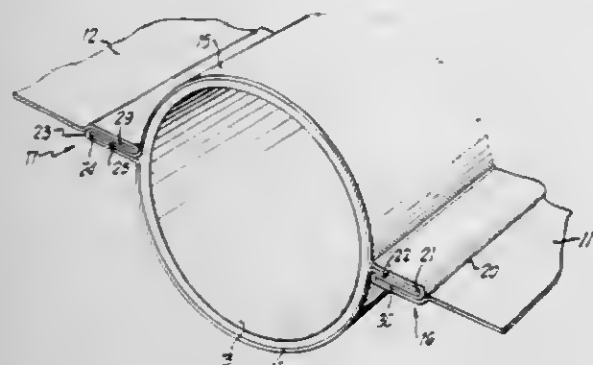
George F. Britner, Old Greenwich, Conn., and John A. Zivic, Santa Ana, Calif., assignors to Phelps Dodge Industries, Inc., New York, N.Y.

Filed Sep. 26, 1979, Ser. No. 79,165

Int. Cl.³ F24J 3/02

U.S. Cl. 126-446

7 Claims



1. A solar energy absorbing-heat exchanger device, comprising in combination: a metal tube; first and second thin metal sheet members; each metal sheet having an essentially flat portion for heat transfer outside the location of the tube; one of said metal sheets having a curved portion extending around and in contact with a portion of the circumferential surface of the tube and the other of said metal sheets having a curved portion extending around and in contact with the remainder of the circumferential surface of the tube, the curved portions of the two metal sheets thereby jointly fully enclosing the metal tube; the two metal sheets being joined to each other to fully enclose the tube by two roll-formed seams adjacent the tube and spaced from each other around the circumference of the tube at the two positions where the curved portion of one of the two sheets meets the curved portion of the other sheet; each roll-formed seam including a folded portion of each sheet, the essentially flat portion of the first sheet member extending outwardly from one seam and the essentially flat portion of the second sheet member extending outwardly from the other seam; each of the two seams extending parallel to the tube and being comprised of an end of one of the sheet members being folded back upon itself to form a channel within which a folded intermediate portion of the other sheet member is tightly secured; and, the first sheet member having its folded end at one of the two seams and securing the folded intermediate portion of the second sheet member, the second sheet member having its folded end at the other of the two seams and securing the folded intermediate portion of the first sheet member.

4,313,431

ENDOSCOPIC APPARATUS WITH A LASER LIGHT CONDUCTOR

Frank Frank, Munich, Fed. Rep. of Germany, assignor to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschränkter Haftung, Munich, Fed. Rep. of Germany

Filed Nov. 26, 1979, Ser. No. 97,200

Claims priority, application Fed. Rep. of Germany, Dec. 6, 1978, 2852653; Nov. 8, 1979, 2945080

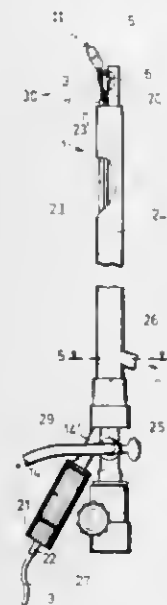
Int. Cl.³ A61B 1/06, 1/12

U.S. Cl. 128-7

10 Claims

1. An endoscopic bladder tumor treating apparatus using a laser radiation for said treating, comprising optical fiber light conductor means having an input end and an output end for transmitting a tumor treating laser radiation through said optical fiber light conductor means, endoscopic viewing means operatively arranged in parallel to said optical fiber light conductor means for inspecting an interior bladder wall, rigid sleeve means (5) operatively secured to said output end of said laser radiation transmitting optical fiber light conductor means for protecting said output end of the laser radiation transmit-

ting optical fiber light conductor means against destruction by said tumor treating laser radiation, hinging means operatively secured to said rigid sleeve means, and manipulating means extending from said input end operatively connected to said hinging means for manipulating said output end substantially from said input end, said apparatus further comprising support means for slidably supporting said laser radiation transmitting optical fiber light conducting means in said rigid sleeve for axial displacement in said rigid sleeve means, shifting means operatively connected to said laser radiation transmitting optical fiber light conductor means, said shifting means being arranged adjacent said input end of said laser radiation transmitting optical fiber light conductor means, protective jacket means (2) operatively enclosing said laser radiation transmit-



ting optical fiber light conductor means (3) except for said output end held by said rigid sleeve (5), said shifting means comprising slide bearing means (17), said light conductor means (3) with its jacket means (2) being operatively secured to said slide bearing means (17), said shifting means further comprising housing means (16, 21) holding said slide bearing means and spring means (19) also held in said housing means for biasing said slide bearing means into a starting position, said shifting means being operable to adjust said output end of said laser radiation transmitting optical fiber light conductor means (3) into a tumor treatment position whereby said output end is substantially recessed in said rigid sleeve (5) and into an output end cleaning position wherein said output end protrudes from said rigid sleeve (5).

4,313,432

WATER DRIVEN PERSONAL MASSAGER

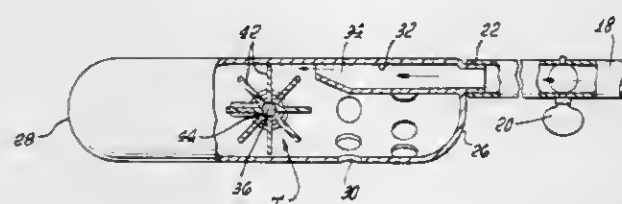
George K. Sievers, 1110 Kenwood St., Burbank, Calif. 91505

Filed Sep. 24, 1979, Ser. No. 77,892

Int. Cl.³ A61H 9/00

U.S. Cl. 128-37

16 Claims



1. Water driven personal massager for use in spas, hot tubs and like open-topped water enclosures suitable for bathing and having a pressurized water supply, comprising means defining a flow passage providing a restricted flow path for said supply pressurized water, pulsating means across said flow path comprising a turbine having a circular series of vanes on a common shaft, and radially disposed weights fixed to said shaft on opposite sides of said turbine vanes and in a common plane with each other and with one of said vanes.

4,313,433

ANKLE STABILIZER

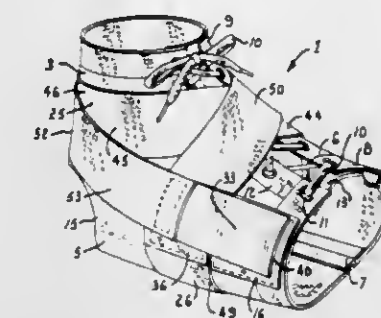
Charles W. Cramer, Overland Park, Kans., assignor to Cramer Products, Inc., Gardner, Kans.

Filed Oct. 9, 1979, Ser. No. 82,980

Int. Cl.³ A61F 3/00

U.S. Cl. 128-80 H

15 Claims



1. A stabilizer for a human ankle comprising:
 - (a) a jacket adapted for snugly positioning about a rear portion of a foot and lower portion of a leg associated with the ankle;
 - (b) first and second straps having first ends respectively attached to said jacket;
 - (c) said first strap having an operational configuration wherein same wraps about a rear portion of the foot when said stabilizer is in the operative position and has a second end located on the medial side of the foot approximately midway between the sole and instep of the foot;
 - (d) said second strap having an operational configuration wherein starting from the first end thereof same wraps sequentially up the lateral side of the foot, over the instep of the foot, around the rear of the foot above the heel thereof, and along the lateral side of the foot substantially over the lateral ligaments associated therewith; said second strap ending on the lateral side of the foot approximately midway between the sole and instep of the foot; and
 - (e) reusable first and second fastening means located on the medial and lateral sides of the foot respectively when said first and second straps are in the operational configuration thereof approximately midway between the sole and the instep of the foot for securely connecting said first and second straps in the respective configuration thereof.

4,313,434

FRACTURE FIXATION

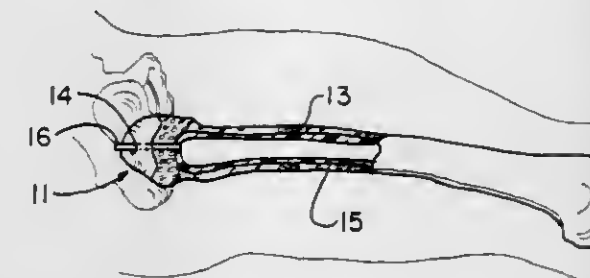
David Segal, 229 Fuller St., West Newton, Mass. 02165

Filed Oct. 17, 1980, Ser. No. 197,794

Int. Cl.³ A61B 17/18; A61F 5/04

U.S. Cl. 128-92 BC

11 Claims



1. A method of long bone fixation which method includes the steps of,
 - forming an opening in a long bone extending from the outside of the bone into the medullary cavity,
 - inserting a deflated flexible bladder through said opening into said medullary cavity,
 - and then inflating said bladder until the inflated bladder firmly engages the walls of said medullary cavity to provide fixation of said long bone.

4,313,435

APPARATUS AND METHOD OF PRODUCING A SUCCESSION OF DIE CUT TOBACCO BLANKS

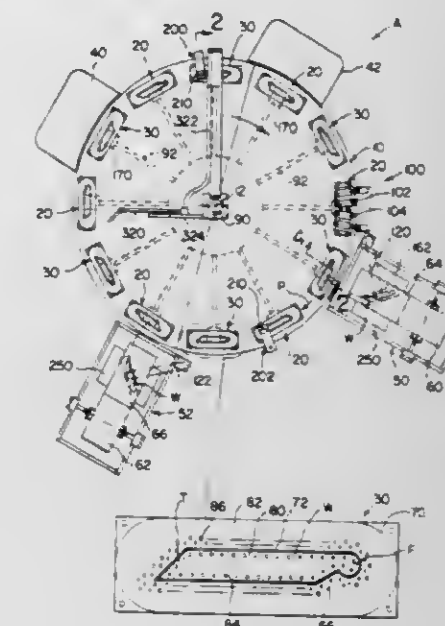
Frederick D. Godfrey, Jr., Maple Wood, N.J., assignor to Gulf & Western Corporation, New York, N.Y.

Filed Apr. 18, 1980, Ser. No. 141,333

Int. Cl.³ A24C 1/28

U.S. Cl. 128-105

19 Claims



1. A device for supplying a succession of die cut tobacco blanks with a given profile to a web of a coiled type, storage bobbin, said device comprising: a set of a plurality of die cut stations each of said plurality of stations including a cutting die blade with an upstanding cutting edge matching said profile and vacuum means surrounding said edge for capturing a tobacco sheet material on said station in a position overlying said edge; means for moving said set of stations in unison along an endless, preselected path; cutting means at a first selected, generally fixed position in said path for cutting a tobacco blank from a manually placed tobacco sheet captured on a given station of said set by said vacuum means as a station passes said first selected position, said cutting means including a roller generally fixed in the direction of said path and engageable by said cutting edge as a station passes first selected position; profile releasing means at a second selected, generally fixed position in said path and subsequently located in said path with respect to said first position for releasing a die cut profile from a station at said second position; transfer means at said second position for transferring a die cut profile from its station to said web of a coiled type storage bobbin and a fixed loading position for placing a tobacco sheet onto one of said stations of said set, said loading position being spaced from said first and second positions.

4,313,436

FRESH GAS DEVICE WITH MIXER FOR MEDICAL AND RESPIRATION APPARATUS

Erik Schwanbom, and Karl Hickmann, both of Lübeck, Fed. Rep. of Germany, assignors to Drägerwerk Aktiengesellschaft, Fed. Rep. of Germany

Filed Oct. 20, 1980, Ser. No. 198,818

Claims priority, application Fed. Rep. of Germany, Nov. 10, 1979, 2945575

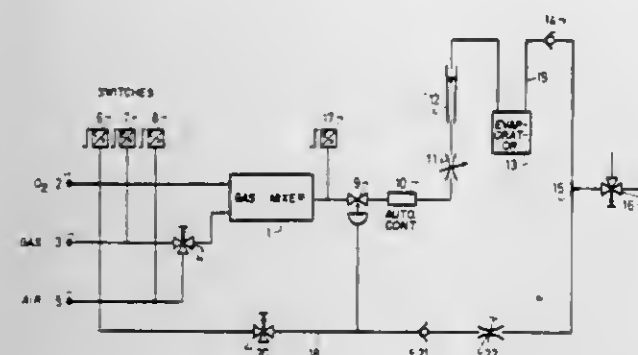
Int. Cl.³ A61M 16/00

U.S. Cl. 128-203.12

5 Claims

1. An improved fresh gas device of the type comprising a gas mixer having a first inlet line adapted to be connected to a source of oxygen and a second inlet line adapted to be connected to a source of at least one other gas for mixing oxygen and that at least one other gas to form a gas mixture to be supplied to a patient via a patient supply apparatus and said gas mixer having an outlet line adapted to be connected to the

patient supply apparatus for passing the gas mixture thereto, the improvement comprising, valve means located in the outlet line for opening and closing the flow path to the apparatus, a bypass line in a parallel flow path with the mixer connected between the inlet line and the outlet line, means for manually



initiating a pressure pulse in the bypass line, and pressure-sensing means operatively connected to said bypass line downstream of said initiating means for sensing said pressure pulse, and said valve means being responsive to said pressure sensing means for closing said inlet line when a pressure pulse is sensed in said bypass line.

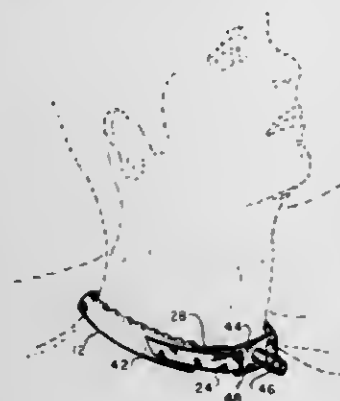
4,313,437

TRACHEOTOMY AND ENDOTRACHEAL TUBE RETAINERS

Dianne L. Martin, 3903 Barrington, Apt. 301, San Antonio, Tex. 78217

Filed Oct. 1, 1979, Ser. No. 80,982
Int. Cl.³ A61M 25/02

U.S. Cl. 128—207.17



1. An intubation tube retainer to be used in conjunction with a tracheotomy or endotracheal tube holder having slots in either end thereof to secure a tracheotomy or endotracheal tube to a patient, said retainer comprising:

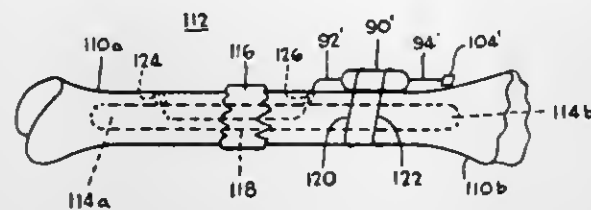
- an elongated, elastic body having a first end and a second end;
- a first attaching tape secured to the first end of said body;
- a second attaching tape secured to the second end of said body;
- securing means attached to at least one of said attaching tapes, said attaching tapes adapted to releasably secure said tracheotomy or endotracheal tube holder via said slots in position on said patient; and
- said elastic body further comprising an outer covering of stretch knit fabric, an elastic filler encased in said stretch knit fabric, and an expandable stitch securing an edge of said stretch knit fabric.

4,313,438 TISSUE GROWTH CONTROL APPARATUS AND METHOD

Wilson Greatbatch, 5220 Donnington Rd., Clarence, N.Y. 14031
Division of Ser. No. 57,744, Jul. 16, 1979. This application Jul. 14, 1980, Ser. No. 167,752
Int. Cl.³ A61N 1/30

U.S. Cl. 128—207.21

8 Claims



1. Apparatus for providing germicidal and healing treatment of tissue such as bone comprising:

- an electrode of silver adapted to be operatively connected to a living tissue site to be healed;
- an electrode of platinum adapted to be connected to a location spaced from the site to be healed;
- means for establishing an electrical current flow path between said electrodes; and
- means operatively associated with said platinum electrode for forming a galvanic couple with said silver electrode to cause electrical current flow in one direction through said silver electrode in a manner releasing silver ions to create a germicidal environment at said tissue site, said galvanic couple forming means after a predetermined time causing said platinum electrode and said silver electrode to form a biogalvanic couple with fluid in the body containing said tissue site to cause electrical current flow in the opposite direction through said silver electrode in a manner promoting healing of tissue at the site.

4,313,439

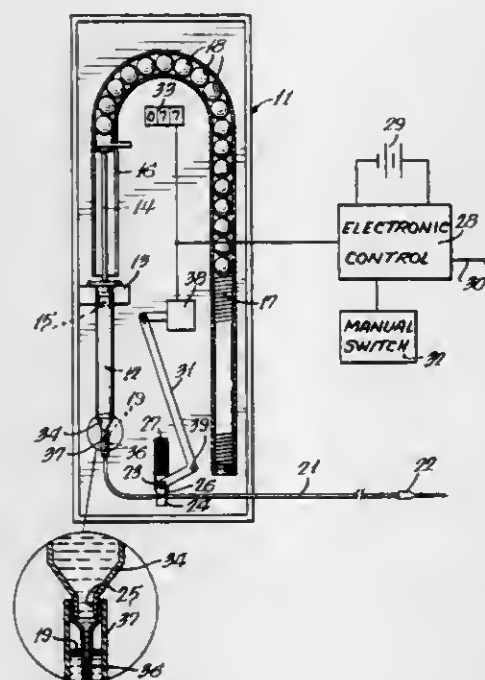
AUTOMATED, SPRING-POWERED MEDICAMENT INFUSION SYSTEM

Albert L. Babb, Seattle, and Richard E. Parks, Bellevue, both of Wash., assignors to Biotech, Inc., Arlington Heights, Ill.

Filed Mar. 24, 1980, Ser. No. 133,320
Int. Cl.³ A61M 5/00

U.S. Cl. 128—214 F

25 Claims



1. Apparatus for the transcutaneous infusion of a liquid medicament into a patient in controlled doses over an extended period, comprising a syringe including a plunger, and defining a cylindrical reservoir for said medicament and a discharge

aperture; a conduit from said aperture to a subcutaneous site in said patient; means for generating a continuous force, and means for intermittently impelling said liquid medicament from said reservoir through said conduit to said subcutaneous site under the influence of said continuous force;

said means for intermittently impelling said liquid medicament through said conduit to said subcutaneous site including an escapement mechanism for transmitting said continuous force intermittently to said plunger; and said escapement mechanism including an escape wheel having a plurality of projections in the vicinity of its circumference and an anchor capable of oscillation about an axis and having two ends with a pallet at each end thereof, said pallets being disposed in such a manner that each pallet alternately engages and releases each projection with each oscillation of said anchor and permits said escape wheel to rotate intermittently by the circumferential distance between adjacent projections; and said apparatus including means to transmit said continuous force alternately to said escape wheel and to said plunger during each intermittent rotation of said escape wheel.

4,313,440

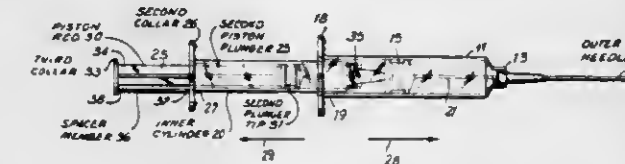
MULTIPURPOSE DOUBLE BARREL SYRINGE AND METHOD OF MANUFACTURE OF SAME

Sheldon J. Ashley, 147-15 84th Rd., Jamaica, N.Y. 11435
Filed Sep. 8, 1980, Ser. No. 190,620

Int. Cl.³ A61M 5/00

U.S. Cl. 128—218 R

14 Claims



- A multipurpose double barrel syringe, comprising a first cylinder having a first predetermined capacity and a first hypodermic needle of a first gauge at a first end thereof, said first cylinder having a first collar extending substantially radially therefrom at a second end thereof spaced from and opposite said first end thereof;
- a second cylinder having a second predetermined capacity less than the first predetermined capacity, said second cylinder having a second collar extending substantially radially therefrom at a first end thereof and being slidably mounted in said first cylinder for movement in axial directions;
- a second piston plunger having a piston rod and a second plunger tip coaxially mounted at a first end thereof coaxially slidably mounted in said second cylinder for movement in axial directions, said piston rod having a third collar extending substantially radially therefrom at a second end thereof spaced from and opposite said first end thereof;
- a first plunger tip coaxially mounted on a second end of said second cylinder spaced from and opposite said first end thereof and coaxially slidably movable with said second cylinder in said first cylinder in axial directions;
- a second needle of a second gauge extending coaxially through the axial center of said first plunger tip and affixed to said first plunger tip whereby said second cylinder, said second plunger tip and said second needle provide a second syringe assembly functioning as a second syringe and, with said first plunger tip, functions as a piston plunger assembly of said first cylinder, said first cylinder, said first hypodermic needle and said first piston plunger assembly providing a first syringe assembly; and
- a spacer member extending between said second and third collars for preventing said second piston plunger from

moving into said second cylinder except under manual pressure.

4,313,441

METHOD OF ADJUSTING AN IMPLANTABLE CARDIAC STIMULATOR, AND ADJUSTMENT PROGRAMMER AND STIMULATOR FOR CARRYING OUT SAME

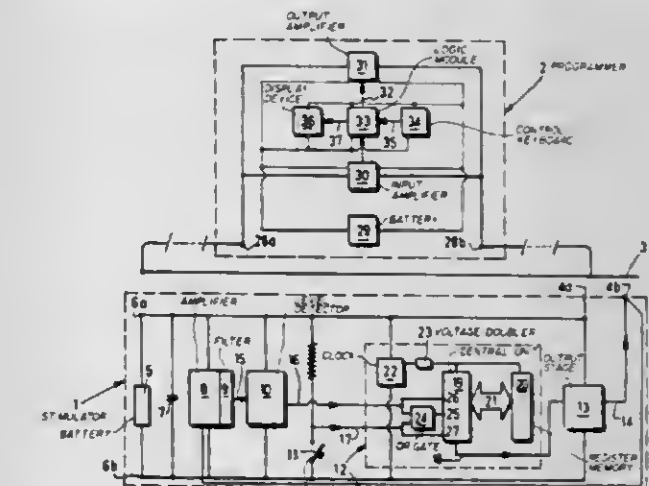
Jacques Buffet, Le Raincy, France, assignor to Cardiofrance - Compagnie Française d'Electrocardiologie, France

Filed Apr. 17, 1979, Ser. No. 30,816

Claims priority, application France, May 5, 1978, 78 13332
Int. Cl.³ A61N 1/36

U.S. Cl. 128—419 PG

8 Claims



1. Process of regulating by extra-corporeal means an implanted cardiac stimulator comprising means for generating pulses for stimulating the heart of a patient and a pair of electrodes by which said stimulative pulses are transmitted to the heart of the patient, said stimulator having a refractory period between successive pulses, said process comprising:

- controlling the stimulator to generated pulses at a fixed frequency independent of the normal cardiac rhythm,
- detecting by said extra-corporeal means successive pulses emitted by the stimulator,
- transmitting after each of selected stimulator pulses detected during the whole period between successive stimulator pulses a train of successive control pulses which is received and detected by the stimulator as binary information "1" and, on the contrary, transmitting no train of successive control pulses during the whole period between other successive stimulator pulses as binary information "0", applying the binary information thus transmitted to the stimulator to regulate the operation of the stimulator, and
- thereupon displaying by said extra-corporeal means the pulses emitted by the stimulator to verify that the regulator is effective.

4,313,442

ATRIAL RATE SENSITIVE CARDIAC PACER APPARATUS

Mark B. Knudson, Arden Hills, and David C. Amundson, St. Paul, both of Minn., assignors to Cardiac Pacemakers, Inc., St. Paul, Minn.

Filed Jul. 21, 1980, Ser. No. 170,947

Int. Cl.³ A61N 1/36

U.S. Cl. 128—419 PG

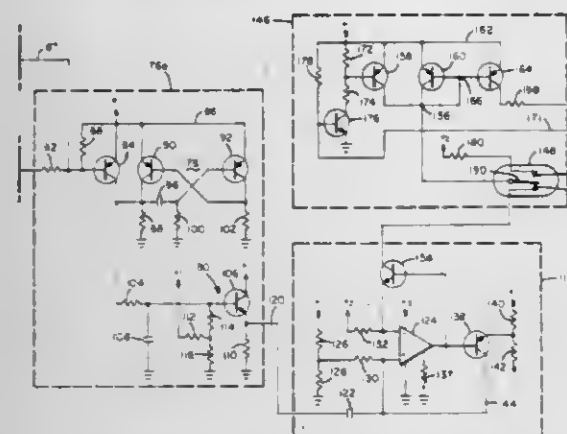
5 Claims

1. Cardiac stimulating apparatus having means for adjusting the frequency of stimulation as a function of physiologic demand, comprising in combination:

- a pulse generator having timing means therein for determining the frequency at which cardiac stimulating pulses are produced;
- detector means for detecting natural atrial electrical

activity characteristic of physiologic demand and producing trigger signals in response to said natural atrial electrical activity;

(c) averaging means coupled to receive said trigger signals for developing a voltage related to the rate of occurrence of said trigger signals during predetermined time intervals;



(d) circuit means coupled to said averaging means and responsive to said voltage for generating a control signal proportional in amplitude to changes in said voltage; and
(e) means for applying said control signals to said timing means in said pulse generator to thereby alter the said frequency at which stimulating pulses are produced.

4,313,443

POCKET ECG ELECTRODE

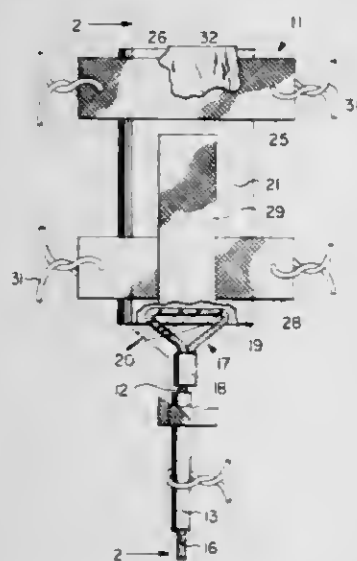
Robert A. Frosch, Administrator of the National Aeronautics and Space Administration, with respect to an invention of, and Gordon F. Lund, San Jose, Calif.

Filed Sep. 11, 1980, Ser. No. 185,865

Int. Cl.³ A61B 5/04

U.S. Cl. 128-642

7 Claims



1. In a subcutaneous electrode apparatus for measuring electrocardiograms:

an electrically conductive pocket-shaped member having an opening and a lumen, said member being adapted to be chronically subcutaneously implanted in the tissue and body fluid of a subject in which electrocardiograms are to be sensed;

said opening being an elongated mouth adapted to permit body fluids to enter said lumen and contact the inner surface of said member;

electrical conductor means including an electrically conductive wire structure for making electrical connection to said pocket-shaped member;

means bonded to said pocket-shaped member for receiving sutures when said electrode apparatus is implanted in tissue; and

electrically insulative means for coating the outer surface and mouth region of said pocket-shaped member whereby

when the electrode apparatus is implanted the body fluid acts as an electrolyte and the electrode/electrolyte interface is situated within the lumen remote from possible tissue disturbances.

4,313,444

METHOD AND APPARATUS FOR ULTRASONIC DOPPLER DETECTION

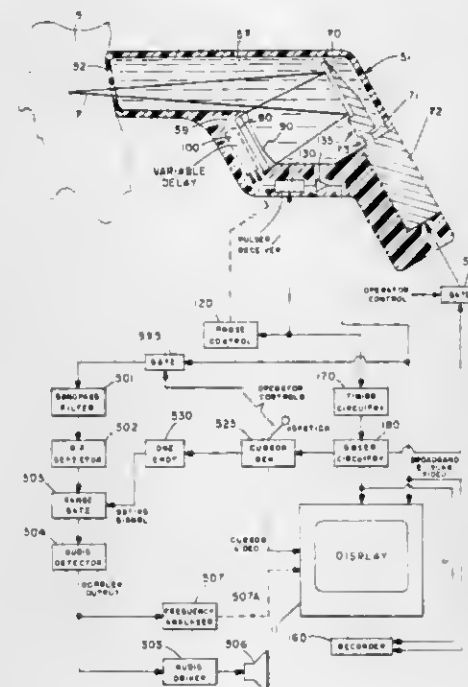
William E. Glenn, Fort Lauderdale, Fla., assignor to New York Institute of Technology, Old Westbury, N.Y.

Filed May 14, 1979, Ser. No. 38,661

Int. Cl.³ A61B 5/02

U.S. Cl. 128-663

31 Claims



1. A method of determining the velocity of a material moving within a body, comprising the steps of:

directing, over a given aperture, a single focused beam of ultrasound energy toward the skin of said body with the central ray of said beam oriented substantially normal to the skin;

receiving, over the same aperture, the ultrasound beam reflected from said body;

detecting, in the received beam, beat frequency signals resulting from the beating of Doppler effect components reflected from said moving material; and

generating velocity-representative indications as a function of the detected beat frequency signals.

4,313,445

ELECTRONIC SPHYGMOMANOMETER

Heinz W. Georgi, Del Mar, Calif., assignor to IVAC Corporation, San Diego, Calif.

Filed Oct. 25, 1977, Ser. No. 845,081

Int. Cl.³ A61B 5/02

U.S. Cl. 128-680

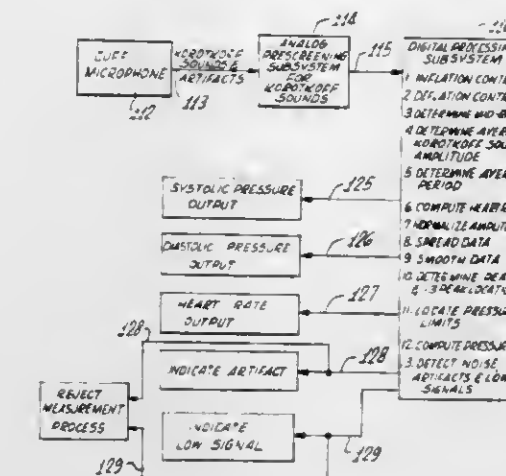
99 Claims

1. In an electronic sphygmomanometer, the combination comprising:

means for providing detected korotkoff sounds and associated korotkoff sound precursors as electrical signals, each of said korotkoff sound precursors being included in the waveforms relating solely to the individual korotkoff sound signal with which that precursor is associated; and

means for analyzing the waveforms of all said electrical signals to determine selectively the presence of specified korotkoff sound precursors and the conformity of such precursors with predetermined waveform characteristics,

whereby those electrical signals having waveforms representative of true korotkoff sounds are separated from



those electrical signals which do not represent true korotkoff sounds.

4,313,446

STEEL WIRE PRESSURE AESTHESIOMETER

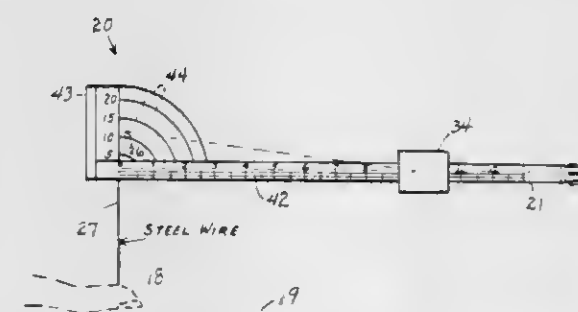
Frank N. Kanatani, Baton Rouge, La., assignor to The United States of America as represented by the Secretary of the Department of Health, Education and Welfare, Washington, D.C.

Filed Mar. 11, 1980, Ser. No. 129,982

Int. Cl.³ A61B 5/10

U.S. Cl. 128-744

16 Claims



1. An aesthesiometer comprising an elongated substantially rigid support member, a resilient wire member on said support member and extending therealong, means securing one end portion of said wire member to said support member so as to bias the wire member toward the support member, said wire member being formed with a bend at its free end portion to define a depending skin probe arm engageable with a skin area of a patient and to cause a deflection of the bend away from the support member responsive to force applied to the support member with the probe arm in contact with such skin area, means to measure the amount of such deflection, and abutment means adjustably mounted on the support member formed to overlie and abut said wire member at selected locations along its length so as to provide an adjustable fulcrum to vary the effective flexural length of the wire member.

4,313,447

COLLECTION BAG

James J. Peterson, Elgin, and Glenn N. Taylor, Cary, both of Ill., assignors to The Kendall Company, Boston, Mass.

Continuation-in-part of Ser. No. 4,972, Jan. 22, 1979, abandoned, which is a continuation of Ser. No. 791,658, Apr. 28, 1977, abandoned. This application Apr. 4, 1980, Ser. No. 137,225

Int. Cl.³ A61F 5/44

U.S. Cl. 128-766

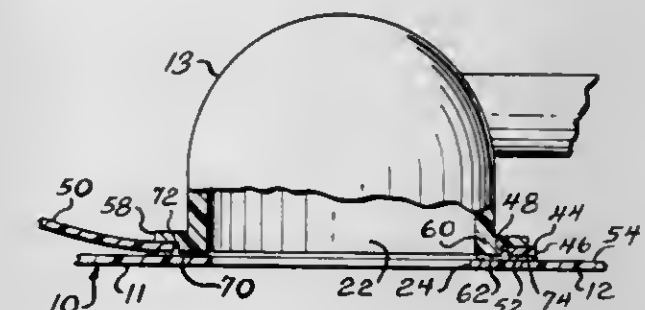
4 Claims

1. A collection bag for receiving and collecting body fluids, comprising:

a receptacle having a pair of opposed walls defining a cham-

ber, with only one of said walls having an opening communicating with the chamber;

a connector having a cavity to receive the body fluids, a base extending peripherally around the opening and having a lower portion being bonded to an outer surface of the one wall peripherally around said opening, said lower portion of the base being fixedly bonded to the one wall with sufficient strength to prevent reattachment to the one wall after being ruptured therefrom, with the connector cavity communicating with the receptacle chamber to permit passage of fluids from the connector into the chamber for collection therein, and an annular recess around said



lower portion facing said wall at an outer side portion of the base relative to said opening;

a conduit extending from the connector and communicating with said connector cavity; and

a rupture member having a ring extending peripherally around the connector and being received in the connector recess with said lower portion being located inside the ring, and a tab extending outwardly from the ring relative to the opening, such that the rupture member may be used to rupture the connector lower portion from said one wall only once after use of the bag without breakage of the ring to permit access to the collected fluid through said opening.

4,313,448

MYOCARDIAL SUTURELESS LEAD

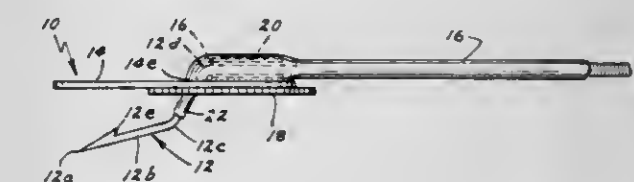
Kenneth B. Stokes, Brooklyn Park, Minn., assignor to Medtronic, Inc., Minneapolis, Minn.

Filed Jan. 28, 1980, Ser. No. 115,966

Int. Cl.³ A61N 1/04

U.S. Cl. 128-785

9 Claims



1. A body implantable lead comprising:

a conductor having a distal end;

an insulating sheath covering said conductor; means attached to said conductor near said distal end for affixing said body implantable lead to body tissue; and

flexible base means attached to said conductor near said distal end which in a relaxed state is disposed over said fixation means from at least one direction and which upon application of a small amount of force may be bent back exposing said fixation means from said at least one direction.

4,313,449

ROTOR OF THRASHING SECTION OF CROP HARVESTING MACHINE

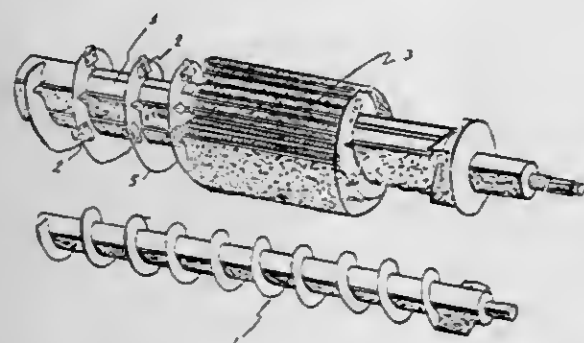
Jose T. Da Silva, Ribeirao Preto, Brazil, assignor to Cia Penna de Maquinas Agricolas-COPEMAG, Brazil

Filed Apr. 24, 1980, Ser. No. 143,175

Claims priority, application Brazil, Apr. 25, 1979, 5900551[U] Int. Cl.³ A01F 12/18

U.S. Cl. 130—27 T

2 Claims



1. In the thrashing section of a crop harvesting machine, the combination of a cylindrical screen and a rotor rotatable in said cylindrical screen, said rotor comprising a cylindrical body, an outwardly projecting vane extending helically around said body and fixed thereto, and a plurality of pins mounted at the periphery of said vane and projecting outwardly of said vane, said pins being L-shaped and adjustable to different positions according to the requirements for the crop being harvested.

4,313,450

COIN-DISPENSING DEVICE

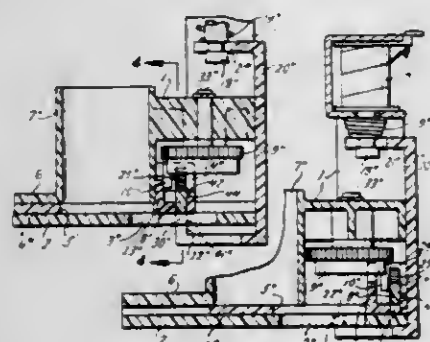
Noriaki Kirisawa, Kawasaki, Japan, assignor to Fuji Electric Co., Ltd., Kanagawa, Japan

Filed Dec. 21, 1979, Ser. No. 106,270

Int. Cl.³ G07D 1/00

U.S. Cl. 133—5 R

15 Claims



15. A coin-handling device which comprises a plurality of coin reservoirs, a plurality of coin-dispensing slides that are disposed so each of said coin-dispensing slides is adjacent a coin reservoir and is movable relative to said adjacent coin reservoir to dispense a coin from said adjacent coin reservoir, an electric motor, a plurality of slide-moving gears which are disposed adjacent to said coin reservoirs and to said coin-dispensing slides therefor and which are disposed so each of said coin-dispensing slides has a slide-moving gear adjacent to it, said electric motor constituting a driving element for said coin-dispensing slides, and means to selectively interconnect one of said slide-moving gears with the coin-dispensing slide therefor to enable said one slide-moving gear to drive said coin-dispensing slide when said one slide-moving gear moves by providing relative movement of a portion of said one slide-moving gear and a portion of said one coin-dispensing slide toward each other, said portion of said one slide-moving gear serving as an abutment, said portion of said one coin-dispensing slide also serving as an abutment, said abutments being directly

engageable to cause rotation of said one slide-moving gear to drive said one coin-dispensing slide.

4,313,451

APPARATUS FOR WASHING SOILED ARTICLES

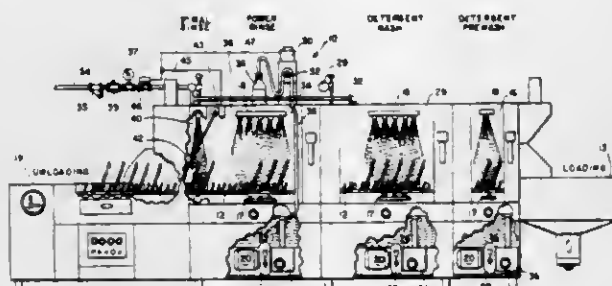
Erik O. Vilen, LaGrange Park, Ill., assignor to G. S. Blakeslee & Company, Chicago, Ill.

Filed Sep. 14, 1979, Ser. No. 75,406

Int. Cl.³ B08B 3/02

U.S. Cl. 134—47

10 Claims



1. An apparatus for washing soiled articles and having a conveyor means movable therethrough, including in combination:

- a first detergent wash section adapted to direct a detergent wash solution onto the exposed articles positioned on the conveyor means to wash the same;
- a second chemical sanitizing power rinse section adapted to direct a chemical sanitizing solution onto the exposed washed articles positioned on the conveyor means to chemically sanitize the same, and
- a third clear fresh water final rinse section adapted to direct clear water onto the exposed chemically sanitized articles to remove the chemical therefrom and provide chemical-free cleaned articles.

4,313,452

SELF-ACTUATING VARIABLE RATE WATER PIPE BLEEDER

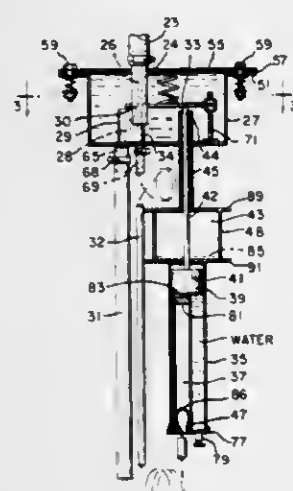
George K. Mellard, 8905-238th St., SW., Apt. 17, Edmonds, Wash. 98020

Filed Aug. 25, 1980, Ser. No. 180,983

Int. Cl.³ E03B 7/12

U.S. Cl. 137—62

7 Claims



1. An apparatus for preventing the water in a water supply pipe upstream of the apparatus from freezing, comprising: sample chamber means filled with water and exposed to the environment, the water in said sample chamber means freezing when the environmental temperature goes below freezing; drain means for receiving water from the water supply pipe

in one portion thereof and for discharging it to the environment from another portion thereof; means closing off said drain means when the water in said sample chamber means is not frozen; piston-like means for operating on said closing means to open said drain means in response to the water in said sample chamber means freezing; means delivering water from the water supply pipe to said drain means when said drain means is open, said delivery means including a holding tank means having said drain means and said closing means located therein; thermal isolating means, including a first heat sink, between said holding tank means and said sample chamber means; wherein said piston-like operating means extends through said thermal isolating means, between said sample chamber means and said holding tank, wherein in operation the lower end of the piston moves within said sample chamber means in response to the water therein freezing, which in turn forces the upper end of the piston against said closing means, thereby opening said drain means, wherein a flow of water through the water supply pipe and out said drain means to the environment is maintained as long as the water in said sample chamber means is frozen, such a water flow tending to prevent water in the water supply pipe upstream of the apparatus from freezing.

4,313,453

THERMALLY OPERATED VALVE

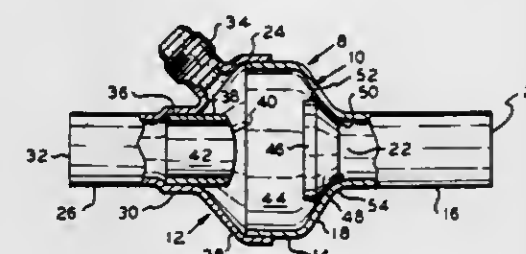
Paul M. Holmes, Jackson, Mich., assignor to Aeroquip Corporation, Jackson, Mich.

Filed Oct. 30, 1979, Ser. No. 89,515

Int. Cl.³ F16K 13/04

U.S. Cl. 137—74

4 Claims



1. A thermally operated valve for closed conduit systems comprising, in combination, a hollow metal body forming a chamber having inlet and outlet ports defined therein, said body being formed of sheet metal and including two interconnected parts each having an enlarged portion and an elongated tubular stem, said enlarged portions telescoping upon each other and sealingly interconnected, the intersection of said stems with the associated enlarged portion constituting a port, a plug within said chamber extending across at least one of said ports sealing said one port, and a fusible bonding material affixing said plug to said body across said one port whereby heat externally applied to said body melts said bonding material permitting said plug to fall within said chamber and unseal said one port.

4,313,454

HYDRAULIC BRAKE BOOSTER PRESSURE LIMITER

Kenneth D. Jensen, Owosso, Mich., assignor to Midland-Ross Corporation, Cleveland, Ohio

Filed Dec. 12, 1979, Ser. No. 102,884

Int. Cl.³ G05D 11/02; B60T 13/12

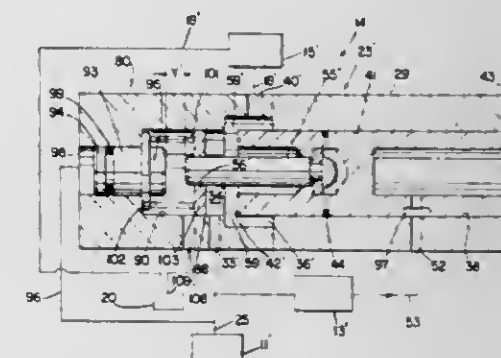
U.S. Cl. 137—101

21 Claims

1. A pressure limiter for a hydraulic booster, comprising: (a) a housing having, (I) a front end in opposed relation to a closed back end, (II) a first chamber adjacent the front end and extending longitudinally of the housing therefrom towards the closed back end, the first chamber having a fluid inlet through which fluid enters the first chamber,

(III) a second chamber communicating with the first chamber in coaxial alignment and extending therefrom in the direction of the closed back end of the housing and having a greater cross-sectional area than that of the first chamber, the second chamber having a fluid outlet through which fluid exits the second chamber, and (IV) a gain valve bore communicating with the second chamber in coaxial alignment and extending therefrom in the direction of the closed back end of the housing;

(b) a gain valve piston slideably mounted in the gain valve bore and extending into the second chamber and being reciprocable in the bore and second chamber, the piston capable of sealing the first chamber from the second chamber to block the flow of fluid between the fluid inlet and the fluid outlet, as the piston approaches and abuts the first chamber;



(c) a second fluid inlet in the housing in communication with the gain valve bore and through which fluid, under pressure, enters the housing and engages and moves the gain valve piston towards the front end of the housing to seal the first chamber from the second chamber;

(d) means for biasing the gain valve piston in the direction of the first chamber; and

(e) means, operable by fluid under pressure, for engaging the gain valve piston and preventing the gain valve piston from abutting and sealing the first chamber to block the flow of fluid between the fluid inlet and outlet, said gain valve piston engaging means including, (I) a separate pressure limiter piston reciprocable in a bore that is separate from the bore of the gain valve piston from sealing the first chamber from the second chamber, and (II) means for biasing the pressure limiter piston in the direction of the front end of the housing.

4,313,455

FLUID ROUTING DEVICE

Donald G. Pitman, Glendale, Ariz., assignor to Lester R. Matthews, Phoenix, Ariz.

Filed Nov. 14, 1979, Ser. No. 94,393

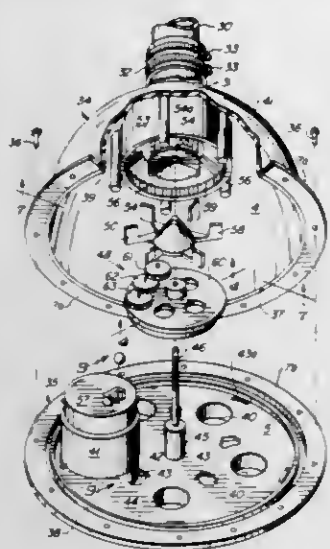
Int. Cl.³ F16K 11/14

U.S. Cl. 137—119

6 Claims

1. In a fluid routing device including: a. a hollow body including at least two exterior parts comprising upper and lower segments joined together to make a self-contained, unitary body, and having (1) inlet means for the admission of fluid; (2) a plurality of valve means having open and closed positions relative the outward passage of fluid; (3) means responsive to the flow of fluid for sequentially opening and closing said valves; b. a base plate adapted to attachment to said lower segment and having a plurality of outlet means registering with and controlled by said valve means; and c. means for releasably attaching said body to said base plate, each of said plurality of valve means comprising a casing, a diaphragm disposed within said casing, a valve plug suspended within said casing by means of said diaphragm,

a port in said lower segment having a valve seat, said plug having a valve face sized and adapted to register with and



seal on a portion of said seat, whereby tolerance is increased and positive seating enhanced.

4,313,456

UNIVERSAL CHECK VALVE ASSEMBLY

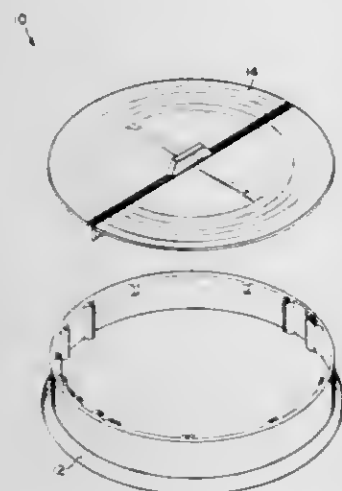
Mark W. Thomas, 472 Lotus La., Mt. View, Calif. 94043

Filed Dec. 24, 1980, Ser. No. 219,595

Int. Cl.³ F16K 15/14

U.S. Cl. 137-269

9 Claims



1. A universal check valve adapted for retrofit within a tubular conduit comprising:

an adjustable diameter support hoop formed from an elongated strip provided with a plurality of sockets formed along an inner surface thereof, said strip further being provided with a plurality of a firstly configured interlocks formed along said inner surface, said strip further being provided with a secondly configured interlock formed along said inner surface, said secondly configured interlock being removably engagable with said firstly configured interlocks, said elongated strip being further provided with a downwardly extending, outwardly flaring skirt;

a circular valve structure of adjustable diameter including a diametrical spine, a first semi-circular valve flap hingedly attached to one side of said spine, a second semi-circular flap hingedly attached to an opposing side of said spine, said valve structure being provided with at least one concentrically formed score line on an upper surface of said valve flaps, said valve further being provided with a plurality of projections downwardly extending from said spine, said projections being engagable with a diametrically opposed pair of said sockets.

4,313,457 REMOVABLE CONDENSATE COLLECTOR FOR ELEVATED WATER STORAGE FACILITIES

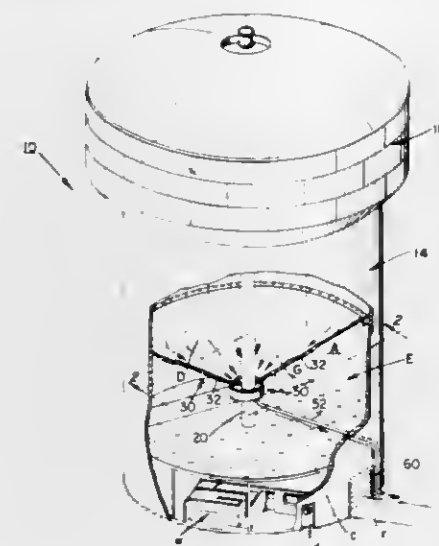
John O. Cliff, Franklin, Tenn., assignor to Pittsburgh-Des Moines Corporation, Pittsburgh, Pa.

Filed Nov. 20, 1979, Ser. No. 95,959

Int. Cl.³ E03B 11/00, 9/00

U.S. Cl. 137-312

9 Claims



9. An improvement in an elevated water storage facility including a water storage tank supported on top of an enclosed column, the column being divided into an air space and a work area for offices, warehouses, and the like with elements located in the work area which can be damaged by condensate falling thereonto from the tank, the improvement comprising collecting means for collecting condensed water vapor which drips from the underside of said tank, the collecting means including: attaching means mounted on a wall of the enclosed column above the work area;

a membrane attached to said attaching means and mounted inside the column at a location between the tank and the work area for collecting any condensate falling from the tank prior to that condensate falling into the work area; and

drain means fluidly connected with said membrane for conducting condensate collected by said membrane away from said membrane.

4,313,458

RESTRICTED MOVEMENT VALVE SEATS FOR AN EXPANDING GATE VALVE

Ivan A. Burns, and William R. Hochmuth, both of Houston, Tex., assignors to ACF Industries, Incorporated, New York, N.Y.

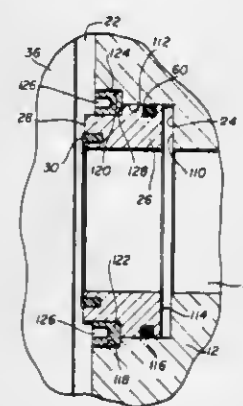
Division of Ser. No. 95,911, Nov. 19, 1979, Pat. No. 4,246,928.

This application Nov. 21, 1980, Ser. No. 209,180

Int. Cl.³ F16K 43/00

U.S. Cl. 137-327

2 Claims



1. In an expanding valve structure having a valve body presenting a valve chamber and a fluid flow passageway, an

expandable valve member mounted in the valve chamber for movement in a collapsed condition between open and closed positions, and means for expanding the valve member to an expanded condition in both the open and closed positions, the improvement comprising:

a pair of spaced apart seat pockets formed about the flow passageway adjacent the valve chamber and on opposite sides thereof, each said seat pocket opening to the valve chamber and having a bottom surface disposed generally transverse to the passageway and extending substantially radially therefrom and a cylindrical outer surface substantially coaxial with said passageway, said cylindrical outer surface presenting an annular recess therein at a location spaced from said bottom surface and encompassing the flow passage, said annular recess opening to the valve chamber and having a bottom wall residing in a plane substantially radial to the flow passageway and a threaded circumferential surface which is coaxial with said passageway extending from said bottom wall to the valve chamber;

a pair of annular valve seats mounted in said seat pockets in a manner permitting limited inward and outward movement of said seats toward and away from one another, each seat having a base surface adjacent the bottom surface of the pocket and an inner sealing surface for sealing against the valve member in the open and closed positions thereof, each seat also having a cylindrical outer surface adjacent said outer surface of the corresponding seat pocket and a shoulder between said base and sealing surfaces facing toward said valve member, said shoulder being provided by a reduced external diameter portion of said valve seat;

a seat retaining ring mounted in each said recess, each said seat retaining ring having an external diameter corresponding to the diameter of the circumferential surface of each said recess and being externally threaded for cooperative threaded engagement with the threaded surface of the recess, said seat retaining ring having an internal diameter which is less than that of the unrecessed portion of the cylindrical outer surface of its associated seat pocket whereby said seat retaining ring projects out of the recess into the seat pocket inwardly of said cylindrical outer surface, said shoulders of the seats being adapted to engage the retaining rings to limit movement of the seats in the direction towards the valve member to positions wherein said sealing surfaces of the seats are spaced outwardly of the valve member in the collapsed condition thereof.

4,313,459

AUTOMATIC FILL-STOP VALVE

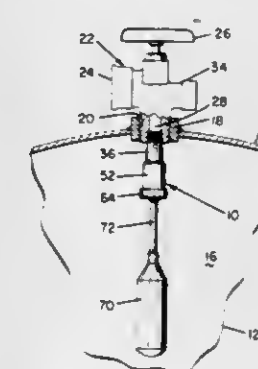
Gerald D. Mylander, 1232 W. Collins, Orange, Calif. 92667

Filed Jan. 12, 1979, Ser. No. 2,954

Int. Cl.³ F16K 21/18, 33/00

U.S. Cl. 137-416

11 Claims



3. A float valve for controlling liquid inflow into a tank to stop inflow when the liquid level in the tank reaches a desired level, the tank also has a manual valve in series with the float

valve for manual control of the inflow, said float valve comprising:

a body arranged to be secured to attachment means in the tank so that the body is oriented in an upright position in the tank, a bore in said body, said bore being for connection to receive all liquid inflow into the tank, a channel laterally extending out of said body from said bore so that liquid flowing into the tank flows out of said channel;

a tubular sleeve positioned around said body and slidably mounted for movement along said body from a lowered position where said channel is uncovered to a raised position where said channel is covered by said sleeve and where the sleeve is in sealing relationship to the float valve body attachment means, said sleeve having an upwardly facing area subject to tank pressure and an equal downwardly facing area subject to channel pressure when said sleeve is in the raised position where said channel is covered by said sleeve so that during filling when channel pressure is higher than tank pressure, a net force is applied by the pressures to the sleeve to urge said sleeve upwardly, and upon outflow of fluid from said bore lower than tank pressure in said channel is applied to the downwardly facing area to thrust said sleeve down to open said channel to permit fluid outflow from the tank; and

a spring positioned between said sleeve and said body to partially support said sleeve and a float mounted on said sleeve, said spring being positioned to urge said sleeve from the channel uncovered position to the channel covered position, said float being positioned to raise said sleeve to cover said channel when the desired liquid level is reached in said tank so that said valve is float-triggered and pressure-operated and said spring partially counterbalances the weight of said float.

4,313,460

PILOT VALVE

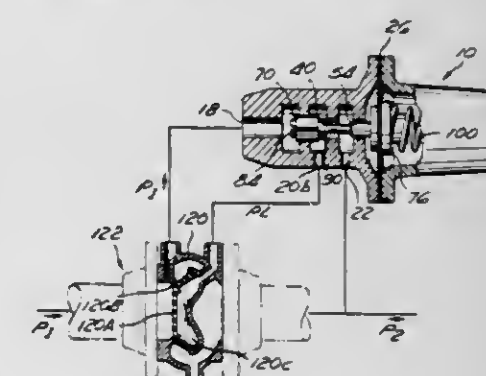
Dwight N. Johnson, El Toro, Calif., assignor to JH Industries, Inc., San Marcos, Calif.

Filed Oct. 4, 1979, Ser. No. 81,845

Int. Cl.³ G05D 16/00; F16K 31/365

U.S. Cl. 137-489

16 Claims



1. A pressure reducing pilot valve for controlling a main valve of the type having an upstream flow port, a downstream flow port and a control port, said pilot valve comprising:

a housing defining a downstream pressure region adapted to communicate with the main valve downstream flow port, an upstream pressure region adapted to communicate with the main valve upstream flow port, and a loading pressure region disposed between said downstream and upstream pressure regions and adapted to communicate with the main valve control port;

a valve seat separating said downstream pressure region and said loading pressure region;

pressure responsive means in said housing adapted to communicate with the main valve downstream flow port and including a member movable in response to downstream pressure variations;

a poppet connected to said movable member; valve means on said poppet including a tapered valve sur-

face movable with respect to said valve seat to control flow between said loading pressure region and said downstream pressure region;
the larger portion of said tapered valve surface being disposed in said loading pressure region and the smaller portion of said tapered valve surface being disposed in said downstream pressure region;
said valve means also including means separating said upstream pressure region and said loading pressure region, said separating means including a pressure responsive surface of substantially constant effective area exposed to upstream pressure in said upstream pressure region; and a restricted flow passage between said upstream pressure region and said loading pressure region.

4,313,461

PILOT PRESSURE INTENSIFIER

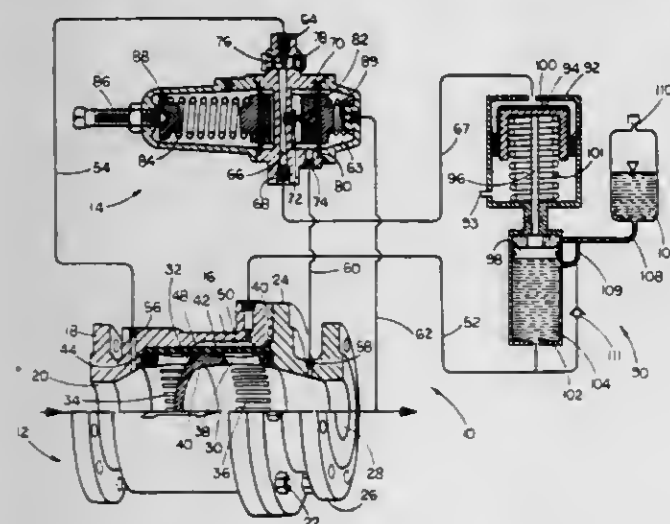
Richard S. Brumm, Orinda, Calif., assignor to Grove Valve and Regulator Company, Oakland, Calif.

Filed Jul. 25, 1980, Ser. No. 172,403

Int. Cl.³ F16K 31/38

U.S. Cl. 137—489

4 Claims



1. For use with a main valve member, including a flexible control member exposed on one side to upstream line pressure biasing said main valve member open, and on the other side by fluid pressure in a control chamber;
a load line to said control chamber connected to the upstream side of said main valve member;
an orifice in said load line;
a pilot exhaust port in said load line downstream of said orifice;
a pilot valve body with a valve closure member engagable with said exhaust port;
means for opening said valve closure member at predetermined pipeline conditions; and
an exhaust duct for connecting said exhaust port to the downstream side of said main valve member;
the improvement comprising:
a pressure intensifier interposed in said load line downstream of said exhaust port and including:
first and second vessels connected to the outlet of said load line and to said main valve control chamber, respectively; said first vessel being larger in cross-section than said second vessel;
first and second pressure responsive members sealed across said first and second vessels;
a liquid contained in said second vessel on the delivery side of said second pressure-responsive member;
said pressure-responsive members being mechanically connected so that a pressure applied to said first pressure-responsive member to produce movement thereof moves said second pressure-responsive member to deliver liquid at intensified pressure to said jacket;
a reservoir open to atmosphere and containing said liquid;
a liquid supply line from said reservoir to said second vessel

away from the delivery end thereof to be uncovered by said second pressure-responsive member when retracted; and
biasing means in said first vessel acting against said first pressure-responsive member in opposition to fluid pressure so that only atmospheric pressure is delivered by said second pressure-responsive member until said biasing means is overcome to cover said liquid supply line, and thereafter pressure in excess of said biasing means is multiplied in accordance with the ratio of vessel cross-sectional areas.

4,313,462

SEQUENTIALLY OPERATED VALVE STRUCTURE

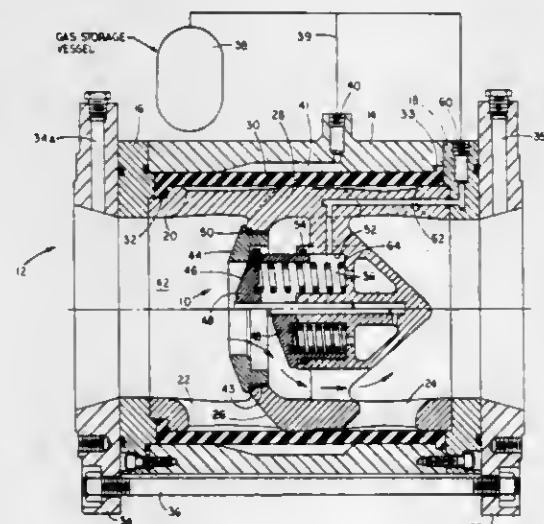
Keoneth S. Adamson, Walnut Creek, Calif., assignor to Grove Valve and Regulator Company, Oakland, Calif.

Filed Oct. 10, 1980, Ser. No. 195,948

Int. Cl.³ F16K 15/00

U.S. Cl. 137—512.1

6 Claims



1. In a flexible tube valve comprising:
a housing with coaxially aligned inlet and outlet flow passages;
a generally cylindrical, tubular cage in said housing coaxial with said flow passages and having spaced rows of inlet and outlet slots around it;
a cylindrical barrier across said cage intermediate said rows of slots;
a flexible tube stretched over said cage and sealed at opposite ends to said housing;
a space in said housing forming a jacket around said flexible tube; and
a port in said housing for introducing a control pressure into said jacket.
the improvement comprising:
an inlet flow passage extension through said barrier;
a valve seat around said flow passage;
a poppet valve slidable on said barrier and engagable with said valve seat;
portions on said poppet valve being exposed to upstream fluid pressure to be biased thereby toward open, retracted position;
a sealed chamber in said barrier behind said poppet valve; and
duct means connecting said chamber with a source of pressurized fluid.

4,313,463

PRESSURE-RELIEF VALVE DEVICE

Walter Weirich, Dortmund, Fed. Rep. of Germany, assignor to Gewerkschaft Eisenbütte Westfalia, Lünen, Fed. Rep. of Germany

Filed Mar. 21, 1980, Ser. No. 133,483

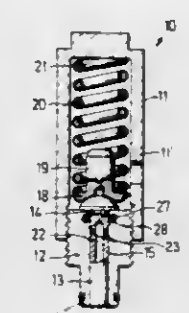
Claims priority, application Fed. Rep. of Germany, Apr. 12, 1979, 2914981

The portion of the term of this patent subsequent to Aug. 18, 1998, has been disclaimed.

Int. Cl.³ F16K 15/06

U.S. Cl. 137—538

11 Claims



1. A valve device for pressure-relief of hydraulic pressure fluid, and especially for pressure-relief of hydraulic pressure of mine equipment; said valve device comprising a main housing, a guide located in the main housing, the guide having a bore therein, a valve member received in the bore of the guide, an axial bore in the valve member which communicates via a multiplicity of radial borings with pressure fluid outlets at an external peripheral surface of the valve member, a groove in the wall of the bore of the guide, a sealing ring located in said groove to engage in sealing relationship with the peripheral surface of the valve member thereby, to establish a seal, the valve member being displaceable along the bore of the guide to bring the fluid outlets into axially spaced positions on one or other side of the seal, a head on the valve member, a spring located in the main housing to apply force to bias the valve member to a position with its fluid outlets at said one side of the seal and with its head engaging on an end face of the guide on the said other side of the seal, a resilient thrust ring located in said groove to contact both the sealing ring and a flank wall of the groove adjacent the said other side of the seal, said flank wall being spaced from the end face of the guide by a distance less than the axial width of the groove, with the external diameter of the head of the valve member being greater than the root diameter of the groove so that the engagement between the head of the valve member and the end face of the guide under the force of the spring extends radially outwardly beyond the groove, a main inlet for pressure fluid leading to the axial bore and radial borings and outlets of the valve member and a main outlet for pressure fluid leading to the other side of the seal, whereby the spring force holds the valve member in a position with its outlets on the said one side of the seal to isolate the main outlet from the main inlet and the valve member can be displaced by excess fluid pressure against the restoring force of the spring to bring its outlets to the said other side of the seal to permit flow of the pressure fluid from the main inlet to the main outlet with consequential pressure-relief.

4,313,464

FLUID CONTROL APPARATUS

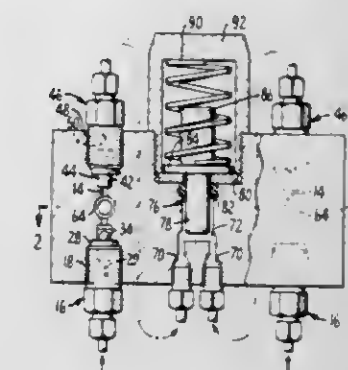
Emery Major, 17 Skylark Dr. #1, Larkspur, Calif. 94939

Filed Nov. 6, 1979, Ser. No. 91,726

Int. Cl.³ F04B 11/00

U.S. Cl. 137—544

9 Claims



1. Fluid control apparatus comprising in combination:
mounting means;
at least one inlet check valve assembly mounted on said mounting means in fluid flow communication with said inlet check valve assembly, each of said check valve assemblies including a movable valve member and a valve seat cooperable to permit passage of fluid therethrough in a predetermined direction;
filter means operatively associated with each of said check valve assemblies for removing particulate matter from liquid passing through said check valve assemblies; and
a pulse damper device comprising a primary housing interior defined by said mounting means in fluid flow communication with said outlet check valve assembly and a dispenser orifice formed in said mounting means, a piston including a ram portion slidably positioned in said primary housing interior and responsive to fluid pressure in said primary housing interior to move away from said dispenser orifice, a coil compression spring continuously urging said piston toward said dispenser orifice, and a spring housing mounted on said mounting means for accommodating said coil compression spring and having a bearing surface maintaining said spring in compression against an element of said piston, seal means disposed between said primary housing and said spring housing and having an aperture within which said piston ram portion is slidably disposed, said seal means maintaining the housing interior, the coil compression spring and the piston element out of contact with said fluid.

4,313,465

METHOD AND CONTROL DEVICE FOR DOSING FLOW MEDIA

Heinz Holzem, Mönchengladbach, and Helmut Kehrman, Kaarst, both of Fed. Rep. of Germany, assignors to Pierburg Luftfahrtgeräte Union GmbH, Fed. Rep. of Germany

Filed Nov. 9, 1978, Ser. No. 959,196

Claims priority, application Fed. Rep. of Germany, Nov. 19, 1977, 2751743

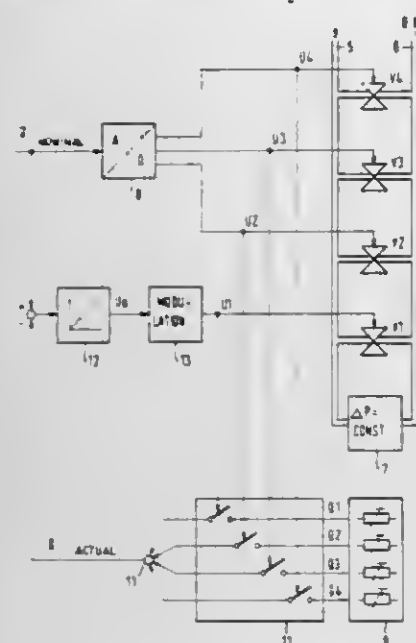
Int. Cl.³ F16K 31/02

U.S. Cl. 137—599

14 Claims

1. A flow control system for the control of a plurality of parallel-connected on/off valves comprising:
a plurality of base control on/off valves connected in parallel between the input and output lines of a flowing medium, said valves subject to on/off control by an electrical signal;
means for providing control signals for controlling said base control valves, said means responsive to a nominal input control signal;
a timed valve subject to control by a pulse-width modulated signal, said valve connected parallel to the base control valves between said input and output lines;

means for providing signals which are analogs of the values of flow through each of the valves;
summing means for combining said flow-analogous signals to form a signal representing the actual flow through the output line;



means for comparing the actual flow signal with said nominal input control signal to form an error signal; and
means responsive to said error signal for pulse-width modulating said timed valve.

4,313,466

VALVE FOR DRINKING FOUNTAINS

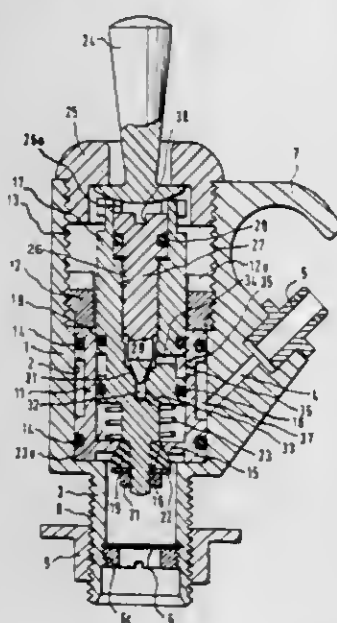
John F. Adams, Warley, England, assignor to H. E. Rudge and Company Limited, Birmingham and Associated Builders Merchants Limited, Essex, both of, England

Filed Apr. 23, 1980, Ser. No. 143,087

Int. Cl.³ F16K 1/04

U.S. Cl. 137—614.17

2 Claims



1. In a valve comprising a valve body having an inlet connection and an outlet leading to and from a valve chamber in the body respectively, a valve seat in the valve chamber facing towards the inlet, and a plunger carrying a tapered valve member of resilient material cooperable with the valve seat: the improvement comprising a hollow valve seat support slidably and sealingly received in the valve chamber and removably secured therein, said valve seat support carrying the valve seat, said plunger being slidably and sealingly mounted in the valve seat support and provided with a flow passage between the valve seat and said outlet, and a restrictor member extending lengthwise of the plunger and adjustably mounted therein for restricting said flow passage, the restrictor member

having adjustment means on the end thereof remote from the restricted flow passage and accessible for adjustment of said member while the plunger and valve seat support remain in operating position in the valve chamber.

4,313,467

CONTROL VALVE

Armin Lang, Bettringen, Fed. Rep. of Germany, assignor to Zahnradfabrik Friedrichshafen, AG., Friedrichshafen, Fed. Rep. of Germany

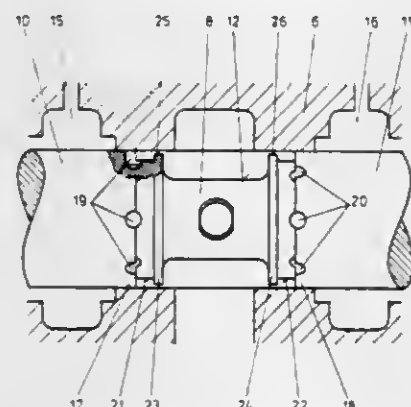
Filed Jan. 22, 1980, Ser. No. 114,388

Claims priority, application Fed. Rep. of Germany, Jan. 25, 1979, 2902751

Int. Cl.³ F16K 3/24

U.S. Cl. 137—625.3

2 Claims



1. In a control valve having a housing and a piston valve reciprocally in a bore of said housing;

said piston valve having at least one collar (10) coating with a housing groove (15); the improvement which comprises a groove (21) at an end (17) of said collar demarcated by a collar (25) of smaller diameter than said the housing bore to effect a flow throttling gap therebetween;

and radial recess means (19, 20) arrayed around said collar and extending into said latter groove for permitting flow between said collar end (17) and said latter groove (21) and therefrom through said throttling gap when said piston valve and said housing groove are relatively positioned to conduct flow;

wherein said radial recess means limits the leakage circumference of said end (17) of said collar, and said groove (21) at said end of said collar effects smoothing of turbulence and said throttling gap effects a laminar flow downstream of said latter groove, to reduce flow noise.

4,313,468

SERVO VALVE

Kishor J. Patel, Hales Corners, Wis., assignor to Dynex/Rivett Inc., Pewaukee, Wis.

Continuation of Ser. No. 44,440, Jun. 1, 1979, abandoned, which is a continuation of Ser. No. 815,467, Jul. 12, 1977, abandoned.

This application Feb. 8, 1980, Ser. No. 119,700

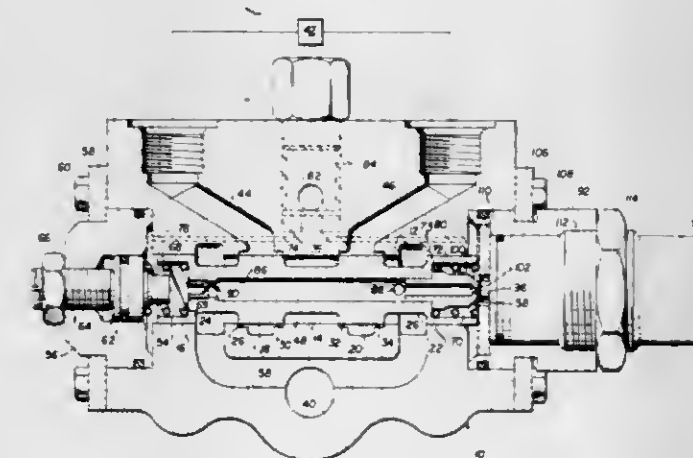
Int. Cl.³ F15B 13/043

U.S. Cl. 137—625.61

1 Claim

1. A fluid flow control servo valve comprising:
a valve housing having a generally cylindrical bore extending therethrough;
a supply port extending into said valve housing for receiving working fluid from an external pump;
a return port extending into said valve housing for returning working fluid from said valve housing to a tank;
an isolated pilot port extending into said valve housing and being separated from said supply port and said return port for receiving pilot pressure; a generally cylindrical valve spool dimensioned to be slidably received within said valve housing bore, said cylindrical valve spool having

an internal passageway axially extending throughout the length of said valve spool,
an internally enlarged zone at one end of said valve spool forming a first chamber, and
an internally enlarged zone at the other end of said valve spool forming a second chamber;
first fixed orifice means mounted within said internal passageway in said generally cylindrical valve spool generally at said one end of said valve spool and providing fluid communication between said internal passageway and said first chamber;
fixed aperture means coaxially fashioned within said internal passageway in said generally cylindrical valve spool generally at said other end of said valve spool and having internal dimensions greater than the internal dimensions of said first fixed orifice means at said one end of said valve spool and providing fluid communication between said internal passageway and said second chamber;
said valve spool being exteriorly fashioned with first and second cylindrical land areas at opposite ends of said valve spool and third and fourth cylindrical land areas axially spaced intermediate said first and second land areas, each of said cylindrical land areas being dimensioned to intimately contact said valve housing in sliding engagement within said bore of said valve housing, said cylindrical land areas forming
first and second cylindrical end grooves between said first and third and fourth and second cylindrical land areas, respectively, and



a third cylindrical central groove between said third and fourth cylindrical land areas;
first passage means extending through said valve housing and connecting said first and second cylindrical end grooves to said return port such that hydraulic fluid within either of said first or second cylindrical end grooves may be returned to tank;
second passage means extending through said valve housing from said supply port to said third cylindrical central groove for delivering pressurized hydraulic fluid into said cylindrical bore;
third and fourth passage means extending through said valve housing for respectively and selectively communicating said first and second cylindrical end grooves to a load and said third central groove to a load, depending on the position of said valve spool relative to said valve housing; first and second cylindrical grooves in said valve housing radially projecting outwardly from said cylindrical bore of said valve housing and being located at the axial extremities respectively of said third cylindrical land area on said valve spool;
third and fourth cylindrical grooves in said valve housing radially projecting outwardly from said cylindrical bore of said valve housing and being located at the axial extremities respectively of said fourth cylindrical land area on said valve spool;
said third and fourth cylindrical land areas of said valve spool being axially dimensioned such that a null position may be established wherein the passage of hydraulic fluid

from said third cylindrical central groove of said valve spool into said second cylindrical groove radially projecting into said valve housing and from said fourth cylindrical groove radially projecting into said valve housing into said second cylindrical end groove in said valve spool will be blocked while concomitantly the passage of hydraulic fluid from said third cylindrical central groove of said valve spool into said third cylindrical groove radially projecting into said valve housing and from said first cylindrical groove radially projecting into said valve housing into said first cylindrical end groove in said valve spool will be blocked;

aperture means generally radially projecting into said generally cylindrical valve spool for fluidically connecting said internal passageway of said valve spool with said first passage means through said valve housing such that hydraulic fluid within said internal passageway of said valve spool may be returned to tank through said return port in said valve housing;

cap means releasably mounted upon said valve housing and extending into said valve housing in a posture coaxial with respect to said generally cylindrical valve spool and adjacent to said internally enlarged zone at said other end of said valve spool forming a second chamber;

washer means mounted generally transversely across said cap means and adjacent to said second chamber;

first compression spring means mounted within said second chamber and extending coaxially within said valve spool between said washer means and an internal ledge of said second chamber, said first compression spring means being axially dimensioned to normally bias said valve spool away from a mechanical null position of said third and fourth cylindrical land areas of said valve spool with respect to said first, second, third, and fourth cylindrical grooves radially projecting into said valve housing;

end gland means releasably mounted upon said valve housing and extending into said valve housing in a posture generally coaxial with respect to said generally cylindrical valve spool and adjacent to said internally enlarged zone at said one end of said valve spool forming a first chamber; piston means mounted for translation within said end gland means and coaxially aligned with respect to said generally cylindrical valve spool and extending adjacent to said first chamber;

second compression spring means mounted within said first chamber and extending coaxially within said one end of said valve spool between one side of said piston means and an internal ledge of said first chamber, said second compression spring means being axially dimensioned to normally bias said valve spool in a direction opposing the bias of said first compression spring means; mechanical adjustment means connected to said end gland means and abutting against the other side of said piston means for selectively translating said piston means to mechanically react said second compression spring means against said first compression spring means and mechanically bring said valve spool to a null position within said cylindrical bore of said valve housing such that hydraulic fluid is blocked from flowing from said third central groove of said valve spool to either of said second or third cylindrical grooves radially projecting outwardly from said cylindrical bore of said valve housing and from said first cylindrical groove radially projecting outwardly from said cylindrical bore into said first cylindrical end groove of said valve spool and from said fourth cylindrical groove radially projecting outwardly from said cylindrical bore into said second cylindrical end groove of said valve spool;
fifth passage means extending through said valve housing for fluidically connecting said isolated pilot port to said first chamber formed at said one end of said valve spool;
second fixed orifice means positioned within said fifth passage means and being dimensioned to be equal to said first fixed orifice means mounted within said internal passageway generally at said one end of said valve spool;

sixth passage means extending through said valve housing for fluidically connecting said isolated pilot port to said second chamber formed at said other end of said valve spool;

third fixed orifice means positioned within said sixth passage means and being dimensioned to be equal to said first and second fixed orifice means;

said first and second chambers formed at the ends of said valve spool being operable to receive intermediate control pressure from said isolated pilot port through said fifth passage means and second fixed orifice means and said sixth passage means and said third fixed orifice means, respectively;

electro-magnetic force motor means coaxially mounted within said cap means, said force motor means having a generally cylindrical force motor stem mounted for selective reciprocation within said force motor means, said force motor stem having an outer, planar end surface operably extending adjacent to but spaced from said fixed aperture means coaxially fashioned at said other end of said valve spool,

said fixed aperture means comprising a nozzle pressed into said internal passageway of said generally cylindrical valve spool at said other end thereof, said nozzle having a planar annular outer surface disposed opposite to and mutually parallel with said planar end surface of said force motor stem, such that the annular zone between said planar end of said force motor stem and said planar annular surface on said fixed aperture means constitutes fourth orifice means of variable area; and

means connecting said electro-magnetic force motor means to said cap means for axially adjusting said force motor means and said force motor stem such that, in an electro-magnetic null position of said force motor means, the area of said fourth orifice means may be operably set to equal the area of said first, second, and third fixed orifice means, such that said valve spool will be fluidically balanced in a null position when said force motor means is in a null position.

4,313,469

FAUCET ASSEMBLY WITH PINCH VALVES

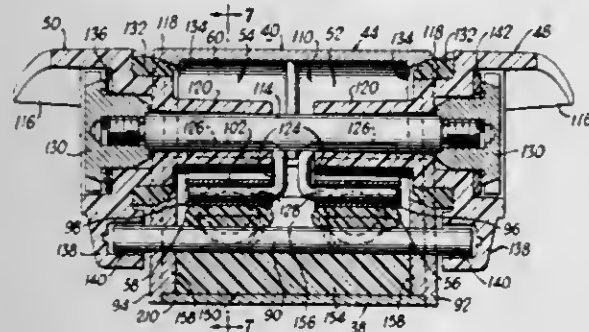
Dwight N. Johnson, San Marcos, Calif., assignor to JH Industries, Inc., San Marcos, Calif.

Filed May 8, 1980, Ser. No. 147,701

Int. Cl.³ F16K 19/00

U.S. Cl. 137—637

26 Claims



1. A faucet assembly for use with a sink and with sources of hot and cold water water remote from the sink deck, said faucet assembly comprising in combination a housing including a base portion; means for mounting the base portion on the sink deck; a spout extending from the base portion and having an outlet adjacent its end; a mixing chamber adjacent to and communicating with said outlet; a recess defined within said spout and extending from said mixing chamber to said base portion; a pair of continuous, elongated, flexible tubular conduits connected to said mixing chamber and extending through said recess to said base portion and extending through said base portion and sink deck for connection to the water supply sources; a cross member extending across said recess adjacent

said mixing chamber and engaging one side of said conduits; a shaft extending across said recess; an operating lever rotatably mounted on each end of said shaft, each including a handle portion mounted externally of said spout; a pair of pinch members, one engageable with each conduit opposite said cross member; spring means independently and resiliently forcing said pinch members against said conduits normally to maintain said conduits in a pinched closed position; and a pair of link means, each coupled between one operating lever and one pinch member for withdrawing said pinch member against the spring force to open the corresponding conduit in response to movement of the operating lever.

4,313,470

FLUIDIC FLOW ARRESTER

John R. Tippetts, Sheffield, England, assignor to United Kingdom Atomic Energy Authority, England

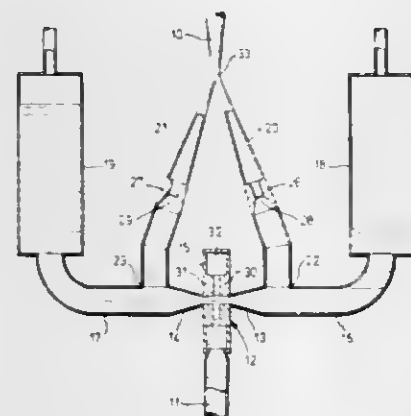
Filed Aug. 22, 1979, Ser. No. 68,722

Claims priority, application United Kingdom, Sep. 5, 1978, 35669/78

Int. Cl.³ F15C 1/14

U.S. Cl. 137—821

7 Claims



1. A fluidic arrester device for arresting a mainstream flow of fluid, such device comprising a control stream passage, a mainstream passage including an inlet, modulator means, and a mainstream outlet in permanently open communication with the control stream passage, said control stream passage intersecting said mainstream passage upstream of said modulator means, said mainstream passage having multiple branches providing intersection of the control stream passage at at least two locations disposed symmetrically to either side of the mainstream modulator means, means to reciprocate a control stream of fluid in said control stream passage back and forth substantially uninterruptedly across the modulator means to block the mainstream from the outlet for inhibiting access of the mainstream from the mainstream inlet to the mainstream outlet, and means to discontinue selectively the reciprocation of the control stream so that full flow of the mainstream to and through the mainstream outlet may occur.

4,313,471

FLOW CONTROL

Frederic Lissau, Chicago, Ill., assignor to Sloan Valve Company, Franklin Park, Ill.

Continuation of Ser. No. 957,155, Nov. 2, 1978, abandoned, which is a continuation of Ser. No. 930,605, Aug. 3, 1978, abandoned. This application Sep. 4, 1980, Ser. No. 184,142

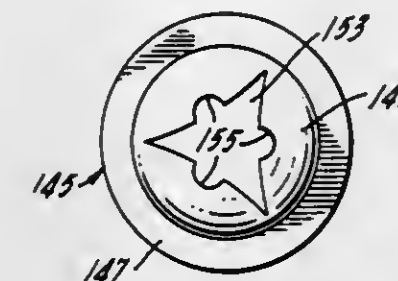
Int. Cl.³ B05B 15/02; F15D 1/02

U.S. Cl. 138—45

1 Claim

1. In an automatic water flow control device in the form of an annulus made of a distortable material having the general characteristics of rubber as to flexibility and distortability and having a generally annular supporting rim portion for use in mounting the flow control device, the rim bounding a generally central flexing convex-concave portion, convex on one side and concave on the other, a generally centrally located,

generally polygonal shaped aperture in the central portion forming a first flow passage, each of the sides of the polygon having a generally curvilinear cross-sectional groove therein constructed and arranged such that when the incoming water pressure is applied to the convex side of the central portion causing the sides thereof to converge inwardly and to contact



each other, the grooves will be brought together thereby forming a constant cross-section second flow passage with a generally uniform flow therethrough, the aperture forming the first flow passage being generally triangular in cross-section in its relaxed state and thereby having three sides, each of which has a generally curvilinear cross-sectional groove formed intermediate the ends thereof.

4,313,472

ELECTRONIC DEVICE FOR MONITORING THE WEFT INSERTION ON A GRIPPER SHUTTLE WEAVING MACHINE COMPRISING A COLOR CHANGER

Erich Weidmann, Wetzikon, Switzerland, assignor to Gebrüder Loepfe AG, Wetzikon, Switzerland

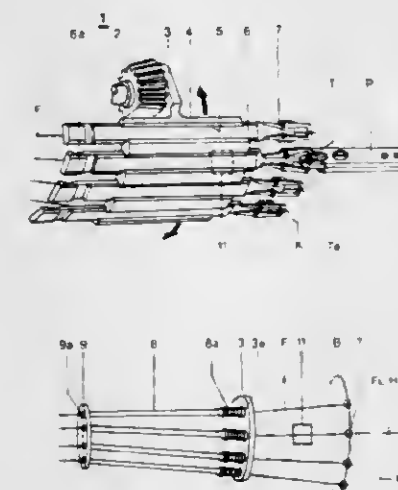
Filed Jan. 14, 1980, Ser. No. 111,771

Claims priority, application Switzerland, Jan. 29, 1979, 838/79

Int. Cl.³ D03D 51/34

U.S. Cl. 139—370.2

6 Claims



1. An electronic device for monitoring the insertion of weft threads into a weaving shed on a gripper shuttle weaving machine equipped with a color changing mechanism, comprising a substantially cylindrical shell having an interior surface and rotatably mounted on a changer shaft and provided with grooves in substantially parallel relationship to the changer shaft, each groove receiving a retract rod bearing a weft clamp for transferring, at a transfer point, one at a time of a multiplicity of threads drawn from supply bobbins, to a gripper shuttle ready for insertion into the weaving shed, wherein:

a signal generator responsive to longitudinal movement of the thread to be inserted is fixedly mounted at the weaving machine between the interior surface of the cylindrical shell and the changer shaft in a position antecedent to the transfer point essentially on a level with the gripper shut-

tle and such as to face the weft thread ready for insertion without contacting the same.

4,313,473

PROCESS AND THREAD INSERTER FOR THE MANUFACTURE OF BELTING WITH TUBULAR EDGE PORTIONS

Erich Reiter, Mutlangen, Fed. Rep. of Germany, assignor to Johann Berger and Josef Berger, both of Schwabisch Gmund, Fed. Rep. of Germany

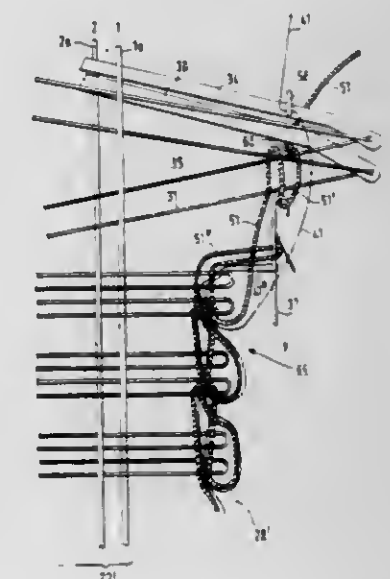
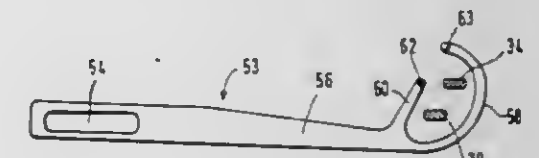
Filed Jun. 12, 1980, Ser. No. 158,808

Claims priority, application Fed. Rep. of Germany, Jun. 23, 1979, 2925413; Nov. 8, 1979, 2945078

Int. Cl.³ D03D 47/42

U.S. Cl. 139—432

15 Claims



1. A process for the manufacture of belting having a single layer central portion and two tubular edge portions on a needle belt weaving loom provided with a knitting needle, the process comprising the steps of:

- weaving both tubular edge portions in the form of single layer edge parts;
- forming stitches at the outer edge of one edge part by means of the knitting needle;
- closing both edge parts by weft thread tension to form the tubular edge portions;
- drawing loops from the stitches pulled to the edge of the central portion into the central portion by weft thread tension, characterised by the following features:
- two weft threads are inserted simultaneously at each pick by means of two weft thread insertion needles;
- for anchoring one weft thread at the outer edges of the edge parts a common shed for both weft thread insertion needles is formed at least on the insertion side by the two outer edge warp threads;
- for weaving the edge parts between the central portion and the two outer edge warp threads an upper and a lower shed are formed, of which one shed accepts the first weft thread insertion needle which forms the edge fabric, and the other shed the second weft thread insertion needle of which the weft thread binds only with at least one of the two outer edge warp threads;
- a loop is drawn by the knitting needle outside one of the edge parts through a loop of at least one of the weft threads to form a stitch;

- (i) the two weft threads are positively fed and the length fed of the first weft thread is greater by at least the width of the two edge parts than the length fed of the second weft thread.

4,313,474

METHOD FOR THE MANUFACTURE OF A MICROWAVE DELAY LINE AND MICROWAVE DELAY LINE OBTAINED BY THIS METHOD

René Nazet, and Pierre Ribout, both of Paris, France, assignors to Thomson-CSF, Paris, France

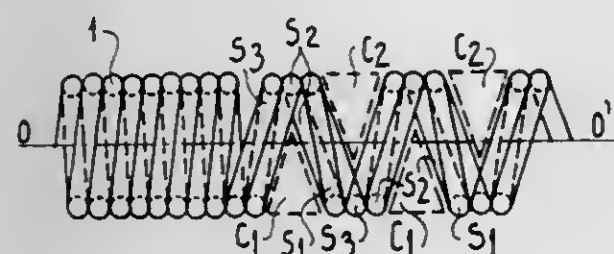
Filed Dec. 20, 1979, Ser. No. 105,507

Claims priority, application France, Dec. 27, 1978, 78 36486

Int. Cl.³ B21F 3/10, 45/00

U.S. Cl. 140—71 R

6 Claims



1. A method for the manufacture of a microwave delay line which ensures, in a travelling wave tube, the interaction between an electron beam focussed in the axis of the line and the fundamental propagation mode of the hyperfrequency travelling wave traversing said line, with a phase velocity close to that of the beam, the amplitude of the inverse propagation mode of the wave being reduced compared with that of a helical microwave delay line, wherein it comprises using a single metal wire shaped into contiguous coils, these coils being deformed at regular intervals in a direction corresponding to the longitudinal axis of the coils, which constitutes the axis of the line, in such a way that the line is constituted by a succession of identical groups of three coils in which the first and third coils have substantially equal, but oppositely directed inclinations compared with the longitudinal axis of the coils and in which half of the second coil remains contiguous with the first coil and the other half remains contiguous with the third coil.

4,313,475

VOLTAGE BLOCK SYSTEM FOR ELECTROSTATIC COATING WITH CONDUCTIVE MATERIALS

Richard F. Wiggins, Fairfield, Conn., assignor to The Gyromat Corporation, Bridgeport, Conn.

Filed Jun. 26, 1980, Ser. No. 163,158

Int. Cl.³ B65B 3/04

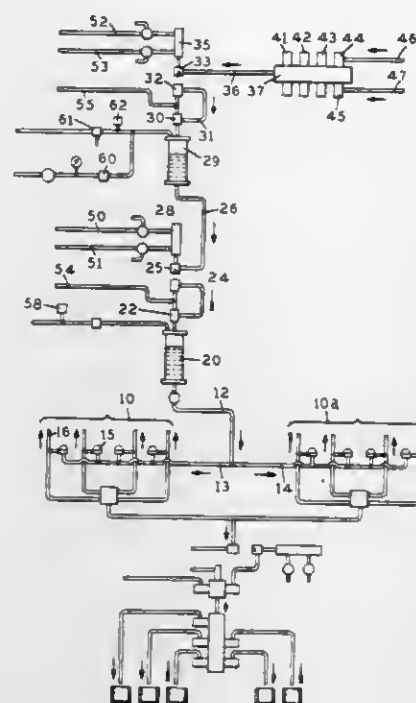
U.S. Cl. 141—18

11 Claims

1. A supply system for furnishing conductive coating materials to an electrostatic coating device, which comprises

- a recirculating primary supply of liquid coating material,
- a spray device for applying said coating material to a workpiece,
- means for imparting a high voltage charge to said spray device,
- a sealed coating material vessel communicating with said spray device,
- means for periodically replenishing said vessel with coating material from said primary supply,
- means for electrically isolating said vessel from said pri-

mary supply when said high voltage is applied to said spray device,



(g) means for placing said sealed vessel under gas pressure to effect displacement of coating fluid to said spray device.

4,313,476

DUAL LANE FILLING MACHINE

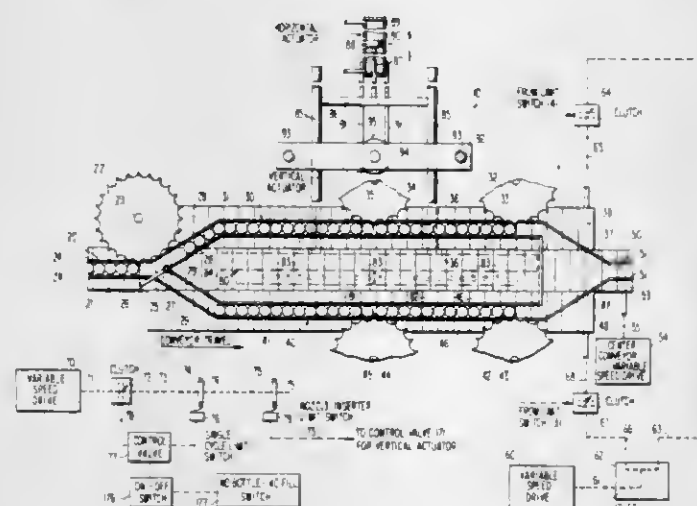
Richard N. Bennett, Arbutus, and Lawrence W. Buckley, Baltimore, both of Md., assignors to National Instrument Company, Inc., Baltimore, Md.

Filed Oct. 26, 1979, Ser. No. 88,340

Int. Cl.³ B65B 43/54

U.S. Cl. 141—59

42 Claims



1. A filling machine with a filling station for filling containers with a fluid product by the use of filling nozzle means, which comprises two substantially parallel filling channel means within the area of the filling stations which are defined at least in part by conveyor means, filling means operatively connected with the filling nozzle means, nozzle support means supporting thereon the filling nozzle means in proper position, means for lowering and raising the nozzle support means and therewith the filling nozzle means into and out of containers held stationary under the filling nozzle means, indexing means for determining the correct number of containers to be filled at the same time in a respective filling channel means during a given filling operation while held stationary in their filling position, reciprocating means for the nozzle support means to alternately place the filling nozzle means over the containers to be filled in one filling channel means and after completion of the filling operation to move the nozzle support means gener-

ally transversely to the direction of movement of the conveyor means over filling channel means to fill the containers which have been brought into filling position in the meantime in said other filling channel means and which are held stationary thereat during the filling operation, and means for operating the filling machine through at least one control cycle including control means for the indexing means, the reciprocating means, the means for lowering and raising the nozzle support means and the filling means, characterized in that each channel means includes a separate conveyor means, said control means including further means for individually controlling each separate conveyor means for individually controlled intermittent operation thereof to enable stoppage of a respective separate conveyor means while containers conveyed thereby are being filled.

4,313,477

LIQUID TRANSFER ASSEMBLY

Adam Sebalos, 140 Charles St., Jersey City, N.J. 07307

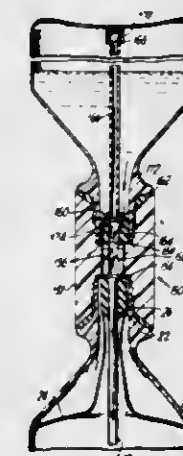
Division of Ser. No. 25,852, Apr. 2, 1979, Pat. No. 4,265,374.

This application Nov. 10, 1980, Ser. No. 205,331

Int. Cl.³ B65B 3/06

U.S. Cl. 141—301

3 Claims



1. A liquid transfer assembly for use in filling containers with liquid comprising: a main body secured directly to said container being filled and including an air passageway in communication at a first end with the interior of said container being filled for releasing air from within said container as liquid enters into said container, an interior liquid transfer passageway disposed in and extending centrally through said body and in communication at one end with the interior of said container being filled for enabling liquid to pass centrally through said body into said container, floating valve means operably associated with said air passageway at the end thereof opposite said first end and responsive to air flow through said air passageway for preventing liquid from flowing therethrough, said floating valve means normally closing said opposite end of said air passageway and opening in response to air exhausting therethrough during liquid filling of said container, said air passageway having a first portion extending upwardly away from said main body and a second portion within said main body being disposed outward of said central liquid passageway, including a member adapted to be inserted in and support a container from which liquid will be transferred and supporting said first portion of said air passageway centrally therein above said liquid passageway in said main body, said member having a first laterally directed passage for communicating the interior of the container from which liquid will be transferred with said central liquid passageway, and a second laterally directed passage for connecting said first portion of said air passageway with said second portion of said air passageway.

4,313,478

WOOD WORKING ROUTER

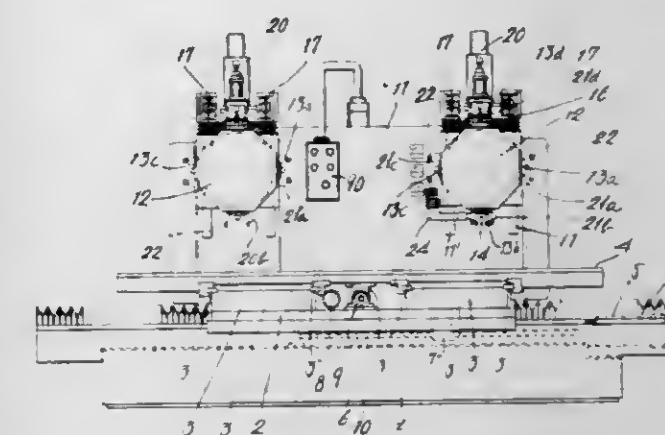
Yukitomo Suzuki, Hamamatsu, Japan, assignor to Helan Iron Works, Ltd., Hamamatsu, Japan

Filed Sep. 18, 1979, Ser. No. 76,791

Int. Cl.³ B23B 7/04

U.S. Cl. 144—1 A

6 Claims



1. A wood working router comprising a machine base, a table carriage unit movable in a first direction relative to said machine base, a suction-type workpiece holding table unit movable in said first direction together with said table carriage unit and also in a second direction normal to said first direction relative to the carriage unit, a column secured to and extending uprightly from said machine base, at least one turret head mounted on said column for vertical movement and rotation relative to the column and having a plurality of angularly spaced cutting tools extending radially and outwardly about the turret head, a corresponding number of motors attached to said cutting tools for individually driving the tools, a mechanism for intermittently rotating and vertically moving said turret head and selecting said cutting tools on the turret head and a release mechanism for releasing a workpiece held on said suction-type table unit under suction from the table unit.

4,313,479

DRAW SHEAR

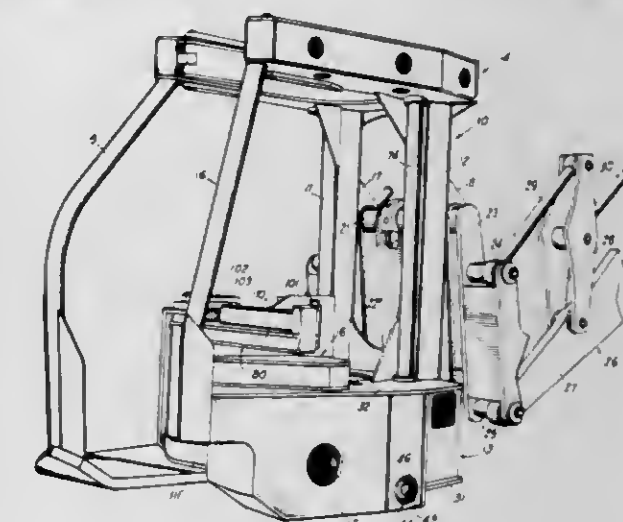
Samuel J. Coughran, Jr., Cedartown, Ga., assignor to Rome Industries, Inc., Cedartown, Ga.

Filed Jun. 29, 1976, Ser. No. 700,881

Int. Cl.³ A01G 23/08

U.S. Cl. 144—3 D

28 Claims



1. A tree harvesting assembly comprising, in combination: a frame adapted to be attached to a powered vehicle and having spaced, vertically extending leg portions, a generally U-shaped lower frame portion and a generally U-shaped upper frame portion, said frame portions being interconnected by said leg portions thereby defining a vertically elongate cradle for receiving the butt end of a

standing tree, and fixed support plate means at the lower end of said cradle and extending forwardly from the closed inner side of said lower frame portion to terminate in a shear blade spaced inwardly from the open end of said lower frame portions;

draw arm means pivotally mounted on said frame for reaching behind a tree, and including fluid-actuated means for driving said draw arm means to pull said frame forwardly to force said shear blade through the tree whereby the tree is completely sheared and crowded onto said support plate means; and

holder means pivotally mounted on said frame for swinging behind a severed tree to retain it on said support plate means;

said holder means being spring loaded to permit a tree to pass into said cradle whereby a plurality of trees may be accumulated on said support plate means;

means for selectively swinging said holder means aside to allow accumulated trees to be discharged from the harvesting assembly; and

said holder means including an arm pivoted on said frame adjacent the lower end of said cradle and another arm pivoted on said frame adjacent the upper end of said cradle, said means for selectively swinging including a vertical shaft connected to one of said pivoted arms.

4,313,480

FIREWOOD CHOPPER

Jaakko Pöntelin, 54920 Taipalsaari, Finland

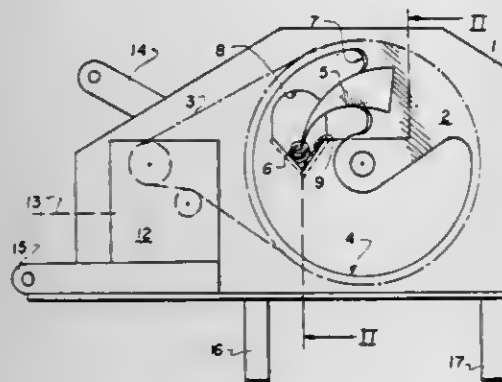
Filed Jun. 13, 1980, Ser. No. 159,164

Claims priority, application Finland, Jun. 15, 1979, 791906

Int. Cl.³ B27L 7/00

U.S. Cl. 144—193 R

9 Claims



1. A wood chopper for splitting and cutting wood comprising:

a fixed blade adapted to receive a piece of wood thereon, the fixed blade having a cutting edge extending transversely to a major axis of the piece of wood when the wood is on the fixed blade;

a movable blade having a splitting edge extending substantially transversely to the cutting edge of said fixed blade, said movable blade increasing in width in a direction away from said splitting edge; and

drive means connected to said movable blade for moving said splitting edge in a path adjacent to, on one side of and past said cutting edge, so that a piece of wood received on said cutting edge is split by said splitting edge when said splitting edge moves past said cutting edge, and cut by said cutting edge.

4,313,481

LOG SHEARING DEVICE

Angelo Cremona, Viale Lombardia 275, Monza, Italy 20052

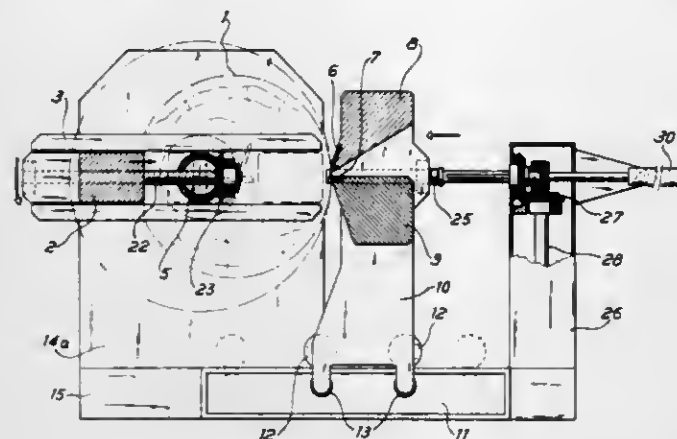
Filed Dec. 6, 1979, Ser. No. 101,003

Claims priority, application Italy, Jul. 19, 1979, 24486 A/79

Int. Cl.³ B27L 5/02

U.S. Cl. 144—209 B

12 Claims



1. A device for shearing a log longitudinally disposed on a fixed axis of rotation through a curved cutting path having a variable radius of curvature about the fixed axis to produce a thin sheet comprising,

a beam for supporting and blocking the log to be cut, slide means including elongated slides, transversely mounted relative to the fixed axis, slidably supporting and guiding said beam for linear movement relative to the fixed axis, means for rotating said slide means and said beam with the log to be cut about the fixed axis,

cutting means for shearing the log to be cut mounted for rectilinear movement relative to the fixed axis, means for shifting said cutting means and said beam with the log to be cut in synchronization with the rotation of said log about the fixed axis, and

means for adjusting said shifting means to adjust one of the rectilinear motion of said cutting means and the linear motion of said beam with the log to be cut thereby variably adjusting the radius of curvature and thickness of the sheet.

4,313,482

PNEUMATIC TIRE AND PROCESS FOR ITS MANUFACTURE

Paul Vente, Leverkusen; Richard Juffa, Cologne; Dieter Seidenschur, Neunkirchen-Seelscheid, and Ulrich Knipp, Berg-Gladbach, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Nov. 9, 1977, Ser. No. 849,750

Claims priority, application Fed. Rep. of Germany, Nov. 13, 1976, 2651876

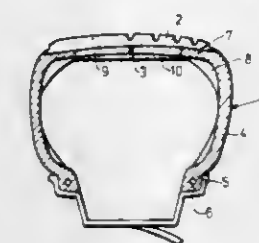
Int. Cl.³ B60C 5/00, 13/00

U.S. Cl. 152—330 R

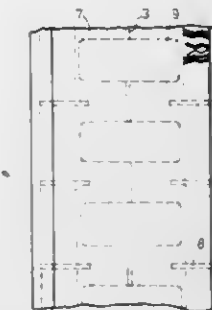
15 Claims

1. A pneumatic tire comprising a tread surface and two separate side parts of an elastomeric synthetic resin, wherein the side parts not only form the side walls of the tire but each extends from a rim wire to the midline of the tire and therefore also forms the foundation for the tread surface of each side of the tire, characterized in that

(a) the tread surface and a layer under the foundation of the tread surface consist of a tread surface elastomer and



(b) the tread surface and layer under the foundation of the tread surface are joined through apertures in the foundation of the tread surface.



4,313,483

APPARATUS FOR REGULATING THE AIR PRESSURE IN TIRES OF CROSS-COUNTRY VEHICLES

Heinrich Brockmann, Eisenacher-Strasse 1, 6750 Kaiserslautern, Pfalz, Fed. Rep. of Germany

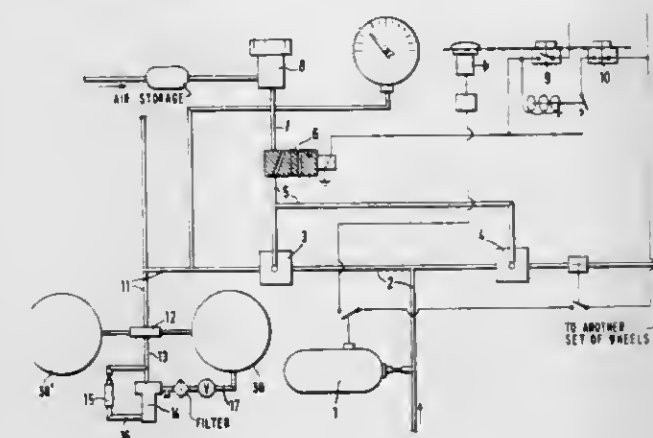
Filed May 14, 1979, Ser. No. 38,524

Claims priority, application Fed. Rep. of Germany, May 26, 1978, 2823045

Int. Cl.³ B60C 23/10

U.S. Cl. 152—416

4 Claims



1. Apparatus for regulating the air pressure in tires of wheel pairs mounted on axles of cross country vehicles, especially amphibian vehicles, of the type having a source of compressed air, at least one relay valve connected to such compressed air source, a pressure and venting valve connected to said relay valve controllable on one side by a pressure key and on the other side by a venting key, a preselecting switch connected to the pressure side of said pressure and venting valve, a compressed air pipe extending from said relay valve to an axle of the vehicle, and separate means connecting the said compressed air pipe to each of the tires of said axle, the improvement wherein each of said means connecting the compressed air pipe line to the tires consisting essentially of

a wheel control valve with a valve head, adapted to pass air to the tire at pressures above the lowest pressure for said tire,

a relief valve,

an air pressure line connected to one side of each of said wheel control valve and relief valve,

an air pressure line connecting a second pressure side of said relief valve to the head side of said wheel control valve

whereby air passing said relief valve is applied against the head side of said wheel control valve.

4,313,484

SELF-INFLATING SOLAR CURTAIN

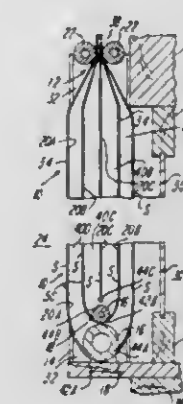
Ronald H. Shore, P.O. Box 238, Snowmass, Colo. 81654

Filed Sep. 15, 1977, Ser. No. 833,581

Int. Cl.² E06B 9/17

U.S. Cl. 160—121 R

25 Claims



1. In combination in an air bag curtain which inhales or exhales responsive to changes in ambient temperatures, thereby providing a self-inflating or deflating insulating assembly: a first generally rectangular sheet of flexible material folded in half and hung from the margins thereof opposite said fold so as to provide a double-paneled curtain with vertically-disposed side margins, said curtain including openings therein adjacent the fold for the intake and expulsion of air; means engaging the side margins of said curtain cooperating therewith to seal the latter and define a first closed-top air bag which inhales responsive to a heating of air within said bag with a consequent increase in air bag volume; means including a horizontal deflation slot disposed above said first air bag effective to expel air through the openings therein when said curtain is drawn upwardly through said slot; spreader means cradled within the fold in the curtain effective to define a pocket holding residual air which expands and therefore fills said first bag when the air therein is heated; and storage means located above the slotted means suspending the curtain therein for movement therethrough between raised and lowered positions.

4,313,485

TRANSPARENT ACCESS CURTAIN FOR COOLERS AND THE LIKE

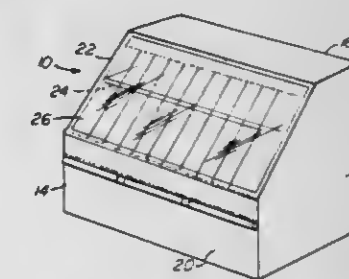
Kenneth N. Gidge, Nashua, N.H., and Henry J. Richard, Lowell, Mass., assignors to BSL Corporation, Nashua, N.H.

Filed Nov. 13, 1979, Ser. No. 93,193

Int. Cl.³ A47H 23/01, 23/05, 23/10

U.S. Cl. 160—328

10 Claims



1. An access curtain for use over the opening in an open display-type refrigerator, or the like, comprising

(a) a unitary sheet of flexible, transparent material of generally rectangular outline connectable along its upper edge to said refrigerator proximate to the upper edge of said

- opening and of a length sufficient to span said opening and overhang the lower edge of said opening,
- (b) said sheet being formed with a plurality of spaced parallel vertical slits entirely within the outer edges of said sheet and extending over a substantial portion of the curtain length to form a plurality of coplanar parallel integral strips sections arranged in abutting edge to edge relation, and,
- (c) weight means connected along the lower edge of said sheet.

4,313,486

SAND MOLD-PRODUCING METHOD AND APPARATUS
Iwao Kondo, and Toshiyuki Shioda, both of Obu, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Aichi, Japan

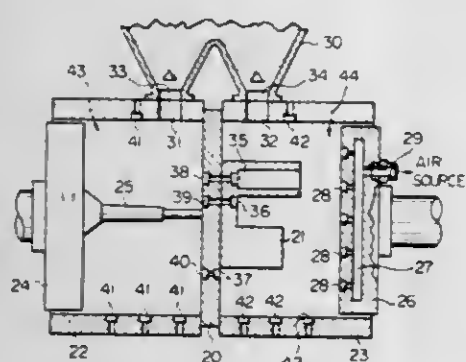
Filed Jul. 7, 1980, Ser. No. 166,350

Claims priority, application Japan, Jul. 11, 1979, 54/88644

Int. Cl.³ B22C 15/24

U.S. Cl. 164—38

9 Claims



1. A sand mold-producing apparatus comprising:
 - a stationary framework to provide a rigid construction for the apparatus and to establish a working area;
 - a sand blower means mounted on said framework and having at least a vertical sand supply port for vertically supplying sand under a first pressure of air;
 - at least one molding flask disposed in the working area, said molding flask having therein a flask cavity enclosed by a side wall formed with a sand inlet port connectable to the vertical sand supply port of said sand blower means and vent through-holes for connecting said flask cavity with the atmosphere, said molding flask further having two laterally spaced apart open ends lying in substantially vertical planes, respectively;
 - a match plate mounted for being mated in position with one of said open ends of said molding flask, said match plate mounting thereon a pattern which is positioned in the flask cavity of said molding flask when said match plate is mated with said one of said open ends of said molding flask;
 - at least a squeeze means comprising a squeeze plate and actuator means for actuating a lateral movement of said squeeze plate into and away from said flask cavity of said molding flask through the other open end of said molding flask, said squeeze plate comprising at least one horizontal air injection vent for flowing a pressurized air having a second pressure into said flask cavity toward said pattern of said match plate, and;
 - an air source means comprising a pressurized air source and a conduit means for supplying the pressurized air from said source to said air injection vent when said sand is being supplied into said molding flask.
2. A sand mold-producing method using a machine including:
 - a sand blower for supplying sand with the help of a pressurized air;
 - at least one molding flask having a laterally extending side wall forming therein a flask cavity and vent holes connecting said flask cavity to the outside atmosphere, said mold-

- ing flask further having two laterally spaced apart open ends lying in vertical planes, respectively;
- a match plate carrying thereon a pattern and capable of being tightly mated with one of said two open ends of said molding flask, and;
- a sand squeezing means for squeezing the sand in said molding flask,
- said method comprising the steps of:
- supplying said sand from said sand blower through a sand inlet port formed in said side wall of said molding flask into said molding flask;
- injecting a lateral flow of a pressurized air toward said pattern of said match plate at the same time as said supplying of said sand, and;
- squeezing said sand in said molding flask after completion of said sand supply step.

4,313,487

APPARATUS FOR CHANGING THE WIDTH OF A CAST PIECE

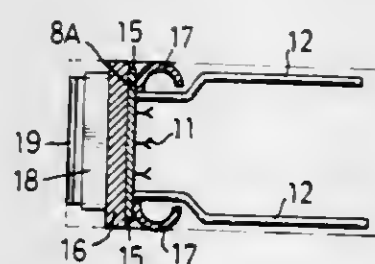
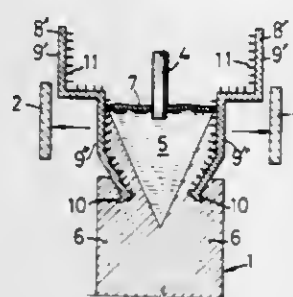
Moriki Hashio, and Tomohiko Kimura, both of Ibaragi, Japan, assignors to Sumitomo Kinzoku Kogyo Kabushiki Kaisha, Osaka, Japan

Division of Ser. No. 931, Jan. 4, 1979. This application Nov. 27, 1979, Ser. No. 97,601

Int. Cl.³ B22D 11/04

U.S. Cl. 164—436

14 Claims



1. For use in a method of continuous casting of a cast piece which is rectangular in cross section, the rectangular cross section having first and second parallel sides of a first length and third and fourth additional parallel sides, a frame for reducing the length of the third and fourth additional parallel sides, said frame comprising a pair of opposite side plate members each of which (a) is disposed substantially vertically and extends substantially parallel to the other side plate member, (b) has an outer surface which is spaced from the outer surface of the other side plate member by a distance equal to the desired reduced length of the third and fourth additional sides, (c) is of width in the horizontal direction substantially equal to said first length, (d) has a lower end formed with an anchor for dipping in the cast piece, and (e) has an inner surface provided with spring means of semicircular section secured thereto along each end thereof for engaging walls of a continuous casting mold.
2. For use in a method of continuous casting of a cast piece which is rectangular in cross section, the rectangular cross section having first and second parallel sides of a first length and third and fourth parallel sides, a frame for increasing the length of the third and fourth additional parallel sides, said

frame comprising a pair of opposite side plate members each of which (a) consists of an upper portion and a lower portion, said upper portion being disposed substantially vertically and extending substantially parallel to the upper portion of the other plate member and having an outer surface which is spaced from the outer surface of the other side plate member by a distance equal to the desired increased length of the third and fourth additional sides, and said lower portion having an outer surface which is spaced from the outer surface of the lower portion of the other side plate member by a distance not greater than the existing length of the third and fourth additional parallel sides, (b) is of width in the horizontal direction substantially equal to said first length, and (c) has a lower end formed with an anchor for dipping in the cast piece and spaced from the anchor of the other side plate member by a distance less than the existing length of said third and fourth parallel sides.

4,313,488

APPARATUS FOR GUIDING AND SUPPORTING A CONTINUOUSLY CAST SLAB

Bertrand Reymont, Zurich, Switzerland, assignor to Alfred Wertli Inc., Winterthur, Switzerland

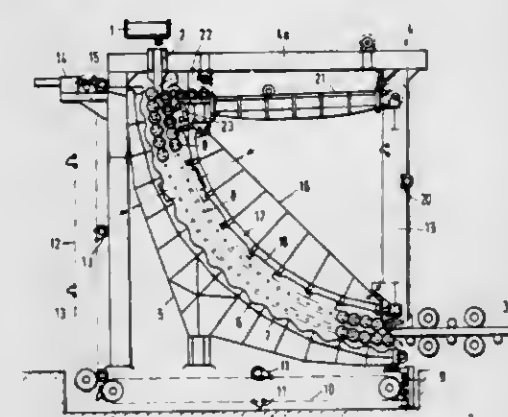
Filed Mar. 17, 1980, Ser. No. 131,115

Claims priority, application Fed. Rep. of Germany, Apr. 4, 1979, 2913440

Int. Cl.³ B22D 11/00

U.S. Cl. 164—448

10 Claims



1. An apparatus for guiding and supporting a continuously cast slab comprising
 - an elongated support surface, and
 - a plurality of rolls disposed on said support surface in freely rolling relation to travel along said support surface and to guide a slab therealong, each said roll having an axis of rotation perpendicular to the direction of travel along said support surface and having a distance wheel with an axis of rotation coextensive with said axis of rotation of said roll mounted at each end of each roll in contact with a distance wheel of an adjacent roll, said distance wheels of each alternating roll being fixedly mounted thereon and non-rotatable relative to their associated alternating roll and the remainder of said rolls having said distance wheels rotatably mounted thereon for rotation relative to their associated roll.

4,313,489

TURNDOWN INDICATOR FOR ROTARY REGENERATIVE HEAT EXCHANGER

Richard F. Stockman, Friendship, N.Y., assignor to The Air Preheater Company, Inc., Wellsville, N.Y.

Filed Feb. 22, 1980, Ser. No. 123,590

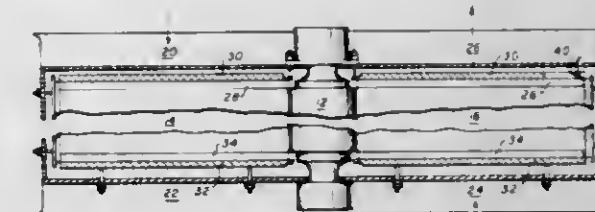
Int. Cl.³ F28D 19/00

U.S. Cl. 165—9

4 Claims

1. In combination with a rotary regenerative heat exchange apparatus having a hollow cylinder rotor, a central rotor post about which the rotor rotates, a mass of heat absorbent material carried within the rotor, a housing surrounding the rotor including inlet and outlet ducts at opposite ends thereof for

establishing a first fluid passageway for passing a heating fluid through the rotor and a second fluid passageway for passing a fluid to be heated through the rotor in a direction opposite to the flow of the heating fluid, a sector plate disposed at the hot end of the rotor at a location intermediate the end of the rotor and the rotor housing adapted to maintain the heating fluid entering the rotor separate from the heated fluid leaving the rotor and a plurality of radial seals mounted on the end face of the rotor at spaced intervals about the rotor post so as to contact the sector plate and thereby establish a sealing relationship between the rotor and the sector plate; a turndown indicator comprising:



- a fixed length of flexible tubular cable housing extending from the sector plate through the rotor housing to a location external thereto;
- a flexible cable adapted to move slidably through said tubular cable housing, said flexible cable having a first end extending out of the end of said tubular cable housing located external to the rotor housing and a second end extending out of the opposite end of said tubular cable housing to a location in close proximity with the radial seals; and
- indicator means operatively associated with said flexible cable for indicating the amount of displacement of said flexible cable from a set position.

4,313,490

HEAT EXCHANGER

Hermann Heeren, Nuremberg, and Liselotte Kraetschmer, Hanover, both of Fed. Rep. of Germany, assignors to Maschinenfabrik Augsburg Nurnberg Aktiengesellschaft, Nurnberg, Fed. Rep. of Germany

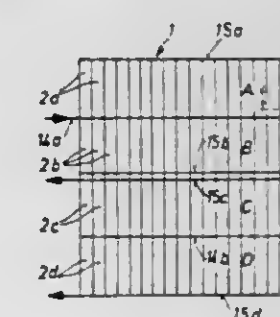
Division of Ser. No. 780,280, Mar. 23, 1977, Pat. No. 4,206,738. This application Jul. 2, 1979, Ser. No. 53,800

Claims priority, application Fed. Rep. of Germany, Mar. 23, 1976, 2612158; Feb. 25, 1977, 2708162; Feb. 25, 1977, 2708163

Int. Cl.³ F28F 7/00

U.S. Cl. 165—82

6 Claims



1. A heat exchanger for use with a draught generating shell of a dry cooling tower with tube-heat-exchanger elements of air-tube type for cooling a heat transfer medium by a gaseous medium having a considerably lower heat transfer coefficient than does said heat transfer medium, especially water by air, which comprises in combination:

a plurality of box-shaped heat exchange elements each of which includes substantially horizontal top and bottom wall means spaced from each other, flexurally soft side wall means interconnecting said top and bottom wall means so that said heat exchanges elements are closed on all sides, and tubes substantially parallel to said flexurally

soft side walls and substantially perpendicular to said top and bottom wall means respectively for conveying gaseous medium through said tubes, each of said heat exchange elements being provided only with inlet and outlet means for conveying said heat transfer medium into and out of said heat exchange elements respectively;

a frame structure for holding said heat exchanger elements, said frame structure being flexurally stiff in the area of said heat exchange elements, said heat exchange elements being spaced from one another and from said frame structure; and

pressure-resistant filling compound filling said space between said heat exchange elements and said space between said heat exchange elements and said frame structure.

4,313,491

COILED HEAT EXCHANGER

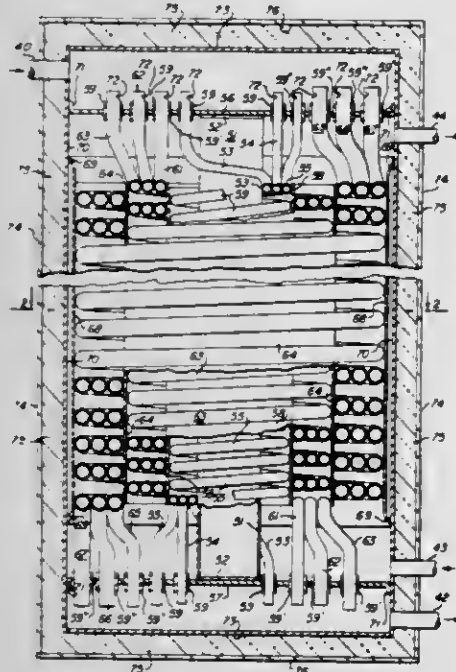
Victor D. Molitor, Denver, Colo., assignor to Molitor Industries, Inc., Englewood, Colo.

Division of Ser. No. 920,660, Jun. 30, 1978, abandoned. This application Feb. 19, 1980, Ser. No. 122,305

Int. Cl.³ F28F 9/22; F28D 7/02, 7/04

U.S. Cl. 165—83

3 Claims



1. A heat exchanger comprising:

a central cylinder;

a tube forming a spiral coil in pressure contact with said central cylinder;

a series of additional tubes forming spiral coils in lateral relation to and having essentially the same spiral as said first coil, the turns of each coil being in pressure contact with the turns of the next inner coil;

a sheath in pressure contact with the outermost coil, whereby a spiral path provides for flow of a liquid between said coil turns from one end of said coils to the other, and whereby said liquid follows an elongated path corresponding to the path of travel of said liquid within said coils;

means for supplying a first liquid to one end of each tube;

means for withdrawing said first liquid from the opposite end of each said tube;

means for supplying a second liquid to the spiral path between turns of said coils, at one end of said coils;

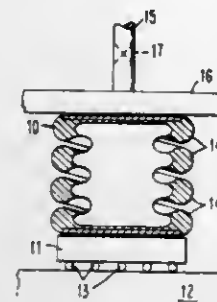
means for withdrawing said second liquid from said spiral path at the opposite end of said coils;

an outward offset at each end of said sheath; and

an outer cylinder to which said offsets are attached, the space between said sheath and said outer cylinder permitting lateral expansion of said coils and sheath.

4,313,492
MICRO HELIX THERMO CAPSULE
Frank E. Andros, Binghamton, N.Y., and Robert J. E. Shay, Salisbury, N.C., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 20, 1979, Ser. No. 105,677
Int. Cl.³ F28D 15/00
U.S. Cl. 165—104.26

6 Claims



1. A heat transfer device comprising a closed container and a quantity of coolant liquid therein, said container comprising a flexible cylindrical bellows having a helical convolution extending from one end to the other end to provide at least one capillary passage therein joining the inside opposite ends of said container, said capillary passage having an interior cross section selected to provide capillary flow from one end of said container to the other end, one end of said container being juxtaposed to a heat source, and the other end of said container being juxtaposed to a heat sink.

4,313,493

FORCED AIR UNIT

Akira Kawase; Masao Takouchi; Yoshio Tsuji; Sadao Mitsumeri, and Susumu Miyazaki, all of Tokyo, Japan, assignors to Tokyo Gas Co. Ltd. and Hitachi Seisakusho Co., Ltd., both of Japan

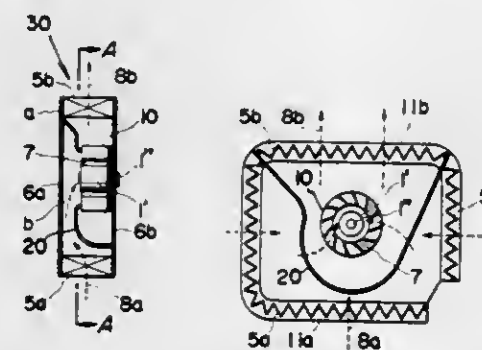
Continuation of Ser. No. 729,703, Dec. 13, 1976, abandoned.

This application Jan. 15, 1980, Ser. No. 112,230

Int. Cl.³ F24H 3/06

U.S. Cl. 165—122

11 Claims



1. A forced-air unit comprising a front cover member, a rear cover member connected to and spaced from said front cover member defining a unit housing having a depth between said cover members and a periphery, heat exchanger means extending along the substantial portion of said housing periphery, a sirocco fan rotatably mounted in said unit housing on an axis of rotation extending in the depth direction of said unit housing, said fan having a central inlet area and an annular outlet area for moving air radially outwardly of said annular outlet area and axially inwardly of said central inlet area when said fan rotates, a motor connected to said fan for rotating said fan to induce air axially into said inlet area and radially out through said outlet area, and a fan casing connected in said unit housing extending from said cover members and over said fan and having an inlet opening over said inlet area of said fan, said casing intersecting said heat exchanger means at two spaced locations thereof on said housing periphery, said fan casing defining with said front cover member an inlet space and said casing including an outlet area covering a portion of said

housing periphery between said two spaced locations of said heat exchanger means defining an outlet port with said rear cover member, the remainder of said housing periphery comprising a housing inlet port for said inlet space whereby, with the rotation of said fan, a portion of air is caused to move radially inwardly of a portion of said heat exchange means through said inlet port and into said inlet space, around said fan casing in through said inlet opening of said fan casing and radially outwardly through said outlet port, said heat exchanger means disposed radially outwardly of said fan and substantially therearound and including at least one portion in said outlet port and at least one portion in said inlet port.

4,313,494

PLATE HEAT EXCHANGER

Folke Bengtsson, Stockholm, Sweden, assignor to Carl Johan Lockmans Ingenjörshyra, Stockholm, Sweden

PCT No. PCT/SE79/00115, § 371 Date Jan. 22, 1980, § 102(e)

Date Dec. 27, 1979, PCT Pub. No. WO79/01098, PCT Pub.

Date Dec. 13, 1979.

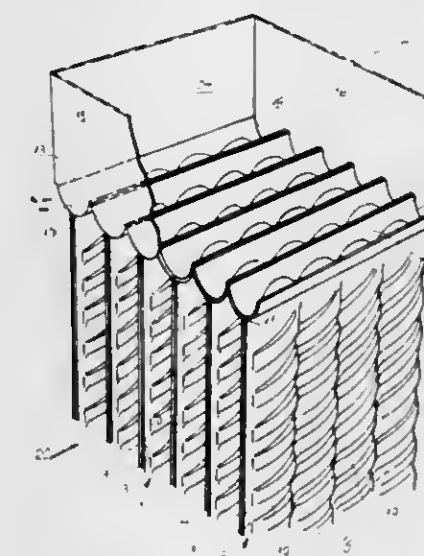
PCT Filed May 22, 1979, Ser. No. 189,928

Claims priority, application Sweden, May 22, 1978, 7805829

Int. Cl.³ F28F 3/12

U.S. Cl. 165—148

10 Claims



1. A plate heat exchanger comprising a plurality of plates arranged in substantially parallel spaced relationship, each plate consisting of two sheets facing toward each other and welded along two parallel edges, said sheets being formed with longitudinal valleys, which facing toward each other form passages between the sheets when the sheets abut each other, said valleys being formed with impressed grooves extending transversely to the longitudinal direction of the valley and continuously from one outermost located valley to the outer outermost located valley, said grooves extending at a certain acute angle to the longitudinal direction of the valleys, said cross-sectional shape of the valleys being asymmetric relative to the longitudinal center line of the valley.

4,313,495

DOWNHOLE PUMP WITH PRESSURE LIMITER

John T. Brandell, Duncan, Okla., assignor to Halliburton Services, Duncan, Okla.

Filed Jun. 13, 1980, Ser. No. 159,305

Int. Cl.³ E21B 43/12

U.S. Cl. 166—53

50 Claims

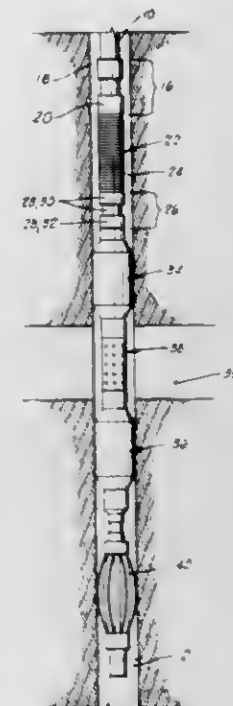
1. A pressure limiter for a downhole pump, said pressure limiter comprising:

a housing having first and second housing parts, and having a fluid passage means disposed therein for communication with a discharge of said downhole pump;

clutch means connected to said first and second housing parts and movable between an engaged position for preventing relative rotational movement between said first

and second housing parts and a disengaged position for allowing relative rotational movement between said first and second housing parts;

biasing means, operatively associated with said clutch means, for biasing said clutch means toward its engaged position; and



piston means, operatively associated with said clutch means and communicated with said fluid passageway, for overcoming said biasing means and for moving said clutch means to its disengaged position at a predetermined fluid pressure level in said fluid passageway.

4,313,496

WELLHEAD SHEARING APPARATUS

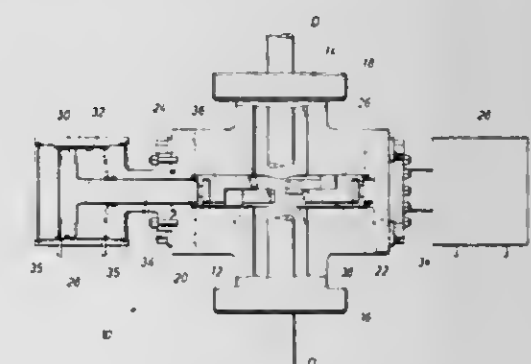
Eric G. Childs, Katy, and Friedrich E. Just, Houston, both of Tex., assignors to Cameron Iron Works, Inc., Houston, Tex.

Filed Apr. 22, 1980, Ser. No. 142,689

Int. Cl.³ E21B 29/08

U.S. Cl. 166—55

8 Claims



1. A ram-type shearing apparatus for a wellhead comprising a body having a bore therethrough and ram guideways extending laterally from opposite sides of the bore, a ram assembly comprising first and second rams, each located in one of the ram guideways, and means for reciprocating the rams into and from the bore, each ram having a cutting blade in position for the cutting edge of the blade on one ram to pass just below the cutting edge of the blade on the other to shear an object positioned in the bore when the rams are moved together into the bore, and each ram having an arm secured to its side and extending toward the other ram, one such arm overlapping its opposite arm to prevent vertical separation of the blades.

4,313,497

PRESSURE CONTROL VALVE

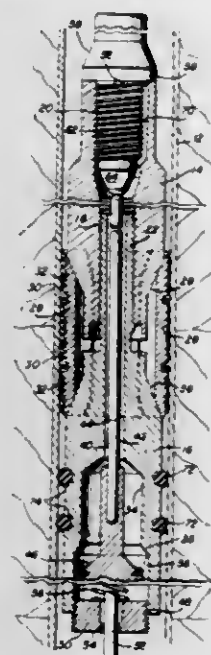
Rickey T. Graham, P.O. Box 1239, Bruceville, Tex. 76630

Filed Mar. 18, 1980, Ser. No. 131,550

Int. Cl.³ E21B 23/06

U.S. Cl. 166—124

10 Claims



1. A pressure control valve including upper and lower tubular bodies each including upper and lower ends, the lower and upper ends of said upper and lower bodies, respectively, including axially spaced downwardly and upwardly tapering outer conical wedge surface portions, a plurality of wedge surface equipped slips spaced about said wedge surface portions and expandable and retractable radially of said bodies upon movement of said bodies toward and away from each other, one of said bodies including an externally threaded tubular extension projecting toward and threaded into the adjacent end of the other body, said lower body defining a downward facing valve seat, a valve member including an upstanding shank and an enlarged head on the lower end of said shank, said valve member being reciprocally received in said lower member with said head opposing and upwardly displaceable against said seat and said shank projecting upwardly through said seat, said lower body, said tubular extension and into said upper body, means connected between said lower body and valve member yieldingly biasing the latter upwardly relative to said seat, and a suspension member removably threaded into the upper end of said upper body, the threads on said upper body and suspension member being opposite to the threads on said extension and other body, and said suspension member being threadably advanceable into said upper body to engage and downwardly depress said stem and thus open said valve member.

4,313,498

MEANS FOR STABILIZING EQUIPMENT SUPPORTED IN AN ENCLOSURE

Eric J. Anderson, Bedford, England, assignor to Hayward Tyler Limited, Luton, England

Filed Aug. 28, 1979, Ser. No. 70,289

Claims priority, application United Kingdom, Aug. 29, 1978, 34808/78

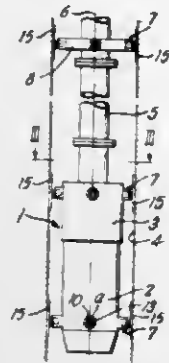
Int. Cl.³ E21B 40/00

U.S. Cl. 166—206

9 Claims

1. Means for locking apparatus in a tube or frame having a longitudinal axis, including a plurality of locking devices operative between the apparatus and the tube or frame and having an engaging condition for preventing relative lateral movement between the apparatus and the tube or frame, the locking devices including a cam, at least one counterweight biasing the cam outwardly to a position, in use, to take up lateral free play between the apparatus and the tube or frame to thereby prevent said relative lateral movement, each said locking device

comprising a U-shaped bracket, and a shaft pivotably mounted about an axis in the arms of the U-shaped bracket, the cam being fast on said shaft and said at least one counterweight also being fast on said shaft offset from the axis thereof and arranged to bias the cam to an engaging position, and external means for removing the apparatus from the tube or frame in a longitudinal direction, the apparatus being movable freely against the bias of the cams in said longitudinal direction by said external means.



4,313,499

SUBTERRANEAN GASIFICATION OF BITUMINOUS COAL

Shirley C. Tsai, Pittsburgh; Richard H. Graham, O'Hara Township, Allegheny County, and Robin R. Oder, Export, all of Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Jul. 21, 1980, Ser. No. 170,780

Int. Cl.³ C10J 5/00; E21B 43/243, 43/247; E21C 43/00

U.S. Cl. 166—248

15 Claims

1. In the underground gasification of a swellable bituminous coal by the injection of air into a high gas-flow channel between an injection well and a production well accompanied by the concurrent underground partial combustion and gasification of said coal, a method for producing the high gas-flow channel by reverse combustion and for pretreating and conditioning the coal proximate to said channel before said partial combustion and gasification is initiated which comprises the steps (a) injecting air heated to a temperature between about 100° C. and up to the softening temperature of the coal into said injection well through a low gas-flow path to said production well and starting a fire in said coal at the production well, whereby reverse combustion is initiated, and (b) continuing the injection of said heated air into said injection well at an appropriate combination of temperature and flow rate and for sufficient time to substantially reduce the swelling and increase the permeability of the coal proximate to the link until the reverse combustion flame front approaches the injection well producing a high gas-flow channel through the coal between said wells.

4,313,500

SACRIFICIAL ADSORBATE FOR SURFACTANTS UTILIZED IN CHEMICAL FLOODS OF ENHANCED OIL RECOVERY OPERATIONS

James S. Johnson, Jr., Oak Ridge, and Clyde G. Westmoreland, Rockwood, both of Tenn., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Aug. 20, 1980, Ser. No. 179,909

Int. Cl.³ E21B 43/22

U.S. Cl. 166—273

7 Claims

1. An improvement in the method of enhanced oil recovery wherein a water-based emulsion containing a surfactant is injected into an oil-containing subterranean earth formation for displacing oil therefrom for recovery purposes, said improvement comprising the injection of a sufficient quantity of a

4,313,501

FIRE EXTINGUISHING SYSTEM OF THE TYPE INCLUDING CONTAINER AND DRIVEN PROBE AGAINST A SEAL FOR RELEASE OF MATERIAL

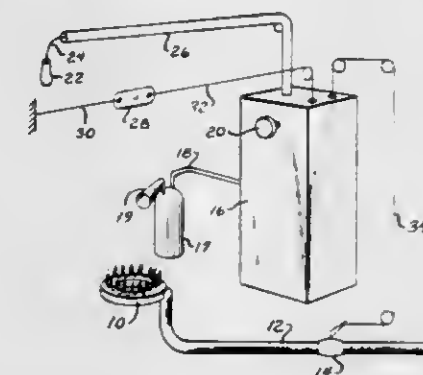
Robert D. Eckert, Wonder Lake, Ill., assignor to General Fire Extinguisher Corporation, Northbrook, Ill.

Filed May 12, 1980, Ser. No. 149,192

Int. Cl.³ A62C 37/12, 37/14

U.S. Cl. 169—58

7 Claims



1. In a fire extinguishing system including a vessel having an outlet normally sealed by a frangible seal, a probe aligned with said seal and mounted for movement in a path intersecting the seal, means for biasing the probe toward the seal and for driving the probe in the path with sufficient force to break the seal, and means for selectively restraining the probe in the path to prevent the breakage of the seal, the improvement wherein said restraining means includes a radially outwardly opening annular groove in said probe, at least one element having an exterior surface defined by a curve disposed such that said exterior surface partially enters said groove, a movable cam abutting said element oppositely of said groove and configured to cam said element partially into said groove, and a releasable latch for holding said cam in abutment with said element, said element, said cam and said groove further being constructed and arranged such that, upon release of said latch, said biasing and driving means will drive said probe to move said element against the unlatched cam and move the same to a position whereat the element escapes from the groove to fully release the probe.

4,313,502

ROCK EXTRACTOR APPARATUS AND METHOD

Daniel L. Nelson, Rte. 1, South, Box 175, Seminole, Tex. 79360

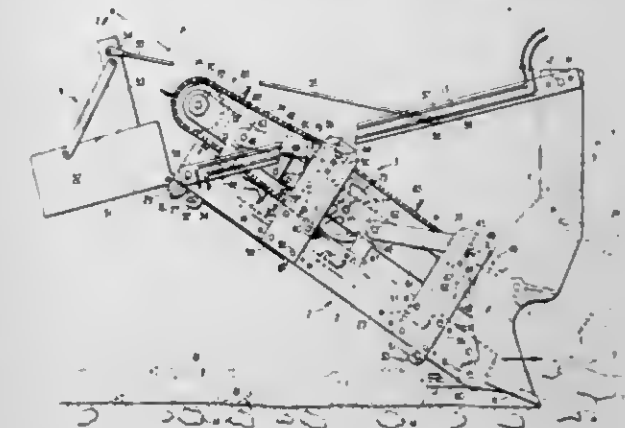
Filed Jan. 24, 1980, Ser. No. 115,059

Int. Cl.³ A01B 43/00

U.S. Cl. 171—63

28 Claims

1. An apparatus for picking up dirt comprising blade means for picking up the dirt, conveyor means for rapidly moving the dirt rearwardly away from said blade means and support means for carrying said blade means and conveyor means; said conveyor means being disposed above and behind the leading edge of said blade means and extending upwardly and rearwardly from said blade means; said conveyor means including main frame members joined together by connecting means, said main frame members having rotatably mounted thereon at one end a pair of drive gears and at the other end a pair of idler wheels around which there are carried endless chains having disposed between them a plurality of evenly spaced paddles, means connecting said drive gears to a motor for driving said drive gears, said main frame members having a front and back pair of parallel lever arms pivotally connected at their back ends to said main frame members and extending forwardly and



4,313,503

AGRICULTURAL IMPLEMENT

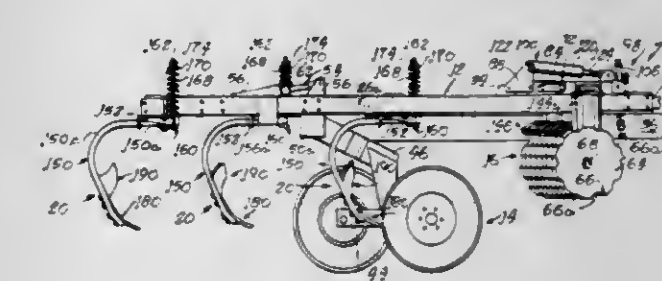
Garry R. Good, and Charles W. Anderson, both of Kewanee, Ill., assignors to Chromalloy American Corporation, St. Louis, Mo.

Filed Jul. 6, 1979, Ser. No. 55,348

Int. Cl.³ A01B 35/18

U.S. Cl. 172—140

9 Claims



1. An agricultural implement comprising, in combination, a generally planar primary frame having front and rear ends and defining a longitudinal axis, hitch means connected to the front end of said primary frame for enabling said primary frame to be drawn generally in the direction of its longitudinal axis, a secondary support frame juxtaposed to said primary frame intermediate said front and rear ends thereof, said secondary support frame extending substantially transverse to the longitudinal axis of said primary frame and having a generally planar framework comprising fixedly connected forward and rearward frame members, pairs of laterally spaced parallel links pivotally connected at their opposite ends, respectively, to one of said forward and rearward frame members of said secondary support frame and to said primary frame so as to define at least two parallelogram linkage arrangements interconnecting said one of said frame members to said primary frame, at least one depth control adjusting screw connecting the other of said forward and rearward frame members of said secondary support frame to said primary frame and cooperating with said parallelogram linkage arrangements so as to support said secondary support frame in generally parallel relation to the plane of said primary frame and enable selective adjustment of said secondary support frame relative to said primary frame while maintaining said parallel relation therebetween,

first tool means comprising at least one gang of residue

cutting elements mounted on said secondary support frame for movement therewith relative to said primary frame,
 second tool means including a plurality of earth working tools mounted on said primary frame and spaced from said secondary support frame,
 and wheel means mounted on said primary frame and selectively adjustable relative to said primary frame to enable raising of said primary frame and said secondary support frame to positions wherein said first and second tool means are raised from the ground for transport of said implement, and to enable lowering of said primary frame and secondary support frame to positions facilitating ground engagement of said first and second tool means.

4,313,504

TANDEM RIPPER ASSEMBLY

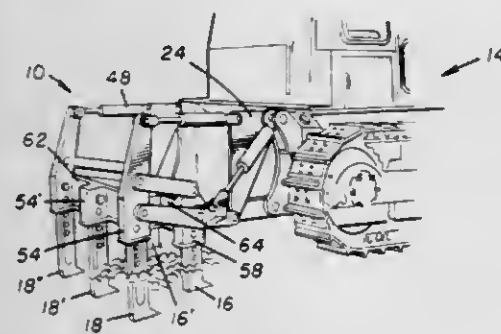
Robert L. Fischer, New Lenox, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Aug. 13, 1979, Ser. No. 102,198

Int. Cl.³ A01B 63/118, 13/08; E02F 5/30

U.S. Cl. 172-382

8 Claims



1. A ripper assembly comprising
 a first ripper member (16),
 a second ripper member (18),
 connection means (20, 22, 24) for interconnecting said first (16) and second (18) ripper members for sequentially (1) lowering said first ripper member (16) to a vertical position below said second ripper member (18), and (2) lowering said second ripper member (18) to a vertical position below said first ripper member (16),
 actuating means (44) for moving said connection means generally vertically, and
 tilt means (48) for tilting the second ripper member (18) relative to the connection means (20, 22, 24) and further wherein said connection means (20, 22, 24) is responsive to said tilt means (48) for imparting substantially the same tilt to the first ripper member (16).

4,313,505

ROTARY IMPACT CLUTCH

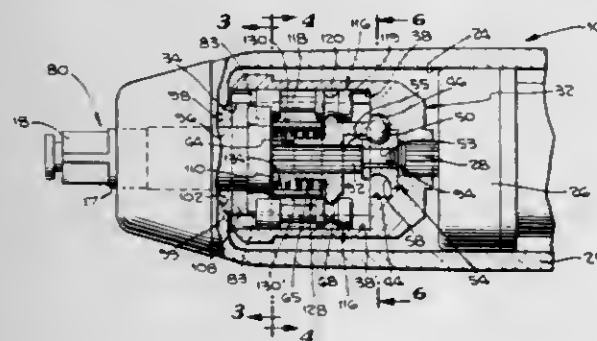
David H. Silvern, Los Angeles, Calif., assignor to Rodac Pneumatic Tools, Carson, Calif.

Filed Aug. 27, 1979, Ser. No. 70,149

Int. Cl.³ B25D 15/02

U.S. Cl. 173-93.5

8 Claims



1. In an impact clutch of the type embodying parts including a hammer and an anvil, both of which are rotatable about an

axis, cylindrical dog pins constructed to have sliding movement with respect to the hammer so that the dog pins come into position to impact against the anvil, cam mechanism having means engageable with the dog pins for imparting the axial movement to the dog pins into the path of rotation of the anvil, the improvement comprising the hammer having arcuate axial grooves in a wall thereof which are open at only one side in which the dog pins are mounted for sliding axial movement and a circular member spaced from said wall separate from said means spaced from said wall and positioned with respect to the dog pins and the member having axial grooves so as to constrain the dog pins to be held in the grooves.

4,313,506

DRILL CUTTER BIT

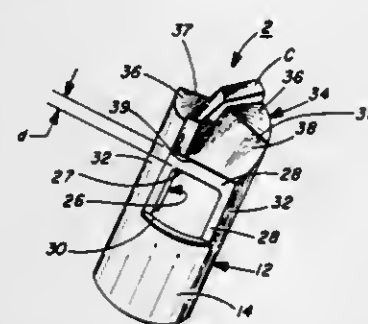
Thomas L. O'Connell, 9590 Jackson St., Mentor, Ohio 44060

Filed Sep. 10, 1980, Ser. No. 186,204

Int. Cl.³ E21B 10/58

U.S. Cl. 175-410

23 Claims



1. A cutter bit for drills having good drilling performance characteristics in relatively soft rock formations as well as in medium and hard rock formations comprising:

a body defined by an elongated shank portion having a bore extending from an open end thereof and a head portion made integral with and extending outwardly from said shank portion

said head portion including a transversely extending slot opening therefrom and adapted to receive a plate-like insert cutter element therein,

said head portion having multiple work surfaces including a first pair of oppositely disposed tapered heel surfaces extending downwardly and outwardly in a direction away from the longitudinal central axis of said bore, a second pair of oppositely disposed tapered compression surfaces extending downwardly and outwardly in a direction away from said longitudinal central axis, said second pair of tapered compression surfaces being disposed at an inclined angle greater than that of said first pair of tapered heel surfaces to progressively reduce drill cuttings to a relatively dust-like consistency,

the respective surfaces of said first pair of tapered heel surfaces being located on opposite sides of said slot, and the respective surfaces of said second pair of tapered compression surfaces being located on opposite sides of said slot, said shank portion having an oppositely disposed pair of dust collection openings disposed below said head portion and in communication with said bore for removing said dust-like material formed during drilling,

said second pair of tapered compression surfaces extending downwardly toward the respective of said dust collection openings, and

said first pair of tapered heel surfaces being generally conical in side elevation and said second pair of tapered compression surfaces being generally planar in side elevation.

4,313,507

WEIGHT PORTIONING METHOD AND APPARATUS

Gordon W. Hays, P.O. Box 532, Cedar Rapids, Iowa 52406

Continuation of Ser. No. 884,824, Mar. 9, 1978, abandoned,

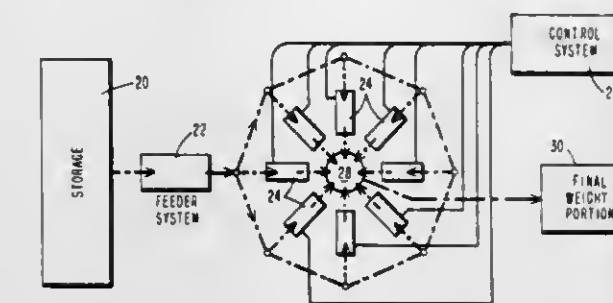
which is a continuation of Ser. No. 679,348, Apr. 22, 1976,

abandoned. This application Jul. 3, 1980, Ser. No. 165,570

Int. Cl.³ G01G 13/00

U.S. Cl. 177-1

12 Claims



1. A method for grouping a population of articles of varying weights into a portion having a weight at least equal to a final target weight comprising the steps of:

determining the average weight of the articles,
 forming an initial weight station having an initial target weight smaller than the final target weight by a predetermined amount which is equal to the average weight plus a selected fraction of the average weight,

setting said selected fraction of the average weight so that, as successive groups of articles from the population of articles achieve the initial target weight in said initial weight station, the frequency of occurrence of the weight differences between the actual weights of said successive groups of articles in said initial weight station and the final target weight corresponds to the frequency of occurrence of individual weights of articles in the population of articles,

transporting articles from the population of articles to said initial weight station until the actual weight of the group of articles in said initial weight station is at least equal to the initial target weight,

transporting a number of articles from the population of articles to a plurality of trim scales,
 weighing the articles on each of said plurality of trim scales, selecting articles from said plurality of trim scales having a weight at least equal to and which most closely approximates the difference between the actual weight of the group of articles in said initial weight station and the final target weight, and

combining the articles selected from said plurality of trim scales and the group of articles in said initial weight station to form said portion.

4,313,508

MAIL-WEIGHING MACHINE

Theo Düppre, Kaiserslautern, Fed. Rep. of Germany, assignor to Kuno Sauer, Sulzbach, Fed. Rep. of Germany

Filed Oct. 31, 1979, Ser. No. 90,005

Claims priority, application Fed. Rep. of Germany, Nov. 3, 1978, 2847755

Int. Cl.³ G01G 23/22, 19/52

U.S. Cl. 177-25

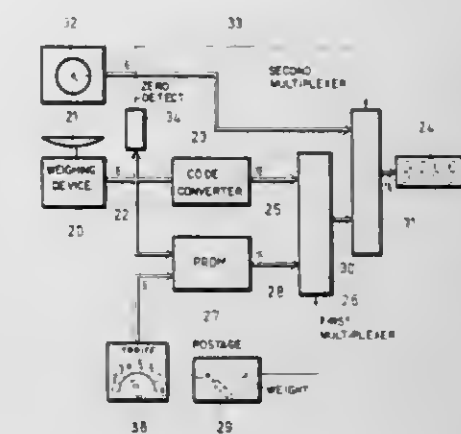
18 Claims

1. A mail-weighing machine with a weight-measuring device which is connected to a codifier with a digital display device, comprising:

a programmable set-value store containing postage amounts for corresponding different mail weights, the values determined by the weight-measuring device being supplied in digital form to said set-value store, said set-value store thereby producing a digital output signal indicative of the postage amount for the supplied value;

a multiplexer, the codifier and the set-value store being connected with the display device through said multiplexer which alternatively transmits the output signal of

the codifier or that of the set-value store to the display device; and
 an additional source of information which delivers information to be displayed to the display device and is connected



with an input of a second multiplexer, the output of the first multiplexer being connected with a second input of the second multiplexer, the output of the second multiplexer controlling the display device.

4,313,509

WEIGHING APPARATUS

Mathijs M. J. Engels, Koudekerk, Netherlands, assignor to Maatschappij van Berkel's Patent N.V., Leidschendam, Netherlands

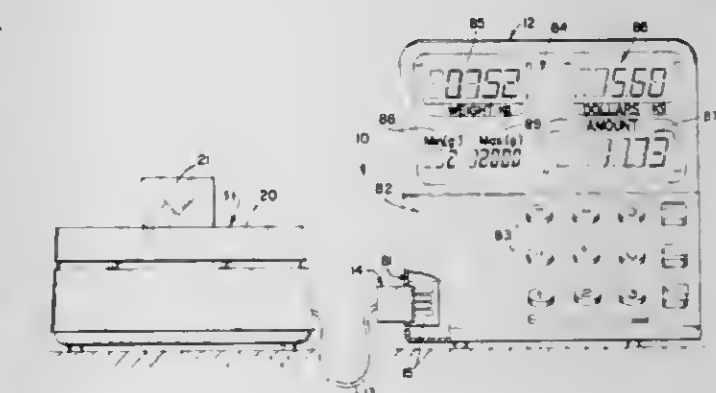
Filed Feb. 4, 1980, Ser. No. 118,568

Claims priority, application Fed. Rep. of Germany, Feb. 5, 1979, 2904261

Int. Cl.³ G01G 23/01

U.S. Cl. 177-50

10 Claims



1. In a weighing apparatus for measuring loads and for calculating the value of loads, which apparatus includes a weighing device having an unadjustable movement for producing an electrical signal corresponding to the load being weighed, an evaluating device for digitally reading out the weight of the load and/or the value of the load according to a given value schedule, and cable means permanently connected to the weighing device and detachably connectable to the evaluating device to transmit the electrical weight measuring signals from the weighing device to the evaluating device, the improvement in means for calibrating the movement of provide accurate weight measurements and to enable the weighing device to be used with any evaluating device comprising, a data storage unit, said data storage unit having predetermined constants calibrating the weighing device to cause the unit to produce correct weight measurements when the unit is connected to any evaluating device, and means permanently connecting said data storage unit to cable means of the weighing device.

4,313,510

WEIGHING SCALE WITH DYNAMIC ZERO ERROR CORRECTION

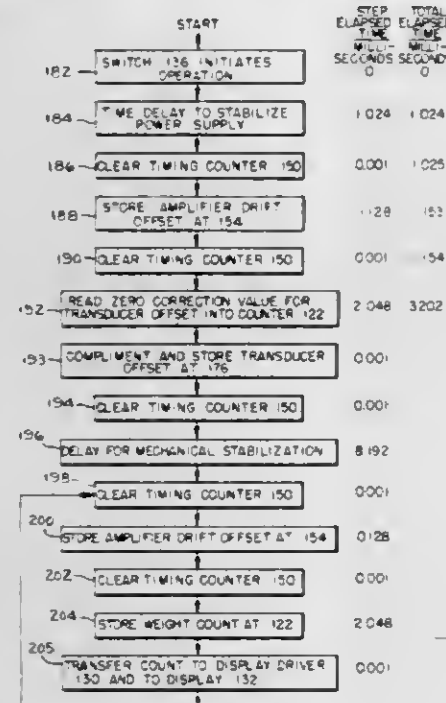
Harold W. Tomlinson, Jr., Liverpool, N.Y., assignor to General Electric Company, New York, N.Y.

Filed Nov. 24, 1980, Ser. No. 209,751

Int. Cl.³ G01G 13/14

U.S. Cl. 177—165

10 Claims



1. A weighing scale comprising
 - at least one mechanical-to-electrical signal transducer for sensing a weight to be weighed mechanically and for providing an electrical signal output indicative of a sensed weight;
 - a weight registering circuit and a weight indicator connected to said transducer,
 - said transducer being operable to produce a zero weight signal value which may vary in response to ambient conditions such as temperature,
 - said transducer having a finite time delay in producing an electrical signal output in response to a weight to be measured,
 - a fast acting pressure responsive switching means operable to provide a switching function in response to the initiation of the placement of a weight to be weighed upon said scale,
 - said weight registering circuit including means operable in response to said switching function of said pressure responsive switching means to register and store a zero weight signal value before said signal transducer begins sensing the weight to be weighed,
 - said weight registering circuit then being operable to register the difference between the zero weight signal value and the signal from said transducer while sensing the weight to be weighed for indication as the true weight.

4,313,511

LAND VEHICLE

Wayne J. Soo Hoo, 4861 N. Paulina, Chicago, Ill. 60640

Filed Sep. 8, 1980, Ser. No. 185,033

Int. Cl.³ B62D 9/02

U.S. Cl. 180—21

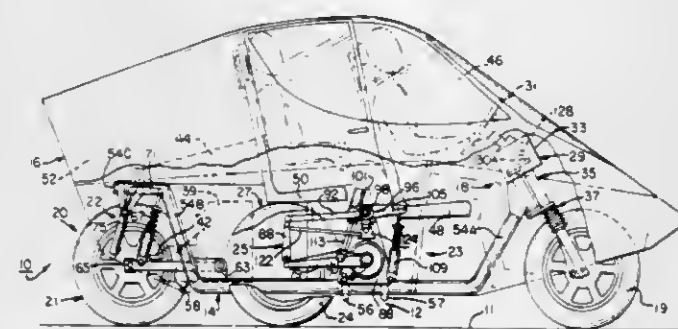
10 Claims

1. In a land vehicle having a body rollably supported above the ground and mounted on a chassis having a frame provided with a plurality of wheels, at least one of which being powered to propel the vehicle along the ground, the arrangement comprising:

- a front wheel assembly being mounted on the frame on the longitudinal axis thereof and having a front wheel adapted to roll along the ground;
- a rear wheel assembly mounted on the frame on the longitudinal axis thereof spaced from the front wheel assembly and having a rear wheel adapted to roll along the ground in substantially the same track as the front wheel;

a pair of side wheel assemblies being mounted on the frame opposite one another between said front and rear wheel assemblies spaced equally at opposite sides of the longitudinal axis of the frame, and having right and left side wheels adapted to roll along a pair of right and left side tracks;

a steering mechanism mounted on the frame for controlling the attitude of one of said front and rear wheel assemblies



- for steering purposes, each one of the remaining wheel assemblies including suspension means, said suspension means including a first outwardly extending suspension arm pivotally connected to said frame and having its wheel mounted rotatably thereon, control means for pushing downwardly on the side wheel assembly suspension arms in response to upwardly directed forces acting on one of said front and rear wheels and alternatively for pushing downwardly on the remaining one of the suspension arms in response to upwardly directed forces acting on said side wheel assemblies.

4,313,512

AIR CUSHION VEHICLE

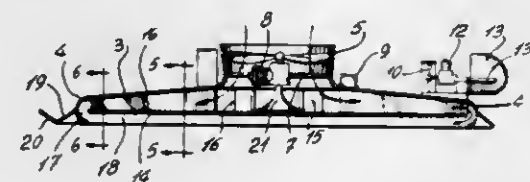
Mario Jutras, 2430 Boulogne Ave., Longueuil, Canada J4L 2J6

Filed Feb. 11, 1980, Ser. No. 120,262

Int. Cl.³ B60V 1/04, 1/06

U.S. Cl. 180—117

11 Claims



1. An air cushion vehicle comprising a body shell having an inwardly and downwardly curved peripheral rigid skirt and a top wall, and a plenum chamber open to the surface over which the vehicle rides; further having an upright air inlet funnel mounted on said top wall, open at the top and communicating with the interior of said body shell; a motor-driven fan mounted inside said funnel; an air flow chamber extending from underneath said funnel to the said peripheral skirt and bounded by said top wall and having a horizontal floor which stops short of said peripheral wall, thus defining a peripheral opening, whereby air passes from said air flow chamber to said plenum chamber; said air flow chamber having a plurality of equally spaced-apart vanes radiating outwardly from under the circumferential edge of said funnel and terminating short of said peripheral wall, said vanes defining a plurality of separate channels in said air flow chamber, whereby air turbulence is substantially eliminated and substantially uniform air flow along the periphery of said body shell is obtained, said peripheral skirt being provided with a downwardly, outwardly extending flange, the lower edge of which lies in substantially the same plane as the bottom edge of said peripheral skirt to provide stability and extra lift to the vehicle.

same plane as the bottom edge of said peripheral skirt to provide stability and extra lift to the vehicle.

2. An air cushion vehicle as defined in claim 1, wherein said body shell is in the shape of a rectangle.

3. An air cushion vehicle as defined in claim 2, wherein a longitudinally-oriented propeller is mounted on the said top wall of the vehicle adjacent the aft side of the same.

4,313,513

SELF REGULATING AIR BEARING

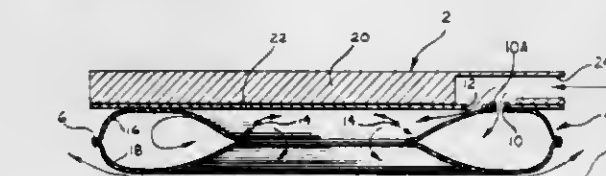
Melvin D. Terry, P.O. Box 7174, Seattle, Wash. 98133

Filed Jun. 16, 1980, Ser. No. 159,488

Int. Cl.³ B60V 1/16

U.S. Cl. 180—124

3 Claims



1. A fluid bearing structure comprising:
 - a flexible hollow structure having a closed inflatable exterior portion surrounding a central plenum area, said flexible hollow structure including at least one opening in its upper surface to receive fluid under pressure to cause inflation of the hollow structure and at least one other opening to provide communication between the interior of the hollow structure and the plenum;
 - an overlying, load supporting platform having a substantially flat surface on the lower portion thereof forming an upper boundary of the plenum, said load supporting platform including a conduit for transmitting fluid under pressure, said conduit including a first opening in alignment with the opening in the hollow structure for receiving fluid under pressure and a second opening in communication with the plenum, said second opening being located such that when the bearing is deflated, the upper surface of the hollow structure prevents fluid flow there-through, preventing pressurization of the plenum until the bearing is partially inflated.

4,313,514

STEERING APPARATUS FOR VEHICLES

Yoshimi Furukawa, Tokyo, and Shoichi Sano, Tokorozawa, both of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

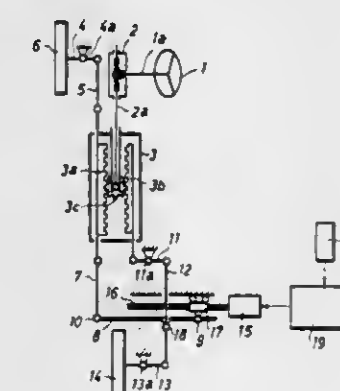
Filed Dec. 28, 1979, Ser. No. 107,717

Claims priority, application Japan, Dec. 29, 1978, 53/163678

Int. Cl.³ B62D 5/06

U.S. Cl. 180—143

14 Claims



1. A steering apparatus for a four-wheeled vehicle, comprising:
 - first means for transmitting steering movement of a steering wheel to front wheels of said vehicle;

second means for transmitting said steering movement to rear wheels of said vehicle;

said first and second means being operable in first directions of operation causing said front and rear wheels to be steered in the same direction, and in second directions of operation causing said front and rear wheels to be steered in opposite directions; and

third means for urging, in response to the relative speed of said vehicle, said first and second means to operate in said first directions of operation at relatively high values of said speed and in said second directions of operation at relatively low values of said speed.

4,313,515

DEVICE FOR THE CONTROL OF THE TRAVELING SPEED OF A MOTOR VEHICLE

Arnold Mann, Bieber, and Bernhard Stier, Kelkheim-Fischbach, both of Fed. Rep. of Germany, assignors to VDO Adolf Schindling AG, Frankfurt am Main, Fed. Rep. of Germany

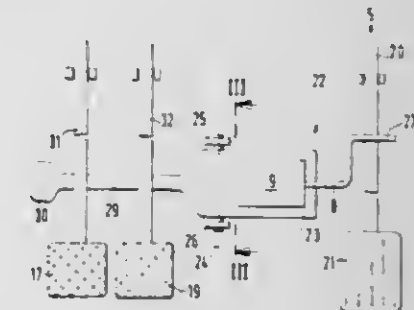
Filed Dec. 26, 1979, Ser. No. 107,227

Claims priority, application Fed. Rep. of Germany, Dec. 27, 1978, 2856294

Int. Cl.³ B60K 31/00

U.S. Cl. 180—179

13 Claims



1. In a device for the control of the traveling speed of a motor vehicle with an electrical controller which compares the prevailing actual speed with a desired nominal speed and contains a regulating unit electromotorically controlled by the control deviation, which regulating unit is coupled directly or indirectly with an element, which influences the fuel-air mixture supplied to the vehicle motor, the improvement wherein said regulating unit has a movable part, coupling means for operatively coupling said movable part with the element, said coupling means for being operatively connected with a brake pedal and/or a clutch pedal of the vehicle in such a manner that during actuation of the brake pedal and/or the clutch pedal said coupling means is acted on so as to separate the regulating unit from the element, a spring-biased rocker is operatively connected with the brake pedal and/or the clutch pedal, said regulating unit is mounted on said rocker, said movable part of the regulating unit is formed as a rigid bar, said rigid bar is freely connected with the element.

4,313,516

AUTOMOBILE SNOW ASSEMBLY

D. A. Terry, Bayles Lake, Loda, Ill. 60948

Filed May 4, 1979, Ser. No. 36,033

Int. Cl.³ B62M 27/02; B62D 55/04

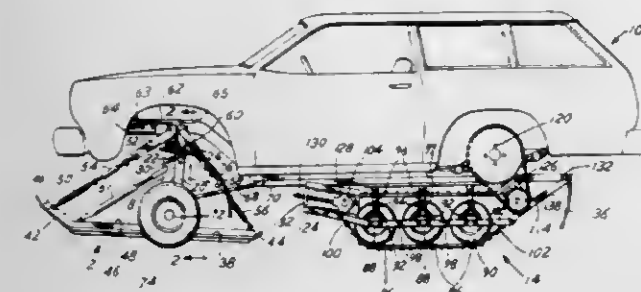
U.S. Cl. 180—185

22 Claims

1. A snow assembly for conversion for snow operation, of a vehicle which is normally only road operable and having tires mounted on the brake housings of the vehicle, said assembly comprising:

- bracket means,
- mounting means for mounting said bracket means to one of the vehicle brake housings when its tire is removed and

such that said bracket means extends downwardly from the brake housing;
ski means mounted to said bracket means adjacent the bottom of said bracket means,
track means for driving the vehicle,
a pair of rigid link means pivotally mounted to a least one of



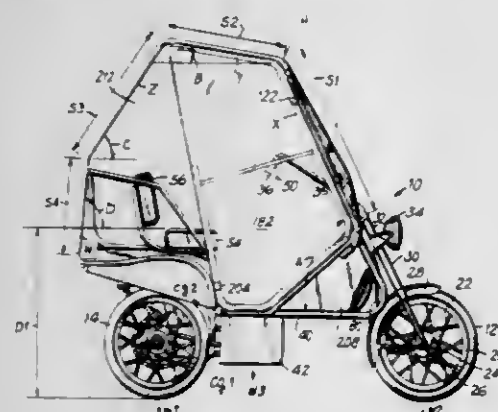
said bracket means and ski means, said link means including attaching means for pivotal attachment of one of said link means to said track means and the other of said link means to the vehicle to rigidly stabilize said bracket means and ski means in the direction of movement of the vehicle and prevent rotation of said bracket means on the brake housing.

4,313,517

LIGHTWEIGHT ELECTRICALLY DRIVEN THREE-WHEELED VEHICLE WITH LOW CENTER OF GRAVITY AND LIGHTWEIGHT SUPERSTRUCTURE INCLUDING IMPROVED BRAKING SYSTEM

Stuart Pivar, New York, N.Y., assignor to American Microcar, Inc., Farmingdale, N.Y.

Continuation-in-part of Ser. No. 963,282, Nov. 24, 1978, Pat. No. 4,237,995. This application Jan. 11, 1980, Ser. No. 111,199
Int. Cl.³ B60L 7/24; B62D 61/06; B62J 17/00; B62M 7/04
U.S. Cl. 180—216 31 Claims



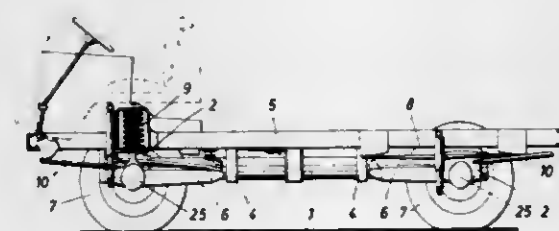
1. A vehicle comprising frame means adapted to support at least one passenger, a source of power, three wheels on and supporting said frame means for ground traversing movement, an electric motor coupled to and driving at least one of said wheels and being coupled to and driven by said source of power, said source of power being located relatively low in said vehicle and constituting a substantial portion of the weight of the vehicle whereby to define for said vehicle a relatively low center of gravity, said wheels defining respective axes of rotation and said center of gravity being substantially no higher than said axes, the source of power including a battery pack having a weight of at least about one hundred pounds, braking means for braking said vehicle inclusive of the weight of said battery pack, said braking means including mechanical and electromagnetic brakes cooperatively operable, a braking light, and a braking light circuit coupled to said light to supply electrical current to the light for operating the same when said braking means is operated, said braking means including means at least partly constituting said electromagnetic brakes for electromagnetically braking said vehicle by the use of said current and steering means coupled to one of said wheels and

including a yoke with two handles, said braking means including levers on said handles to control said mechanical brakes and rotary members on said handles to selectively actuate said batteries and electro-magnetic brakes.

4,313,518

FRAME, POWER TRAIN AND WHEEL ASSEMBLY Erich Ledwinka, and Milan Cvetnic, both Graz, Austria, assignors to Steyr-Daimler-Puch Aktiengesellschaft, Vienna, Austria

Filed Feb. 25, 1980, Ser. No. 124,514
Claims priority, application Austria, Mar. 1, 1979, 1532/79
Int. Cl.³ B60K 17/30; B60G 3/14
U.S. Cl. 180—233 3 Claims



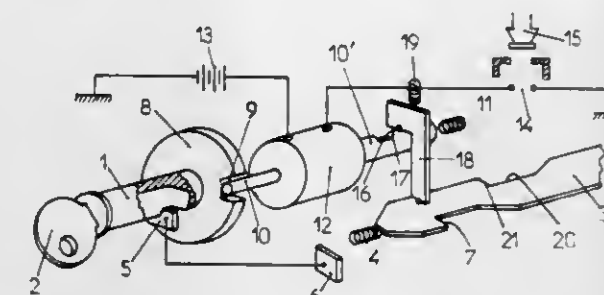
1. A frame, power train and wheel assembly for an all-wheel drive motor vehicle, comprising
a longitudinal carrying tube,
a rotatable propeller shaft extending in said carrying tube along the same,
body supports comprising two cross members spaced apart along and secured to said carrying tube, and two longitudinal members extending on opposite sides of and parallel to said carrying tube and secured to said cross members,
two axle assemblies spaced apart along said carrying tube, and
two spur gear differentials operatively connecting said propeller shaft to respective ones of said axle assemblies, each of said axle assemblies comprising
a gear housing flanged to said carrying tube,
first and second bevel pinions spaced apart along and rotatably mounted on a hollow tube in said gear housing and meshing with said differential,
first and second crown wheels disposed on opposite sides of said hollow tube and rotatably mounted in said gear housing and in mesh with said first and second bevel pinions, respectively,
two longitudinal control arms pivoted to one of said cross members on opposite sides of said carrying tube on a horizontal axis which is transverse to said carrying tube,
two stub axles disposed on opposite sides of said hollow tube and connected to respective ones of said control arms,
two road wheels rotatably mounted on respective ones of said stub axles,
first and second universal-joint shafts, each of which is connected by respective universal joints to one of said crown wheels and one of said road wheels,
a splash proofing shell tube enclosing each of said universal-joint shafts,
ball-type joints connecting each of said shell tubes to the adjacent stub axle and to the adjacent gear housing, respectively, and
an axially yieldable annular seal wherein each of said shell tubes is mounted.

4,313,519

VEHICLE SAFETY LOCK

Paul Lipschutz, Croissy, France, assignor to Neiman S.A., Courbevoie, France

Filed Jan. 5, 1979, Ser. No. 1,135
Claims priority, application France, Jan. 17, 1978, 78 01155
Int. Cl.³ B60R 25/00
U.S. Cl. 180—270 4 Claims



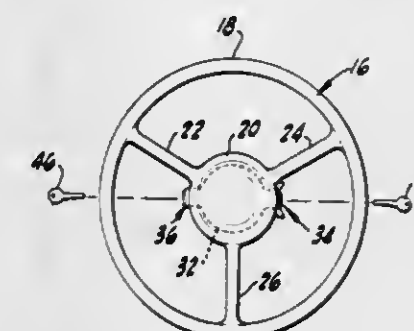
1. An anti-theft device for a vehicle having a safety belt incorporating a buckle having cooperating fixed and movable parts, comprising:
(a) a cylinder lock operated by a key and movable between a "parked" position to another position for control of the vehicle engine,
(b) a bolt controlled by said cylinder lock for locking an element essential to the driving of the vehicle,
(c) a plate attached to said cylinder lock for rotation therewith, and having an aperture therein,
(d) a plunger capable of entering said aperture only when said cylinder lock is in the "parked" position where the aperture is opposite to said plunger to effect locking of said plate and hence said cylinder,
(e) spring means for urging said plunger in a direction to effect entry thereof into said aperture,
(f) actuating means controlled by the buckle of said safety belt for effecting withdrawal of said plunger from said aperture to a retracted position when said safety belt is fastened within said buckle,
(g) a security blade controlled by said bolt, and
(h) further spring means to thrust said blade towards the said plunger, which comprises a notch which, in the retracted position, is opposite to said blade.

4,313,520

AUTOMOBILE IGNITION CIRCUIT CLOSING DEVICE

Lowell G. Chester, 713 Trancas St. #10, Napa, Calif. 94558
Filed May 21, 1979, Ser. No. 40,842

Int. Cl.³ B60R 25/04; H01H 27/00; B60R 16/04
U.S. Cl. 180—287 3 Claims



1. A vehicle ignition circuit closing device for a vehicle having a steering column with a portion of the steering column located in the cab of the vehicle comprising:
a. first key operated locking ignition switch being located on one side of the steering column portion within the cab of the vehicle;
b. second key operated locking ignition switch being located on the other side of the steering column within the cab of

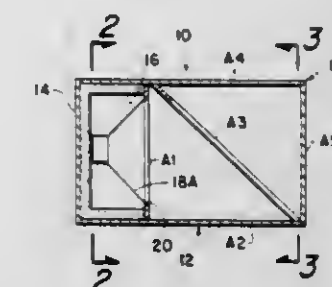
the vehicle, said first and second key operated locking ignition switches including first and second key openings which are located on said one and another side of the steering column respectively;
c. source of electrical energy, said first and second key operated ignition switches being electrically connected in parallel to said source of electrical energy and to the ignition circuit of an automobile.

4,313,521

SPEAKER HOUSING

M. Raymond Rodden, 4917 S. Braden Apt. 11F, Tulsa, Okla. 74135

Filed Jun. 16, 1980, Ser. No. 159,790
Int. Cl.³ H05K 5/00
U.S. Cl. 181—145 10 Claims



1. A loud speaker housing or cabinet, comprising:
(a) a closed chamber in the form of a first rectangular right prism, having a first wall with its two opposite edges attached to spaced, parallel, second and fourth walls, and a third wall parallel to said first wall and attached at its edges to said second and fourth wall;
(b) a divider wall positioned diagonally inside said four walls from one edge of said first wall to the opposite edge of said third wall;
(c) at least one opening in said first wall and a sound source positioned outside said chamber over said opening, facing toward said divider wall;
(d) a tapered opening in said divider wall of expanding exponential shape, the tapered end of said opening closest to said sound source, and the wider end farthest from said source;
whereby said sound energy is directed into a first of two triangular prismatic volumes, and passes through said opening in said divider into a second identical volume;
(e) side walls covering across the edges of four walls, fully enclose said two volumes; and
(f) at least a portion of at least one of said four surfaces enclosing said second triangular prismatic volume open, to permit issuance of sound energy from said second triangular prismatic volume.

4,313,522

STATIC PRESSURE REGAIN COUPLER FOR AN AIR DISTRIBUTION SYSTEM

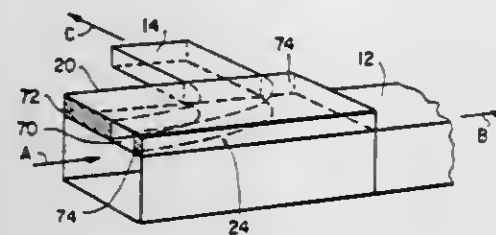
Dimitar Gorchev, Boston, Mass., and Karl U. Ingard, Kittery Point, Me., assignors to Miteco Corporation, Somerville, Mass.

Continuation-in-part of Ser. No. 944,133, Sep. 20, 1978, Pat. No. 4,182,430. This application Sep. 10, 1979, Ser. No. 73,604
Int. Cl.³ E04F 17/04

U.S. Cl. 181—224 11 Claims
1. Apparatus for coupling an airstream from an input duct to an output duct and at least one associated channel, comprising:
A. an input port having a cross-section substantially the same as the cross-section of said input duct and adapted to receive substantially all the air in said airstream,
B. an output port having a cross-section including at least two parts, the first of said parts having a substantially the same cross-section at its downstream end as said output duct and the second of said parts having substantially the

same cross-section at its downstream end as said associated channel, wherein said second part is contiguous to said first part.

C. a first airflow guide having lateral side walls defining said first part, said first airflow guide being adapted to pass a



first portion of said received air through said first part to said output duct.

D. a second airflow guide having lateral side walls defining said second part, said second airflow guide being adapted to pass a second portion of said received air through said second part to said associated channel.

4,313,523 AUTOMOTIVE EXHAUST SYSTEM INCORPORATING VENTURI TO REDUCE BACK PRESSURE

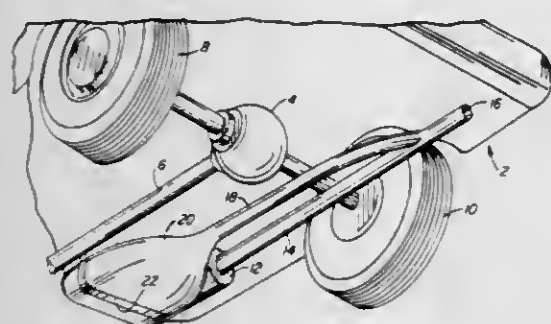
Dennis E. Copen, 11235 N. 15th St., Phoenix, Ariz. 85020

Filed Jun. 23, 1980, Ser. No. 162,125

Int. Cl.³ F01N 1/14

U.S. Cl. 181-263

7 Claims



1. An apparatus for modifying an exhaust system of a vehicle to reduce back pressure associated therewith, said exhaust system including a tailpipe having an outlet end, said apparatus comprising in combination:

- (a) a pipe having first and second ends;
- (b) means for forcing air into the first end of said pipe;
- (c) a coupling member having a tubular inlet portion coupled to the second end of said pipe for receiving forced air and having a semi-cylindrical outlet portion for abutting the tailpipe of the exhaust system and for discharging the forced air received by said tubular inlet portion; and
- (d) means for securing said semi-cylindrical outlet portion of said coupling member in abutting relationship with the tailpipe of the exhaust system and in overlying relationship with a hole formed within the tailpipe near the outlet end thereof for creating a venturi within the tailpipe and for injecting forced air discharged by said semi-cylindrical outlet portion of said coupling member into the tailpipe toward the outlet end thereof in order to create suction within the tailpipe for drawing exhaust gases away from the exhaust system.

4,313,524 BULK ACOUSTIC ABSORBER PANELS FOR USE IN HIGH SPEED GAS FLOW ENVIRONMENTS

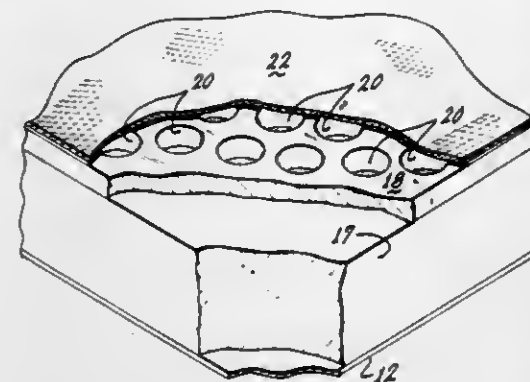
Philip M. Rose, Chula Vista, Calif., assignor to Rohr Industries, Inc., Chula Vista, Calif.

Filed Dec. 17, 1980, Ser. No. 217,209

Int. Cl.³ E04B 1/82; F01N 1/24

U.S. Cl. 181-291

5 Claims



1. A structurally efficient acoustic absorber panels comprising:

- a rigid open base member which comprises a back plate, end and side walls;
- acoustic absorber means disposed within the opening of said rigid base member;
- a rigid perforated plate is attached to said end and side walls for forming a cover for said opening of said rigid base member for enclosing said acoustic absorber means, the perforations of said perforated sheet are sufficient in number and cross-section to provide a large actual open area therethrough; and
- a layer of fine woven wire cloth material is adhered by adhesive means to the outer surface of said perforated sheet, the pores through said sheet of said wire cloth material provide a pre-determined flow through resistance through the combined perforated sheet and layer of wire cloth material,

whereby a high speed gas flow across said layer of fine woven wire cloth material encounters a minimum of surface resistance, and provides a high degree of sound absorption while substantially impervious to water, dust, chemical and various other contaminants.

4,313,525 CAR DOOR SAFETY INTERLOCK

Emory W. McDonald, Geneseo, Ill., assignor to Montgomery Elevator Company, Moline, Ill.

Filed Jun. 5, 1980, Ser. No. 156,771

Int. Cl.³ B66B 13/00

U.S. Cl. 187-57

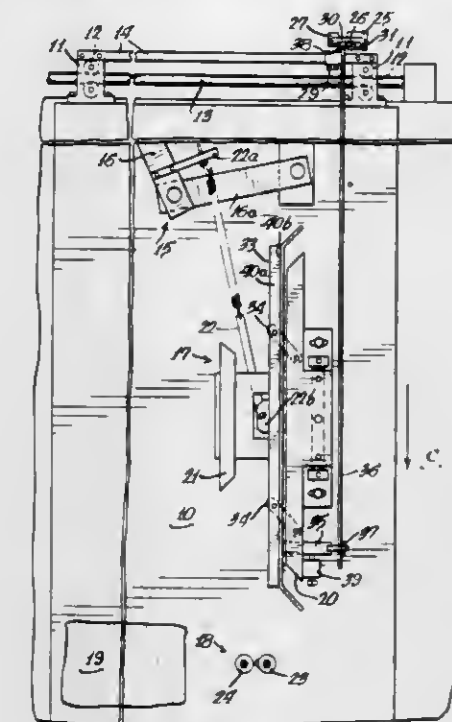
8 Claims

1. In an automatic operating mechanism for a power operated sliding door of an elevator car which travels in a hatchway that has a sliding hatch door at each landing, there being interengaging means on the car door and on each hatch door so that opening and closing of the car door at a landing also opens and closes the hatch door at said landing, a mechanical safety interlock to permit the elevator car door to be moved more than a critical distance from its closed position only when the elevator car is in a landing zone, said safety interlock comprising, in combination:

- a fixed interlock lug on the car frame above the car door;
- an interlock hook pivotally mounted on the car door, said hook having a normal position when the car door is closed in which a lug engaging portion thereof is aligned with said lug and spaced from the lug by said critical distance;
- a movable element on the car door which operatively engages the interlock hook so that movement of said element moves said hook from said normal position to a clearance

position in which its lug engaging portion is out of alignment with the interlock lug;

and element driving means mounted on the car door in a position to contact the interengaging means on a hatch door when the car door has moved part of said critical distance, said element driving means being thereafter



moved by said contact with said interengaging means to move said element and thereby move the hook to its clearance position before the car door moves the rest of the critical distance, whereby the car door can be moved more than said critical distance only when the car is in a landing zone.

4,313,526 DISC BRAKE CALIPER HAVING A SLIDING CYLINDER

Glyn P. R. Farr, Warwick, England, assignor to Lucas Industries Limited, Birmingham, England

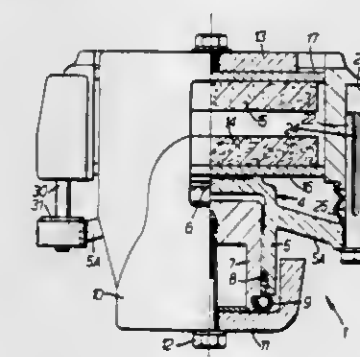
Filed Jan. 15, 1980, Ser. No. 112,361

Claims priority, application United Kingdom, Jan. 18, 1979, 01915/79

Int. Cl.³ F16D 55/224

U.S. Cl. 188-72.4

4 Claims



1. In a disc brake assembly comprising:

- (a) a carrier member adapted to be mounted in a fixed position adjacent a brake disc and including portions spanning the periphery of the brake disc;
- (b) a hydraulic cylinder slidably mounted on the carrier member on one side of the brake disc, the cylinder being closed at the end thereof adjacent the brake disc by an end wall;
- (c) a piston slidably mounted in the cylinder;
- (d) a first brake pad slidably mounted on the carrier member between the disc and said end wall of said cylinder;
- (e) a second brake pad slidably mounted on the carrier mem-

ber on the opposite side of the disc to the first brake pad; and

(f) a bridge member for transmitting actuating force from said piston to said second brake pad the improvement comprising said bridge member being an integral unitary member of generally U-shaped transverse cross-section with the central portion of said U-shape overlying said brake pads, the bridge member being retained in operative position solely by first releasable fastener means securing the bridge member to the piston and by a spring secured to the bridge member adjacent said second brake pad and slidably engaging radially inwardly directed surfaces of said carrier member.

4,313,527 BRAKE SHOE SECURING ARRANGEMENT

Hajo Pickel, Kelkheim, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

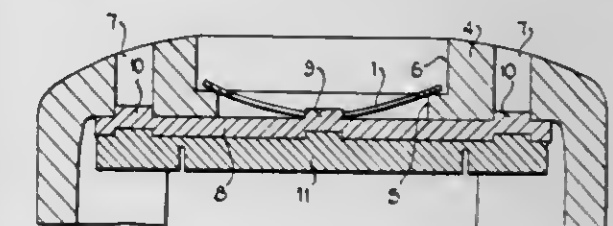
Continuation of Ser. No. 3,177, Jan. 15, 1979, abandoned. This application Apr. 21, 1980, Ser. No. 142,528

Claims priority, application Fed. Rep. of Germany, Feb. 3, 1978, 2804619

Int. Cl.³ F16D 65/04

U.S. Cl. 188-73.32

7 Claims



1. An arrangement to secure a brake shoe in a caliper of a disc brake comprising:

- a cylindrical lug formed in the center of, extending outwardly from and perpendicular to one surface of a pad carrier plate of said brake shoe during the manufacture of said pad carrier plate, said one surface of said pad carrier plate being parallel to the other surface of said pad carrier plate upon which a pad of said brake shoe is secured, said one surface of said pad carrier plate being disposed adjacent an open end of a central circular opening of said caliper coaxial of a central longitudinal axis of said central opening, said lug being coaxial with said axis and extending into said central opening, said central opening having a bearing surface spaced inwardly from said open end within said central opening coaxial of said axis and a given distance from and parallel to said one surface of said pad carrier plate; and

a rectangular spring plate having an elongated slot disposed in the center thereof parallel to and substantially coextensive with its long dimension, said slot having an arcuate recess in each edge of said slot in the middle thereof to engage the outer surface of said lug in a locking manner adjacent said one surface, and opposite ends of said long dimension of said spring plate engage said bearing surface, said lug having a height less than said given distance and said spring plate is bent in a concave manner looking out of said central opening toward said lug in said long dimension from said bearing surface toward said one surface of said pad carrier plate when said spring plate is locked on said outer surface of said lug to ensure a safe locking of said spring plate on said lug in both the long and short dimension of said spring plate.

4,313,528

WATER PREVENTING STRUCTURE IN A DRUM-IN-DISC BRAKE

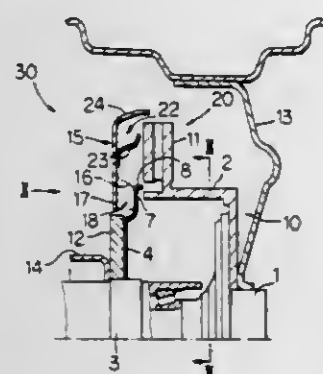
Sadayoshi Ito, Toyota, Japan, assignor to Toyota Jidosha Kogyo
Kabushiki Kaisha, Toyota, Japan

Filed Feb. 19, 1980, Ser. No. 122,703

Claims priority, application Japan, Feb. 27, 1979, 54-24805[U]
Int. Cl.³ F16D 65/04

U.S. Cl. 188—218 A

8 Claims



1. A drum-in-disc brake comprising:
a cylindrical brake drum;
a disc rotor extending from the outer periphery of said brake drum, said disc rotor comprising in part a friction surface;
a caliper assembly mounted adjacent said disc rotor;
an annular backing plate covering one end of said brake drum, an outer brim extending from said backing plate's outer periphery, and;
a dust cover comprising an inside surface which faces said brake drum and said rotor, said inside surface having an annular inner brim, said inner brim being firmly attached to said outer brim extending from said backing plate, said annular inner brim being gapped to allow for water drainage, a water carrying plate extending from said inside surface of said dust cover towards said friction surface of the rotor, and an upwardly open water groove formed between said inner surface of said dust cover and said water carrying plate.

4,313,529

HYDRAULIC DAMPER

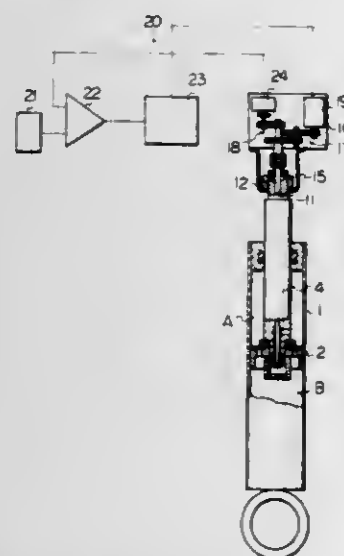
Tetuo Kato, Yokohama; Tamio Uemura, and Yoshiaki Kodama,
both of Kawasaki, all of Japan, assignors to Tokico Ltd.,
Kawasaki, Japan

Filed Nov. 5, 1979, Ser. No. 91,495

Claims priority, application Japan, Nov. 10, 1978, 53-138600
Int. Cl.³ F16F 9/46

U.S. Cl. 188—299

7 Claims



1. A hydraulic damper comprising:
a cylinder having opposite closed ends for containing hydraulic fluid.
a piston having two sides and a bore therethrough, said

piston being positioned within the interior of said cylinder and being slidable in the direction of the longitudinal axis of said cylinder, the interior of said cylinder being divided into two chambers by said piston;

a tubular member connected to a first one of said piston sides;

a hollow piston rod connected to said piston on the second one of said piston sides, the interior of said hollow piston rod communicating with the interior of said tubular member through said piston bore;

said tubular member having at least one orifice through the cylindrical surface thereof whereby the interior of said tubular member communicates with the chamber on said first one of said piston sides;

a communicating means which communicates the interior of said hollow piston rod with the chamber on the second one of said piston sides;

a rotary valve rotatably and slidably positioned in the interior of said tubular member for selectively communicating said two chambers, said rotary valve having:

an annular surface having an opening therethrough and being rotatably and slidably positioned relative to said tubular member; and

an arcuate sidewall connected to a peripheral edge of said annular surface, said sidewall rotatably and slidably engaging the inner periphery of the cylindrical surface of said tubular member, and said sidewall being semi-circular shaped whereby when said valve is rotated in one direction said sidewall sequentially covers a portion or all of said orifice and thereby limits the communication between said two chambers, and when said valve is rotated in the other direction said sidewall sequentially uncovers a portion or all of said orifice and thereby expands the communication between said two chambers;

an elongated stem extended through the interior of said hollow piston rod and being fixedly connected to said valve, a portion of said stem extending outwardly from one of said cylinder ends;

a motor with a rotating element connected to said outwardly extending stem portion for rotating said stem and thereby rotating said valve, and

a control means connected to said motor and which controls a motor rotating element and thereby controls the selective communicating between said two chambers.

4,313,530

BRAKE ACTUATOR FOR BICYCLES AND THE LIKE

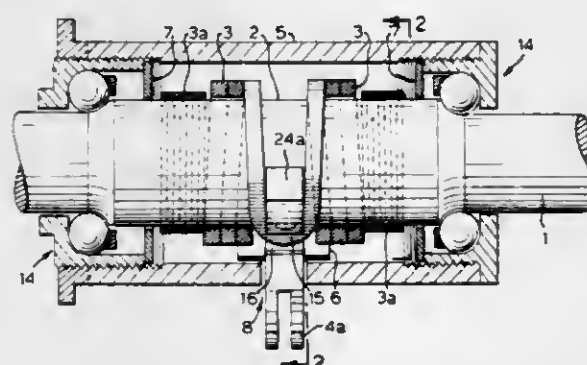
Winnett Boyd, 32 Restwell Crescent, Willowdale, Ontario, Canada M2K 2A3

Continuation-in-part of Ser. No. 815,921, Jul. 15, 1977, Pat. No. 4,199,046, which is a continuation-in-part of Ser. No. 763,653, Jan. 28, 1977, abandoned. This application Jan. 8, 1980, Ser. No. 110,494

Int. Cl.³ B60K 41/20, 13/08

U.S. Cl. 192—41 S

13 Claims



1. In a device for operating a brake of a pedal operated vehicle which device comprises a brake operating lever projecting through an opening in a pedal crankshaft housing of the vehicle, the lever being connected to a bight connecting two

spring coils which concentrically surround and frictionally engage a pedal crankshaft within the housing.

the improvement wherein the lever comprises a yoke engaging said bight and surrounding part of the circumference of the crankshaft, and is so dimensioned that in its plane of operation it has no dimension greater than the internal diameter of the pedal crankshaft housing but when the yoke partially surrounds the crankshaft an arm of the lever projects through the opening in the housing beyond its outer surface.

4,313,531

VISCOUS FLUID COUPLING

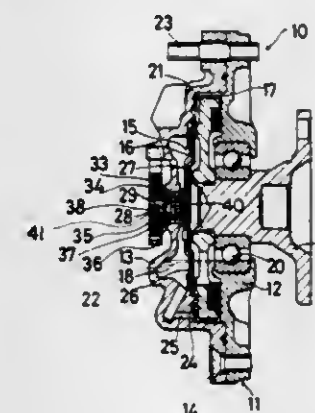
Takanobu Hori, and Masaharu Hayashi, both of Toyota, Japan,
assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Jan. 3, 1980, Ser. No. 109,194

Claims priority, application Japan, Feb. 8, 1979, 54-15710
Int. Cl.³ F16D 43/25, 35/00

U.S. Cl. 192—58 B

6 Claims



1. A viscous fluid coupling comprising:
a rotatable casing provided with a fluid operating chamber and a fluid reservoir chamber therein and having an axial opening formed in said casing;
a rotor located in said fluid operating chamber and rotatable relative to said casing;
a valve shaft rotatably received in said axial opening formed in said casing;
a valve member fixed to an inner end of said valve shaft and operable to control fluid communication between said fluid operating chamber and said fluid reservoir chamber;
a bimetal coil located on an exterior portion of said casing, said bimetal coil being connected at inner and outer ends thereof to said valve shaft and said casing, respectively;
said valve shaft comprising a first end portion connected to said casing and a second end portion opposite said first end portion having a uniform diameter;
said second end portion of said shaft comprising a plurality of annular grooves formed therein; and
a plurality of sealing rings disposed within said annular grooves and axially spaced and interposed between the outer periphery of said valve shaft and a wall of said opening such that said sealing rings receive the entire radial load placed upon said shaft and wherein said sealing rings comprise a resilient material.

4,313,532

DRIVING ARRANGEMENT WITH A FRICTION CLUTCH

Wolfgang Angersbach, and Rudolf Kling, both of Darmstadt, Fed. Rep. of Germany, assignors to Quick-Rotan Elektromotoren GmbH, Darmstadt, Fed. Rep. of Germany

Filed Aug. 1, 1979, Ser. No. 62,899

Claims priority, application Fed. Rep. of Germany, Aug. 11, 1978, 2835300

Int. Cl.³ F16D 13/74

U.S. Cl. 192—113 B

13 Claims

1. A driving arrangement with a friction clutch for transmitting of a starting moment and/or a braking moment to a shaft to be driven or braked, comprising at least one clutch element

arranged to transmit torque and formed as a disc having an axis; a ring-shaped friction member arranged on said clutch element coaxial to the latter and forming a friction face; at least one lubricant storing means carried by said clutch element and arranged for accommodating a lubricating medium and distributing the latter over said friction face of said friction member; and means for mounting said lubricant storing means on said clutch element and including a plurality of threaded members



which extend through said lubricant storing means and thereby through the lubricating medium accommodated therein, and engage in said friction member, so that the lubricating medium flows from said lubricant storing means to said friction face along the thread of said threaded members, whereby said threaded members form means for simultaneously mounting said lubricant storing means and guiding the lubricating medium.

4,313,533

INTERLEAVED FRICTION PLATE TYPE CLUTCH HAVING CLUTCH COOLING PASSAGE MEANS INCLUDING A RESERVOIR, WEIR AND SLOT

George R. Aschauer, Racine, Wis., assignor to Twin Disc, Incorporated, Racine, Wis.

Filed May 12, 1980, Ser. No. 148,948

Int. Cl.³ F16D 13/74

U.S. Cl. 192—113 B

9 Claims



1. An interleaved, friction plate type clutch comprising interleaved clutch plates adapted to be axially and releasably clamped together for engagement of said clutch, and a series of circumferentially spaced, cooling fluid passage means in said clutch and being in fluid communication with said clutch plates, each of said passage means including an axially extending reservoir having a generally co-extensive axially extending slot which intersects said reservoir at one side thereof so as to define a fluid weir at the juncture of said reservoir and said slot, said weir extending radially inwardly from said reservoir

whereby fluid can flow from a generally central portion of said clutch to fill said reservoir and be held therein by centrifugal force and then flows over said weir and into said slot along the axial length thereof to cover said clutch plates.

4,313,534

DEVICE FOR UNLOADING BOTTLE-SHAPED CONTAINERS

Sadao Suzuki, Tokyo; Yoshiyuki Ichizawa, Sohka, and Nobuichi Seki, Tokyo, all of Japan, assignors to Yoshino Kogyosho Co., Ltd., Tokyo, Japan

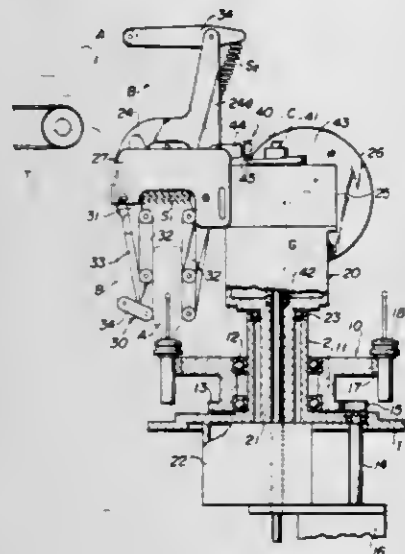
Filed Dec. 6, 1979, Ser. No. 100,913

Claims priority, application Japan, Dec. 28, 1978, 53-162045

Int. Cl.³ B65G 47/34

U.S. Cl. 198—484

6 Claims



1. A device for unloading bottle-shaped containers comprising:

turning means rotating at constant speed around a center thereof for holding a plurality of jigs for holding respectively bottle-shaped containers, at equal central angle interval at the peripheral end thereof,

rocking means so assembled concentrically with said turning means as to ride on said turning means and to turn at the same speed in the same direction as said turning means within predetermined angle and then to return to the original position at a speed faster than the speed of said turning means, and

a pair of linking mechanisms supported by a supporting arm, having front and rear portions, projected from said rocking means at the position directly above the jigs for radially grasping to hold the bottle-shaped containers engaged by the jigs located between said linking mechanisms to unload the container from the jig.

4,313,535

EXCITED FRAME, VIBRATORY CONVEYING APPARATUS FOR MOVING PARTICULATE MATERIAL

Dumont M. Carmichael, Milton-Freewater, Oreg., assignor to Applied Magnetics Corporation, Goleta, Calif.

Filed Jun. 15, 1979, Ser. No. 48,728

Int. Cl.³ B65G 27/16, 27/08

U.S. Cl. 198—766

5 Claims

1. An excited frame, vibratory conveying apparatus for moving particulate material, comprising:

an excited frame means having an elongated frame extending in an intended conveying direction defining a first part of an assembly;

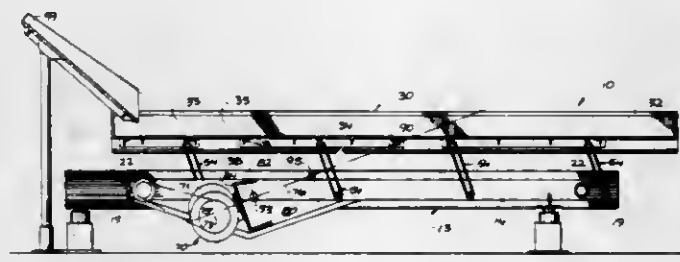
said excited frame means having a known center of mass; an elongated conveying member supported on the elongated frame and extending in the intended conveying direction and defining a second part of the assembly for receiving particulate material at one end and conveying the particulate material in a forward direction to an opposite end;

said elongated conveying member having a known center of mass;

first supporting means for resiliently supporting the conveying member on the excited frame means and defining a third part of the assembly to enable the elongated conveying member to reciprocate in the intended conveying direction with respect to the elongated frame;

said first supporting means comprising a plurality of springs connected to and extending between the elongated frame and the conveying member for resiliently supporting the conveying member on the elongated frame to enable the conveying member to reciprocate in a prescribed path in the intended conveying direction with the conveying member forward and upward in a forward stroke and rearward and downward in a rearward stroke with respect to the excited frame means;

said springs having a known spring constant and wherein said assembly has a known weight and center of mass;



a second supporting means for resiliently supporting the excited frame means;

said excited frame means having a directional vibratory drive means mounted thereon and directly connected to the elongated frame in which the directional vibratory drive means produces vibrating motion along a linear line of force for directly vibrating the elongated frame at a desired frequency relating to the weight of the assembly and spring constant;

said excited frame means having a mounting means mounting the vibratory drive means on the elongated frame with the linear line of force extending colinearly through the center of masses of the excited frame means and the conveying member and parallel with the prescribed reciprocating path of the conveying member to minimize rocking motion of the conveying element about its center of mass; and

said vibratory drive means being mounted along the line of force spaced from the center of mass of the assembly.

4,313,536

CONVEYOR AND CONTROL THEREFOR

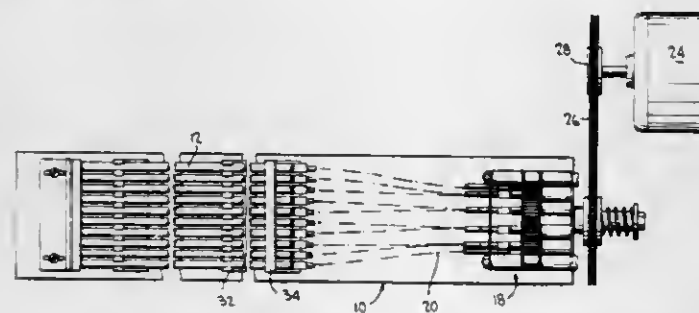
Frederick E. Fauth, Towson, Md., assignor to American Bottlers Equipment Co., Inc., Owings Mills, Md.

Filed Mar. 21, 1980, Ser. No. 132,683

Int. Cl.³ B65G 13/06

U.S. Cl. 198—781

27 Claims



1. A transfer mechanism for transporting articles, comprising:

(a) a plurality of parallel rollers disposed in a planar array and forming a conveyor;

- (b) means for supporting said rollers for rotation; and
- (c) means for driving said rollers, said drive means comprising:
- (d) an input drive means having a drive transmitting surface;
- (e) a plurality of drive takeoff members disposed in a circular array around the periphery of, and driven by, said drive means;
- (f) a flexible coupling connecting each of said rollers with one of said takeoff members, whereby rotation of said takeoff members causes rotation of said rollers; and
- (g) means for driving said input drive means,
- (h) adjustable torque clutch means operatively interposed between said last mentioned driving means and said input drive means.

4,313,538

FILM CASSETTE WITH AN OPENING FOR EXPOSING DATA ON A FILM ACCOMMODATED THEREIN

Walter Bauer, and Heinrich Färber, both of Munich, Fed. Rep. of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

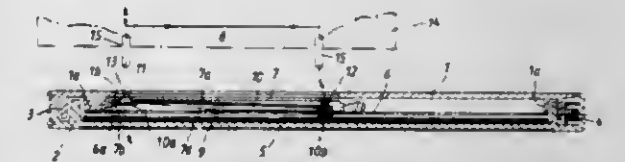
Filed Jun. 24, 1980, Ser. No. 162,523

Claims priority, application Fed. Rep. of Germany, Jun. 27, 1979, 2925837

Int. Cl.³ B65D 81/30; H05G 1/28; G03B 41/16

U.S. Cl. 206—455

12 Claims



1. A film cassette, particularly an X-ray film cassette, comprising a housing bounding a compartment for accommodating a film and having an opening for exposing an image on a predetermined portion of the film in said compartment; and means for light-tightly closing said opening, including a closure mounted in said housing for displacement between a closed position of covering, and an open position of clearing, said opening, and having an access aperture therethrough, and a latching member mounted on said closure behind said access aperture for movement between a latching position in which one portion thereof latchingly engages said housing and another portion thereof light-tightly covers said access aperture and a releasing position in which said one portion thereof is disengaged from said housing, said latching member being biased toward said latching position, and said access aperture providing access to said other portion of said latching member for an actuating pin to enable the latter to move said latching member toward said releasing position thereof.

4,313,537

DEVICE FOR HOLDING, DRYING AND REPETITIVELY DISPENSING A BAR OF SOAP

Theodore D. A. Collet, 6140 Calle Tuberia, Scottsdale, Ariz. 85251

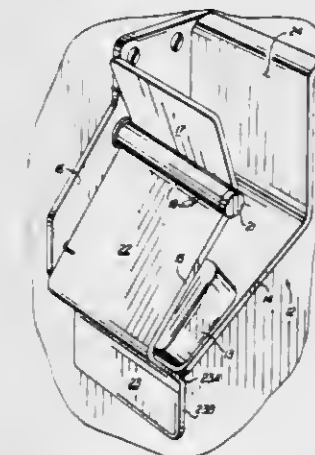
Continuation of Ser. No. 41,528, May 22, 1979. This application

Aug. 13, 1979, Ser. No. 66,186

Int. Cl.³ A47K 5/08

U.S. Cl. 206—77.1

8 Claims



1. A device for repetitively dispensing the same bar of soap comprising:

a support, a pair of relatively thin elongated members spacedly arranged to extend laterally from said support member to define between them an elongated trough for receiving at its upper end the bar of soap, one of said members being pivotally mounted relative to said other member on said support for engaging said other member at their common other ends to hold the bar of soap in said trough,

whereby when a bar of soap is in said trough, an oblique component of its mass is applied to said one of said members substantially parallel to the surface of the other of said members developing a slight torque on said one of said members about its pivotal mounting, the other of said members being fixed, positioned below said one of said members and supporting said bar of soap, and means forming a part of said other end of said one of said members for engagement by a user for pivoting it away from said other member to cause the bar of soap in said trough to be dislodged and fall into the hand of the user.

4,313,539

ADDITIVE CAP AND PACKAGE THEREFOR

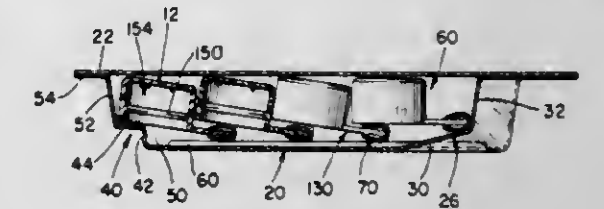
Kenneth Raines, Bethlehem, Pa., assignor to Burron Medical Inc., Bethlehem, Pa.

Filed Jun. 16, 1980, Ser. No. 159,663

Int. Cl.³ B65D 83/00, 65/16

U.S. Cl. 206—461

12 Claims



1. A closure means for closing solution bottles in an aseptic manner comprising:

a blister package; a plurality of cap retainer members in said package; a plurality of caps on each retainer member, each cap including a hinge portion defined by tear away joints and a living joint and a clamping fin attached to said hinge portion, said clamping fin being releasably held by said each retainer member.

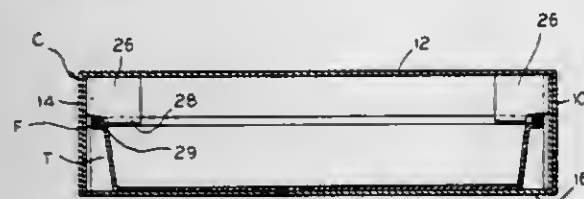
4,313,540

CARTON WITH ARTICLE RETAINING STRUCTURE

Joseph J. Hart, and John D. Desmond, both of Philadelphia, Pa., assignors to Container Corporation of America, Chicago, Ill.
Filed Jul. 21, 1980, Ser. No. 170,724
Int. Cl.³ B65D 5/50, 85/30, 5/06

U.S. Cl. 206—588

3 Claims



1. A carton, formed of a unitary blank of foldable paper-board, including integral structure for holding in a fixed position, a generally rectangular tray having a flange projecting laterally outward from an upper portion thereof, said carton comprising:

- (a) a pair of opposed top and bottom horizontal walls;
- (b) opposed pairs of side and end vertical walls foldably joined to each other on first fold lines and to said horizontal walls on second fold lines, which extend normal to said first fold lines, to define a box-like enclosure; and
- (c) retaining panels foldably joined to opposite ends of said opposed end vertical walls, each of said retaining panels having at its outer end a downwardly extending projection and at its inner end a recessed shoulder to provide an abutment in which the shoulder receives the upper portion of a flange of a tray, and the projection extends downwardly against the top of the tray and inboardly of the flange to hold the tray in a fixed position against said bottom wall.

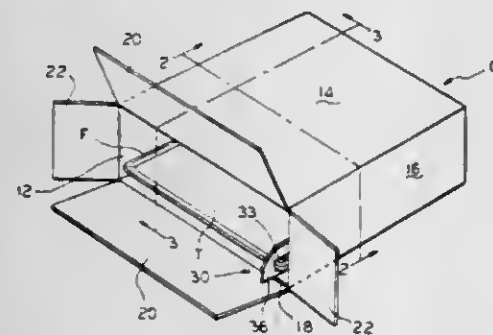
4,313,541

CARTON WITH ARTICLE RETAINING STRUCTURE

Joseph J. Hart, and John D. Desmond, both of Philadelphia, Pa., assignors to Container Corporation of America, Chicago, Ill.
Filed Jul. 21, 1980, Ser. No. 170,895
Int. Cl.³ B65D 5/06, 85/30

U.S. Cl. 206—588

2 Claims



1. A carton, formed of a unitary blank of foldable paper-board, including integral structure for holding, in a fixed position against one wall of the carton, a tray having a flange projecting laterally outward from an upper portion thereof, said carton comprising:

- (a) a pair of opposed top and bottom horizontal walls;
- (b) opposed pairs of side and end vertical walls foldably joined to each other on first fold lines and to said horizontal walls on second fold lines, which extend normal to said first fold lines, to define a box-like enclosure;
- (c) a glue flap foldably joined to one of said opposed top and bottom walls;
- (d) a retaining panel foldably joined to said glue flap and extending parallel to but spaced inwardly to one of said pairs of side walls, said retaining panel having a laterally extending opening to receive a portion of the outer flange of a tray and a lock tab extending downwardly against the upper portion of the tray at a right angle to said horizontal

walls to hold said tray in a fixed position against said bottom wall.

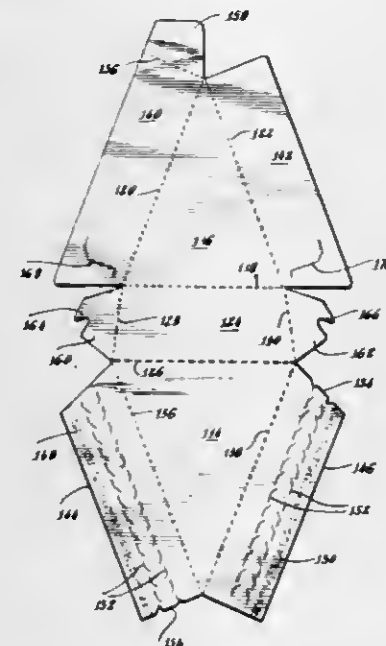
4,313,542

SINGLE-SERVING PIE CARTON AND BLANK

Harry H. Roberts, Roswell, Ga., and Raymond A. Cote, Taylorville, N.C., assignors to Champion International Corporation, Stamford, Conn.
Continuation of Ser. No. 57,164, Jul. 13, 1979, abandoned. This application Jun. 19, 1980, Ser. No. 161,027
Int. Cl.³ B65D 5/54

U.S. Cl. 206—611

5 Claims



1. A blank for forming a wedge-shaped carton having a slanted end wall, said carton comprising:

- a triangular bottom panel having a base edge and two side edges;
- a trapezoidal end wall having top, bottom and side edges, with said bottom edge of said end wall and said base edge of said bottom panel being hingedly connected and of equal length, and with corner flaps being respectively hingedly connected to the side edges of said trapezoidal end wall;
- a triangular top panel having a base edge and two side edges, with the length of the base edge of said top panel being greater than the length of the base edge of said bottom panel, and with the length of said top panel measured along an imaginary line extending perpendicularly from the associated base edge to the opposed apex thereof being greater than the length of said bottom panel measured along an imaginary line extending perpendicularly from the associated base edge to the opposed apex thereof, said base edge of said top panel being hingedly connected and of equal length to the top edge of said trapezoidal end wall;
- a pair of side wall panels extending from and hingedly connected to the associated side edges of said triangular top and bottom panels, with each side wall panel of one pair of said side wall panels including a pair of spaced, intermittent cut lines extending along the length thereof and defining a tear strip to permit easy opening of the erected carton which is of wedge-shaped configuration having a slanted trapezoidal end wall and which is useful for containing a wedge-shaped piece of pie having a slanted crust portion, with the carton conforming to the shape of said pie piece and with said sloping trapezoidal end wall functioning to provide increased protection and support to the slanted crust portion thereof.

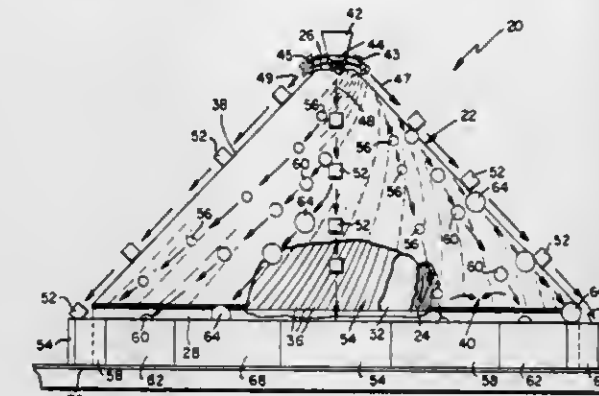
4,313,543

MULTI-SIZE MATERIALS SEPARATOR

Malcolm M. Paterson, Lee, N.H., assignor to Raytheon Company, Lexington, Mass.
Continuation of Ser. No. 71,817, Sep. 4, 1979, abandoned. This application Jan. 26, 1981, Ser. No. 228,481
Int. Cl.³ B03C 1/08, 1/12

U.S. Cl. 209—212

28 Claims



I. Materials separator apparatus comprising:

material conductor means disposed for directing commingled particles including electrically conductive nonferromagnetic particles of various materials and sizes into a stream;

magnetic means including an alternating series of oppositely polarized magnetic pole pieces disposed in juxtaposed and substantially contiguous relationship for establishing a spatially alternating array of juxtaposed oppositely directed magnetic fields of varying widths and inducing in said electrically conductive nonferromagnetic particles successive eddy-currents which cooperate with said magnetic fields for deflecting said electrically conductive particles in a uniform direction out of said stream; and control means for producing relative movement of the particles sequentially through the magnetic fields.

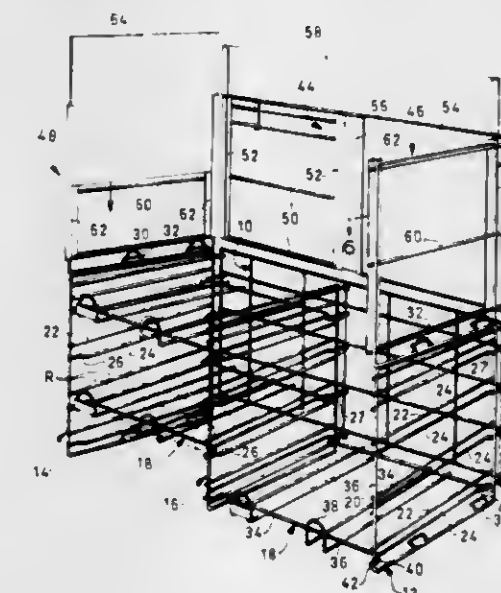
4,313,544

DISPLAY RACK

Richard D. A. Ashton, R.R. 1, Terra Cotta, Ontario, Canada
Division of Ser. No. 962,168, Nov. 20, 1978, Pat. No. 4,226,190.
This application Jun. 9, 1980, Ser. No. 157,445
Int. Cl.³ A47F 5/01, 5/16

U.S. Cl. 211—181

6 Claims



1. Display rack, for use in association with merchandise storage means, having shelving for the storage of merchandise thereon, said display rack being adapted to be located above said shelving for supporting display panels showing merchandise information thereon, said display rack comprising:

back support frame means, having side edges and top and bottom edges;
side support frame means connected with said back support frame means along both side edges thereof, said side support frame means having side edges and top and bottom edges;
means for connecting said side frame means to said back support frame means, to form a generally three-sided rectangular structure;
interlocking attachment means on some of said frame support members, for interengagement with said shelving, whereby the same may be erected thereabove, and, elongated channel members fastened in parallel spaced apart location on opposite side edges of said side frame support means and of said back frame support means, defining opposed open grooves, for reception of opposite side edges of said display panel means therein.

4,313,545

METALLIC PRESSURE VESSEL WITH THIN WALL

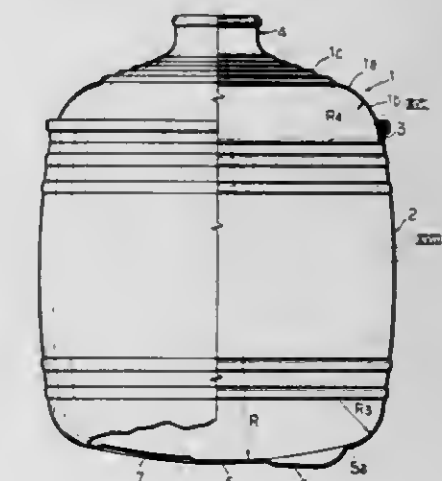
Kenichi Maeda, Neyagawa, Japan, assignor to The Nippon Aluminum Mfg. Co., Ltd., Osaka, Japan
Filed Feb. 4, 1980, Ser. No. 118,108

Claims priority, application Japan, Feb. 13, 1979, 54-15892; Oct. 8, 1979, 54-130205; Oct. 9, 1979, 54-130535; Oct. 9, 1979, 54-139959[U]; Nov. 5, 1979, 54-143641

Int. Cl.³ B65D 8/08, 8/12, 8/18

U.S. Cl. 220—1 BC

11 Claims



1. A metallic pressure vessel capable of withstanding 3-4 kg/cm² internal pressure, comprising:

a main body piece of bottomed cylindrical form comprising a single piece of sheet aluminum or aluminum alloy having a thickness between 0.3 mm and 1.0 mm and having a resin coating layer, which is thin relative to the thickness of the sheet, on the surface thereof, the side portion thereof being bulged outwardly in an archshape in its cross section; and
a lid piece made of a single piece of sheet aluminum or aluminum alloy having a thickness between 0.3 mm and 1.0 mm and having a relatively thin resin coating layer on the surface thereof, and being secured to the upper opening of said main body piece by means of a gas-tight attachment, thereby covering same, said lid piece being in the shape of an inverted bowl-like portion, the diameter of which gradually decreases upwards from the portion thereof attached to said main body piece, having a plurality of annular concentrically formed convex-and-concave patterns, which continuously describe a gentle and smooth wave in the cross-sectional view thereof, and a mouth portion integrally formed with said inverted bowl-like portion as a protrusion extending outwardly from the central part thereof,
wherein the bottom of said bowl-like portion of said lid piece, at the point of said gas-tight attachment to said main

body, has a recess the bottom of which is substantially U-shaped in axial cross-section of the vessel and which bottom is disposed a substantial distance below said attachment, wherein the exterior arm of said recess extends up from said bottom and then into said attachment, and wherein the interior arm of said recess extends from said bottom in a curve which is convex as viewed from outside the vessel and is arcuately bowed in axial cross-section, said curve continuing to a height a substantial distance above said attachment at the uppermost portion of said main body piece, thereby forming a substantially round shoulder portion, said plurality of annular convex-and-concave patterns beginning at the uppermost portion of said shoulder and extending to a point near said mouth portion.

4,313,546

CONTAINER

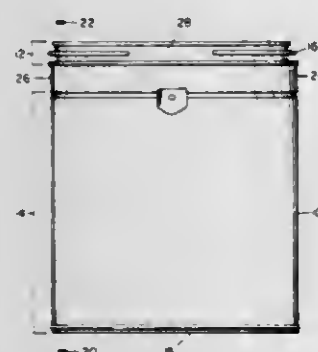
William G. Holt, Lakeville, Mass., assignor to Hercules Incorporated, Wilmington, Del.

Filed Dec. 18, 1980, Ser. No. 217,714

Int. Cl.³ B65D 6/34, 8/04, 8/06

U.S. Cl. 220—74

6 Claims



1. In a container comprising:

an injection molded annular mouth portion having detail of high definition, including at least one reinforcing rib, a generally cylindrical body portion blow molded from a parison portion injection molded integrally with the mouth portion, said body portion having a closed bottom and an inside diameter slightly larger than the inside diameter of the mouth portion,

an annular reinforcing region joining the mouth portion to the body portion and forming a transitional surface therebetween,

an annular depending skirt provided as a feature of the detail of high definition in the injection molded annular mouth portion, which depending skirt provides an outside wall over said reinforcing region,

in which the improvement comprises:

at least one gap in the uppermost reinforcing rib whereby manual removal of an attached lid can be accommodated without the need for a tool.

4,313,547

PRODUCE CONTAINER

Edward L. Osborne, Kansas City, Kans., assignor to Westvaco Corporation, New York, N.Y.

Filed Jun. 23, 1980, Ser. No. 162,250

Int. Cl.³ B65D 5/36, 5/56

U.S. Cl. 220—416

6 Claims

1. A blank of corrugated paperboard or the like of substantially rectangular configuration that is cut and scored for folding into a produce container with an integral top comprising:

(a) a central portion divided by four parallel spaced apart transverse score lines into a manufacturer's joint, a top panel, a first pair of end panels and a bottom panel;

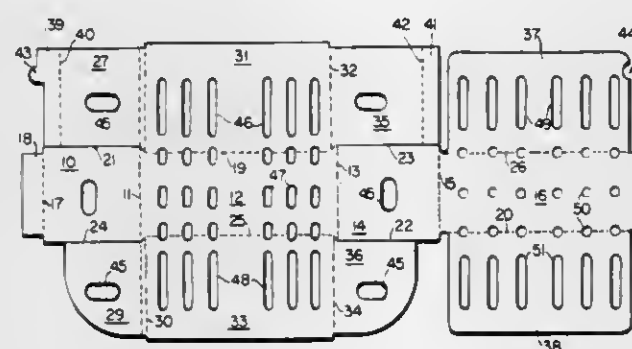
(b) an upper portion comprising a first pair of side wall panels foldably attached to the top and bottom panels of said central portion, one of said first side wall panels

further including a second pair of end wall/tuck panels foldably attached thereto; and,

(c) a lower portion comprising a second pair of side wall panels foldably attached to the top and bottom panels of said central portion, one of said second side wall panels further including a third pair of end wall panels foldably attached thereto, said third pair of end wall panels each including an integral corner post flap, and one of said corner post flaps including a manufacturer's joint alignment tab which cooperates with a manufacturer's joint alignment slot located in the edge of the other of said second pair of side wall panels.

2. A produce container folded from a single cut and scored blank of corrugated paperboard or the like comprising:

(a) a bottom panel, top panel and a first pair of end panels foldably attached together;



(b) a manufacturer's joint foldably attached to one of said first pair of end panels and attached to the free end of said bottom panel;

(c) a first pair of side wall panels foldably attached along one edge of said top and bottom panels;

(d) a second pair of side wall panels foldably attached along the opposite edge of said top and bottom panels;

(e) a second pair of end wall/tuck panels foldably attached to the opposite edges of one of said second pair of side wall panels;

(f) a third pair of end wall panels foldably attached to the opposite edges of one of said second pair of side wall panels to provide a final construction having three-ply end walls, two-ply side walls and an integral top and bottom, said third pair of end wall panels further including integral corner post flaps, one of said corner post flaps having an alignment means for aligning said blank before erecting said container.

4,313,548

HANDLEBAR PACK AND SUPPORT FOR BICYCLE

Jack Edelson, 1161 Mission St., San Francisco, Calif. 94103

Filed Jan. 5, 1981, Ser. No. 222,659

Int. Cl.³ B62J 7/06

U.S. Cl. 224—36

8 Claims

1. A handlebar pack and support for a bicycle comprising: a pack of generally rectangular configuration;

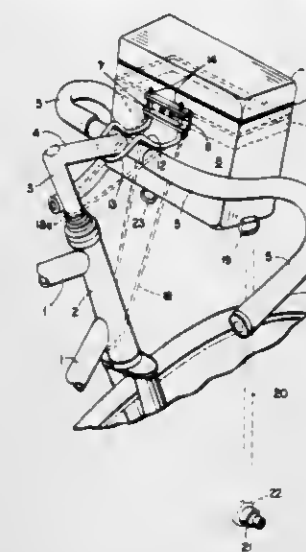
a rigid reinforcing member positioned around the interior of said pack and fixedly attached to the interior walls thereof;

a cleat in the form of a channel having its bottom flat section positioned horizontally on an exterior wall of said pack; said cleat being characterized by:

means for fastening said cleat to said reinforcing member through said wall of said pack;

a pair of holes through the horizontally projecting legs of said channel oppositely spaced adjacent the ends thereof;

a curved hook having a clamping central section engaging a gooseneck supporting the handlebars of said bicycle; said hook having a pair of vertical prongs at the end thereof;



said prongs engaging the holes in said channel legs; resilient fastening means detachably engaging said pack and the frame of said bicycle.

4,313,549

STRINGING DEVICE FOR RETAINING FISH

Dennis I. Nelson, 3811 S. County Rd., 13C, Loveland, Colo. 80537

Filed May 23, 1977, Ser. No. 799,671

Int. Cl.³ A45F 5/00

U.S. Cl. 224—103

9 Claims



2. A fish stringing implement for use in holding, retaining and stringing a fish onto a flexible retaining line comprising a straight shank secured at one end to said line and formed at its other end with a downward bend, a downwardly and forwardly inclined shank leg extending from said downward bend and terminating in a bight, a prong leg extending upwardly from said bight and formed at its upper end with a reverse bend, an intumed prong extending from said reverse bend and terminating in a point, said point lying in spaced vertical relationship with respect to the downward bend on said shank whereby said point can be hooked into a fish and the fish retained in said bight for subsequent stringing onto said retaining line, and means connecting said one end of said straight shank portion to said line for enabling said user to further string said fish onto the flexible line by holding said prong leg portion and sliding said fish over said shank portion onto said line.

1015 O.G.—5

4,313,550

PACKAGE CONTAINING OPTICAL FIBRES MADE OF GLASS AND APPARATUS FOR PACKING GLASS OPTICAL FIBRES

Cornelis J. Van Gorp, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

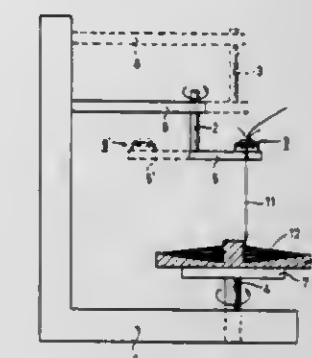
Filed Mar. 6, 1980, Ser. No. 127,693

Claims priority, application Netherlands, Sep. 17, 1979, 7906904

Int. Cl.³ B65H 17/20

U.S. Cl. 226—194

11 Claims



1. An apparatus for packaging optical fibers comprising: a frame; a plate support mounted on the frame; a plate mounted on the plate support; a feeder for feeding optical fiber onto the plate, said feeder being mounted on the frame for revolving around a first axis, said first axis being oriented transverse to the plate; and means for revolving the first axis relative to the plate, said relative revolution being around a second axis which is oriented transverse to the plate but is not coaxial with the first axis.

4,313,551

TAPE GUIDE APPARATUS

Yozaburu Umebara, 2-8-6, Shakujiimachi, Nerima-ku, Japan Division of Ser. No. 940,198, Sep. 7, 1978, Pat. No. 4,228,940.

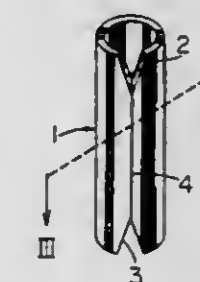
This application Sep. 25, 1980, Ser. No. 190,755

Claims priority, application Japan, Sep. 14, 1977, 52-124344; Mar. 3, 1978, 53-24344

Int. Cl.³ B65H 23/04, 27/00

U.S. Cl. 226—196

1 Claim



1. A tape guide comprising a base body formed into a tube, said base body having at the both ends a pair of cutout portions of substantially isosceles triangular-shape which are symmetrically arranged along the axial direction of said base body, and said base body further having a slit extending between the opposite vertexes of said cutout portion and at which the opposite abutment edges of a sheet rolled to form said base body engage closely.

4,313,552

APPARATUS FOR DRIVING FASTENERS

Werner Maurer, Zizishausen, Fed. Rep. of Germany, assignor to Firma Karl M. Reich Maschinenfabrik GmbH, Nuertingen, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 68,746, Aug. 23, 1979. This application Apr. 29, 1980, Ser. No. 144,950

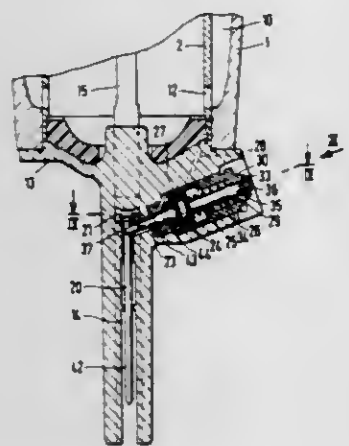
Claims priority, application Fed. Rep. of Germany, Sep. 1, 1978, 2838194; May 19, 1979, 2920342

The portion of the term of this patent subsequent to Jun. 2, 1998, has been disclaimed.

Int. Cl.³ B25C 1/04

U.S. Cl. 227-109

6 Claims



1. A driving apparatus for driving fasteners having shafts into a work piece, said apparatus being able to receive fasteners loosely slidable relative to each other in a row in the guide channel of a magazine, comprising housing means, fastener driving means in said housing driving means, said fastener driving means comprising driving rod means and ejector channel means, said driving rod means being movable in said ejector channel means between a rest position and a driving position, said apparatus further comprising magazine and guide channel means operatively connectable to said housing means for supplying fasteners loosely slidable in a row from said magazine and guide channel means into said ejector channel means, separator means operatively arranged relative to said magazine means and said ejector channel means, said separator means including a separator member having a tip movable for extending into and retracting the row of fasteners between a fastener stop position for holding back the row of fasteners from the ejector channel means and a fastener releasing position for releasing a fastener into the ejector channel means, said apparatus further comprising holding means so positioned relative said ejector channel means and relative to said separator means as to hold a fastener released by said separator member in said ejector channel means, and position adjusting means operatively connected to said separator member for manually adjusting the spacing of said separator member tip relative to said ejector channel means thereby to accommodate different spacings between fasteners.

4,313,553

CONTAINER WITH EXTENSIBLE POURING SPOUT

Robert E. Lisiecki, Orchard Lake, Mich., assignor to Ex-Cell-O Corporation, Troy, Mich.

Filed Oct. 2, 1980, Ser. No. 193,328

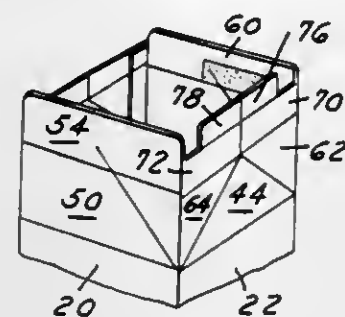
Int. Cl.³ B65D 5/74

U.S. Cl. 229-17 G

7 Claims

1. A top closure arrangement for a container having a four-sided body portion, said top closure arrangement comprising: (a) first and second triangular gable panels extending from two oppositely disposed sides of said body portion, (b) first and second lower closure panels extending from the other two oppositely disposed sides of said body portion, (c) first and second sets of fold-back panels interconnecting said respective first and second triangular gable panels and lower closure panels, and being folded against the latter,

(d) first and second upper closure panels extending vertically from said respective first and second lower closure panels, (e) first and second infold lips extending from each of said respective first and second sets of fold-back panels and being folded toward one another and sealed between said first and second upper closure panels, and



(f) first and second fold-over lip panels extending from one set of said respective first and second infold lips and being folded over onto the latter, and folded and sealed against one another between said one set of first and second folded infold lips.

4,313,554

MULTI-CELL DIVIDER CARTON

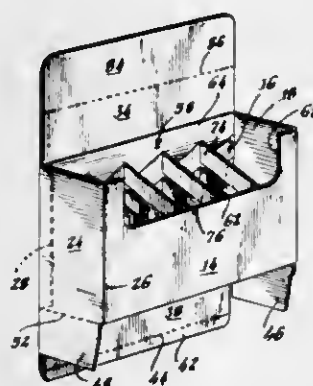
James Montealegre, St. Paul, Minn., assignor to Champion International Corporation, Stamford, Conn.

Filed Jun. 2, 1980, Ser. No. 155,096

Int. Cl.³ B65D 5/48

U.S. Cl. 229-28 R

18 Claims



1. A multi-cell divider carton comprising a front wall, a substantially parallel rear wall, a pair of side walls connecting said front and rear walls, a bottom wall, a top wall cover element hingedly connected to said rear wall, and a divider panel within the interior of said carton between said front, rear, and side wall, said divider panel including a portion secured to said rear wall and a second portion secured to said front wall, a divider wall substantially parallel to and spaced from said front and rear walls extending substantially the entire width of said carton between said side walls, said divider wall being hingedly connected to said first divider wall portion secured to said rear wall by a first set of a plurality of parallelogram strips hingedly connected to said portion secured to said rear wall and said divider wall, and a second set of a plurality of parallelogram strips extending between a portion of said divider panel secured to said front wall and a portion of said divider panel secured to said rear wall of above said first set of parallelogram strips extending between the portion of said divider panel secured to said rear wall and said divider wall,

4,313,555

CORNER LOCK CARTON

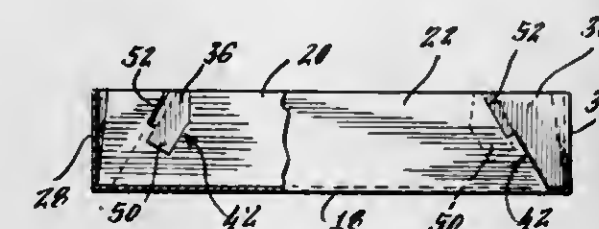
William G. Sieffert, Joliet, Ill., assignor to Champion International Corporation, Stamford, Conn.

Filed Jun. 16, 1980, Ser. No. 159,454

Int. Cl.³ B65D 5/26

U.S. Cl. 229-35

6 Claims



1. A carton construction comprising: a tray having a plurality of upright tray sidewalls; at least a first of said tray sidewalls having a laterally extending flap provided with a first hook-like member projecting therefrom; a second of said tray sidewalls, adjacent to said first tray sidewall, having a slot for interleaving engagement with said first hook-like member to lock said first and second tray sidewalls together in an erected state; and a cover having a plurality of upright cover sidewalls; at least a first of said cover sidewalls having a laterally extending flap provided with a second hook-like member projecting therefrom; a second of said cover sidewalls, adjacent to said first cover sidewall, having a slot for interleaving engagement with said second hook-like member to lock said first and second cover sidewalls together in an erected state; said cover being adapted to be received on said tray so that the interlocked corner of said tray is adjacent an unconnected corner of said cover and the interlocked corner of said cover is adjacent an unconnected corner of said tray.

4,313,556

CARTON HAVING FOLDABLE BOTTOM AND CARTON BLANK

Daniel J. Boyle, Hartland, and Harold R. Jaeschke, Milwaukee, both of Wis., assignors to Champion International Corporation, Stamford, Conn.

Filed Oct. 14, 1980, Ser. No. 196,789

Int. Cl.³ B65D 5/08

U.S. Cl. 229-38

4 Claims



1. A one-piece paperboard carton blank adapted to be glued and then erected into a carton; said blank comprising: four central side panels which form the sides of the carton,

said side panels being arranged in tandem along an imaginary central axis and being connected by fold lines; a plurality of top flap members connected by fold lines to certain of the central side panels, said top flap members being adapted to form the top of the erected carton; a first rectangular bottom panel and a second rectangular bottom panel, each of said bottom panels being connected by fold lines to the two side panels which form opposite sides of the erected carton; and a connection panel connected by a fold line to the second bottom panel and having a glue means to adhere it to the first bottom panel; wherein the other two central side panels which are not connected to said bottom panels have fold lines perpendicular to said axis to enable the glued and unerected carton to lie flat; the carton blank further comprising: four bottom support panels, each bottom support panel being connected by a fold line to a side of a bottom panel; and four equilateral triangular shaped panels, each triangular panel being hingedly connected by a fold line to the bottom of one of said other two central side panels and, hingedly connected by a fold line to one of said bottom support panels, and having glue means to adhere said each triangular panel to the side panel to which it is connected, said carton blank further comprising corner panels connected by fold lines to said central side panels, said corner panels being aligned between said side panels and aligned along said imaginary axis.

4,313,557

ENVELOPE INSERT FOR MAGAZINES

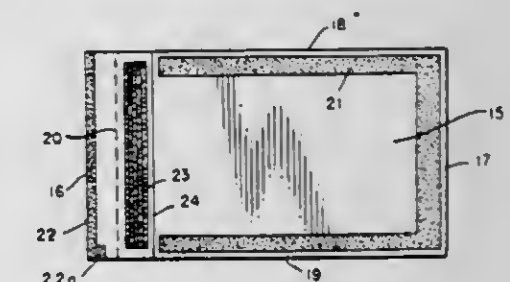
John F. Foffel, St. Charles, Ill., assignor to Berlin Industries, Inc., Addison, Ill.

Filed May 14, 1980, Ser. No. 149,851

Int. Cl.³ B65D 27/00, 27/14

U.S. Cl. 229-68 R

7 Claims



1. An envelope insert for a magazine or the like comprising a pair of superposed sheets, each of said sheets having a pair of end edges, each end edge of each sheet overlying an end edge of the other sheet whereby said envelope has a constant thickness provided by said pair of sheets between said end edges, one of said sheets having a perforation line spaced from one of the end edges of the sheet and the other of said sheets having a perforation line between said perforation line of said one sheet and the end edge of said other sheet which overlies said one end of said one sheet to provide a flap portion on said other sheet between the perforation line of said other sheet and the perforation line of said one sheet, and adhesive on the flap portion, whereby when the sheets are torn along said perforation lines the flap portion of said other sheet can be folded over said one sheet and secured thereto.

4,313,558

MULTIPLE POCKET, EXPANDABLE ENVELOPE, AND BLANK AND METHOD FOR FORMING SAME

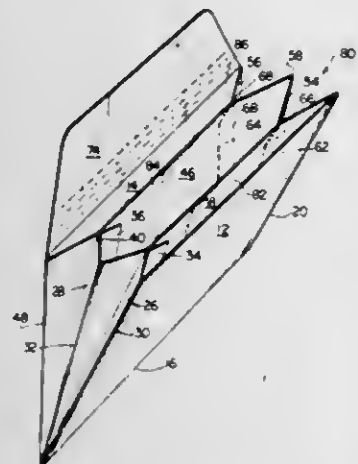
Albert A. Benham, Granville, Mass., assignor to Champion International Corporation, Stamford, Conn.

Filed Feb. 28, 1980, Ser. No. 125,364

Int. Cl.³ B65D 27/08

U.S. Cl. 229—72

12 Claims



1. A multiple pocket, expandable envelope formed from a planar, unitary blank, comprising:
 front and back panels having opposed end edges and opposed first and second side edges and being hingedly coupled at adjacent end edges thereof along a fold line;
 front and back divider panels each having opposed first and second side edges and opposed first and second surfaces, said front divider panel hingedly coupled along a fold line at its first side edge to said front panel and said back divider panel hingedly coupled along a fold line at its second side edge to said back panel;
 first means hingedly coupling said front panel at said second side edge thereof to said front divider panel; second means hingedly coupling said front and back divider panels; and third means hingedly coupling said back panel at said second side edge thereof to said back divider panel.

4,313,559

FULLY JACKETED HELICAL CENTRIFUGE

Willi Ostkamp, Oelde, and Theodor Paschedag, Beckum, both of Fed. Rep. of Germany, assignors to Westfalia Separator AG, Oelde, Fed. Rep. of Germany

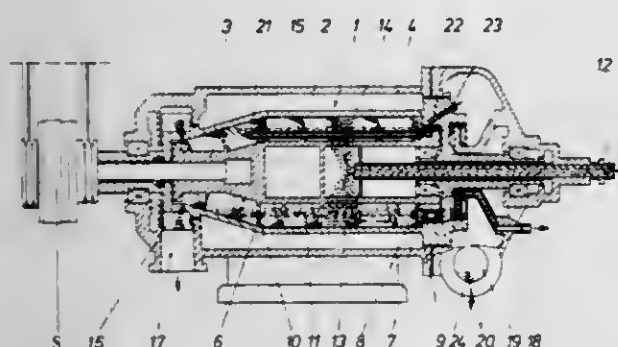
Filed Jan. 16, 1980, Ser. No. 112,685

Claims priority, application Fed. Rep. of Germany, Jan. 17, 1979, 2901607

Int. Cl.³ B04B 3/04

U.S. Cl. 233—7

5 Claims



1. Helical centrifuge suitable for the separation of a mixture of a specifically heavier liquid, a specifically lighter liquid and solid particles, having an at least partially conical drum which can be driven rotationally, and a conveyor helix which can be driven rotationally at a different speed disposed coaxially within the drum, the drum and the helix defining a separating chamber for the separation, the spirals of the helix being constructed to conform to the inner wall of the drum with a corre-

sponding conical section for driving the solid particles settling under centrifugal force in the separating chamber to one end of the drum, means defining a solids discharge opening at said one end of the drum for receiving the separated solid particles from the conveyor helix, a paring system disposed at the other end of the drum for removal of one of said liquids comprising a receiving chamber and a first overflow weir and means communicating the separating chamber with the paring system for removal of said one of said liquids by the paring system, a catchment for the other of said liquids disposed at said other end of the drum, a second overflow weir for receiving the second liquid from the separating chamber and means communicating the second overflow weir with the catchment, means sealing the catchment from the receiving chamber of the paring system, the improvement which comprises a separating disk adjacent each end of the conveyor helix for projecting through the specifically lighter liquid and partially through the specifically heavier liquid, at least one closable aperture in each separator disk for disposition at the zone of separation of the specifically heavier liquid and the specifically lighter liquid, the paring system overflow weir being replaceable.

4,313,560

CONTROL SYSTEM FOR ENVIRONMENTAL UNITS

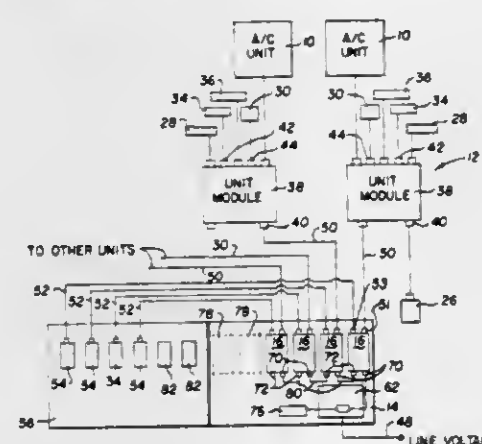
Jack L. Stiles, 3912 Acapulco, Irving, Tex. 75062

Filed Jul. 29, 1980, Ser. No. 173,671

Int. Cl.³ F23N 5/20; F25B 29/00

U.S. Cl. 236—46 R

11 Claims



1. A system for controlling a plurality of zoned environmental units such as air heaters or air conditioners, each unit having means for adjusting the ratio of intake air between return air from the environmental zone and fresh air from outside the environmental zone brought into the unit and a blower motor for forcing the intake air through the unit and into the environmental zone, the system comprising:
 means for sensing the temperature within each environmental zone;
 a control panel;
 a control module associated with each unit, located on or within the control panel;
 a temperature setpoint circuit located in each control module for setting a setpoint temperature;
 a temperature setback circuit located in each control module for setting a setback temperature;
 a clock;
 a temperature reference circuit located in each control module, responsive to the clock for setting a reference temperature equal to the setpoint temperature during a first predetermined time period of the clock and equal to the setpoint temperature plus the setback temperature during a second predetermined time period of the clock;
 means associated with each unit for turning the unit and the blower motor on when the difference between the temperature sensed by the temperature sensing means and the reference temperature for that unit is a predetermined turn

on amount and off when the difference is a predetermined turn off amount; and
 connectors affixed to each control module and electrically connected to the temperature setpoint circuit, the temperature setback circuit and the temperature reference circuit located within that control module wherein those circuits can be installed as a single unit by installing the control module and electrical connections can be made to those circuits from the outside of that control module by use of the connectors.

4,313,561

TEMPERATURE CONTROL SYSTEM AND THERMALLY RESPONSIVE ELECTRO-VACUUM RELAY THEREFOR

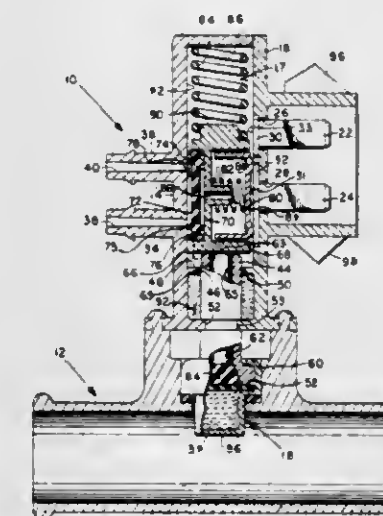
Andrew A. Kenny, Roselle, Ill., assignor to Eaton Corporation, Cleveland, Ohio

Filed Apr. 28, 1980, Ser. No. 144,794

Int. Cl.³ B60H 1/12

U.S. Cl. 237—12.3 A

27 Claims



24. A system for controlling ambient air flow in a passenger vehicle intake air duct, said vehicle having a fluid cooling system, an air intake duct, a shut-off door positionable in the flow of air through said duct, said door movable between an open and closed position, a low pressure source, and an electrical power source, said system comprising:

- (a) blower means for forcing ambient air through said duct, said blower means including an electric motor for driving same;
- (b) relay means, said relay means including,
 - (i) housing means, said housing means having structure defining a vent chamber and an internal wall portion in fluid communication with said vent chamber, said internal wall portion defining a valve seat, said housing means having a first fluid port in fluid communication with said vent chamber and opening into said wall portion, a second fluid port in fluid communication with said vent chamber and opening into said wall portion, said first fluid port being disposed in spaced arrangement from said second fluid port, said housing means including means for venting said vent chamber to the atmosphere,
 - (ii) a carrier member received in said vent chamber and movable between a first and second position,
 - (iii) thermally responsive actuator means associated with said housing means and operative to move said carrier member from said first to said second position, said actuator means having a temperature sensitive portion in heat transfer relationship with said fluid cooling system,
 - (iv) valve means operably connected to said carrier member and movable therewith, said valve means including a member having resilient valve surface portions defining in co-operation with said internal wall portion a movable valve chamber therebetween, wherein said

- first and second fluid ports are spaced such that upon movement of said carrier to said first position said first and second ports are in mutual communication and isolated from said vent chamber and in said second position said first port communicates with said vent chamber and said second port is isolated from said first port and said vent chamber,
- (v) electrical switch means, said switch means including contact means mounted on said carrier member and movable therewith, a pair of spaced, stationary terminals mounted on said housing means and having contact surface portions extending within said vent chamber, said contact member having an actuated condition completing a circuit between said first and second terminals and an unactuated condition breaking a circuit between said terminals,
- (vi) means for commonly biasing said valve means toward said valve seat and said contact means toward said contact surface portions;
- (c) means for communicating said second port with said low pressure source;
- (d) vacuum motor means, said motor means including an output member operably connected to said damper door for moving said door between said open and closed positions;
- (e) means for communicating said first port with said vacuum motor means, such that upon communication of said vacuum source thereto said vacuum motor means output member moves said shut-off door to said closed position and upon atmospheric venting of said first port said vacuum motor means moves said door to said open position; and
- (f) circuit means for connecting said electrical power source to said blower means, said switch means connected along said circuit means intermediate said electrical power source and said blower means, such that as said carrier member is in said first position, said switch means is in said open position and said blower means is de-energized and as said carrier member is in said second position said switch means is in said closed position and said blower means is energized.

4,313,562

FLUE HEAT VENTILATOR

Ralph H. White, Burbank, Calif., assignor to Modern-Alre Ventilating, Inc., North Hollywood, Calif.

Continuation of Ser. No. 14,704, Feb. 23, 1979, abandoned. This application Sep. 29, 1980, Ser. No. 191,365

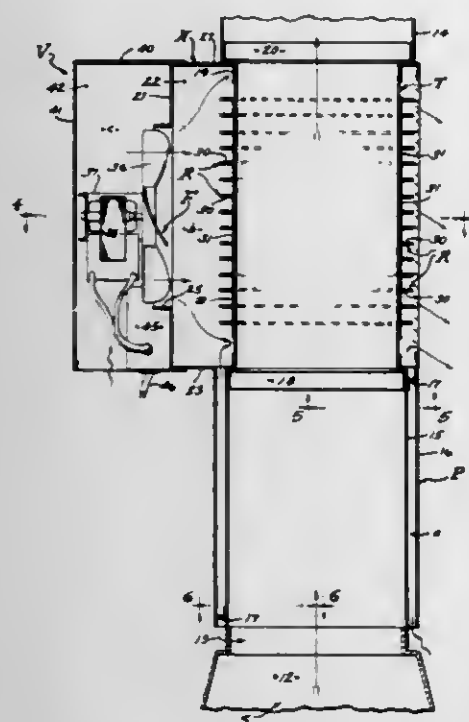
Int. Cl.³ F24B 7/00

U.S. Cl. 237—55

3 Claims

1. A heat ventilator for insertion in a flue pipe and spaced above an open fire place stove and the like having a hood from which heat is radiated into the space being heated, and including: a double walled connector having an inner tube in open communication with said stove and having a closely surrounding outer tube forming an annulus inlet above the stove for upward convection of closely surrounding air from the heated hood and completely surrounding the stove, a longitudinally disposed flue in open communication with the inner tube of the connector and with said flue pipe, a transverse housing above the hood and in open communication with the connector annulus to receive said convection flow of air from the hood completely surrounding the stove and into a passage transversely over the flue tube and having a downwardly open plenum for receiving upward convection flow of heated air from the space being heated at one side of the stove, the housing having a front opening for the discharge of heated air into the space being heated surrounding the stove, transversely disposed spaced and parallel radiator plates engaged over the flue tube and occupying the housing passage to absorb heat from the flue and dissipate the same into the body of air in the

housing passage, and a motor driven fan disposed in the plenum of the housing for delivering pre-heated air received from



the hood completely surrounding the stove and moving said air over the plates and from the front opening of the housing.

4,313,563

RAIL FASTENER

Hartley F. Young, Melton, Australia, assignor to Ralph McKay Limited, Victoria, Australia

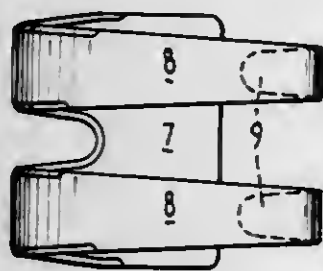
Continuation of Ser. No. 919,618, Jun. 27, 1978, abandoned.

This application Mar. 10, 1980, Ser. No. 128,405

Int. Cl.³ E01B 9/62

U.S. Cl. 238—349

3 Claims



1. In rail fastening apparatus including a clip adapted for fastening an associated rail to an associated sleeper, said clip comprising a U-shaped member formed from metal plate having a base and two substantially uniformly tapered arms extending therefrom, each of said arms being substantially uniformly tapered over substantially its entire length to a tip portion said base adapted to be secured to said sleeper outwardly spaced from the foot of said rail, said arms being bent inwardly beyond said base in a large arc with the tip portion of said arms being bent back toward and short of said base and oriented for contact with the foot of said rail such that said arms are deflected upwardly relative to said rail to develop downward clamping forces at said tip portions tending to hold said rail on said sleeper against vertical, lateral and longitudinal movement.

4,313,564

SELF-CLEANING AERATOR WITH NOISE REDUCTION

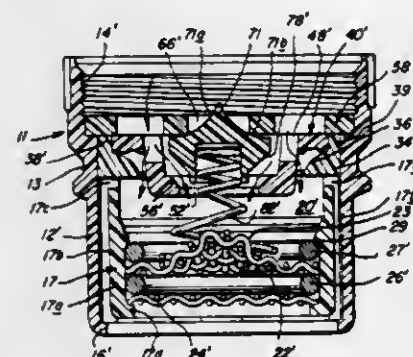
Sidney J. Shames, 57 Holly Pl., Briarcliff Manor, N.Y. 10510, and Harold Shames, 5 Agnes Cir., Ardsley, N.Y. 10502

Continuation-in-part of Ser. No. 4,061, Jan. 17, 1979, Pat. No. 4,214,702, which is a continuation-in-part of Ser. No. 938,901, Sep. 1, 1978, Pat. No. 4,221,335. This application Jul. 7, 1980, Ser. No. 166,341

Int. Cl.³ E03C 1/08

U.S. Cl. 239—110

4 Claims



1. In an aerator that includes: an axially elongated tubular casing having means through which air is ingested to the interior of the casing to be mixed with fragmented liquid jets; screen means within and adjacent the downstream end of said casing through which aerated liquid is discharged; and plastic jet-defining and jet-fragmenting means, within the casing and upstream of said screen means, through which liquid to be aerated is forced under pressure consisting of: (1) an annular guide ring with a downstream annular impingement surface defined thereon and having an upstream, annular, support edge disposed in a plane; and (2) a cup-shaped plug member having an upper annular support flange slidably telescoped into said guide ring and an upright side wall projecting downstream from the inner edge of said annular peripheral flange, the upstream side of said support flange lying in the same plane with the annular support edge of the guide ring, the upright side wall being provided therein with a series of axially elongated slots that extend downstream from the upstream side of said support flange and operates to provide the liquid required to effect aeration of the liquid;

the improvement of self-cleaning and noise reducing character for said aerator comprising, in combination:

- (a) said plug member being formed as an annulus with a relatively large central flow opening through the downstream transverse wall of said cup-shaped member;
- (b) a shape-retaining washer supported at least on the annular support edge of the guide ring; said washer having radially spaced outer and inner concentric annular lands interconnected by a plurality of radial lands, the inner annular land bounding and defining a central flow passageway, and the annulus between said outer and inner annular lands providing therethrough a plurality of circumferentially spaced primary flow passageways through which flow of liquid is initially directed downstream to scrub and dislodge, from the plug member's axially elongated slots, debris that may have lodged therein, and to flush same through the central flow opening of said plug member;
- (c) a flow-blocking valve member located downstream of the washer and being resiliently biased upstream toward engagement with the washer, said valve member being movable downstream under force of flowing liquid to close the central flow opening of the plug member after dislodged debris has passed therethrough, and to restore normal aerating operation of the aerator; and
- (d) the upstream end of said valve member having a diameter greater than the diameter of the central flow opening of the washer and being shaped to provide thereon both a seal portion for engaging and sealing against the downstream periphery of the central flow passageway

through the washer, and a cavitation noise reducing means.

4,313,565

APPARATUS FOR THE PROJECTION OF REFRACTORY AND OTHER MATERIAL PARTICULARLY FOR THE REPAIR OF THE LININGS OF METALLURGICAL PLANT

Jean Focant, Lessive, Belgium, assignor to Stephan Pasek & Cie, Societe Anonyme, Anbee and Cockerill, Societe Anonyme, Seraing, both of Belgium, a part interest

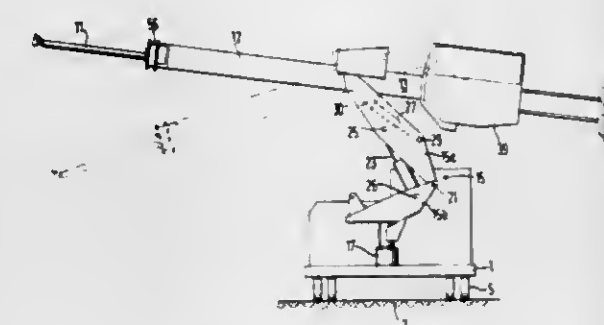
Filed Apr. 4, 1979, Ser. No. 26,590

Claims priority, application Luxembourg, Apr. 7, 1978, 79401

Int. Cl.³ B05B 13/06

U.S. Cl. 239—132.3

3 Claims



1. A mobile gunning apparatus for projecting refractory material in hard to reach locations during relining or repairing a converter or similar metallurgical furnace tiltable about a generally horizontal axis for discharging, and relining or repairing the discharge opening thereof, without excessively tilting the furnace or discharging its slag or damaging its discharge opening, comprising

a base mounted on wheels,

a scissors-like, upright, support member having an upper arm pivotably connected to a lower arm for relative movement about a generally horizontal first pivot,

a first adjusting means operatively connecting said arms for causing relative movement of said arms about the first pivot for opening and closing the arms in scissors-like fashion,

one of said arms being pivotably connected to the base for relative movement about a generally vertical second pivot spaced from said first pivot connection between said arms, a lance carrier operatively connected to the other of said arms for relative movement about a generally horizontal third pivot,

a second adjusting means operatively connecting said lance carrier and other arm for causing relative movement of said other arm and lance carrier about said third pivot,

a lance comprising a primary lance and a secondary lance having relative movement in a path generally perpendicular to said first pivot,

said primary lance being slidably mounted on said lance carrier for relative movement thereto,

said secondary lance having a nozzle on its distal end and being telescopically mounted in the primary lance for relative movement thereto and for relative movement through said discharge opening, in said furnace and generally perpendicular to the axis of each of said pivots,

means for moving said secondary lance by endwise and rotatable relative movement relative to said primary lance,

means on said base for preparing refractory material and operatively connected by a conduit to said nozzle for projecting said refractory material from the nozzle on the secondary lance,

so that during gunning only the nozzle and a portion of the lance are in the discharge opening or inside the furnace

while the remainder of the apparatus is located outside the furnace, and

with the relative movements permitting relative pivoting about the generally vertical and horizontal axes, raising and lowering of the lance carrier and its lance relative to said base, and moving the secondary lance endwise and rotatably relative to the lance carrier and primary lance for directing refractory material from its nozzle with precision at any convenient angle or location within the furnace or its discharge opening without excessively tilting the furnace or discharging its slag or damaging its discharge opening.

4,313,566

FLUID BALANCING SYSTEM FOR TANK VEHICLE

Richard F. Klein, 20911 Via Verde, Covina, Calif. 91722

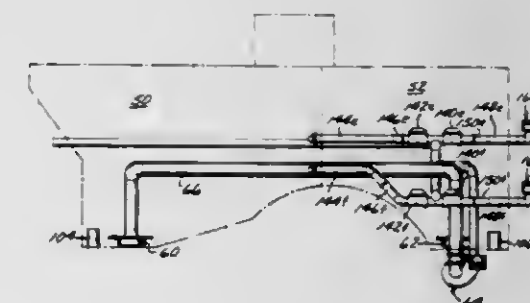
Continuation of Ser. No. 44,850, Jun. 4, 1979, abandoned. This

application Jul. 17, 1980, Ser. No. 169,761

Int. Cl.³ A01G 25/09; E01C 19/16; E01H 3/02

U.S. Cl. 239—172

9 Claims



1. A fluid spray tanker suitable for balanced operation while traveling on a grade, the tanker having a vehicle body comprising:

(a) a tank body supported on said vehicle body and having a forwardly positioned section and a rearwardly positioned section, each section providing a containment for said fluid,

(b) fluid spray means for spraying said fluid onto said grade traveled by said tanker,

(c) fluid conduit means connecting said forwardly positioned section and said rearwardly positioned section to said fluid spray means,

(d) valve means connected to said fluid conduit means for selectively connecting said forwardly and rearwardly positioned sections to said spray means,

(e) means for connecting said rearwardly positioned section to said spray means when said vehicle is moving on an uphill grade, and

(f) means for detecting the level of fluid in said rearwardly positioned section and means for operating said valve means for connecting said forwardly positioned section to said spray means when said tanker is traveling on an uphill grade and upon detection of a low level of fluid in said rearwardly positioned section.

4,313,567

CAM-LOCK ROCKET SECURING MECHANISM

Robert A. Feight, Canoga Park, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Dec. 3, 1979, Ser. No. 99,675

Int. Cl.³ F02K 1/09

U.S. Cl. 239—265.33

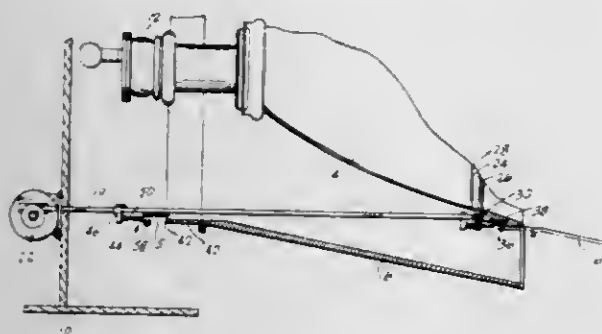
12 Claims

1. An extendible rocket engine nozzle, comprising: a main nozzle;

an outer nozzle section concentric with the main nozzle; means secured to the main nozzle for moving the outer nozzle section in an axial direction relative to the main nozzle between a retracted position and an extended position;

stop means engaged by the outer nozzle for positioning said outer nozzle in fixed relation to said main nozzle when the outer nozzle is moved to the extended position;

latching means for locking the nozzles together when the outer nozzle is moved to the extended position, including



a catch member secured to the outside of the main nozzle having a recessed surface, means supported on the outer nozzle including a roller detent member in rolling contact with the catch member when the outer nozzle is moved to the extended position, the roller detent member engaging said recessed surface when the stop means is engaged by the outer nozzle, and a movable cam member having a wedging surface engaging the detent member for wedging the member into the recessed surface when the cam is moved to a locking position.

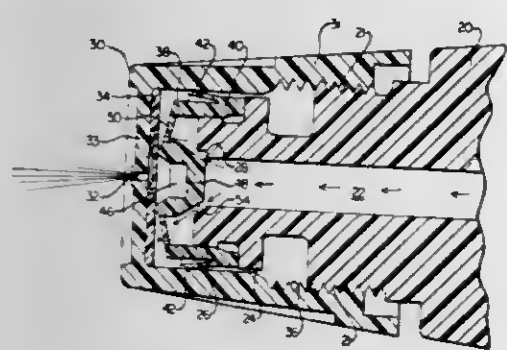
4,313,568

FLUID DISPENSER METHOD AND APPARATUS
Joseph J. Shay, Manchester, N.H., assignor to Ethyl Products Company, Richmond, Va.

Filed May 27, 1980, Ser. No. 153,770
Int. Cl.³ B65D 47/34

U.S. Cl. 239—333

19 Claims



1. A nozzle for fitment to hand actuated liquid pumps having a barrel portion with a bore therethrough for passage of liquid, said nozzle comprising:

a. an integrally formed nozzle cap which includes

i. an end wall having a planar inside wall and an aperture through said planar wall through which liquid from said bore is dispensed, and

ii. a skirt portion having mounting means for mounting said nozzle cap around the end portion of said barrel;

b. an integrally formed sealing means attached to said barrel and enclosed by said nozzle cap, said sealing means having

i. a peripheral seal portion to provide a liquid-tight seal around said barrel between said nozzle cap and said barrel, and

ii. a check valve portion movably positioned at the mouth of said bore, said check valve portion including a seal member which selectively forms a liquid-tight bore seal with said mouth of said bore to close off the flow of liquid therethrough, and a spring member in operative relationship with said seal member whereby said spring member biases said seal member to form its said liquid-

tight bore seal, but said spring member having a biasing strength sufficiently low to allow liquid pressure in said bore, developed by actuation of said pump, to move said seal member away from said bore so that said liquid-tight bore seal is opened and liquid in said bore can pass to said aperture in said nozzle cap; and

c. spray means fittable within said nozzle cap and in abutment with said planar wall, said spray means and said planar wall together providing a path for the liquid as it is dispensed, said path causing said liquid to break up and form a spray pattern.

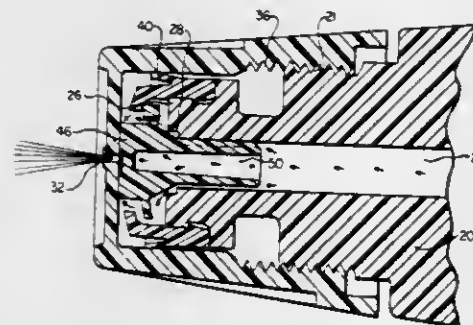
4,313,569

FLUID DISPENSER METHOD AND APPARATUS
James E. Burke, Huntington, Conn., assignor to Ethyl Products Company, Richmond, Va.

Filed May 27, 1980, Ser. No. 153,772
Int. Cl.³ B65D 47/34

U.S. Cl. 239—333

24 Claims



1. A nozzle for fitment to hand actuated liquid pumps having a barrel portion with a bore therethrough for passage of liquid, said nozzle comprising:

a. an integrally formed nozzle cap which includes:

i. an end wall having an aperture through which liquid from said bore is dispensed, and

ii. a skirt portion having mounting means for mounting said nozzle cap around the end portion of said barrel;

b. an integrally formed nozzle seal means attached to said barrel and enclosed by said nozzle cap, said nozzle seal means providing a peripheral liquid-tight seal around said barrel between said nozzle cap and said barrel, and said nozzle seal means having stop means displaced outwardly from the end of said barrel; and

c. an integrally formed check valve means movably positioned at the mouth of said bore, said check valve means having,

i. a seal portion which selectively forms a liquid-tight bore seal with said end portion of said barrel to close off the flow of liquid through said bore, and

ii. a spring portion in operative relationship with said stop means whereby said spring portion biases said seal portion to form its said liquid-tight bore seal, but said spring portion having a biasing strength sufficiently low to allow liquid pressure in said bore, developed by actuation of said pump, to move said check valve away from said barrel end portion so that said liquid-tight bore seal is opened and liquid in said bore can pass to said aperture in nozzle cap.

4,313,570

HIGH PRESSURE CUTTING NOZZLE WITH ON-OFF CAPABILITY

John H. Olsen, Vasbon, Wash., assignor to Flow Industries, Inc., Kent, Wash.

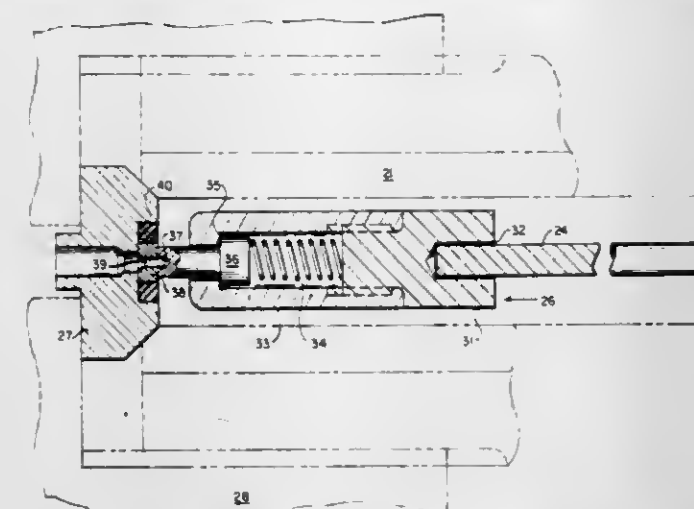
Filed Nov. 20, 1979, Ser. No. 96,219
Int. Cl.³ B05B 1/02; E21B 7/18

U.S. Cl. 239—583

17 Claims

1. A high velocity liquid jet cutting nozzle comprising:

a housing having an inlet means for admitting high pressure working liquid thereto, outlet means in said housing for said high pressure liquid, jet forming means for forming a cutting jet of said liquid, means mounting said jet forming means in said outlet means,



poppet means in said housing movable into sealing engagement with said jet forming means for controlling liquid flow through said jet forming means, poppet actuation means for moving said poppet means into and out of sealing engagement with said jet forming means.

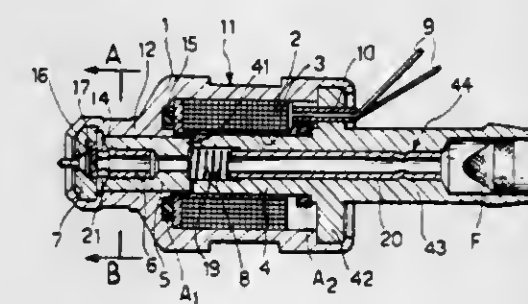
4,313,571

ELECTROMAGNETICALLY ACTUATED INJECTOR FOR INTERNAL COMBUSTION ENGINE
Francesco Bellicardi, and Franco Molinari, both of Bologna, Italy, assignors to Weber S.p.A., Bologna, Italy

Filed Dec. 21, 1979, Ser. No. 105,989
Int. Cl.³ B05B 1/32; F16K 31/02

U.S. Cl. 239—585

6 Claims



1. An electromagnetically actuated injector for internal combustion engines comprising:

a hollow housing;

a magnetic core positioned within said housing and being operatively mounted adjacent an electric winding connected to a source of electric pulses;

a hollow extension coaxially projecting from one side of the housing;

an aperture at the free end of said extension;

a moving iron member slidably and axially mounted inside said hollow extension, coaxially with the winding and the core, and guided by the inner wall of the hollow extension, by means of contacting side surface zones;

said moving iron member and core having respective surfaces facing one another;

a needle valve secured to the moving iron member and extending through said aperture to open and close the aperture orifice;

added layers of wear-resistant diamagnetic material provided on (a) the side surface zones of the moving iron member which are slidably contacting the inner wall of said hollow extension, on (b) the surface of the moving iron member facing the core and on (c) the surface of the

core facing the moving iron member, said layers having a respective predetermined controlled thickness to center the moving iron member and the needle valves secured thereto relative to the longitudinal axis of said hollow extension and to limit the axial distance between the aperture orifice and core, whereby the effects of residual magnetism on the moving iron member and needle valve are reduced.

4,313,572

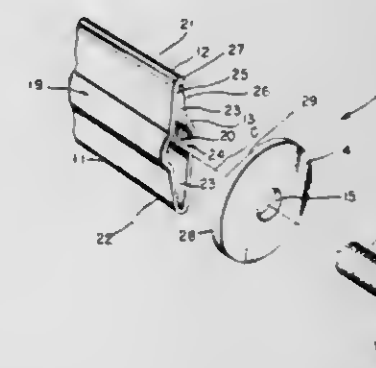
ADJUSTABLE FLOW RATE FAN ATOMIZATION NOZZLE

George C. Wood, Edenton, N.C., assignor to Patent Development of N.C., Raleigh, N.C.

Filed Apr. 17, 1980, Ser. No. 140,459
Int. Cl.³ B05B 1/14

U.S. Cl. 239—598

13 Claims



1. An adjustable flow rate fluid atomization nozzle comprising an elongated corona type tubular body in which fluid is pressurized having a planar fluid discharge end and a structured device removably secured to said elongated corona type tubular body at said discharge end and cooperating with said planar discharge end to form at least one atomizing orifice for atomizing said pressurized fluid, said elongated tubular body comprising an elongated main feed conduit having a central axis and a relatively large cross-sectional area, and at least one corona discharge wing member of less cross-sectional area than the main fluid conduit extending substantially parallel with the main fluid conduit and communicating with the interior thereof, said corona discharge wing member including a corona orifice cavity having a pair of spaced side walls extending outwardly from the main feed cavity and an arcuate end wall joining the spaced sidewalls remote from said main feed cavity, said structured device having a planar surface contiguous with the planar discharge end of said elongated tubular body, said at least one atomizing orifice being formed between the planar surface of said structured device and the planar discharge end of said tubular body adjacent said arcuate end wall of said corona orifice cavity, said structured device having an outer radius which is substantially the same as the outer radius of said corona type tubular body measured from said central axis to the outside of said arcuate end wall to achieve dispersion only at the said atomizing orifice, and means securing said structured device to said discharge end whereby said structured device can be either rotated or replaced with a different structured device to achieve different rates of fluid discharge.

4,313,573

TWO STAGE COMMINATION

William M. Goldberger, Harold M. Epstein, and Bhupendra K. Parekh, all of Columbus, Ohio, assignors to Battelle Development Corporation, Columbus, Ohio

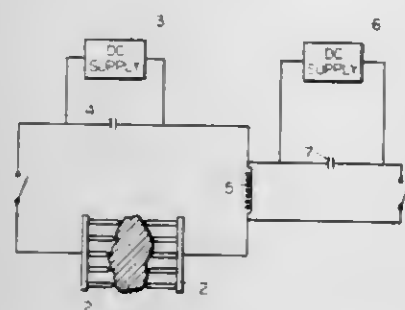
Filed Feb. 25, 1980, Ser. No. 124,480
Int. Cl.³ B02C 19/18

U.S. Cl. 241—1

17 Claims

1. A method for the two stage comminution of ore which comprises

(A) applying directly to an ore sample an electric field at least equal to the pulse breakdown field of the ore and inducing a short duration electrical discharge through the ore sample and between electrodes in contact with the ore sample for a time sufficient to cause shock waves in the ore having peak pressures sufficiently high to produce reflected waves which induce tensile stresses in the ore in



excess of the tensile strength of at least one phase in the path of the reflected waves such that such phase is microfractured, and

(B) applying secondary energy to the microfractured region of the ore to enlarge the microfractures and remove portions of such microfractured ore from the remaining ore sample.

4,313,574

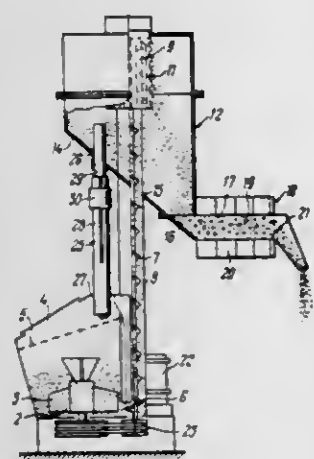
APPARATUS FOR THE ACTIVATION OF CEMENT
Viktor F. Rogov, ulitsa Garibaldi, 30, korpus 2, kv. 70; Igor G. Nikiforov, ulitsa Obratsova, 24, kv. 142; Ruben A. Tatevosian, ulitsa Gorkogo, 4, kv. 60; Mikhail Y. Titov, ulitsa Kominterny, 34/6, kv. 83, all of, Moscow, and Nikolai K. Lipatov, ulitsa Mekhanizatorov, 1, kv. 4, Apatity Murmanskoi oblasti, all of U.S.S.R.

Filed Dec. 4, 1979, Ser. No. 100,125

Claims priority, application U.S.S.R., Dec. 7, 1978, 2688955
Int. Cl.³ B02C 19/12

U.S. Cl. 241—78

9 Claims



1. An apparatus for the activation of cement, comprising:
a receiving hopper having a crusher;
a conveying screw in a casing provided downstream said receiving hopper;
a classifier comprising a screen arranged at the outlet of said conveying screw;
at least one electromagnetic particle size reducer;
a reducer hopper for said reducer provided at the inlet of said classifier;
said reducer hopper having an inclined bottom wall and communicating with the classifier;
said screen of the classifier comprising a body of revolution which is rigidly secured to the shaft of said conveying screw coaxially with the shaft, said screen extending together with a part of said screw with the casing in said

reducer hopper upstream the inlet of said electromagnetic reducer.

4,313,575

CAPS FOR HAMMERMILL ROTORS SECURED BY INDIVIDUALLY-REMOVABLE PAIRED PIN ASSEMBLIES

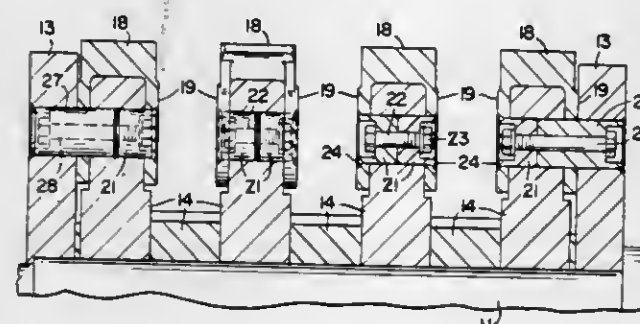
Robert M. Stepanek, Cedar Rapids, Iowa, assignor to Pettibone Corporation, Chicago, Ill.

Continuation-in-part of Ser. No. 883,054, Mar. 3, 1978, abandoned. This application May 21, 1979, Ser. No. 40,977

Int. Cl.³ B02C 13/16

U.S. Cl. 241—194

12 Claims



1. In a hammermill rotor including as environment for this improvement a row of spaced rotor arms, mounted on and rotatable by a drive shaft, swing hammers in the spaces between the arms within the row, a hammerbolt extending axially through the arms and hammers to swingably secure the hammers;

the improvement comprising caps positioned over the leading edges of the arms and having side portions extending inwardly along the side faces of the arms, said caps being secured by pin assemblies in the arms and side portions but not protruding beyond the side portions, thereby leaving the spaces between the side portions free for the swinging of the hammers; said pin assemblies including two aligned pins in one assembly separable at a cleavage plane located in the central zone of the capped arm while the pin assembly is in pinning position, and each of the aligned pins being movable from the pinning position to permit removal of the cap, and each pin assembly being reliably secure in its pinning position during operation of the rotor.

4,313,576

PROCESS AND APPARATUS FOR SIMULTANEOUSLY WINDING SEVERAL YARNS

Jean P. Claret, Lyons, and Bernard Isoard, Ecully, both of France, assignors to Rhone-Poulenc-Textile, Paris, France

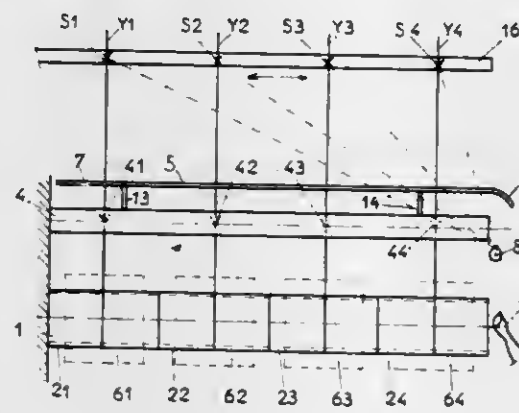
Filed Oct. 26, 1979, Ser. No. 88,417

Claims priority, application France, Oct. 27, 1978, 78 31240; Sep. 18, 1979, 79 23383

Int. Cl.³ B65H 54/02, 54/20, 54/34

U.S. Cl. 242—18 PW

16 Claims



1. In a process for simultaneously winding each of several

yarns into separate yarn reels on yarn support tubes carried on the same spindle by bringing the yarns, each traveling in a distinct path, through a positioning guide and a reciprocating distribution guide for winding each yarn in a main winding zone on an associated yarn support tube as each yarn support tube is rotated, the improvement which comprises,

passing each yarn through its respective positioning guide; attaching each yarn, substantially simultaneously, to an end of the spindle;

applying a force to each yarn to put each yarn out of contact with its respective reciprocating distribution guide, each yarn moving in a direction substantially parallel to the axis of the spindle under the influence of recall forces, thereby allowing each yarn to position itself on its respective main winding zone on its respective yarn support tube at approximately right angles to its respective positioning guide;

removing the force applied to each yarn to thereby allow each yarn to change its path of travel in a direction to engage with its respective reciprocating distribution guide; and,

forming a transfer end for each yarn in an attachment zone located on the yarn support tube adjacent to and outside of the main winding zone of each yarn reel by the steps of: moving the positioning guide for each yarn to a position over the attachment zone of said yarn;

disengaging each of the yarns from its respective reciprocating distribution guide by applying a force to each of the yarns in a direction substantially perpendicular to the axis of the spindle and away from said guides;

forming a transfer end in each attachment zone at a position substantially directly below the respective positioning guides; and

withdrawing the force applied to each of the yarns and returning each positioning guide to a position above its associated main winding zone.

4,313,577

ROTARY SUPPORT FOR ROLLS OF CONVOLUTED WEBS AND MEANS FOR DAMPING ITS NATURAL FREQUENCY OSCILLATIONS

Hartmut Peters, Hamburg, Fed. Rep. of Germany, assignor to Hauni-Werke Körber & Co. KG, Hamburg, Fed. Rep. of Germany

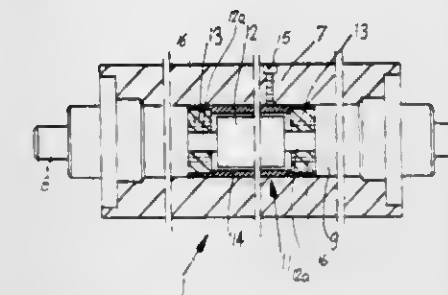
Filed May 22, 1980, Ser. No. 152,183

Claims priority, application Fed. Rep. of Germany, Mar. 25, 1980, 3011385

Int. Cl.³ B65H 17/08; F16F 15/10

U.S. Cl. 242—66

15 Claims



1. In an apparatus of convoluting or paying out convoluted webs of paper or other flexible strip material, the combination of a holder for a supply of convoluted flexible strip material; and supporting means including at least one supporting roller for the outermost convolution of said supply, said roller including a hollow rotary housing having a cylindrical peripheral surface contacting the outermost convolution of the supply on said holder, said housing exhibiting the tendency to oscillate at a given natural frequency in response to rotation of said supporting roller, and means for damping the oscillations of said housing including a dynamic damping system disposed

in the interior of said housing and having a natural oscillation frequency which is attuned to said given frequency.

4,313,578

YARN TENSION CONTROL APPARATUS

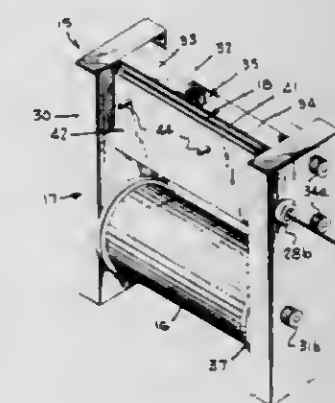
Marlin Van Wilson, Barboursville, Va.; Lawrence C. Nickell, Fairlea, and Larry C. Nickell, Lewisburg, both of W. Va., assignors to Appalachian Electronic Instruments, Inc., Ronceverte, W. Va.

Continuation-in-part of Ser. No. 928,572, Jul. 27, 1978, abandoned. This application Apr. 19, 1979, Ser. No. 31,477

Int. Cl.³ B65H 59/22

U.S. Cl. 242—149

51 Claims



1. Yarn tensioning apparatus for tensioning a plurality of yarns being drawn from supply packages along plural yarn paths for delivery to yarn utilization apparatus such as beamers, knitting machines and the like, comprising a plurality of electronically controlled yarn tensioning devices forming a single channel of such devices regulated by a channel control voltage on a master output lead, each tensioning device comprising an electromagnet core and coil assembly to be located along each respective yarn path and including an elongated electromagnet coil and a rigid generally rectangular loop core including a U-shaped portion formed of a longitudinal cross leg extending through the coil and transverse end legs and having a pair of pole pieces extending from said end legs toward each other defining a gap therebetween for passage of magnetic flux generated by the coil through the core legs and pole pieces, the pole pieces having a pair of flat lateral mounting faces located in a single vertical plane immediately adjacent and facing the associated yarn path, a plural plate yarn wear plate assembly supported in loosely hanging relation from the pole pieces in parallel vertical planes immediately alongside said mounting faces and spanning the gap comprising a pair of inner and outer flat yarn wear plates providing confronting substantially flat coextensive vertical yarn contacting wear surfaces between which the yarn passes in frictional contact with the faces, said outer wear plate being of magnetic material to respond to variable magnetic attractive forces of the flux passing through the pole pieces to vary the force of attraction thereon inwardly horizontally toward the pole pieces and thereby vary tension of the yarn leaving the device, and electronic control circuit means remote from the yarn tensioning devices of said channel and electrically coupled through said master output lead to each of the electromagnet coils thereof for regulating the channel control voltage applied to the coils and thereby regulating the magnetic forces exerted on the wear plates.

4,313,579

TWISTLESS PAYOUT PACKAGE OF FILAMENTARY MATERIAL

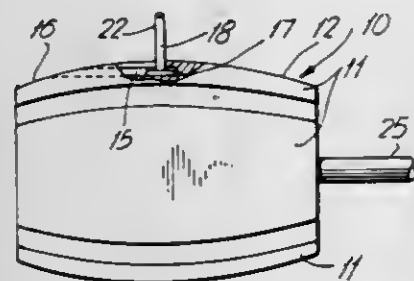
Bretislav P. Zuber, Montreal, and Munidas C. Pereira, Lasalle, both of Canada, assignors to Northern Telecom Limited, Montreal, Canada

Filed Jul. 10, 1980, Ser. No. 167,457

Int. Cl.³ B65H 55/00

U.S. Cl. 242—163

11 Claims



1. A method of winding an internal payout package of flexible filamentary material comprising providing a winding drum with a localized projection axially slidably received by a holding means of the drum to extend radially outwards from a winding surface of the drum in a fixed radial position relative to the drum, winding the filamentary material onto the drum to form the package, deflecting any windings which would otherwise cross the region of the projection, to one side or the other of the projection and thereby forming a radial opening by the projection through the package, and removing the package together with the projection from the drum by axial movement of the package accompanied by axial sliding removal of the projection from the holding means.

4,313,580

SYSTEM FOR GUIDING REMOTE-CONTROLLED MISSILES

Hubert Collette, Neuilly-sur-Seine, France, assignor to Societe Nationale Industrielle Aerospatiale, Paris, France

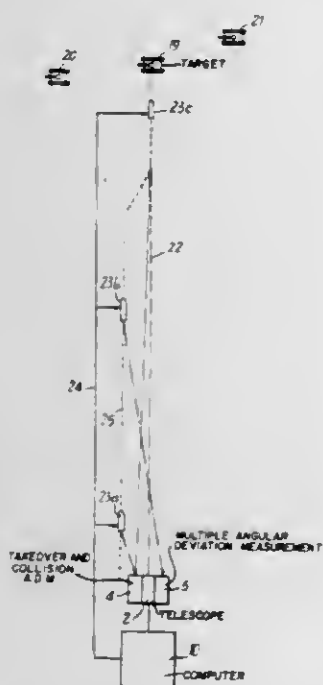
Filed Oct. 31, 1979, Ser. No. 89,961

Claims priority, application France, Nov. 9, 1978, 78 13743

Int. Cl.³ F41G 7/00

U.S. Cl. 244—3.13

9 Claims



1. In a system for guiding remote-controlled missiles comprising a sighting device having an axis defining a line of sight, an angular deviation measuring (ADM) device provided with means for locating missiles in flight, and a control device (obliging) directing the missiles to follow a predetermined path

in accordance with indications furnished by said ADM device, the improvement comprising means for defining a plurality of partial, individual and separate fields in the field of the ADM device, said individual fields corresponding to various zones where successive missiles may be addressed, whereby said ADM device is multiple and capable of furnishing the angular deviation information of a plurality of missiles in flight simultaneously, said control device being designed to guide, simultaneously, for at least the major part of their flight, a plurality of missiles on a plurality of distinct, predetermined standby courses spaced apart with respect to said line of sight.

4,313,581

REVERSER DOOR MECHANISMS

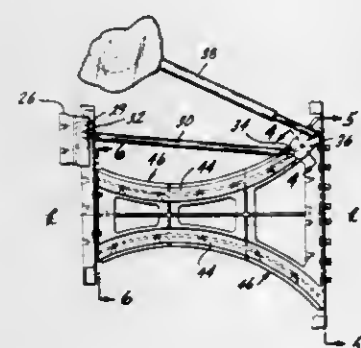
Carroll W. Folmer, and Aldridge T. Hunter, both of San Diego, Calif., assignors to Rohr Industries, Inc., Chula Vista, Calif.

Filed Sep. 12, 1979, Ser. No. 74,823

Int. Cl.³ B64C 15/04; F02K 3/06

U.S. Cl. 244—110 B

6 Claims



1. An improved deployment mechanism for blocker doors utilized for redirecting the normal rearward fan air path of a turbo fan aircraft engine, said engine being enclosed by a two-portion nacelle, a forward nacelle portion is fixedly secured to said engine and a rearward portion being translatable by conventional translating means, a peripheral opening is provided between said portions when said rearward portion is in a translated position, said translating means comprising:

- at least a pair of said blocker doors being pivotally attached to said fixed section for rotational movement between a stowed position wherein the fan air in said fan air path is unaffected to a deployed position wherein said fan air path is directed through said peripheral opening;
- a yoke assembly for each pair of said blocker doors, said yoke assembly is attached to and translatable with said rearward section, the outer opposite edges of said yoke having a track therealong;
- a slide member slideably engaging each of said tracks;
- a first drag link pivotally attached at one end to said forward nacelle portion and at its opposite end to one of said slide members; and
- a blocker door actuating link pivotally attached at one end to one of said blocker doors and at its opposite end to one of said slide members.

4,313,582

DEVICE WITH INDEPENDENT HOOKS AND AUTOMATIC LOCKING MECHANISM FOR HOOKING UP LOADS UNDER AIRCRAFT

Jean H. Hasquenoph, Lagny, and Pierre F. Coutin, Paris, both of France, assignors to R. Alkan & Cie, France

Filed Sep. 12, 1979, Ser. No. 74,629

Claims priority, application France, Dec. 15, 1978, 78 35346; Jan. 22, 1979, 79 01479; Apr. 20, 1979, 79 10009

Int. Cl.³ F41F 5/02; B64D 1/02

U.S. Cl. 244—137 R

16 Claims

12. A device for releasably transporting loads under aircraft comprising:

- a pair of pivoted suspension hooks adapted to co-act with

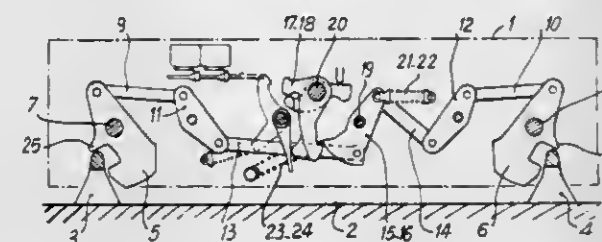
suspension members rigid with the load to be transported, each suspension hook having a closed position and a released position,

a first independent pivoting locking member associated with a first suspension hook of said pair,

a second independent pivoting locking member associated with a second suspension hook of said pair,

a first pivoting support at one end of which is pivoted said first locking member and at the other end of which is pivoted one end of a first effort scaling-down device adapted to absorb at least a main part of the force applied to the first locking member by the loaded first suspension hook,

a second pivoting support at one end of which is pivoted said second locking member and at the other end of which is pivoted one end of a second effort scaling-down device adapted to absorb at least a main part of the force applied



to the second locking member by the loaded second suspension hook,

a member connecting said first and second effort scaling-down devices in order that a movement of said connecting member in one direction puts said first and second effort scaling-down devices in an operative position whereas a movement in the opposite direction puts said first and second effort scaling-down devices in a release position, and

means for locking said connecting member in a position allowing each suspension hook to be locked in its closed position and for selectively releasing said connecting member to cause the two suspension hooks to be automatically and simultaneously placed in their released position, whereby there is applied to said locking means of the connecting member on a reduced force which avoids any risk of jamming of said locking means when actuating it to release the two suspension hooks.

4,313,583

RAILROAD CAR WHEEL BEARING HEAT SIGNAL PROCESSING CIRCUIT

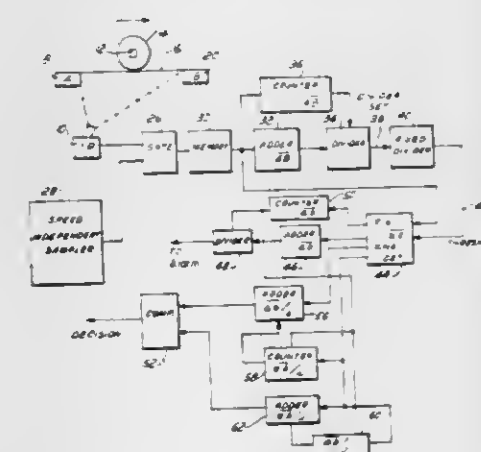
Joseph E. Bambara, North Babylon, and W. Woodward Sanville, Brentwood, both of N.Y., assignors to Servo Corporation of America, Hicksville, N.Y.

Filed Mar. 31, 1980, Ser. No. 135,628

Int. Cl.³ B61K 9/04; G08B 21/00

U.S. Cl. 246—169 A

10 Claims



1. In a railroad hot box detector system of the type including

infrared responsive scanner means associated with a sensing zone along a section of track adapted to scan bearings of a railroad car within said sensing zone and to generate an output voltage signal in response thereto having an amplitude and waveform indicative of the type of bearing being scanned and a sampling circuit adapted to sample the output of said scanner means into a preselected number of discrete samples the improvement comprising:

- means for establishing a threshold signal level related to the average of the discrete voltage levels;
- means for determining the number of discrete samples falling between the crossing points of said waveform through said threshold; and
- means for averaging the discrete voltage levels of the samples falling between the crossing points whereby to obtain a signal indicative of the heat condition of the bearing being scanned.

4,313,584

STRUCTURE FOR MOUNTING A METER ON AN INSTRUMENT PANEL OF MOTOR VEHICLES

Yukio Fukunaga, Yokohama, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

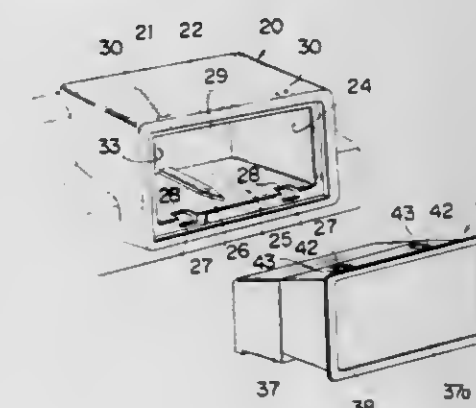
Filed Sep. 19, 1979, Ser. No. 77,111

Claims priority, application Japan, Sep. 21, 1978, 53-136270; Nov. 7, 1978, 53-116232

Int. Cl.³ G12B 9/00

U.S. Cl. 248—27.3

12 Claims



1. A structure for mounting a meter, comprising:

an instrument panel of a motor vehicle having a wall recessed in said instrument panel at the front thereof;

a meter inserted in said recessed wall through the opening of said recessed wall;

means for supporting said meter on the bottom of said recessed wall, said supporting means including a first projection formed on the front portion of the bottom of said meter, said first projection being adapted to contact the bottom of said recessed wall;

means for positioning said meter at the front portion of said recessed wall, said positioning means including:

- a pair of protruding members fixedly formed at the front edge of the bottom of said meter;
- means formed at the front edge of the bottom of said recessed wall for receiving said protruding members when said meter is inserted into said recessed wall;
- a pair of second and third projections provided on opposite side portions of said meter; and
- a pair of depressing members formed on opposite side portions of said recessed wall for depressing said second and third projections toward said receiving means;

means for locking said meter in position within said recessed wall, said locking means including a fourth projection provided on the top of said meter and an engaging member provided at the top of said recessed wall which is resiliently upwardly deformed when said engaging member becomes engaged with or disengaged from said fourth projection;

guide means including a guide provided on the bottom of said recessed wall and a groove so formed in the bottom of said

meter that said guide engages with said groove when said meter is inserted into said recessed wall; and means for depressing said meter toward the bottom of said recessed wall when said meter is in position within said recessed wall, said depressing means including a spring member.

4,313,585

ROLLING SUPPORT PLATFORM DEVICE FOR WRITING, DRAWING AND THE LIKE

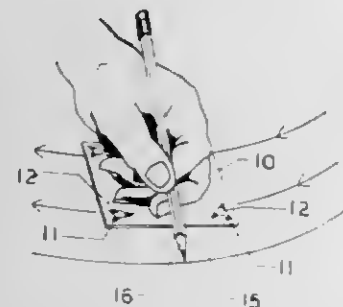
Bernard L. Bricker, 14932 Northridge, Huntington Beach, Calif. 92649

Filed Jul. 31, 1979, Ser. No. 62,545

Int. Cl.³ F16M 1/26

U.S. Cl. 248—118.5

3 Claims



1. A device for aiding in writing, and the like, including:
 - a. a single element platform for supporting a writer's hand while manipulating a writing instrument;
 - b. at least three partial knock-out cleats fabricated integrally from and disposed peripherally of the platform;
 - c. a ball bearing rotatably disposed in each cleat, an upper bearing surface being exposed in each cleat for cleaning thereof and a lower bearing surface for contact with a writing surface;
 - d. frictional contact between a cleat and bearing being sufficient to slow the rolling action of the platform when in use, thereby aiding in control of the device by the writer;
 - e. the cleats being adapted for insertion and removal of bearings therefrom; and
 - f. a handle mounted on the device for directing and lifting the platform when use.

4,313,586

UNIVERSAL EQUIPMENT LEG

Walter Grzesnikowski, 633 Center Ave., Cornwells Heights, Pa. 19020

Filed Jun. 14, 1979, Ser. No. 48,683

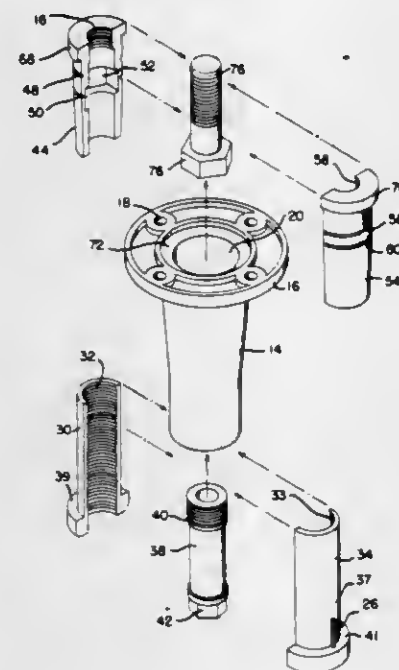
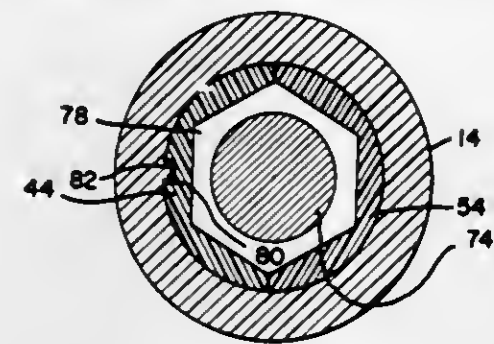
Int. Cl.³ F16M 11/24

U.S. Cl. 248—182.4

13 Claims

1. In an adjustable equipment leg, the combination of
 - a hollow, elongated body defining an axial bore, the bore including an upper section and lower section, the body terminating upwardly in a widened flange;
 - a foot adaptor assembly insertable into the body at the lower bore section thereof,
 - the foot adaptor assembly comprising a foot and means to axially move the foot relative to the body to vary the height of the leg; and
 - a replaceable bolt adaptor assembly removably insertable into the body at the upper bore section thereof,
 - the bolt adaptor assembly comprising a threaded stud and split adaptor means to immovably secure the stud relative to the body, the split adaptor means comprising a pair of split halves, each half having a substantially smooth outer periphery and a threaded inner periphery, the outer periphery being adapted to slide into and seat within the said upper bore section, the threaded inner

peripheries being adapted to receive and tightly hold the threaded portion of the stud to form a threaded



extension for threadably connecting the leg to a piece of equipment for equipment support.

4,313,587

SHELF BRACKET

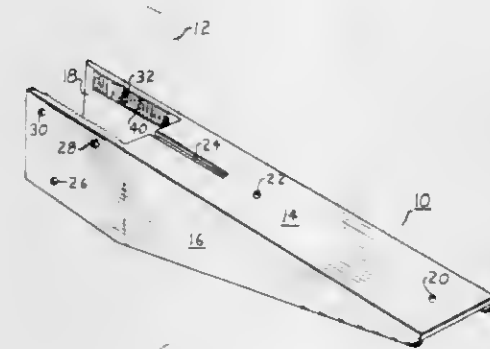
Lester L. Loeschen, Mishawaka, Ind., assignor to Kwik-Mount Corporation, Mishawaka, Ind.

Filed Jul. 5, 1979, Ser. No. 54,669

Int. Cl.³ A47G 29/02

U.S. Cl. 248—217.2

7 Claims



1. A shelf bracket for mounting on an exposed wall stud, comprising a generally horizontal top panel and first and second side walls, each of said side walls having a rearwardly extending portion spaced laterally from one another for receiving a stud therebetween, said top panel being disposed between the upper edges of said side walls, a slot disposed in said top panel extending from the end of said top panel nearest said rearwardly extending portions of said side walls and forwardly therefrom, reinforcing members disposed on opposite sides of

said slot and joined integrally with the respective side walls and connected to the respective portions of said top panel on opposite sides of said slot adjacent said rearwardly extending side wall portions, and a plurality of spaced reinforcing members disposed between said walls forwardly with respect to said slot and joined integrally to the inner side of at least one of said side walls.

4,313,588

CHRISTMAS TREE BASE OR THE LIKE

Gunnar Sjöstrand, Motala, Sweden, assignor to R. Hagga & Soner Aktiebolag, Soderkoping, Sweden

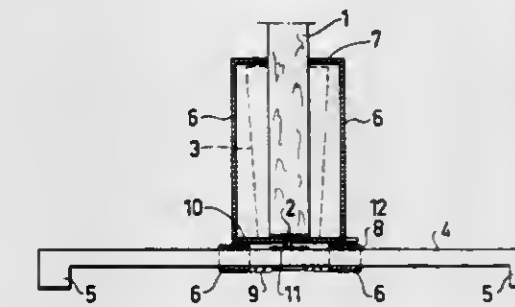
Filed Mar. 10, 1980, Ser. No. 128,813

Claims priority, application Sweden, Mar. 15, 1979, 7902340

Int. Cl.³ F16M 13/00

U.S. Cl. 248—524

7 Claims



1. A Christmas tree base or similar holder of the kind where a preferably cross-shaped stand with horizontal legs forms a support against the bearer (floor), where on each leg a slidable holder is provided, which with a tubular portion encloses a leg with a certain play, and springs or the like are arranged to draw the holders to the centre of the stand, which holders are provided with upright means having hooks abutting the trunk or the like, and a central disc provided with cams corresponding in number to the legs of the stand is mounted rotatably in order upon rotation in one direction to engage the holders and to push the holders outward from the centre against the action of said springs, characterized in that the aforesaid play between the respective tubular member and arm is so adjusted, that upon abutment of the upper end of the holder to the trunk or the like the tubular member is positioned obliquely in relation to the arm, so that the trunk effectively is retained by the substantial increase in friction arising by the friction between said member and the stand leg enclosed thereby (chest drawer effect).

4,313,589

READING DESK

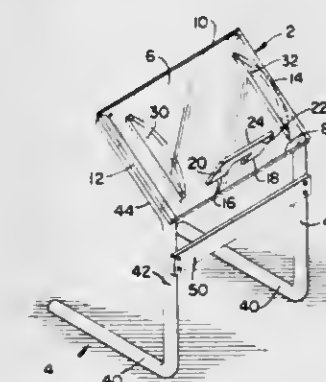
Adrian S. Vega, Sol St. No. 82, Guayama, P.R.

Filed Dec. 7, 1979, Ser. No. 101,512

Int. Cl.³ A47B 23/00

U.S. Cl. 248—558

2 Claims



1. A reading desk comprising a plate for supporting reading matter on its upper surface, and supporting means for the plate, (a) the plate being formed of transparent material, and hav-

ing parallel front and rear edges and parallel side edges, transversely extending and aligned slits in the plate adjacent its front edge, a stop member having transversely and downwardly extending aligned flat legs received in the slits and extending upwardly from the plate to provide a stop, and two elongated elastic members each adjacent one of the side edges and connected at its ends to the plate to provide a hold-down for reading matter on the plate, and

(b) means for supporting the plate in inclined position, comprising two tubular members each positioned under and connected to a side edge of the plate and having a lower part adapted to be in horizontal position in the normal use of the desk, a part which is vertical in such normal use, and a part disposed at an obtuse angle to the vertical part and which underlies and is connected to a side edge of the plate.

4,313,590

SOLENOID VALVE FOR CONTROLLING FLOW OF FLUID

Torazo Nishimiya, Ibaraki, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

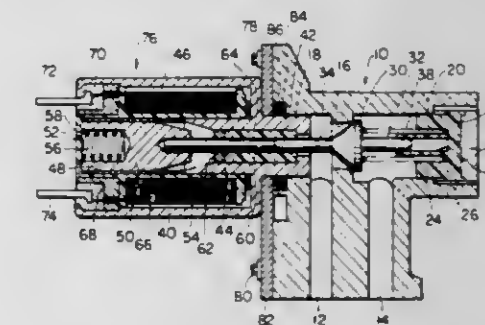
Filed Feb. 15, 1980, Ser. No. 121,686

Claims priority, application Japan, Feb. 21, 1979, 54-18326

Int. Cl.³ F16K 31/06

U.S. Cl. 251—129

7 Claims



1. A solenoid valve for controlling a flow of fluid, the solenoid valve comprising:
 - a valve body including a path for fluid to be controlled, a valve seat disposed in the path, a first cylindrical bore and a second cylindrical bore, the first cylindrical bore being opposite to the second cylindrical bore with respect to the valve seat;
 - an annular valve guide fitted into the second cylindrical bore;
 - a valve member disposed oppositely to the valve seat, said valve member having a valve shaft slidably inserted into said annular valve guide;
 - a yoke including an annular member fitted into the first cylindrical bore, an annular fixed core opposite to the annular member, and housing member surrounding the annular fixed core and extending in parallel thereto;
 - a movable core disposed oppositely to the annular fixed core;
 - an output shaft, one end of said output shaft being connected to said movable core and the other end thereof being engaged to said valve member through the annular fixed core and annular member; and
 - a cylindrical coil disposed between the annular fixed core and the housing member in coaxial relationship with the annular fixed core; and
 - a spring disposed between said valve member and said annular valve guide, the position of said annular valve guide being adjustable in the axial direction thereof.

4,313,591

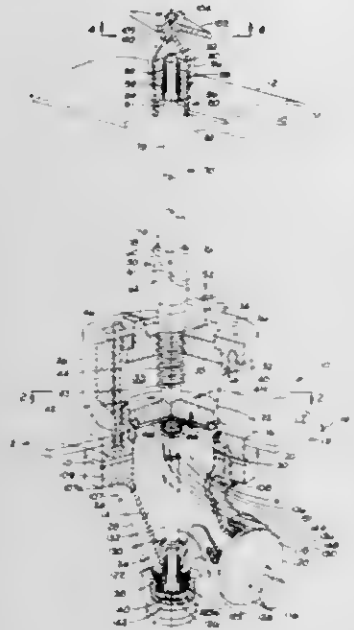
COMBINATION TOP OPERABLE AND BOTTOM OPERABLE TANK LADING VALVE ASSEMBLY

Richard J. Wempe, and Gunter R. Behle, both of St. Charles, Mo., assignors to ACF Industries, Incorporated, New York, N.Y.

Filed May 22, 1978, Ser. No. 908,184
Int. Cl.³ F16K 31/44

U.S. Cl. 251—144

13 Claims



2. A tank lading valve assembly comprising: a valve seat located in an opening in the bottom of the tank; a mounting flange located in said opening and outwardly from said valve seat; said valve seat including a lading opening for entry of lading into the tank and/or exit of lading from said tank; a lading valve located within the tank inwardly of said seat and being movable vertically between open and closed positions relative to said valve seat; a valve housing including a housing flange located below said mounting flange; fastening means connecting said housing flange to said mounting flange; said housing including an unloading spout; a first operator attached to an upper portion of said lading valve extending vertically up through the tank to the upper portion of the tank; said first operator adapted to receive a suitable handle or tool to move the lading valve vertically from a closed, seated position engaging said valve seat to an open position providing fluid communication between the interior of said tank and said housing; said lading valve further comprising means located in the lower portion of said valve for receiving and/or engaging a second operator adapted to extend at least partially through the valve housing and adapted to receive a suitable handle or tool to move the lading valve vertically between open and closed positions, whereby said lading valve may be operated from either the top or the bottom of said tank and whereby in open position lading may flow between said tank, said housing and said unloading spout.

4,313,592

BUTTERFLY VALVE

Hendrik B. Baas, Halsteren, Netherlands, assignor to Holland Bergen op Zoom B.V. Machinefabriek en/IJzergieterij, Bergen op Zoom, Netherlands

Continuation of Ser. No. 55,641, Jul. 9, 1979, abandoned. This application Nov. 21, 1980, Ser. No. 209,061

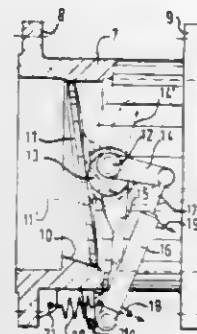
Int. Cl.³ F16K 25/00

U.S. Cl. 251—162

16 Claims

1. A butterfly valve assembly comprising, in combination: a substantially cylindrical housing having an annular valve seat therein; a disc-like valve member having spindle means mounting said valve member for rotational movement about an axis transverse to said housing and said valve member being

dimensioned to engage around its periphery, when rotated about said axis, with said valve seat; first actuating means for rotating said valve member in one direction about said axis between a fully open position and a closed position in which said valve member is engaged with and forced with predetermined pressure against said seat; self-locking means for shifting said spindle means substan-



tially axially of said housing to engage said valve member against said seat with a pressure exceeding said predetermined pressure and sufficient to lock said self-locking means; second actuating means swingable in that direction opposite said one direction for actuating said self-locking means to shift said spindle means; and a common actuator interconnecting said first and second actuating means.

4,313,593

GATE VALVES

John W. Lambie, Kilmarnock, Scotland, assignor to Neptune Glenfield Limited, Ayrshire, Scotland

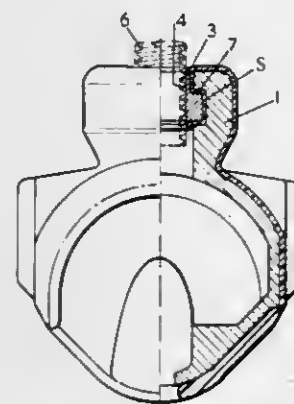
Filed Oct. 16, 1979, Ser. No. 85,265

Claims priority, application United Kingdom, Feb. 20, 1979, 06035/79

Int. Cl.³ F16K 3/12

U.S. Cl. 251—327

2 Claims



1. A method of forming a coated gate for a gate valve, the gate incorporating a coupling member which is located with a clearance fit in an undercut groove in the gate and which is formed with a screw-threaded hole for reception of a screw-threaded operating spindle, comprising the steps of plugging the screw-threaded hole in the coupling member, inserting the gate incorporating the coupling member into a mould and forcing coating material in a fluid state under pressure into the mould so as to fill the mould and form a one piece coating embracing the gate and the coupling member fitted thereto and penetrating into the clearance gaps between the adjacent faces on the coupling member and the groove in the gate thereby locking the coupling member into the gate by the coating of resilient material, removing the gate from the mould when the coating material has set and removing the plug from the screw-threaded hole in the coupling member.

4,313,594

VALVE ASSEMBLY AND METHOD

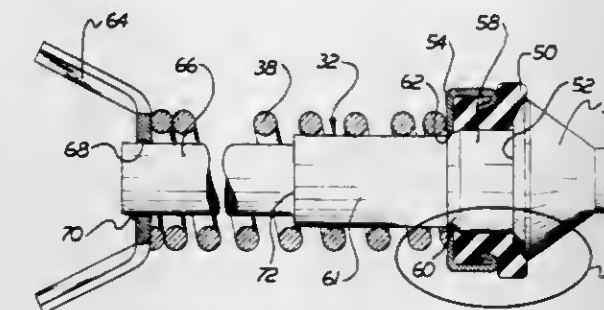
Walter W. Antoniwi, Lakewood; Richard J. Silagy, Parma, and James F. Norton, Berea, all of Ohio, assignors to Tuthill Corporation, Cleveland, Ohio

Filed Feb. 20, 1980, Ser. No. 122,859

Int. Cl.³ F16L 37/28

U.S. Cl. 251—357

14 Claims



1. A valve assembly comprising a valve stem, washer means disposed on said valve stem for engaging a valve seat, said washer means including a washer which has inner and outer side surfaces, circular retainer means for holding said washer against movement relative to said valve stem, said retainer means including a side section having opposite axial end portions and a hook portion at a first one of said axial end portions, said hook portion extending radially inwardly toward a central axis of said retainer means and axially inwardly toward a second one of said axial end portions, said hook portion having a free end which is spaced apart from said side section and is disposed at a location between said axial end portions, said washer being at least partially disposed between the free end of said hook portion and said side section, said valve stem including means for applying a force against the inner side surface of said washer to press said washer radially outwardly into the space between the free end of said hook portion and said side section.

12. A method of assembling a valve assembly, said method comprising the steps of providing a circular washer formed of a resiliently expandable material, providing a circular washer retainer having a base, a circular side wall extending axially outwardly from the base, and a hook portion which extends radially inwardly from an inner side surface of the sidewall and extends axially inwardly to a free end which is spaced from the inner side surface and is disposed between and spaced from opposite axial ends of the retainer, expanding the washer radially outwardly of the free end of the hook portion and then expanding the washer axially outwardly into a space between the hook portion and the inner side surface of the sidewall, and thereafter holding the washer in a predetermined position relative to the retainer with the hook portion by engaging the washer with the free end of the hook portion at a location spaced from and disposed between opposite axial ends of the retainer and radially inwardly of the inner side surface of the retainer.

4,313,595

MOUNTING BASE FOR MOTOR OPERATED VALVE

Myroo D. Markley, 126 Winthrop Ter., Meriden, Conn. 06450, and Joseph M. Markley, River Rd., Essex, Conn. 06426

Filed Dec. 7, 1979, Ser. No. 101,119

Int. Cl.³ F16M 1/00

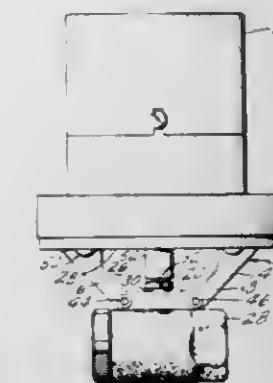
U.S. Cl. 251—369

6 Claims

1. A mounting base for a motor operated valve, the base including:

- a plate having first and second sides, said first side being adapted to mount a motor;
- a mounting bracket on said second side of said plate, said mounting bracket having first and second branches extending from said second side and a bridging segment between said branches, said bridging segment being spaced from said second side of said plate and having an

outer surface in predetermined alignment with said first side of said plate;
a passage in said bridging element to receive a valve stem housing;
a pair of slots in said bracket, said slots extending from said passage in opposite directions along the length of said



bridging element, said slots extending through said bridging element and into said first and second branches to divide said bridge into first and second gripping elements; and means to urge said first and second gripping elements toward each other to lock said mounting base on a valve housing.

4,313,596

SHROUD SUPPORT AND METHOD FOR SHROUD ENGAGEMENT WITH TEEMING VALVE

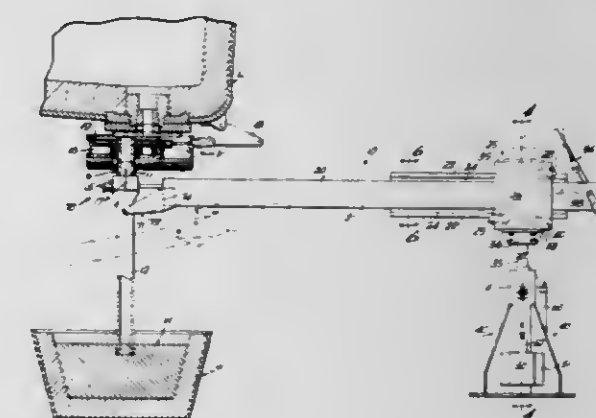
Patrick D. King, Rantoul, Ill., assignor to Flo-Con Systems, Inc., Champaign, Ill.

Filed Oct. 29, 1979, Ser. No. 89,577

Int. Cl.³ C21C 7/10

U.S. Cl. 266—207

8 Claims



1. The method of fixing a shroud in pouring relationship with the lower portion of a gate valve comprising the steps of: securing the shroud by means of a cantilever support for positioning underneath the vessel, securely mounting the shroud in a non-pivotal relationship with the end of the cantilever support and locking the same in coaxial pouring relationship with the valve, urging the shroud upper portion against the teeming valve by means of dead weights which are empirically determined to exert, above and beyond the tare weight of the shroud, a predetermined interfacial force between the shroud and the valve, and mounting the entire unit for movement in and out of engagement with the pouring valve for lateral and longitudinal translation along an X axis, Y axis, and Z axis.

4,313,597

APPARATUS FOR USE IN FABRICATING GLASS LAMPSHADES WITH LEADED JOINTS

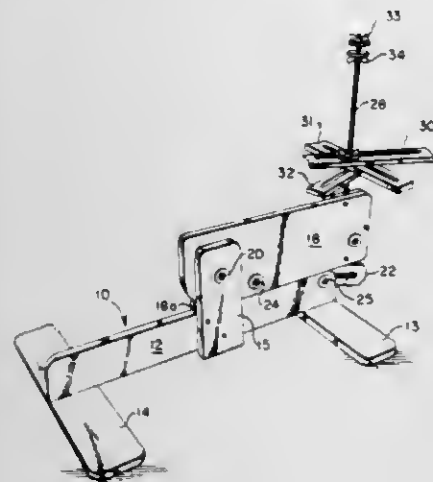
Orville D. Hooper, P.O. Box 1003, Petaluma, Calif. 94952

Filed May 27, 1980, Ser. No. 153,171

Int. Cl.³ B23Q 1/00

U.S. Cl. 269—51

7 Claims



1. Apparatus for use in fabricating glass lampshades by use of a form, comprising:
 a support
 a projecting rod having a free end, said rod being adapted to receive, for selected movement therealong from said free end and for selected rotation therearound, either a lampshade form or an internally unfinished glass lampshade after removal of the form;
 swing arm means carrying said rod and swing-mounted on said support to move in a vertical plane for selectively moving said rod relative to the support to various working positions;
 locking means operatively associated with said swing arm means for locking it to keep the rod in a selected working position; and
 clamping means on said rod and adjustable therealong for either holding a said form sleeved on the rod with the open end of the form facing away from said free end of the rod or holding a said internally unfinished form sleeved on the rod with the open end of the lampshade facing toward said free end so that there is ready access to the inside of the lampshade for completing finishing thereof, said clamping means permitting a said form or a said lampshade to be rotationally adjusted on the rod so that this rotational adjustment together with adjustment of the rod relative to the support by use of the swing arm means and locking means makes it possible to selectively place each part of the form and lampshade in a generally horizontal working position.

4,313,598

SELF-COMPENSATING STRIPPER ASSEMBLY FOR DOCUMENT HANDLING AND COUNTING APPARATUS

John A. DiBlasio, Medford, N.J., assignor to Brandt-Pra, Inc., Cornwall Heights, Pa.

Filed Aug. 29, 1979, Ser. No. 70,666

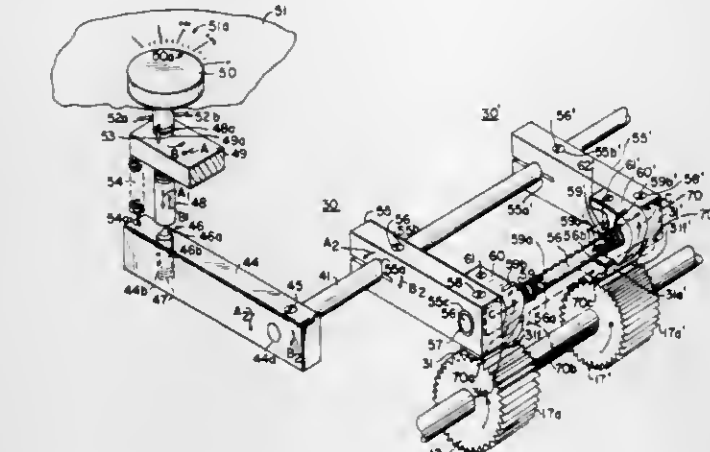
Int. Cl.³ B65H 3/52

U.S. Cl. 271—124

25 Claims

1. Sheet handling means comprising:
 a plate for supporting a stack of sheets;
 feed means for advancing sheets in a first direction;
 jogging means extending through said plate for advancing at least the sheet at the bottom of the stack towards said feed means;
 stripper means positioned adjacent and above said feed means and normally urging sheets passing said stripper means into engagement with said feed means;
 said stripper means including a first inclined surface aligned transverse to said plate for engaging the leading edges of sheets in the stack to conform to said inclined surface, and a substantially flat stripping surface and a curved surface

portion between said inclined surface and said stripping surface;
 means for swingably mounting said stripper means;
 first bias means normally urging said mounting means in a first direction for urging said stripper means towards said feed means; and



second bias means coupled between said stripper means and said mounting means and being yieldable independently of said first bias means to enable said stripper means to swingably move upon said mounting means to be displaced from said feed means by sheets passing between said stripper means and said feed means.

4,313,599

STACK TRAY FOR SHEET SEPARATOR

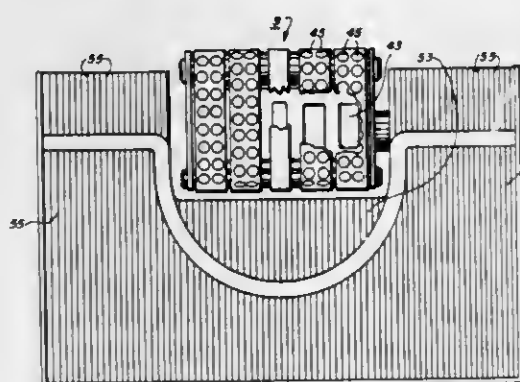
S. Warren Lohr, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Oct. 3, 1979, Ser. No. 81,498

Int. Cl.³ B65G 1/06, 3/48

U.S. Cl. 271—166

2 Claims



1. A bottom sheet separator-feeder for separating and feeding sheets seriatim from a stack of sheets comprising:
 a stack tray adapted for supporting a sheet stack, the top surface of said tray having a plurality of parallel striations formed therein,
 feed means, associated with said tray adapted to separate and feed sheets individually from the sheet stack; and
 air injection means disposed along the leading edge of said tray, said air injection means being positioned and adapted to provide a flow of air in direct communication with and parallel to all of said striations between the top surface of said tray and the underside of the bottom sheet in the sheet stack, said striations encouraging laminar flow of air over said tray to minimize turbulence and increase the lifting efficiency of the air injection means.

4,313,600

SHEET STACKING METHOD AND APPARATUS

Hans Mosburger, Weiherhammer, Fed. Rep. of Germany, assignor to BHS-Bayerische Berg- Hutten- und Salzwerke Aktiengesellschaft, Munich, Fed. Rep. of Germany

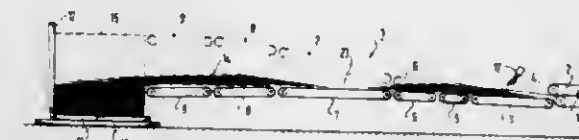
Filed Dec. 3, 1979, Ser. No. 99,701

Claims priority, application Fed. Rep. of Germany, Dec. 5, 1978, 2852603

Int. Cl.³ B65H 5/34

U.S. Cl. 271—203

9 Claims



1. In a method for the stacking of sheets in which a flow of sheets overlapping like scales is fed by a removal conveyor belt from a sheet feed conveyor belt to a stacking station, the invention comprising the steps of:

increasing the speed of the removal conveyor belt relative to the feed conveyor belt to form a gap in the flow of sheets; and

lifting a portion of the sheet flow upstream of the gap away from the removal conveyor belt by advancing a lifting belt having louver strips to interpose the louver strips between the removal conveyor belt and said portion of the sheet flow upstream of the gap and the lifting belt conveying said portion at the same speed as the feed conveyor belt.

4,313,601

AUTOMATIC BANKING MACHINE WITH SEALED TAMPER-INDICATING CONTAINER FOR RECEIVING AND STORING DIVERTED PAPER MONEY BILLS

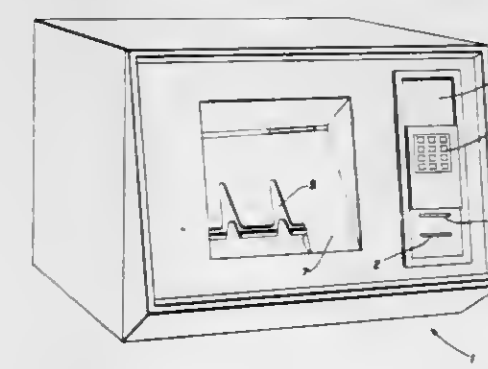
Harry T. Graef, Dover; Scott A. Mercer, Hanoverton; Jeffrey A. Hill, North Canton, all of Ohio, and Spiro Leontas, Hesperia, Calif., assignors to Diebold Incorporated, Canton, Ohio

Filed Jul. 9, 1980, Ser. No. 167,212

Int. Cl.³ B65H 31/00

U.S. Cl. 271—207

8 Claims



1. In a cash dispensing automatic banking machine having a conveyor which transports paper money bills diverted from the normal path of travel to a conveyor divert discharge station, the combination of a container having walls forming a bill-receiving opening provided with a closure lid; lock means mounted on a container wall having bolt means located inside the container cooperatively connected with the closure lid for moving the closure lid from closed to open position as the bolt means is actuated from locked to unlocked mode, and vice-versa, and the lock means having a key opening accessible exteriorly of the container; key means including a key for the lock means movably mounted on and sealed to the banking machine; means for mounting and retaining said container in position on the banking machine oriented to telescopically receive in said key opening said key for unlocking said lock means, and when so oriented to locate the container opening and its said closure lid adjacent to said conveyor divert dis-

charge station; and shroud means mounted on the banking machine protectively enclosing said conveyor divert discharge station and said container opening and closure lid when the container is in retained oriented position.

4,313,602

CYCLE-TYPE EXERCISER

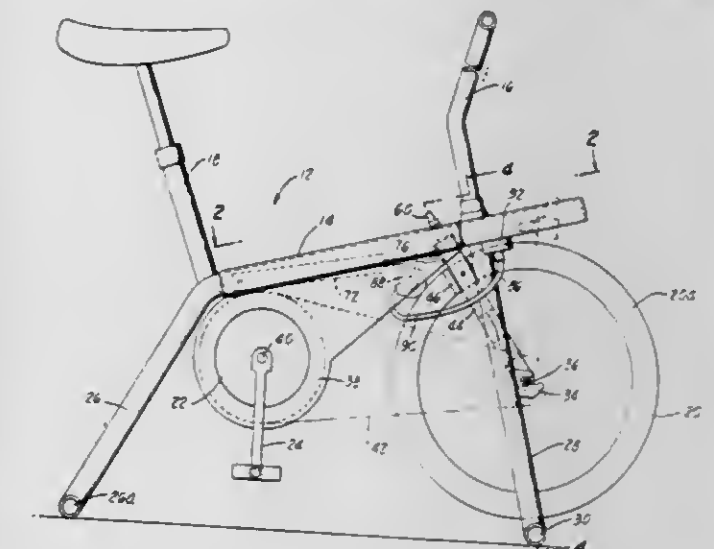
James P. Sullivan, Tustin, Calif., assignor to Marcy Gymnasium Equipment Co., Alhambra, Calif.

Filed Feb. 5, 1980, Ser. No. 118,756

Int. Cl.³ A63B 21/00

U.S. Cl. 272—73

4 Claims



1. An exercise device for use by a trainee to simulate riding of a bicycle, comprising:

(a) a supporting frame including a rearwardly disposed, downwardly depending support member and a forwardly disposed support member having downwardly depending spaced apart fork-like members;
 (b) an axle carried by said fork-like members and extending therebetween;
 (c) a wheel rotatably carried by said axle intermediate said fork-like members;
 (d) handle bars attached to said frame;
 (e) a seat attached to said frame in a rearwardly spaced relation to said handle bars;
 (f) a rotatable shaft carried by said frame and operably interconnected with said wheel whereby rotation of said shaft will impart rotational forces to said wheel;
 (g) pedal cranks attached to said shaft for rotation therewith said pedal cranks being engageable by the feet of the trainee to impart rotational movement to said shaft;
 (h) resistance imparting and indicating means for imparting vehicle resistance against rotation of said wheel and simultaneously indicating to the trainee the degree of resistance against performance of the exercise which is being experienced said resistance imparting and indicating means comprising:

(i) friction means carried by said axle and rotatable with respect thereto throughout a prescribed arc, said friction means being adapted to controllably impede the rotation of said wheel, said friction means comprises:
 (i) a generally "U" shaped frame having a bight portion and a pair of spaced apart legs adapted to straddle said wheel and being connected to said axle proximate their lower extremities;
 (ii) a pair of friction members carried by said legs in close proximity to the outer periphery of said wheel, one of said friction members being stationarily attached to one leg of said U-shaped member and the other of said friction members being movable relative to said wheel;
 (iii) lever means connected at said bight portion of said "U" shaped frame and adapted for moving said other friction member into engagement with said wheel;
 (iv) control means operably associated with said lever

- means and operable by the trainee to cause movement of said lever means to controllably move said friction member into engagement with said wheel; and
- (2) biasing means carried by said supporting frame and operably interconnected with said friction means for yieldably resisting rotation of said friction means throughout said arc, said biasing means comprising:
- (i) an elongated housing;
 - (ii) a piston closely receivable within said housing and reciprocally movable therewithin;
 - (iii) a piston rod having one end connected to said piston and the opposite end connected to said pad support bar; and
 - (iv) spring means carried within said housing for yieldably resisting reciprocal movement of said piston;
- (3) display means including display indicia for indicating to the trainee during use of the device the position of said control means within the arc of travel of said friction means.

4,313,603

EXERCISE APPARATUS

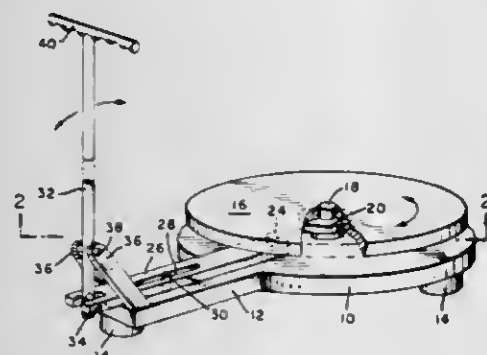
Luther G. Simjian, 1750 S. Ocean La., Fort Lauderdale, Fla. 33316

Filed Oct. 14, 1980, Ser. No. 196,849

Int. Cl.³ A63B 23/04, 21/22

U.S. Cl. 272-146

7 Claims



1. An exercise apparatus comprising:
 - a stationary support;
 - a platform mounted upon said support for reciprocating rotating motion and adapted to support a person;
 - an upstanding post mounted forward of the perimeter of said platform and pivotally supported by said support for enabling the upper end of said post to undergo reciprocating motion in a direction generally toward and away from said platform; and
 - means which include a slide mounted for reciprocating linear motion, said slide coupled by pin and groove means at one end to said platform and coupled at the opposite end to the lower end of said upstanding post, for causing said upper end of said post to undergo said reciprocating motion responsive to reciprocating rotating motion imparted to said platform.

4,313,604

GOLF TEE AND BALL STICK DEVICE

G. Matthews Baxter, 589 Sheridan Rd., Glencoe, Ill. 60022

Filed Jan. 2, 1980, Ser. No. 109,152

Int. Cl.³ A63B 57/00

U.S. Cl. 273-32 A

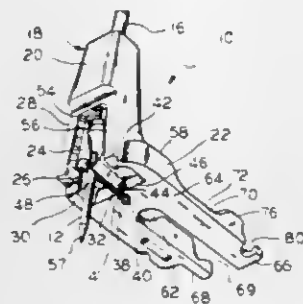
21 Claims

1. In a stick device for use with a golf tee and ball and comprising a handle attached to a head, said head including:
 - a spring having a pair of fingers which spread apart to an open position from a closed position for receiving the tee and thereby resiliently clamping the tee in place, and said fingers returning to the closed position after the tee is disengaged from the spring upon the application of a lateral force to the

handle, said spring receiving the tee prior to inserting the tee in the ground; and

contacting member spaced above said spring and in a fixed position for providing an abutting surface for the top of the tee when the tee is inserted in the ground upon the application of a downward force to the handle.

21. In a stick device for use with a golf tee and ball and having a handle attached to a head, said head including: a body portion;



a pair of tongs extending out from said body and spaced apart, each of said tongs including a forward hump, a shoulder and a ledge between said hump and shoulder, each of said humps including a forward curved portion for rolling said tee over said humps and on to said ledges; and

a notch formed in one of said ledges, said notch being dimensioned less than the diameter of the top of the tee for receiving the neck of the tee between the top and stem of the tee for pulling the tee out from the ground.

4,313,605

COMPETITION GAME MACHINE

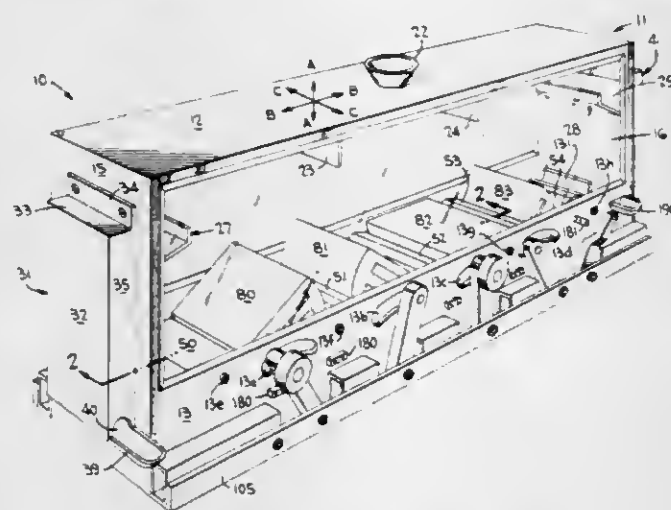
W. Fred Stokes, Rte. 2, Branchville, S.C. 29432; Fahey S. Bradford, 909 4th Ave., Kingstree, S.C. 29556, and Nancy S. Strobel, 901 Wisteria Dr., Florence, S.C. 29501

Filed Sep. 5, 1980, Ser. No. 184,467

Int. Cl.³ A63F 7/06, 7/10

U.S. Cl. 273-85 C

9 Claims



1. A competition game machine which comprises,
 - (a) an elongated housing formed by a cover member, two side members, two end members and a bottom member, said side members including openings therein in which are mounted window elements; said cover member including an opening in the center thereof to allow a game ball to be dropped into said housing, each of said side members including at least two crescent-shaped slots therein, the crescent-shaped slots in one side member being transversely aligned with the crescent-shaped slots in the other side member, said side members also including transversely aligned bottom openings therein near the lower sides thereof, and each of said end members including an opening in the upper portion thereof which is sufficiently sized to allow a game ball to pass therethrough,
 - (b) identical game ball return means mounted on the outer

- sides of each respective end member and capable of receiving a game ball passing through the opening in the respective end member,
- (c) at least three transversely extending flooring panels mounted in said housing in spaced apart fashion between said housing end members, the upper portions of said flooring panels forming segments of a game ball playing deck surface above the housing bottom member,
- (d) separate identical projector elements positioned near the opposite end members of the housing, each projector element including a transversely extending curved head portion which, when the projector element is in its rest position, will form a segment of the playing deck surface between the adjacent housing end member and the nearest flooring element, and which, when the projector element is operated, will project a game ball therein towards the opposite end member of the housing, each projector element also including a rotatable projector shaft to which the curved head portion is connected, said rotatable projector shaft extending through transversely aligned bottom openings in said housing side members and having a handle means attached near one end thereof outside said housing to allow for manual gripping thereof and rotation of said rotatable projector shaft, the handle means of the separate projector elements being on the outer sides of opposite side members,
- (e) at least two separate and identical activator elements positioned in the housing between said separate projector elements, each said activator element including a transversely extending rotatable contact member which forms a segment of the playing deck surface between adjacent flooring panels and, when rotated, acts to control the movement of a game ball in contact therewith, each activator element also including a yoke having two arms and a cross bar connecting first ends of said arms, said cross bar being rotatably mounted in aligned bottom openings in said housing side members, the second ends of said arms including aligned bores through which extends a rotatable activator shaft, each said rotatable activator shaft extending through and being translatable within transversely aligned crescent-shaped slots in said housing side walls and including a knob rotatably connected near one end at a point outside of said housing, the knobs on adjacent activator elements being on the outer sides of opposite side members, the contact member of each activator element being mounted around a center portion of the associated rotatable activator shaft between said housing side members, said contact member having control means connected between opposite ends thereof and the adjacent housing side members, said control means allowing said contact member to rotate along an axis transverse to said housing when the rotatable activator shaft is slidably moved therethrough by manual translation of the rotatable activator shaft along said aligned crescent-shaped slots, yet prevent substantial longitudinal movement of said contact member within said housing.

4,313,606

BASEBALL GAME APPARATUS

Young S. Ham, 333-80, Songsu 2-Ka 1-dong, Songdong-Ku, Seoul, Rep. of Korea

Filed Sep. 2, 1980, Ser. No. 183,008

Int. Cl.³ A63F 7/06, 7/10

U.S. Cl. 273-89

7 Claims

1. Baseball game apparatus comprising:

- a body having an upper board (2) and a bottom board (2'), the upper board (2) having foul ball collecting side openings (2a and 2b) extending along both sides, the bottom board (2') being sloped to direct balls falling on the bottom board through the foul ball collecting side openings to a ball collecting portion (2c) of the bottom board, the upper board (2) having a slot (3) positioned near one end thereof;

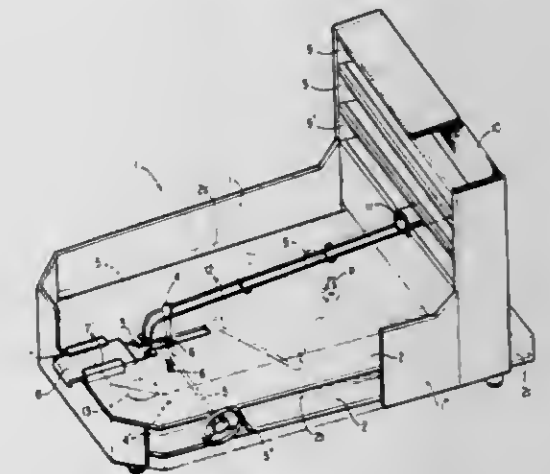
a bat supporting bar (5) rotatably supported by sides of the body;

a bat having hitting portions (4 and 4') supported by the bat supporting bar (5);

coil springs (6 and 6') for interconnecting the hitting portions and supporting bar;

a handle (5') connected to the bat supporting bar (5) for rotating the bat;

three open stage fields (9, 9' and 9'') connected to an end portion of the body spaced furthest from said slot;



a net (10) for closing ends of the stage fields and for directing balls passing through the stage fields to the ball collecting portion;

a ball pitching hole (11) formed in, and extending through, one of the stage fields; and

ball guide rail means (12) extending downwardly from the ball pitching hole (11) to the slot (3) for guiding a rolling ball (B) past a position in which the rolling ball is hittable by rotation of the bat.

4,313,607

REINFORCED METAL SHELL GOLF CLUB HEAD, WITH KEEL

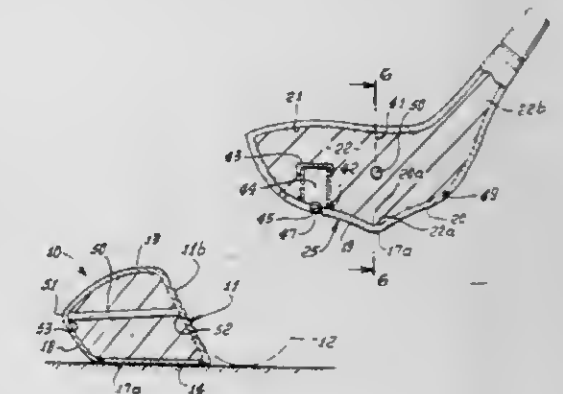
Stanley C. Thompson, 7851 Talbert St., Apt. 1, Playa del Rey, Calif. 90271

Continuation-in-part of Ser. No. 170,957, Jul. 21, 1980. This application Nov. 17, 1980, Ser. No. 207,654

Int. Cl.³ A63B 53/04

U.S. Cl. 273-167 H

19 Claims



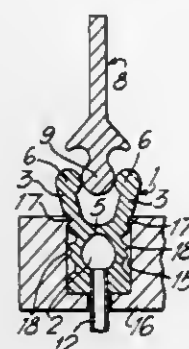
1. A reinforced metallic shell golf club head, comprising
 - (a) a thin steel shell having the exterior form of said head, the shell extending about a hollow,
 - (b) the head having a front wall with a front face adapted to strike a golf ball, said front wall having a mid-portion, and other wall structure rearward of a plane defined by said face, said other structure including a thin rear wall which is rearwardly convergent both generally vertically and generally horizontally to form a rearwardmost local concavity facing directly forwardly toward said front wall

mid-portion, said concavity having the form of a corner in a rearwardly extending vertical plane,

(c) and a strut in the form of a steel rod extending in said hollow from the rear side of said front wall mid-portion to the front side of the said rear wall at said local concavity to transmit loading therebetween in response to said ball striking said front face, thereby to resist deformation of said front wall, the entirety of the rod confined within said hollow,

(d) said other wall structure including a toe and heel, and top and bottom walls, the rod generally centrally located between said toe and heel and between said top and bottom walls, the rod having a diameter between 3/32 and 1/4 inch,

(e) said front wall having thickness between 0.105 and 0.125 inches, and the rear wall, top wall and bottom wall each having thickness between 0.030 and 0.050 inches.



nal void extending along the length thereof, said one member having a recess which is arranged to deform so as sealingly to

engage the other seal member when said void is at least partially evacuated with the seal members interengaged.

4,313,610 CARRIAGE FOR ROLLER SKATES

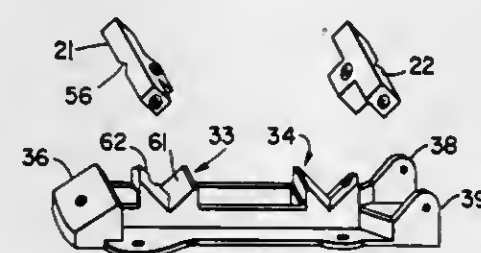
Anthony J. Volk, P.O. Box 943, Turlock, Calif. 95380, and George L. Volk, Turlock, Calif., assignors to Anthony J. Volk, Turlock, Calif.

Filed Mar. 6, 1980, Ser. No. 127,900

Int. Cl.³ A63C 17/02

U.S. Cl. 280—11.28

8 Claims



1. A roller skate truck comprising an elongated body having a pair of depending longitudinally-spaced mounting blocks with V-shaped under surfaces, with the surfaces adjacent the ends of said body having convex configurations laterally thereacross, a pair of axle elements adapted to receive wheel axles longitudinally thereof and each having a concave depression laterally thereacross for engaging the convex mounting block surfaces, and mounting means including bolts adapted to extend through said axle elements and mounting blocks with resiliently compressible elements thereabout for accommodating limited pivoting of said axle elements by shifting of the concave-convex engagement of mounting block and axle element.

4,313,611 SULKY HAVING ADJUSTABLE FULCRUM POINT

Frank D. Heinze, Jr., Freehold, N.J. 07728, and Frank D. Heinze, III, Manasquan, N.J. 08736

Continuation of Ser. No. 44,482, Jun. 1, 1979, abandoned, which is a continuation of Ser. No. 852,475, Dec. 5, 1977, abandoned.

This application Nov. 12, 1980, Ser. No. 206,241

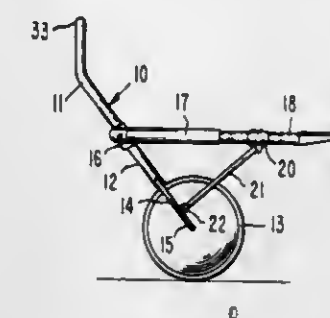
Int. Cl.³ B62C 1/08

U.S. Cl. 280—63

7 Claims

1. A dual-wheeled horse drawn sulky including an inverted generally U-shaped frame member having a pair of rearwardly and downwardly extending parallel shaft portions to receive a horse therebetween, said shaft portions having an outboard strut at each end, a pair of transversely aligned wheel axles, one positioned between each of said shaft portions and respective outboard strut, a rearwardly inclined arched member having a pair of forwardly extending portions interconnected

at their rear ends by a bight portion, each of said forwardly extending portions being hingedly secured at the forward terminus to a respective one of said shaft portions, a first clamp means secured along each of said forwardly extending portions, a pair of forked members, each of said forked members



being hingedly secured at the upper portion thereof with respect to a respective one of said first clamp means, the lower ends of said forked members being hingedly connected to the lower portion of said shaft portions, a driver's seat centrally located at said bight portion of said arched member.

4,313,612 CONVERTIBLE TRASH CONTAINER CARRIER

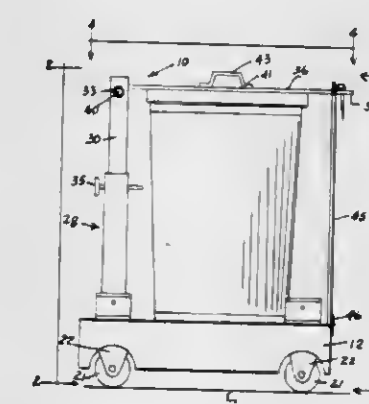
Robert A. Rubens, Rte. 4 Box 895, Sequim, Wash. 98382

Filed Feb. 20, 1980, Ser. No. 122,885

Int. Cl.³ B62B 3/02

U.S. Cl. 280—79.1 A

23 Claims



1. A trash container carrier, which comprises: a pallet for supporting a trash container and lid having a top surface, front and rear end, a rail projecting downwardly from the sides and a small opening extending through the floor of the pallet adjacent to each corner, a wheel assemblage secured to the longitudinal sides of each opening for supporting said pallet above a ground surface, connecting means adapted to removably mount the wheel assemblage inside said opening, a first upright member secured at a lower end to the floor adjacent of the rear end of said pallet intermediate of the side rails and having an upper end area cut-out for a rotatable connection, an arm extending along the longitudinal axis of said floor having an inner end formed for rotatable communication with the upper end of the first upright member, and including a pair of spaced apart holes through the arm intermediate the inner and outer ends, connecting means for attaching the lid to the holes in said arm, hinge means adapted to rotate said inner end of said arm about the cut-out area in said upper end of said first member, a second upright member rotatably fastened at a bottom end to said floor adjacent to said front end in alignment with said first member and having an opening adjacent to the top end to receive a portion of the outer end of said arm therethrough in locking engagement.

4,313,613 STEERING STABILIZER STRUCTURE FOR THE FRONT WHEELS OF A VEHICLE

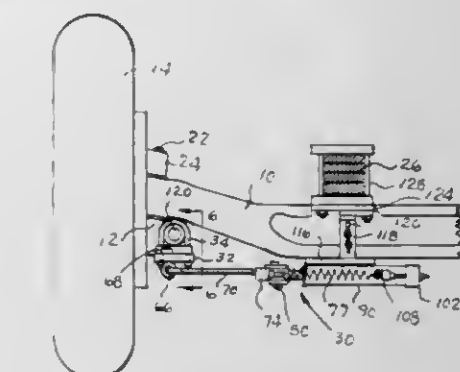
Doyle H. Worsham, P.O. Box 231, Boaz, Ala. 35957

Filed Dec. 7, 1979, Ser. No. 102,103

Int. Cl.³ B62D 7/08

U.S. Cl. 280—94

11 Claims



1. Steering stabilizer structure for the steering wheels of a heavy duty vehicle designed to be affixed beneath each extremity of the axle thereof and attached to the wheel steering arms at the steering knuckles, said structure including a wheel camber plate adapted to be located adjacent the underside of the steering knuckle sleeve and disposed longitudinally of said vehicle, means for securing said camber plate to the steering arm, a recovery bar spaced inwardly of said camber plate and at least a pair of spaced apart flexible connection means extending between said bar and plate, said camber plate having a fulcrum recess for the wheel kingpin, said recovery bar having a fulcrum pin aligned with said fulcrum recess and adapted to underlie the vehicle axle, a mounting member having means for fixed attachment to the underside of the vehicle axle, first spring means connected between said mounting member and said fulcrum pin and adapted to be aligned with said kingpin and fulcrum pin and urging said recovery bar away from the wheel in a direction underlying and parallel to the vehicle axle, and at least a pair of second spring means connected one on each side of said first spring means between said mounting member and recovery bar urging the recovery bar away from said camber plate, whereby turning movement of the vehicle wheel will move the recovery bar away from the mounting member and toward the wheel and will be resisted by said first spring means and said second spring means.

4,313,614

SKI AND ITS MANUFACTURE

Hans Woitschätzke, Grunwald, and Henno Geyer, Munich, both of Fed. Rep. of Germany, assignors to Trak Incorporated, Ward Hill, Mass.

Filed Jun. 18, 1979, Ser. No. 49,426

Claims priority, application Fed. Rep. of Germany, Jun. 26, 1978, 2827954

Int. Cl.³ A63C 5/12

U.S. Cl. 280—610

8 Claims



1. An improved ski, which ski comprises an upper surface material and a spaced-apart, lower, gliding surface material, the upper and lower surfaces separated by a core filler material, the ski having a tip at the one end and a tail end at the other end, the improvement which comprises a single, coherent, continuous piece of bonded material extending longitudinally substantially the length of the ski and about the core material, to form the upper and lower surface material of the

ski, and about the tail end of the ski, to form an integral, continuous, rear-end, tail guard of the bonded material in the general cross-sectional form of a U shape, the bonded material at the rear tail end characterized by areas of reduced thickness of the bonded material about the upper and lower corner areas of the rear-end tail guard, thereby providing an improved ski with an integral, continuous guard about the core material at the rear tail end of the ski.

4,313,615

BUCKLING ANGLE CONTROL ARRANGEMENT FOR AN ARTICULATED VEHICLE

Klaus Simon, Oberschleissheim, Fed. Rep. of Germany, assignor to Man Maschinenfabrik Augsburg-Nürnberg AG, Munich, Fed. Rep. of Germany

Filed Dec. 4, 1979, Ser. No. 100,079

Claims priority, application Fed. Rep. of Germany, Dec. 11, 1978, 2853420

Int. Cl.³ B62D 53/06

U.S. Cl. 280—432

6 Claims



1. A buckling angle control arrangement for the front and trailing members of a vehicle joined by an articulation having a pivot axis, the front member of the vehicle having a steering mechanism, the control arrangement comprising:

- an element pivotable about the pivot axis of the articulation between the vehicle members,
- a linkage pivotally interconnecting said element and the steering mechanism of the front vehicle member, the linkage connection being such that the steering mechanism and pivotable element rotate in opposite directions,
- two hydraulic cylinder and piston assemblies arranged on opposite sides of the articulation between the vehicle members, each assembly being between the two vehicle members, and
- means responsive to the angular position of said pivotable element and the buckling angle between the vehicle members for controlling hydraulic fluid communication between said cylinder and piston assemblies to limit the buckling angle between the vehicle members.

4,313,616

SPEED RESPONSIVE TRAILER STABILIZER WITH ZERO SLACK

Durrell U. Howard, 306 Krameria Dr., San Antonio, Tex. 78217

Filed May 18, 1979, Ser. No. 40,268

Int. Cl.³ B60D 1/00; B60T 7/20; B62D 53/00

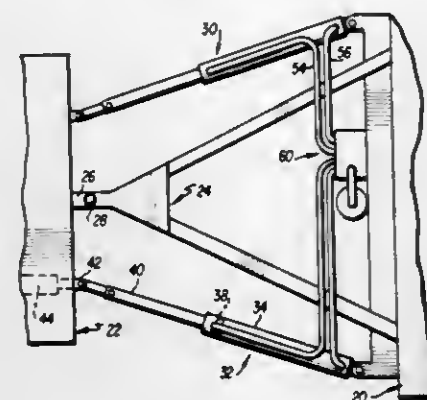
U.S. Cl. 280—446 B

81 Claims

1. Apparatus for stabilizing a towed vehicle joined to a towing vehicle by a towing connection permitting said vehicles to turn relative to each other about a yaw axis, said apparatus comprising:

- turning resistance means for at times providing a resistance to said relative turning movement between said towed and towing vehicles about said yaw axis;
- coupling means for mechanically transmitting the turning resistance provided by said turning resistance means to said towed and towing vehicles;
- and extensible means for biasing said towed vehicle away

from said towing vehicle such that tension is placed on said towing connection and substantially all slack is removed from said towing connection and from said cou-



pling means whereby even slight relative turning movement between said towed and towing vehicles about said yaw axis is resisted by said turning resistance means.

4,313,617

CAMBER ADJUSTING DEVICE IN STRUT TYPE SUSPENSION SYSTEM

Tadao Muramatsu, and Yasuhiko Ichihashi, both of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

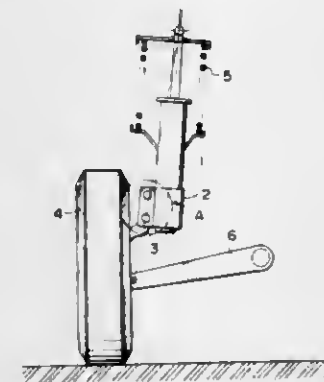
Filed Mar. 7, 1980, Ser. No. 128,082

Claims priority, application Japan, Mar. 28, 1979, 54-41177[U]

Int. Cl.³ B62D 17/00

U.S. Cl. 280—661

3 Claims



1. A camber adjusting device in a strut type suspension system having a substantially vertically extending strut and a steering knuckle connected to each other through a support bracket, wherein:

- the support bracket having a substantially vertically extending axially elongated slot and a through hole at opposite ends thereof, said bracket being fixedly secured to said strut;
- one end of the steering knuckle having two holes at positions corresponding to said slot and said hole of the support bracket;
- a first clamp means extending through the slot of the support bracket and one of the holes of the end of the steering knuckle and clamping the support bracket and the steering knuckle;
- a second clamp means extending through the hole of the support bracket and the other one of the holes of the end of the steering knuckle and clamping the support bracket and the steering knuckle;
- a manually rotatable eccentric adjustment piece on said first clamp means and extending through the one of the holes of the steering knuckle;
- whereby upon manual rotation of the adjustment piece it forces the steering knuckle to pivot the support bracket about the second clamp means and at the same time the

first clamp means is moved substantially vertically along the elongated slot.

wheel carrier and a second end of the moment arm to the body of the vehicle.

4,313,618

RESILIENT SUSPENSION MEANS FOR LIGHT VEHICLES

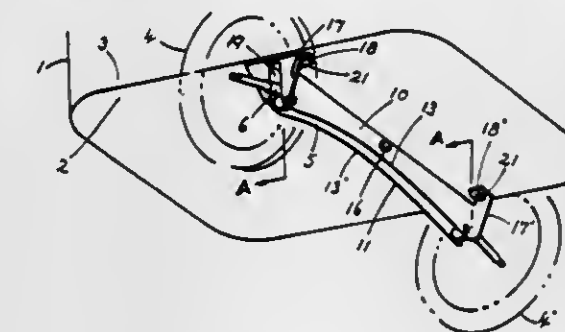
Russell S. Robinson, 3330 N. Webster Pl., Tucson, Ariz. 85715

Filed Jan. 28, 1980, Ser. No. 115,682

Int. Cl.³ B60G 11/02

U.S. Cl. 280—688

3 Claims



- In a vehicle having a body and oppositely disposed wheels, a resilient suspension comprising a flexurally resilient axle component disposed transversely across said body, the center of said component being connected to said body, and each end of said component having an axle shaft extending outside the sides of said body and adapted to rotatably support a wheel, and a device connected to said body which restrains the outer ends of said component against forward or rearward movement, said device comprising channel means having a web connected to said body, and flanges between which the outer portions of said component can move substantially vertically.

4,313,619

INDEPENDENT WHEEL SUSPENSION

Gottfried Hailer, Waiblingen, Fed. Rep. of Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

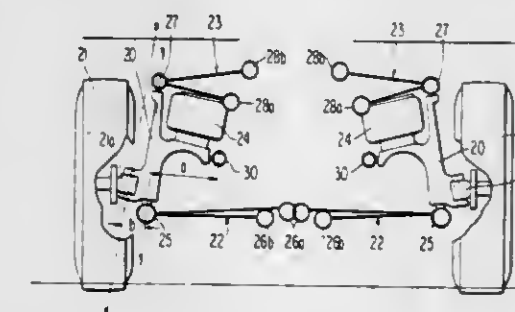
Filed May 9, 1980, Ser. No. 148,284

Claims priority, application Fed. Rep. of Germany, May 9, 1979, 2918605

Int. Cl.³ B62D 7/16

U.S. Cl. 280—691

26 Claims



- An independent wheel suspension arrangement for vehicles having wheels supported by a wheel carrier, the arrangement comprising a pair of control arms arranged in a superimposed relationship, and a wheel suspension means supported on the wheel carrier, characterized in that a ball and socket means is provided for articulately connecting each control arm to the wheel carrier, at least one additional moment supporting arm is provided for supporting the wheel carrier with respect to a body of the motor vehicle against a twisting about a substantially perpendicular axis of rotation defined by the ball and socket means, and in that further ball and socket means are provided for connecting a first end of the moment arm to the

4,313,620

DEVICE FOR LIMITING LATERAL CANTING OF ROAD VEHICLES

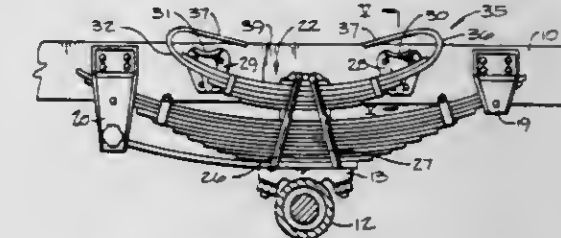
Fred Posnikoff, c/o Summit Spring Service Ltd., 198 Welland Ave., St. Catharines, Ontario, Canada L2R 2P3

Filed Sep. 10, 1979, Ser. No. 74,032

Int. Cl.³ B60T 11/02

U.S. Cl. 280—718

3 Claims



1. A road vehicle suspension system including, in combination:

- an elongated frame and a wheel axle;
- means for securing said axle to said frame comprising main spring means of the type of a semi-elliptical laminated first leaf spring fixedly secured to the axle, each end of the main spring means being secured to a respective main spring bracket means, each main spring bracket means being secured to the frame to maintain a flexible but permanent connection between the opposing ends of the main spring means and the frame at any instant state of compression or rebound of said main spring means;
- auxiliary spring means of the type of a semi-elliptical laminated second leaf spring separate from said first leaf spring and fixedly secured to said axle, each end of said second leaf spring being disposed below and spaced from a respective auxiliary spring bracket fixedly secured to the frame, the upper side of the opposing ends of the auxiliary spring means being adapted to engage the underside of said auxiliary spring brackets only when the deflection of said main spring means exceeds a predetermined value;
- said auxiliary spring brackets being separate from and independent of the main spring bracket means and being spaced from each other a distance shorter than that between said main spring bracket means;
- said auxiliary spring means including an anti-tilt spring leaf having inwardly turned ends which are spaced from the frame and from the auxiliary spring brackets, the uppermost portions of said inwardly turned ends being normally disposed above and freely spaced from the upper sides of the respective auxiliary spring brackets, the lower surfaces of the uppermost portions of the inwardly turned ends of said anti-tilt spring leaf being engageable only with said upper sides of the respective auxiliary spring brackets when said frame exceeds a predetermined tilt in a direction transverse to the direction of elongation of said frame.

4,313,621

SEATBELT SYSTEM

Yuji Nishimura, Nagoya, and Tatsusbi Kubota, Okazaki, both of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha and Kabushiki Kaisha Tokai Rika Denki Seisakusho, both of Aichi, Japan

Filed Nov. 1, 1979, Ser. No. 90,405

Claims priority, application Japan, Nov. 10, 1978, 53-154794[U]

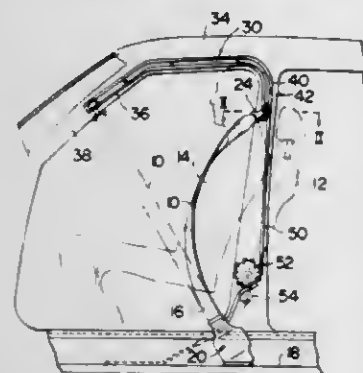
Int. Cl.³ B60R 21/10

U.S. Cl. 280—804

5 Claims

- A seatbelt system, wherein an occupant restraining webbing is automatically fastened to an occupant after said occupant enters a vehicle, comprising:

- (a) a guide rail in which the central portion thereof is laid on a roof side of the vehicle in the substantially horizontal direction and the rear end portion thereof is made to hang down vertically along a center pillar of the vehicle;
- (b) a slider engaging an outer end portion of an occupant restraining webbing, being guided by said guide rail, and being moved from a webbing automatically fastening position disposed in the rear end portion of said guide rail to an unfastening position disposed in the forward end portion of said guide rail;
- (c) a door checker projected outwardly from the vehicle and adapted to be pushed into the vehicle body by a closing force of the vehicle door when said vehicle door is closed;



- (d) a slide piece disposed in the center pillar, connected to said door checker, and moved laterally of the vehicle by said door checker; and
- (e) a locking plate secured to said slide piece and projected into the moving path of the slider by a resilient member confined between the slide piece and the locking plate, the projecting end of which is of a triangular shape and abuts against the slider when the slider is moved to the automatically fastening position, whereby said resilient member is flexed to allow the locking plate to go out of the moving path of the slider, so that the slider can be prevented from moving from the automatically fastening position to the unfastening position, thereby reliably restraining the occupant even when the vehicle is turned over.

4,313,622

PASSIVE SEATBELT SYSTEM

Ichiro Suzuki, Hisashi Ogawa, and Masanao Motonami, all of Aichi, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi, Japan

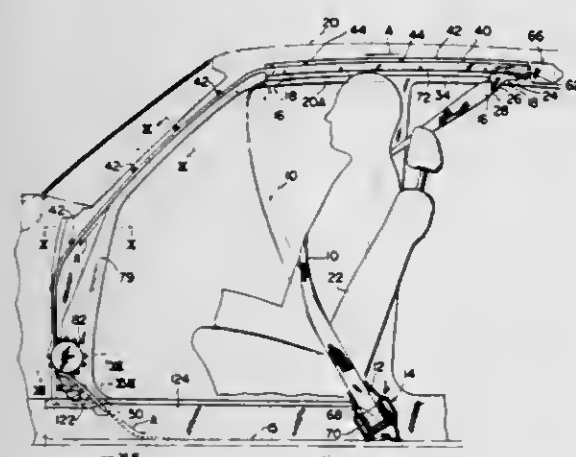
Filed Mar. 6, 1979, Ser. No. 17,941

Claims priority, application Japan, Aug. 16, 1978, 53-112183

Int. Cl.³ B60R 21/02

U.S. Cl. 280—804

27 Claims



1. A passive seatbelt system for a vehicle comprising:
a passenger-restraining seatbelt, one end of which is positioned at the center of the vehicle and the other end of

which passes across a passenger seat of the vehicle and is disposed at the side of the vehicle;

- a flexible non-continuous tape;
a plurality of openings formed along the length of said tape;
a sprocket wheel provided with a multiple number of projections which engage with the openings in said tape, said sprocket wheel comprising the sole element for applying to said tape substantial tensile force and compressive force;
a reversible driving system for driving said sprocket wheel; means for coupling said tape to a portion of said seatbelt which is remote from said one end thereof, said coupling means enabling said tape to move said portion of said seatbelt selectively towards the front and the rear of the vehicle; and
slide rail means in engagement with said tape for enabling said tape to transmit tensile and compressive forces upon rotation of said sprocket wheel;
whereby driving force of the driving system causes at least said other end end of the passenger-restraining belt to move along the vehicle body to thereby cause said belt to approach or move away from the passenger and be automatically fastened around or removed from said passenger.

4,313,623

BOOK HOLDER

Hans-Gunnar Sundström, Villavägen 254, S-137 00 Västerbaninge, Sweden

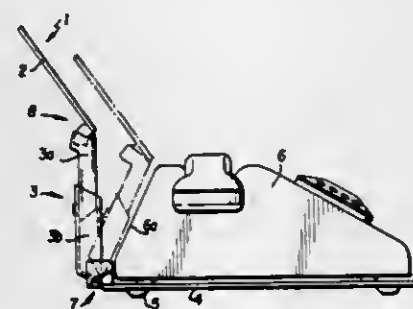
Filed Dec. 6, 1979, Ser. No. 100,772

Claims priority, application Sweden, Dec. 7, 1978, 7812605

Int. Cl.³ B42D 17/00, 1/00

U.S. Cl. 281—15 B

17 Claims



1. A combination register book and holder assembly comprising:

- a mounting plate including an edge portion having a tongue-shaped flange projecting outwardly therefrom, said tongue-shaped flange including an end portion extending at an angle to a plane extending parallel to a front surface of said mounting plate;
said mounting plate further including a pair of distinct recesses extending into portions of said mounting plate disposed on opposite sides of said tongue-shaped flange;
a register book including front and back cover portions arranged on opposite sides of said mounting plate, with one of said cover portions including a slit of sufficient size to allow at least a portion of said tongue-shaped flange to project therethrough; and
attachment means for joining said front and back cover portions into a pocket having at least one end of sufficient size to allow for projection of said mounting plate through said pocket until said tongue-shaped flange projects outwardly through said slit and said mounting plate edge portion is disposed adjacent to an interior end surface of said pocket, whereby said tongue-shaped flange provides maximum support for said register book without risking a break in said cover portions.

4,313,624

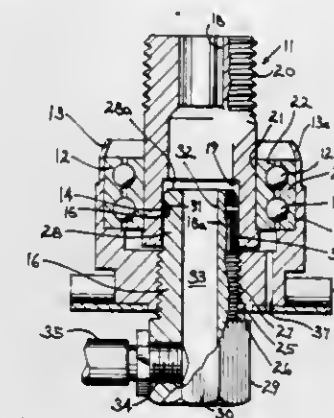
SWIVEL CARTRIDGE

Frank P. Zierden, Oak Creek, and Peter F. Zierden, Franklin, both of Wis., assignors to Zierden Company, Oak Creek, Wis.
Filed Jun. 6, 1980, Ser. No. 156,937

Int. Cl.³ F16L 27/00

U.S. Cl. 285—14

6 Claims



1. A swivel cartridge for rotatably coupling a hose to an overhead source of vehicle-washing fluid, the cartridge comprising:

- an inlet tube with an entrance end adapted for connection to the fluid source and with a bore therethrough from the entrance end to an exit end;
a bearing secured to the outside of the inlet tube above its exit end and having an outer race that rotates around the inlet tube;
a housing secured to the outer race of the bearing to rotate around the inlet tube, the housing having a bottom positioned below the exit end of the inlet tube and the housing bottom having an opening aligned with the bore of the inlet tube;
an outlet tube removably mounted in the opening in the housing bottom with a nose that extends upwardly therefrom into the bore of the inlet tube for rotation therein, and with a hose coupling portion that depends from the housing bottom, the outlet tube having a passage therethrough from the bore of the inlet tube to its hose coupling portion, and the nose being smaller in diameter than the bore of the inlet tube to form a clearance; and
a ring seal mounted around the nose of the outlet tube and positioned within the bore of the inlet tube to prevent leakage of vehicle-washing fluid through the clearance, the ring seal being smaller than the opening in the housing bottom, so that it can be removed from the cartridge with the outlet tube without moving the bearing.

4,313,625

LINED PIPE ASSEMBLY

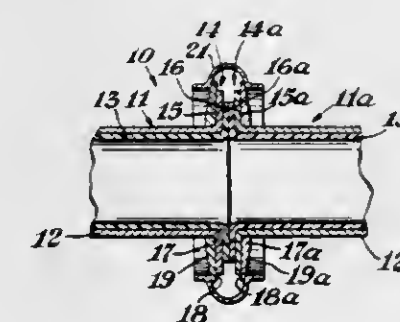
Walter H. West, Essexville, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Continuation of Ser. No. 43,867, May 29, 1979, abandoned. This application Sep. 26, 1980, Ser. No. 191,181

Int. Cl.³ F16L 9/14, 23/00

U.S. Cl. 285—55

2 Claims



1. An improved pipe joint, the pipe joint comprising a plastic

lined conduit having a synthetic resinous pressure deformable liner disposed within a pressure deformable metal conduit, said plastic lined conduit having at least one end, the conduit end defining a radially outwardly projecting flange composed of deformed metal of the metal conduit and deformed plastic of the liner, a loose ring having a generally planar face and a tapering face, the loose ring being disposed about the conduit with the generally planar face of the ring disposed against a metal portion of the outwardly projecting flange, the loose ring having the tapering face remote from the radially outwardly projecting flange, the tapering face tapering outwardly toward a periphery of the flange, a split "V" clamp disposed about the loose ring and an opposed tapering surface of generally like configuration to the tapering face of the loose ring, and the split "V" clamp thereby forcing the deformed plastic of the liner against an opposed liner engaging sealing surface.

4,313,626

COUPLING ARRANGEMENTS

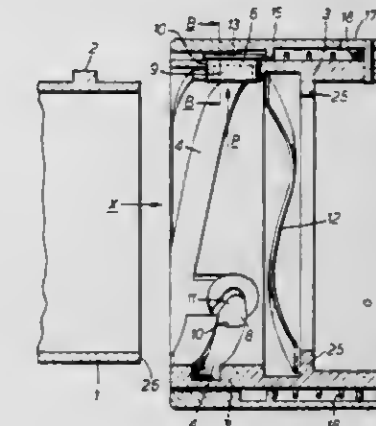
William C. W. Duncan, Bugbrooke, England, assignor to Plessey Handel und Investments AG, Zug, Switzerland
Filed Feb. 2, 1980, Ser. No. 109,102

Claims priority, application United Kingdom, Jan. 5, 1979, 00329/79

Int. Cl.³ F16L 21/08

U.S. Cl. 285—86

8 Claims



1. A coupling member for a bayonet type coupling arrangement comprising a hollow cylindrical body, said hollow cylindrical body having a plurality of helical tracks formed on its inner surface for slidably receiving coupling pins projecting from the outer surface of another cylindrical body when said other cylindrical body is inserted into said hollow cylindrical body, said hollow cylindrical body also having a plurality of axially extending tracks formed on its inner surface, each axially extending track intersecting one of said helical tracks, a plurality of locking members mounted in said hollow cylindrical body, one said locking member being positioned at each intersection between a helical track and an axial track, each said locking member having a coupling pin receiving recess and being rotatable between a first angular position in which said recess is aligned with said helical track and a second angular position in which said recess is aligned with said axial track, whereby when said locking members are in said first angular position said coupling pins of said other cylindrical body can only enter said recesses from said helical tracks, and when said locking members are in said second angular position said coupling pins of said other cylindrical body can only be removed from said recesses along said axial tracks, and retaining means for retaining said locking members in said first angular position and for permitting said locking members to rotate to said second angular position.

4,313,627

PIPE PART WITH A DISPLACEABLE ABUTMENT EDGE
Tinus de Lange, Vroomshoop, Netherlands, assignor to Wavin B.V., Zwolle, Netherlands

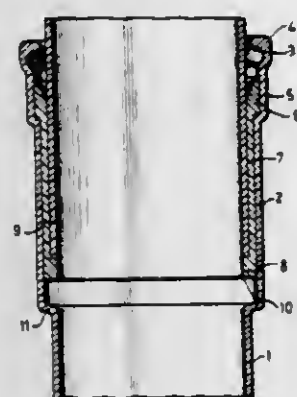
Filed Mar. 29, 1979, Ser. No. 25,198

Claims priority, application Netherlands, Mar. 30, 1978, 7803400

Int. Cl.³ F16L 13/04

U.S. Cl. 285—114

5 Claims



1. A pipe insert part of thermoplastics for connection of telescopically inserted pipes (9 and 12), said insert being provided with annular means (ring 6) for axially supporting said insert upon pipe 2 and an annular abutment edge for engaging the front side of an inserted pipe (9), said insert being capable of withstanding a maximum axial force executed by axial loads executed upon inserted pipe 9 without breaking, said means (ring 6) and abutment edge 8 being connected by connecting part means (7), which are strip shaped or bar shaped and are circumferentially spaced from each other with the area between adjacent connecting part means being open to the radial interior and exterior of said insert, said connecting part means 7 are formed of a polyolefin, said connecting part means 7 being capable of allowing elongation without breaking when they elongate over a height corresponding with the height between the lower side of the abutment edge (8) and a shoulder (11) between pipe 9 and pipe 1.

4,313,628

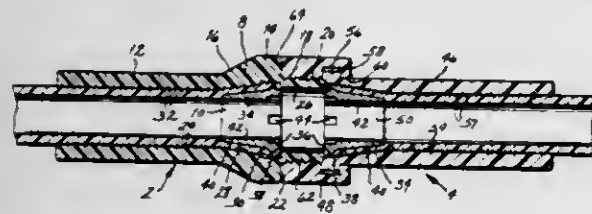
COUPLING FOR HOSES AND SIMILAR CONDUITS
Milton J. Duenke, 17 Jennycliffe La., Chesterfield, Mo. 63017

Filed May 8, 1980, Ser. No. 147,565

Int. Cl.³ F16L 33/24

U.S. Cl. 285—115

11 Claims



1. In combination with first and second conduits, such as hoses, a connection for joining the conduits at their ends, said connection comprising: a first flexible body fitted over the first conduit, the first flexible body being formed from a plastics and having at one end a threaded section provided with external threads; a first bushing fitted into the end of the first conduit such that the first conduit is spread outwardly and bears against the first flexible body, forming a fluid-tight seal therewith, the first bushing being made from a material that is substantially harder and less flexible than the material from which the first flexible body is formed; a second flexible body fitted over the second conduit and also being formed from a plastics; a second bushing fitted into the end of the second conduit such that the second conduit is spread outwardly and bears against the second flexible body, forming a fluid-tight seal therewith, the second bushing being made from a material that is substantially harder and less flexible than the material from which the

second flexible body is formed; and a ring engaged with the second flexible body such that it can rotate on the second flexible body but is confined axially on that body, the ring having internal threads for engaging the external threads on the threaded section of the first flexible body and drawing the two flexible bodies into abutting engagement with one another and fluid-tight contact.

4,313,629

HOSE CONNECTOR

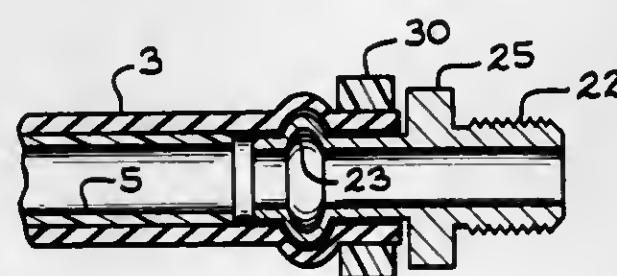
Melvin J. Winterhalter, Toledo, Ohio, assignor to Champion Spark Plug Company, Toledo, Ohio

Filed Jul. 14, 1980, Ser. No. 168,749

Int. Cl.³ F16L 33/02, 33/20

U.S. Cl. 285—242

20 Claims



1. Connector apparatus comprising:

a hose having a resilient core with a resilient cover over said core, a passageway being defined in the center of said core, said core having an annular region of reduced thickness at one end of said hose, said region of reduced thickness producing an increased inside diameter in said passageway at said end of hose;

a connector engagably positioned in said passageway in said hose at said end where said core has a region of reduced thickness, said connector having an annular enlarged diameter portion, said enlarged diameter portion having a diameter larger than the inside diameter of said region of reduced thickness in said hose; and

clamping means positioned on the exterior of said hose at the end where said connector is positioned in said hose, said clamping means sealingly securing said connector in said region of reduced thickness of said hose.

4,313,630

METHOD AND APPARATUS FOR KNOTTING AUTOMATICALLY MOUTHS OF FLEXIBLE PACKAGINGS

Angel L. Barroso, Ronda Carlos III, s.n., Martaro (Barcelona), Spain

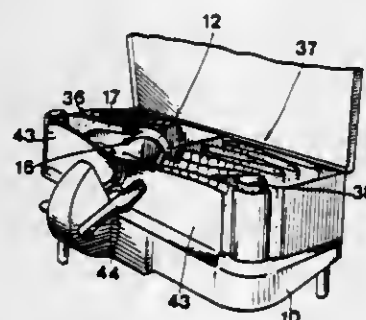
Filed Oct. 24, 1979, Ser. No. 87,792

Claims priority, application Spain, Oct. 31, 1978, 475,086

Int. Cl.³ B65H 69/04; A01D 59/04

U.S. Cl. 289—1.5

14 Claims



1. A method of automatically knotting flexible packages comprising:
entering a string on a support in the form of a plurality of adjacent closed loops, each with its ends crossed;

placing the area of the package to be knotted across one of the loops;
tightly grasping said one loop at the loop segment directly across from and farthest from the crossed ends of the one loop;
moving said loop segment in an arc about said package so that the path of the said segment encircles said area to be knotted of the package;
inserting said loop segment through the one loop itself;
pulling said loop segment until the string becomes tightly knotted around the rear to be knotted; and
cutting said ends of said loop.

4,313,631

LATCH FOR MODULE BUILDER

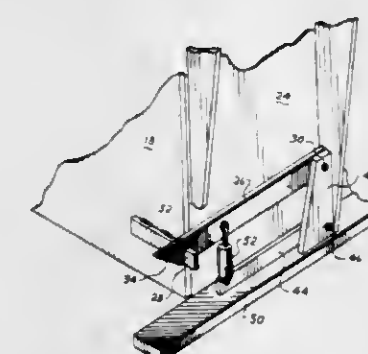
Don R. Johnson, Lubbock, Tex., assignor to Harris & Thrush Manufacturing Company, Wolfforth, Tex.

Filed Dec. 3, 1979, Ser. No. 99,882

Int. Cl.³ E05C 3/30

U.S. Cl. 292—201

2 Claims



1. In a cotton module builder having
a. a frame,
b. a door hinged at its top to the frame,
c. a knotted latch bar pivoted to the frame,
d. a plate attached to the door to cooperate with the latch bar to hold the door closed,
e. cam means on the latch bar for raising the latch bar as it moves into engagement with the plate,
f. a source of hydraulic fluid under pressure,
g. a hydraulic door cylinder interconnecting the frame and door to open the door, and
h. hydraulic lines between the source and door cylinder; wherein the improvement comprises:
j. a hydraulic latch cylinder having one end connected to the latch bar and the other end connected to a floating bar,
k. said floating bar pivoted to the frame so that the floating bar and latch bar may be in parallel positions,
m. the floating bar
(i) limited in its downward travel, and
(ii) below the latch bar,
n. the latch cylinder fluidly connected to the hydraulic lines,
o. so that pressure on the hydraulic lines to open the door also opens the latch bar by means of the latch cylinder, and
p. pressure on the hydraulic lines to close the door also closes the latch bar through the latch cylinder.

4,313,632

GOLF BALL RETRIEVER

Gilbert T. King, deceased, late of Utica, Mich., and Gilbert D. King, administrator, 45810 Cass Ave., Utica, Mich. 48087

Filed Jan. 17, 1980, Ser. No. 112,875

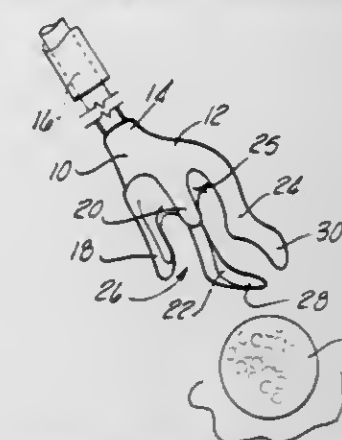
Int. Cl.³ A63B 47/02

U.S. Cl. 294—19 A

9 Claims

1. A golf ball retriever comprising a shaft, a body made in one piece of substantially rigid elastically deformable material having a top portion including a shaft retaining means, a pair of posterior fingers and a pair of anterior fingers depending in spaced relationship from the top portion to form a pocket

having a concave inner surface, said fingers terminating in spaced relationship defining an opening slightly smaller in diameter than a golf ball, a prong extending substantially horizontally from the lower portion of each anterior finger and away from said shaft defining a scoop means having a width



smaller than the diameter of a golf ball, whereby a golf ball may be retained temporarily for transportation by being either forced through the opening and gripped in the pocket defined by the anterior and posterior fingers, or lodged between the prongs.

4,313,633

SELF ADJUSTING ACTUATOR SYSTEM

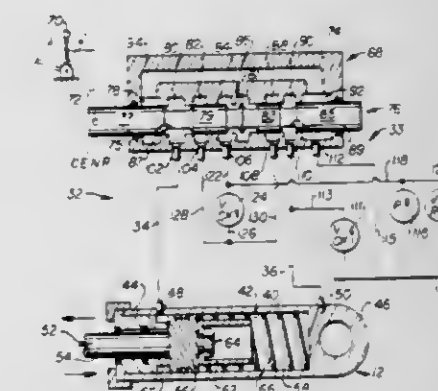
John R. Muntjanoff, Aurora, and Charles E. Lanchantia, Jr., Peoria, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Jul. 11, 1979, Ser. No. 94,256

Int. Cl.³ B66C 3/16; F15B 13/042

U.S. Cl. 294—88

14 Claims



1. A self adjusting actuator system (32/32') comprising:
a fluid reservoir (114);
an actuator (12) having a housing (40), a telescoping piston (52) located within the housing (40) and defining first and second chambers (58, 60) and urging means (66) for biasing the piston (52) in a preselected direction against an external force;
control means (33/33') for selectively supplying pressurized fluid to either of the chambers (58, 60), the control means (33/33') including control valve means (68/68'), the control valve means (68/68') further including a control spool (76/76') having first and second operating positions corresponding to extending and retracting the actuator (12), and a third operating position, said control valve means (68/68') having valve means (34, 102, 80, 75, 78/34, 123, 121) for egress of fluid from the second chamber (60) in the third operating position of the control spool (76/76') in response to a change in the external force and movement of the piston (52) by the urging means (66), said control spool (76/76') obstructing pressurized fluid flow to said chambers (58, 60) in said third operating position; and means (111, 113, 36) for ingress of make-up fluid from said reservoir (114) into the first chamber (58) in the third operating position of the control spool (76/76') in re-

sponse to movement of the piston (52) effected by said urging means responsive to a change in said external force.

4,313,634

COLLAPSIBLE FLORAL BASKET, METHOD AND APPARATUS

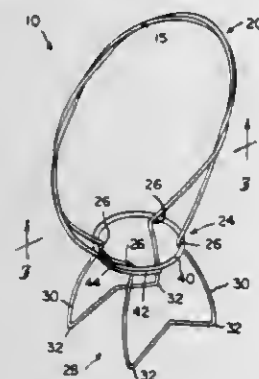
Stanley E. Williams, McLeansboro, Ill., assignor to George Koch Sons, Inc., Evansville, Ind.

Filed Sep. 19, 1979, Ser. No. 77,126

Int. Cl.³ A47G 7/02

U.S. Cl. 294-166

14 Claims



1. An apparatus for supporting a container comprising a collapsible frame and means for retaining the container which in cooperation with the frame renders the apparatus self-supportive, the frame including an expandable base portion and a handle portion, the retaining means being expandable and encompassing the frame intermediate the base portion and the handle portion to lock the apparatus in a supportive position in response to positioning the container within the retaining means and applying downward pressure thereto.

4,313,635

WIND DEFLECTOR SYSTEM FOR AERODYNAMIC DRAG REDUCTION

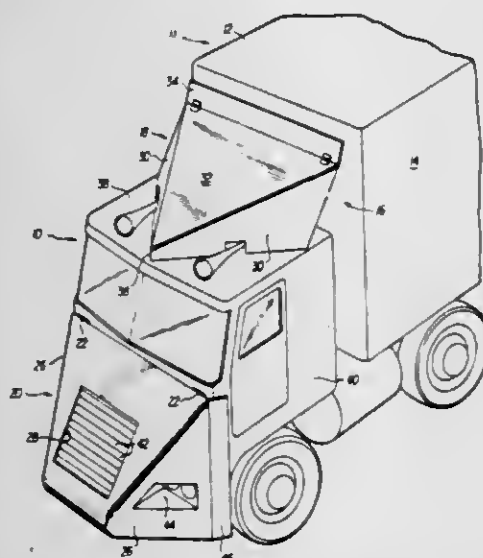
Charles M. Front, Matchpoint, Westover Dr., Apt. 5840 D, Richmond, Va. 23225

Filed Apr. 8, 1980, Ser. No. 138,626

Int. Cl.³ B60J 9/04

U.S. Cl. 296-1 S

9 Claims



1. A wind deflector system for a flat-nosed vehicle of the type having a cabin over the engine which comprises
a. a first wind deflector stage attachable to the front of the vehicle,
1. said first wind deflector stage being generally wedge-shaped in side elevation with a first, centrally located surface for deflecting wind upwardly toward the top of the cabin,
2. said first wind deflector stage having a pair of side

deflecting surfaces for deflecting the wind around the sides of the cabin,

3. said first wind deflector stage being pivotally attached to said vehicle adjacent the top of said first, centrally located wind deflecting surface and releasably connected to said vehicle adjacent the bottom of said wedge-shaped deflector whereby said first wind deflector stage may be pivotally advanced with respect to the front of said vehicle so as not to restrict the full forward tilting of said cabin when it is desired to gain access to the engine of said vehicle,

b. a second wind deflector stage mounted atop the cabin,
1. said second wind deflector stage having first surface means for deflecting wind over the top of a trailer following said vehicle,
2. and second surface means for deflecting wind around the sides of said trailer.

4,313,636

FOLDING COVER FOR TRUCK BED

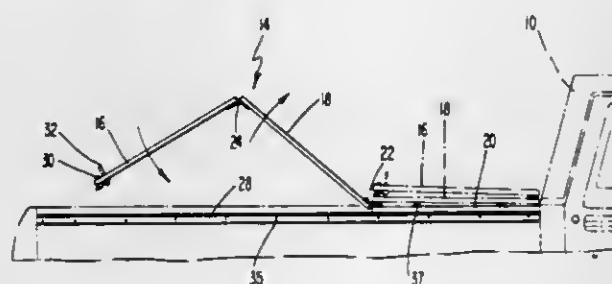
Larry B. Deeds, Rte. 1, Box 216, Rochelle, Tex. 76872

Filed Jan. 15, 1979, Ser. No. 3,493

Int. Cl.³ B60J 7/10

U.S. Cl. 296-100

13 Claims



1. A cover for the bed of a pickup truck, the cover comprising a plurality of horizontal, rigid panel sections; means for supporting said panel sections above a load bearing surface of said bed; at least one of said panel sections being fixedly attached in stationary position on said supporting means above the load bearing surface, said fixed panel section restraining said plurality of panel sections against sliding thereof on said supporting means in a manner to reduce noise and minimize vibration and wear of the cover; transverse hinge means for interconnecting adjacent ones of said panel sections and enabling pivoting of sections about said fixed panel section or sections along axes perpendicular to side walls of said bed between closed horizontal positions and open positions, and being further operable to prevent sliding movement of said panels and means for releasably locking closed at least one of said pivotable panel sections.

4,313,637

SEAT HAVING A MOVABLE LUMBAR SUPPORT

Geoffrey W. Barley, Kislisbury, England, assignor to UOP Inc., Des Plaines, Ill.

Filed Nov. 13, 1979, Ser. No. 93,567

Claims priority, application United Kingdom, Nov. 18, 1978, 45172/78

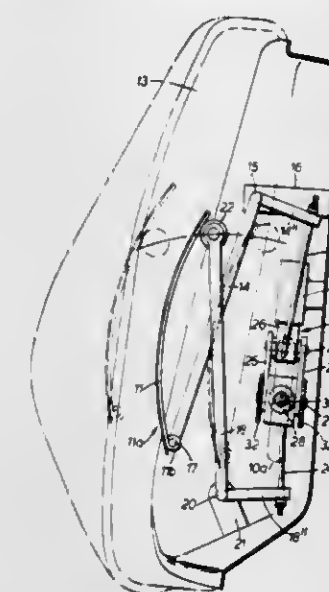
Int. Cl.³ A47C 7/46

U.S. Cl. 297-284

4 Claims

1. A seat having a back rest which comprises a back rest frame, a lumbar support member, and a support mechanism mounting said lumbar support member on said frame, said lumbar support member having a support surface which is arcuate about a horizontal axis transverse to the back rest, the support mechanism being operable in one mode to displace the lumbar support in a forward or rearward direction and in a second mode comprising two upwardly-extending horizontally-spaced pairs of support arms, means defining first pivotal connections at one end of said arms to the back rest frame and

means defining second pivotal connections at the opposite end of said arms to the lumbar support member, the support arms of each pair being relatively movable to displace the second pivotal connections to effect a rolling or tilting action of the lumbar support member about a horizontal axis, and wherein said mechanism comprises means interconnecting one support arm of each pair to form a first lever, the first pivotal connections of said arms being located on said first lever at a level adjacent to or above the top of the lumbar support member and the second pivotal connections of said arms being located on said first lever at a level adjacent the bottom of the lumbar support member, and means interconnecting the other support arm of each pair to form a second lever, the first pivotal con-



nections of said other arms being located on said second lever at a level adjacent to or below the bottom of the lumbar support member and the second pivotal connections of said other arms being located on said second lever at a position adjacent the top of the lumbar support member, one of said connections being a sliding or rolling connection, said mechanism including means for rotating said levers in opposite senses about the axes of their first pivotal connections in order to move the member forwardly and rearwardly and for rotating said levers in common senses about said axes in order to effect said rolling or tilting action on the member, and simultaneously to move said axis vertically, to raise or lower the level at which the lumbar support member supports the back of a seat occupant.

4,313,638

INFINITELY VARIABLE SEAT RECLINER MECHANISM

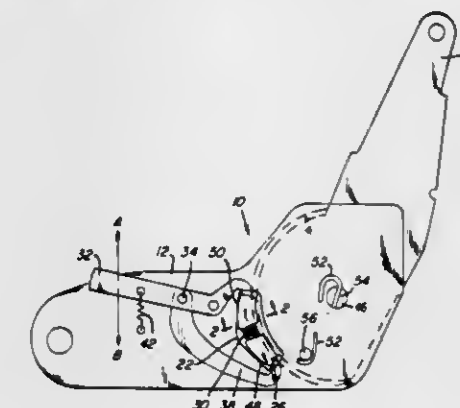
Daniel W. Roper, Rochester, Mich., assignor to Rockwell International Corporation, Pittsburgh, Pa.

Filed Jul. 30, 1980, Ser. No. 173,488

Int. Cl.³ A47C 1/027

U.S. Cl. 297-374

12 Claims



1. An infinitely adjustable hinge comprising:
a first arm having a camming surface thereon; a second arm; a pivot pin extending through and retained between said first and said second arm;
two wedge blocks having a generally V-shaped friction

surface at one end thereof slidably mounted and retained on said camming surface of said first arm;
a friction surface on said second arm, having a cross section capable of mating with said friction surface on said wedge block;

said wedge blocks capable of sliding along said camming surface and into locking engagement with said friction surface on said second arm whereby one of said wedge blocks prevents said second arm from rotating with respect to said first arm in one direction and the other of said wedge blocks prevents said second arm from rotating in the opposite direction;

means for biasing said wedge blocks into engagement with said friction surface on said second arm; and
means for moving said wedge blocks out of contact with said friction surface on said second arm to permit free rotation of said second arm relative to said first arm about said pivot pin.

4,313,639

MOTORCYCLE BACKREST

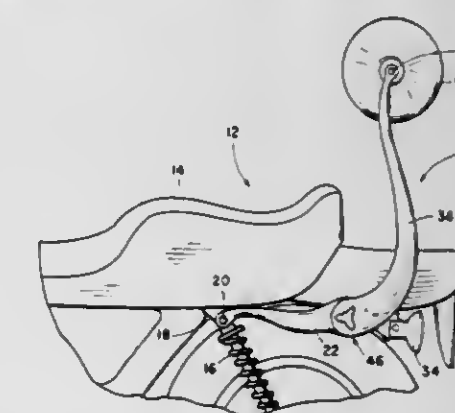
Robert A. Ware, Tulsa, Okla., assignor to Ware Manufacturing, Incorporated, Tulsa, Okla.

Filed May 29, 1979, Ser. No. 43,110

Int. Cl.³ A47C 1/025; B62J 1/00

U.S. Cl. 297-366

17 Claims



1. A motorcycle backrest for mounting to the frame and working in cooperation with a two-place seat of a motorcycle, the backrest comprising

a pair of oppositely disposed substantially horizontal frame arms, the forward end of said frame arms being securable to the motorcycle frame, rear bracket members for securing the rear ends of said frame arms to the motorcycle frame below the seat and on either side thereof;

a pair of oppositely disposed elongated support arms, a backrest pad member having a backrest surface and being directly secured to and disposed adjacent to first ends of the support arms; and

means for pivotally securing opposite second ends of the support arms to the frame arms on either side of a rear-most portion of the two-place motorcycle seat, said means including means for selectively locking the support arms at a desired angular position ranging from substantially vertical for providing upper back support for a rear-most rider to a forward position for positioning said backrest member near the mid portion of the motorcycle seat to provide lower back support for a motorcycle driver alone; wherein said backrest pad member is configured such that said backrest surface is presented in a same forwardly facing orientation relative to the back of the user regardless of the angular position of the support arms.

4,313,640

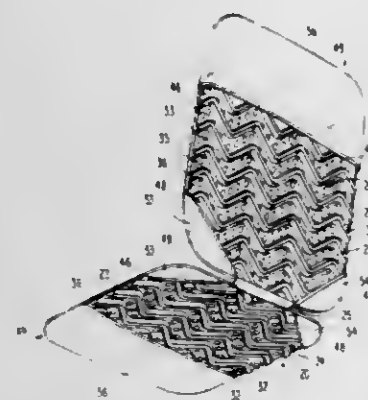
**COVERED BODY SUPPORTING AND SPACING
STRUCTURE AND REMOVABLE COVER THEREFOR**Helen H. Trotman, and Herbert H. Trotman, both of P.O. Box
807, Virginia Beach, Va. 23451

Filed May 13, 1980, Ser. No. 149,306

Int. Cl.³ A47C 7/02

U.S. Cl. 297—453

6 Claims



1. The combination of a supporting spacing member for use between a supporting surface and a body to be supported and an attachable and detachable cover member for the supporting spacing member formed of readily flexible material, wherein the supporting spacing member is formed from a sheet of resilient plastic material which is permanently deformed to provide contiguous protuberances distributed over a body support area for engaging the supporting surface, adjacent protuberances being complementary in shape and disposed in overlapping relation to each other whereby the body support area of the member will resist flexing along lines traversing the body support area, the supporting spacing member having peripheral marginal portions, an end portion and two end corner portions, the cover member comprising a front panel for surface contact with the body to be supported corresponding generally in shape to the supporting spacing member and having peripheral marginal portions, an end portion and two end corner portions coinciding with peripheral marginal portions, the end portion and two end corner portions respectively of the supporting spacing member, a rear panel having peripheral marginal portions connected along one end marginal portion thereof to one end marginal portion and to opposite side marginal portions of the front panel to form a pocket receiving in snug fitting relation one end portion of the supporting spacing member, and a pair of spaced rear corner panels each having a peripheral marginal portion, each corner panel being connected along a marginal portion to a different end corner portion of the front panel to form two separate corner pockets, each corner pocket being dimensioned to receive in snug fitting relation a different end corner of a supporting spacing member, the protuberances on the supporting spacing member coacting with one another to stiffen the supporting spacing member against excessive deflection in use as a supporting spacing member while accommodating limited flexure of the supporting spacing member during application and removal of the cover member.

4,313,641

**SELECTIVELY OPERABLE CONTROL SYSTEM FOR
VEHICLE BRAKE VALVE**

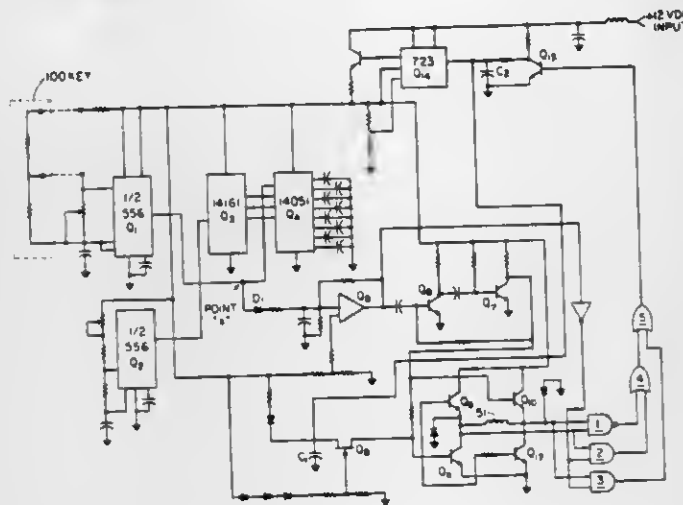
Stanley S. Wise, Palm Beach, and Gregory Csurgay, Fort Lauderdale, both of Fla., assignors to Fail Safe Industries, Inc., Lantana, Fla.

Filed Nov. 2, 1979, Ser. No. 90,760

Int. Cl.³ B60T 13/68

U.S. Cl. 303—3

5 Claims



5. In an automotive vehicle brake system having hydraulic brake means, and valve means operatively connected to control the hydraulic pressure in said brake means, said valve means having an open first position in which it is operable either to relieve said hydraulic pressure or to apply a pressure increase to said brake means, said valve means having at least one additional position in which it acts as a one-way check valve operable to apply a pressure increase to said brake means but not to relieve pressure in said brake means, the improvement which comprises:

an electrically energizable means for controlling the position of said valve means;
and a control circuit means operatively connected to said electrically energizable means which affects the positioning of said valve means in said open position when the vehicle is moving and in said additional position after the vehicle stops;
said control circuit means including;
a selectively operable device;
and a means for energizing said electrically energizable means with current to position said valve means in said additional position when said selectively operable device is not operated and for energizing said electrically energizable means with current to position said valve means in said open position when said selectively operable device is operated; said selectively operable device including a key operated switch and a key insertable to operate said switch; and
said control circuit means including a pair of oscillators, one of which has substantially the same frequency as the other to establish said valve means in said open position only when said key is inserted to operate said switch.

4,313,642

**CONTROL VALVE FOR VEHICLE BRAKE SYSTEMS
HAVING TWO BRAKE CIRCUITS**

Volker Berisch, Hattersheim, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed Jun. 2, 1980, Ser. No. 155,828

Claims priority, application Fed. Rep. of Germany, Jun. 30, 1979, 2926539

Int. Cl.³ B60T 8/02, 8/26

U.S. Cl. 303—6 C

16 Claims

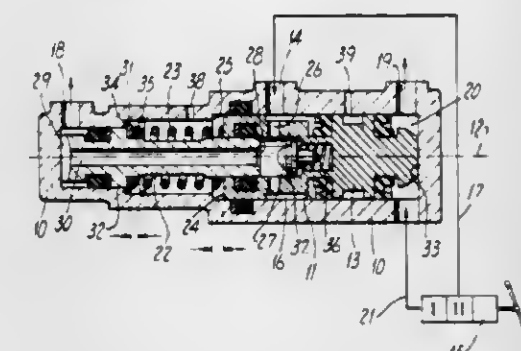
1. A control valve for vehicle brake systems having two brake circuits to control the application of full operating pres-

sure to a first of said two brake circuits when pressure drops in a second of said two brake circuits comprising:

a pressure reducing valve disposed in a pressure medium connection from a master cylinder to said first of said two brake circuits to effect said control, said reducing valve including

a pressure sensing piston disposed in a housing bore coaxial of a longitudinal axis of said housing bore movable in a first direction, said sensing piston having a first active surface exposed to uncontrolled pressure of said first of said two brake circuits and a second active surface ex-

posed to uncontrolled pressure of said second of said two brake circuits, said first active surface being smaller than said second active surface, a stepped piston having at least one large diameter portion and at least one smaller diameter portion disposed in said housing bore coaxial to said axis movable in a direction opposite said first direction, an end portion of said smaller diameter portion being slidably sealed in a first bore in the adjacent end portion of said sensing piston, and a spring disposed about said smaller diameter portion acting on said sensing piston and said stepped piston.



posed to uncontrolled pressure of said second of said two brake circuits, said first active surface being smaller than said second active surface, a stepped piston having at least one large diameter portion and at least one smaller diameter portion disposed in said housing bore coaxial to said axis movable in a direction opposite said first direction, an end portion of said smaller diameter portion being slidably sealed in a first bore in the adjacent end portion of said sensing piston, and a spring disposed about said smaller diameter portion acting on said sensing piston and said stepped piston.

4,313,643

**EMERGENCY BRAKE SYSTEM EMPLOYING SHUTTLE
VALVE**

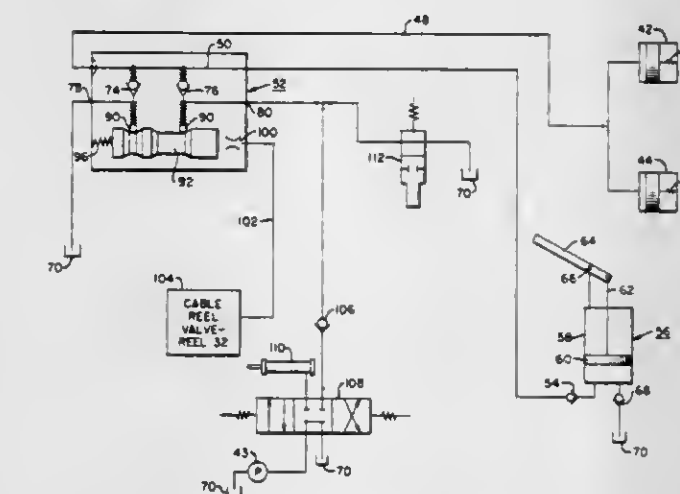
Vern R. Exley, Conneaut Lake, Pa., assignor to Joy Manufacturing Company, Pittsburgh, Pa.

Filed Jan. 18, 1980, Ser. No. 113,011

Int. Cl.³ B60T 13/22

U.S. Cl. 303—71

7 Claims



1. An emergency vehicle brake system comprising brake means, spring means for actuating the brake means to brake the vehicle, means including a power-operated pump on said vehicle for pressurizing said brake means to release the same against the force of said spring means when power is supplied to the vehicle, auxiliary pump means on said vehicle for pressurizing said brake means to release the same when power is not supplied to the vehicle, and shuttle valve means for connecting said power-operated pump to the brake means when power is supplied to the vehicle, said shuttle valve means being actuable when power is initially supplied to the vehicle to

4,313,644

THRUST BEARING ASSEMBLY

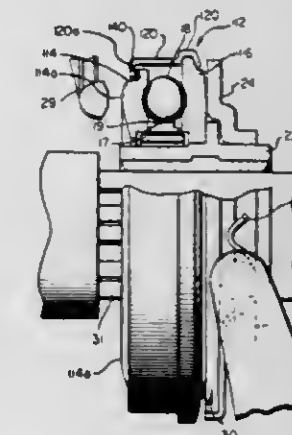
Richard T. Dagiel, Elk Grove Village, Ill., assignor to Aetna Bearing Company, Chicago, Ill.

Filed Jan. 3, 1980, Ser. No. 109,223

Int. Cl.³ F16C 19/10, 33/76

U.S. Cl. 308—233

5 Claims



4. A thrust bearing comprising in combination: first and second spaced apart annular thrust rings and a plurality of bearing elements rotatably retained therebetween, and annular retaining means for holding said spaced apart thrust rings in a fixed axial spaced relation to one another while permitting relative rotation therebetween and about a common axis, wherein the annular retaining means includes a shell member non-rotatably affixed to said second annular thrust ring and extended over a portion of said first annular thrust ring and further including generally annular sealing means interposed between said first annular thrust ring and said shell member so as to form a seal and maintain a close tolerance fit therebetween while still permitting substantially unimpeded relative rotation therebetween, said annular sealing member being nonrotatably affixed to said first annular thrust ring and presenting a minimal surface to said shell member so as not to inhibit substantially relative rotation therebetween.

4,313,645

**TELEPHONE CORD HAVING BRAIDED OUTER
JACKET**

Eugene R. Cocco, Baltimore, Md., assignor to Western Electric Company, Inc., New York, N.Y.

Filed May 13, 1980, Ser. No. 149,597

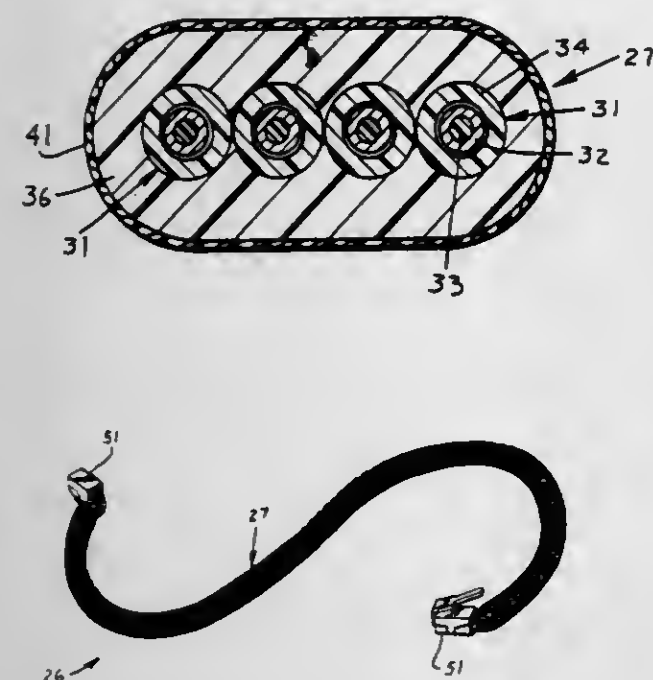
Int. Cl.³ H01B 7/06

U.S. Cl. 339—103 M

6 Claims

1. A length of retractile telephone cordage which is coiled in and heat-set in a helical configuration, said cordage comprising: a plurality of conductors, each of said conductors being insulated with a thermoplastic material which is capable of being coiled in a helical configuration and of being heat-set in such configuration; an inner jacket which is made of a plastic material and which encloses said plurality of individually insulated conductors; and a braided outer jacket which encloses and which is in engagement with said plastic inner jacket, said braided outer

jacket including a coating which impregnates an end portion of the braid and bonds said end portion to said plastic inner jacket, said engagement of said braided outer jacket with said plastic inner jacket being sufficient to



cause said impregnated end portion to adhere to said plastic inner jacket while being insufficient to prevent the inhibition of a substantially uniform distribution of helices of the retractile cordage when the retractile cordage is extended.

4,313,646

POWER DISTRIBUTION SYSTEM

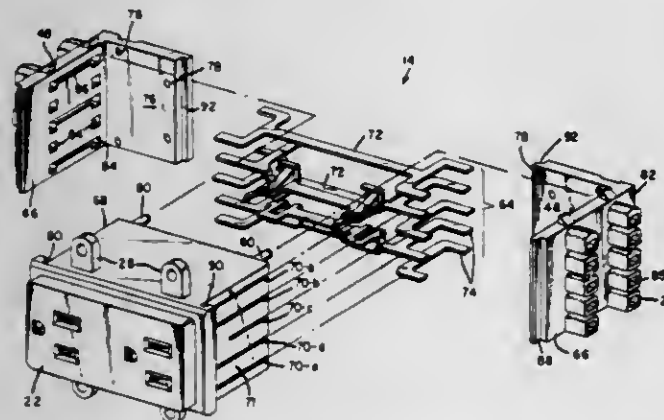
Wayne L. Millhimes, Hershey, and Wilmer L. Sheesley, Dauphin, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Feb. 25, 1980, Ser. No. 124,363

Int. Cl.³ H01R 13/00

U.S. Cl. 339—156 R

5 Claims



1. A power box assembly useful in an electrical distribution system in modular wall panels, the power box comprising:

a. a rectangular housing of insulating material adapted to be mounted in a modular wall panel and having a duplex receptacle plate with blade-admitting slots and prong-admitting openings on the front face, and first, second and third horizontal slots extending into the housing from the back face with the slots and openings of the duplex receptacle plate intersecting the horizontal slots;

b. a plurality of laterally extending shells arranged in two vertical rows on each side of the housing and having openings which are in alignment with the horizontal slots in the housing, said shells each adapted to receive therein an electrical terminal.

c. first and second buss bars each having contact-carrying

end sections joined by an elongated mid-section with spaced-apart, blade-receiving receptacles on the mid-section, said end sections being U-shaped with the bight positioned normally to the mid-section and the legs providing contacts, said first and second bars being positioned in the first and second horizontal slots in the housing with the receptacles being in alignment with the blade-admitting slots in the duplex receptacle plate, and the contacts extending into the shells for electrical contact with terminals which may be inserted therein; and

d. a third buss bar having contact-carrying end sections joined by an elongated mid-section, said end sections being U-shaped with the bight positioned normally to the mid-section and the legs providing contacts, said bar further having spaced-apart fingers extending forwardly from the mid-section, said third buss bar being positioned in said third horizontal slot positioned between the first and second horizontal slots with the fingers being in alignment with the prong-admitting openings in the duplex receptacle plate and the contacts extending into the shells for electrical contact with terminals which may be inserted therein.

4,313,647

NONREFLECTIVE COATING

Eiichi Takazawa, Kokubunji, Japan, assignor to Mamiya Koki Kabushiki Kaisha, Japan

Continuation of Ser. No. 752,000, Dec. 17, 1976, abandoned.

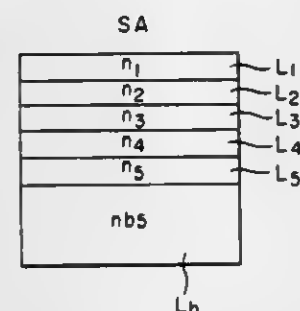
This application Jan. 2, 1980, Ser. No. 109,063

Claims priority, application Japan, Dec. 23, 1975, 50-153603; Dec. 23, 1975, 50-153604

Int. Cl.³ G02B 1/10

U.S. Cl. 350—164

2 Claims



1. A multi-layer nonreflective optical coating on an optical substrate, comprising: five optical film layers, respectively comprised of a first material having a first index of refraction and a second material having a second index of refraction higher than said first index of refraction, superposed and disposed in contact in the following order;

a first layer of the first material having an optical thickness d_1 , wherein $0.270\lambda \leq d_1 \leq 0.320\lambda$;

a second layer of the second material having an optical thickness d_2 , wherein $0.120\lambda \leq d_2 \leq 0.210\lambda$;

a third layer of the first material having an optical thickness of d_3 , wherein $0.042\lambda \leq d_3 \leq 0.125\lambda$;

a fourth layer of the second material having an optical thickness d_4 , wherein $0.111\lambda \leq d_4 \leq 0.214\lambda$, wherein said second and fourth layers have substantially the same optical thickness;

a fifth layer of the first material having an optical thickness d_5 , wherein $0.010\lambda \leq d_5 \leq 0.065\lambda$;

and an optical substrate having an index of refraction of from 1.65 to 1.90 at light wavelength λ , and having said five contacting superposed optical film layers disposed thereon with said fifth layer contacting said substrate.

4,313,648

PATTERNED MULTI-LAYER STRUCTURE AND MANUFACTURING METHOD

Kensaku Yano, Yokohama, and Kenji Takahashi, Sagami-hara, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

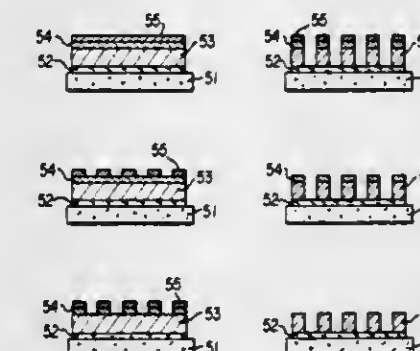
Filed Apr. 27, 1978, Ser. No. 900,650

Claims priority, application Japan, Apr. 30, 1977, 52-49089

Int. Cl.³ G02B 5/28

U.S. Cl. 350—166

11 Claims



1. A manufacturing method for a patterned multi-layer article comprising the steps of:

forming on a substrate a protective layer comprising at least one refractory material selected from the group consisting of aluminum oxide, zirconium oxide, cerium oxide, cerium fluoride, thorium oxide, praseodymium chloride, praseodymium oxide, lanthanum oxide and lanthanum fluoride, which is resistant to reactive sputter etching;

forming on the protective layer a laminated layer having laminae composed of silicon oxide and titanium oxide, said silicon oxide and titanium oxide being etched at different rates by reactive sputter etching; and

etching the laminated layer by reactive sputter etching to form a predetermined pattern.

7. A patterned optical multi-layer article comprising: a substrate;

a protective layer comprising at least one refractory material selected from the group consisting of aluminum oxide, zirconium oxide, cerium oxide, cerium fluoride, thorium oxide, praseodymium chloride, praseodymium oxide, lanthanum oxide and lanthanum fluoride formed on the surface of the substrate; and

at least one laminated and patterned layer formed on the surface of said protective layer and having laminae composed of silicon oxide and titanium oxide, said silicon oxide and titanium oxide having different refractive indices,

wherein said protective layer and said laminated and patterned layer constitute an optical filter, and said protective layer prevents said substrate from being etched by reactive sputter etching.

4,313,649

LENS ASSEMBLY

Teruo Morikawa, Sagami-hara, and Shinji Murata, Tokyo, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 3, 1980, Ser. No. 109,276

Claims priority, application Japan, Jan. 17, 1979, 54-4461

Int. Cl.³ G02B 7/02; F16L 47/06

U.S. Cl. 350—252

8 Claims

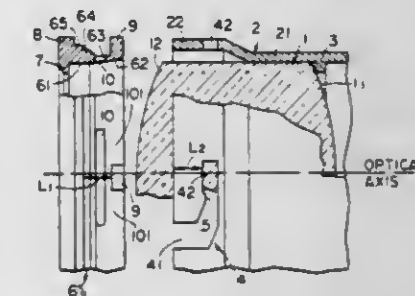
1. A lens assembly comprising:

a lens;

a cylindrical lens tube member for accommodating said lens, said tube member having a positioning surface for bearing against and positioning one end of said lens; and

a fastening member, engageable with said tube member, for bearing against the other end of said lens, one of said tube and fastening members having a slot which extends at least in part in a direction transverse to the optical axis of said lens, and the other member having a corresponding pro-

jection engageable with said slot, one of said members having a resiliently deformable portion, wherein when said projection is in engagement with said slot the distance from a predetermined reference to the portion of said projection which engages said slot, and the distance from



the predetermined reference to the portion of the inside surface of the slot are so related that said resiliently deformable portion is resiliently deformed to resiliently urge said projection toward a portion of the inside surface of said slot which extends in a direction transverse to the optical axis.

4,313,650

APPARATUS FOR CONTROLLING LIGHT AND HEAT TRANSFERENCE FOR GREENHOUSES

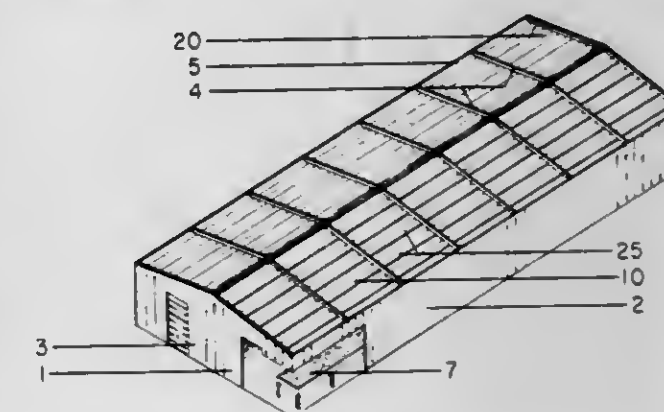
Jack D. Ward, and Douglas G. Ward, both of Garden Valley, Id. 83622

Filed Jun. 27, 1980, Ser. No. 163,810

Int. Cl.³ G02B 27/00

U.S. Cl. 350—263

6 Claims



1. Apparatus for controlling light and heat transference to and from a greenhouse comprising:

a plurality of slat sets suspendable from a greenhouse roof in an inclined position and in parallel relationship with one another to define an internal roof-like structure, each of said slat sets including a plurality of self-supporting slats placed in parallel with one another, each slat adapted to overlap an adjacent and lower placed slat, and each slat including a main body portion of bulk insulation of low thermal conductivity and an outer covering of reflective insulation having low emissivity of thermal radiation; means for the holding and simultaneous tilting the slats of each set about their longitudinal axis for opening and closing said slats; and means for suspending said slat sets from the roof of a greenhouse.

4,313,651

OPTICAL BEAM SCANNER

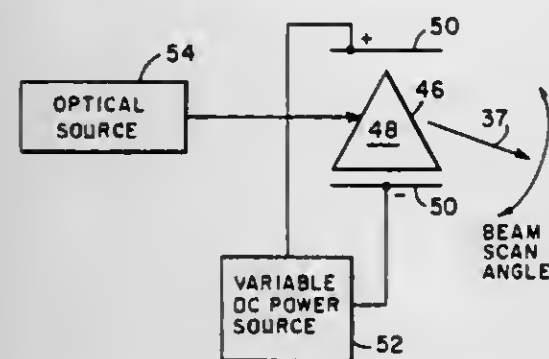
Walter E. Miller, Jr., Huntsville, Ala., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Feb. 22, 1979, Ser. No. 13,947

Int. Cl.³ G02F 1/01

U.S. Cl. 350—355

10 Claims



1. A method for providing a scanned optical beam of light comprising the steps of:
directing a beam of light to be scanned along a fixed path into an optical medium having a variable index of refraction;
applying an electric field to at least one pair of parallel capacitive plates and across said medium for changing the refractive index;
varying said electric field applied across said medium so that an electric field gradient is developed at edges of said parallel pairs of capacitive plates said beam of light being directed between corresponding pairs of said capacitive plates and along the edges of said plates within the region of said gradient for causing the refractive index to change as said field varies, thereby scanning said beam; developing a variable voltage between said capacitive plates for applying said variable electric field across said medium; and varying the refractive index of said optical medium using the inverse Stark effect, for providing beam scanning through a scan angle while maintaining said optical medium fixed with respect to the light beam.

4,313,652

METHOD AND APPARATUS FOR EYEGLASS LENS ADJUSTMENT AND RETENTION

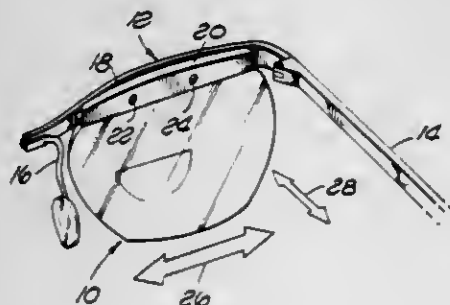
Marvin Berman, 24955 Bob Batchelor Rd., Calabasas, Calif. 91302

Filed Aug. 29, 1979, Ser. No. 40,562

Int. Cl.³ G03B 41/02, 41/06

U.S. Cl. 351—106

18 Claims



1. In a pair of eyeglasses, having a frame with a right eye portion and a left eye portion, in which the lateral position of each of a pair of lenses on the frame is crucial to proper vision of a wearer of the glasses, the improvement in the apparatus for mounting each lens and adjusting each lens to the proper lateral location for a specific wearer comprising:
a first lens supporting member fixedly attached to the respective one of the right and left eye portions, said first lens supporting member having a first grooved section;
a second lens supporting member having a second grooved

section, said first and second grooved sections defining a locking cavity between said first lens supporting member and said second lens supporting member when said first lens supporting member and said second lens supporting member are tightly bound together, said locking cavity being closed except for a lens receiving opening when said lens supporting members are bound together;
a plurality of binding elements extending through at least one of said first lens supporting member and said second lens supporting member and adapted to be tightened and loosened to tightly bind said first lens supporting member to said second lens supporting member; and a lens, having a top portion, and having a male grooved portion on said top portion, said male grooved portion having a straight top edge and being of the same shape as said locking cavity, said top portion of said lens having a length which is less than the length of said closed cavity, and adapted to be frictionally bound within said locking cavity against lateral movement when said first and second lens supporting members are tightly bound together and to be laterally moved within said locking cavity when said lens supporting members are loosened for adjustment of said lens with respect to said supporting member.

4,313,653

CONTROLLER FOR LAPPING PHOTOGRAPHY OF CINECAMERA

Kunibaru Takeda, Chino, Japan, assignor to Kabushiki Kaisha Sankyo Seiki Seisakusho, Nagano, Japan

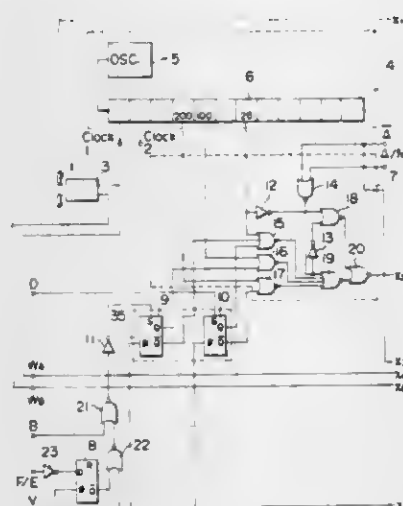
Filed Sep. 12, 1979, Ser. No. 74,697

Claims priority, application Japan, Sep. 13, 1978, 53-112810

Int. Cl.³ G03B 21/36

U.S. Cl. 352—91 C

4 Claims



1. A controller for the lapping photography of a cinecamera, comprising: means for changing the detected level of the quantity of light of an EE (electric eye) mechanism in response to lap signals; means for stopping down a diaphragm to the detected level of the quantity of light, at which a prime mover is interchanged at a constant speed; means for interrupting the feed of film at a preset feed and for rewinding the film a preset feed after the diaphragm is stopped down to its full stroke; means made operative, after the operations of the stop-down means and the interrupting means, to stop down the diaphragm to its full stroke at a high speed; and means for opening the diaphragm after the film rewinding operation to the detected level of the changed quantity of light at a high speed, a diaphragm control mechanism adapted to be controlled by a stepping motor; light receiving detector means for detecting the quantity of light having passed through said diaphragm control mechanism; an oscillatory circuit for generating a plurality of repeated pulse trains having different frequencies to turn said stepping motor at different speeds; a gate circuit for selecting one of the plural pulse trains generated by said

4,313,655

FOCUSING SYSTEM WITH AUTOMATIC CONTROL OF EMITTED RADIANT POWER

August Hell, Feldkirchen; Kurt Borowski, Aschheim; Istvan Cocron, and Theodor Huber, both of Munich, all of Fed. Rep. of Germany, assignors to Agfa-Gevaert AG, Leverkusen, Fed. Rep. of Germany

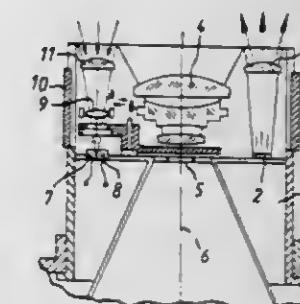
Filed Apr. 9, 1979, Ser. No. 28,493

Claims priority, application Fed. Rep. of Germany, Apr. 7, 1978, 2815151

Int. Cl.³ G03B 3/00, 3/10

U.S. Cl. 354—25

11 Claims

4,313,654
AUTOMATIC RANGEFINDER SYSTEM FOR PHOTOGRAPHIC CAMERA WITH LIGHT EMITTING AND RECEIVING MEANS

Toru Matsui, Osaka; Motonobu Matsuda, Kawachinagano; Hiroshi Ueda, Nara; Yasuhiro Nanba, Osaka, and Yoshio Kuramoto, Toyonaka, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Higashi, Japan

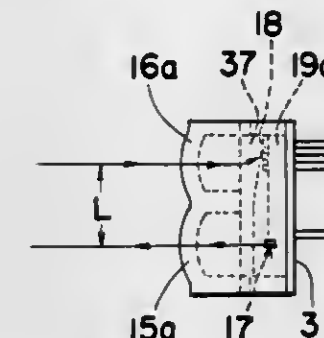
Filed Sep. 6, 1978, Ser. No. 940,135

Claims priority, application Japan, Sep. 6, 1977, 52-107533; Sep. 6, 1977, 52-107534

Int. Cl.³ G03B 3/00

U.S. Cl. 354—25

14 Claims



1. A rangefinder of the zone-monitoring type for a photographic camera, the rangefinder comprising a light emitter means for emitting and projecting a beam of light for illuminating a target object located within one of a plurality of zones at different distances away from the rangefinder, a first convergent lens positioned for receiving and converging the beam of light projected by the light emitter means, a light receiver positioned in a predetermined position offset laterally from the light emitter means relative to the direction in which the light is projected through said first convergent lens, said light receiver including a plurality of photoresponsive elements for detecting the image of the beam of light reflected from the target object, each of said photoresponsive elements being positioned to receive the image reflected from a target object in a corresponding zone, each of said photoresponsive elements having a parameter the magnitude of which varies as a function of the intensity of the light incident thereon, a second convergent lens for receiving light from a target object and forming an image of the area of the target object, illuminated by the projected beam of light on one of the photoresponsive elements corresponding to the zone where the object is located, means coupled to the light receiver and responsive to changes in the magnitude of the parameter of the illuminated photoresponsive elements for providing a signal representative of the zone which the target object actually occupies, and a plate member on which said light emitter means and said light receiver are rigidly mounted.

4,313,656

WEIGHTING OF THE SCENE LIGHT SIGNAL DURING THE SHUTTER OPENING OPERATION

Kurt Borowski, and Eduard Wagensohn, both of Aschheim, Fed. Rep. of Germany, assignors to Agfa-Gevaert AG, Leverkusen, Fed. Rep. of Germany

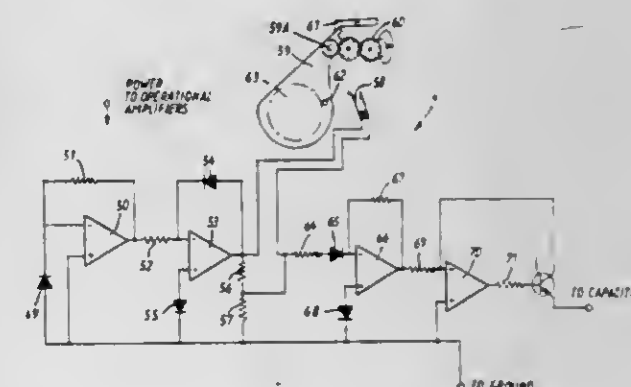
Filed May 29, 1980, Ser. No. 154,301

Claims priority, application Fed. Rep. of Germany, Jun. 6, 1979, 2922918

Int. Cl.³ G03B 7/083

U.S. Cl. 354—29

10 Claims



1. An improved photographic camera of the type having a light-totalizing circuit, including photosensitive means exposed to scene light, operative for generating an exposure signal indicating the amount of exposure of film, exposure terminating means operative for generating a terminating signal when the exposure signal has reached a predetermined value corresponding to a correct amount of exposure, and a shutter mechanism which when activated increases the exposure-aperture size gradually from a minimum value to a maximum value, whereby for scene light levels above a predetermined level the exposure is terminated before the maximum aperture

size can be reached, the final aperture size being relatively large for relatively low scene light levels and relatively small for relatively high scene light levels, whereas for scene light levels below the predetermined level the exposure is terminated only after the maximum aperture size has been reached, the improvement wherein: the photosensitive means includes only a single photosensitive element, controllable weighting circuit means receiving a signal from the photosensitive element and applying thereto a variable weighting factor, and control means operative during the ongoing course of an exposure for controlling the controllable weighting circuit means so as to change the variable weighting factor during the ongoing course of the exposure in a manner which compensates for the progressive increase in the instantaneous amount of light entering the exposure aperture during said gradual increase of the exposure-aperture size.

4,313,657

DISPLAY DEVICE FOR FOCUS DETECTING AND INDICATING DEVICE FOR CAMERA

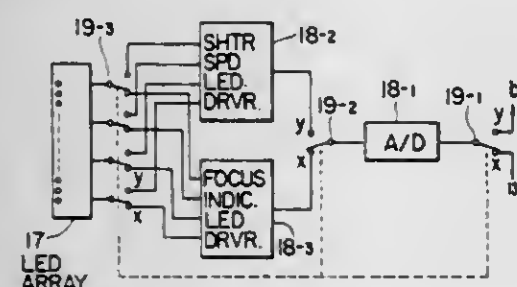
Seiji Tokutomi, Tokyo; Masao Jyojiki, Tsurugashima; Kazuo Nakamura, Shiki, and Harumi Aoki, Kiyose, all of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 21, 1980, Ser. No. 113,888

Claims priority, application Japan, Feb. 15, 1979, 54-18369[U]
Int. Cl.³ G03B 17/20, 13/18

U.S. Cl. 354—53

2 Claims



1. In a camera incorporating an electrical focus detecting and indicating device and an exposure metering or an automatic exposure control device comprising:

a display device comprising; an array of LED elements and driving means for operating said array of LED elements, a liquid crystal display scale for displaying an exposure data indicating scale, and a change-over switch which normally maintains said liquid crystal display element turned off so that it cannot be seen by the camera operator and turns on said liquid crystal display scale in response to the initial stroke of the shutter button of said camera so that said scale can be seen by the camera operator,

switching means having movable contacts coupled to an input signal port of said display device, said switching means being coupled to receive at first and second stationary contacts respectively a focus detection indication signal output and an exposure indication signal output, said switching means being normally set for connecting said focus detection indicating signal output to said display device to cause said array of LED elements to display a visible indication of said focus detection indicating output signal, and

said switching means being responsive to the initial stroke of said shutter button to cause said array of LED elements in conjunction with said liquid crystal display scale to display a visual indication of said exposure indicating signal output.

4,313,658 CAMERA HAVING ELECTROMAGNETIC DRIVE SOURCE

Yoji Sugiura, Yokohama; Nobuaki Date, Kawasaki; Ryoichi Suzuki, Kawasaki, and Syuichiro Saito, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

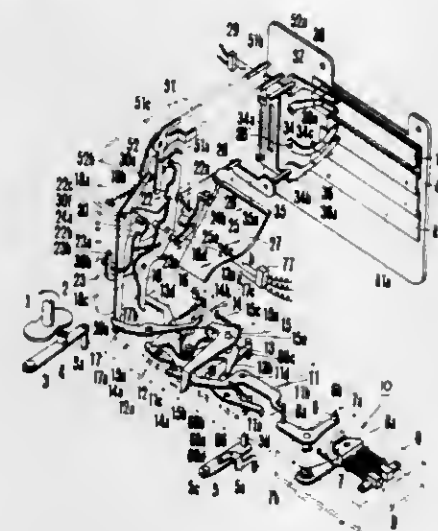
Filed Mar. 20, 1980, Ser. No. 132,100

Claims priority, application Japan, Mar. 26, 1979, 54-35312; Oct. 1, 1979, 54-127194; Oct. 15, 1979, 54-132565; Feb. 25, 1980, 55-22510

Int. Cl.³ G03B 9/08, 19/12

U.S. Cl. 354—152

13 Claims



1. A camera having an electromagnetically driven shutter comprising:

- (a) a front shutter curtain and a rear shutter curtain;
- (b) electromagnetic drive source means responsive to supply of current for producing electromagnetic forces by which the front shutter curtain and the rear shutter curtain are individually driven to run down;
- (c) means coupled to an electrical power source for supplying current to said electromagnetic drive source;
- (d) shutter lock means arranged to engage said shutter front and rear curtains when they lie in positions ready to run down for rendering both shutter curtains inoperative; and
- (e) lock release means for releasing said lock means prior to the supply of current to said electromagnetic drive source, said shutter front and rear curtains being arranged to begin to travel when the electromagnetic drive source means receive the current supply from the control circuit after the release of the shutter lock means.

4,313,659

ELECTROMAGNETICALLY DRIVEN SLIT EXPOSURE SHUTTER

Syuichiro Saito; Ryoichi Suzuki, both of Kawasaki, and Takashi Uchiyama, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 22, 1980, Ser. No. 142,750

Claims priority, application Japan, Apr. 27, 1979, 54-52419

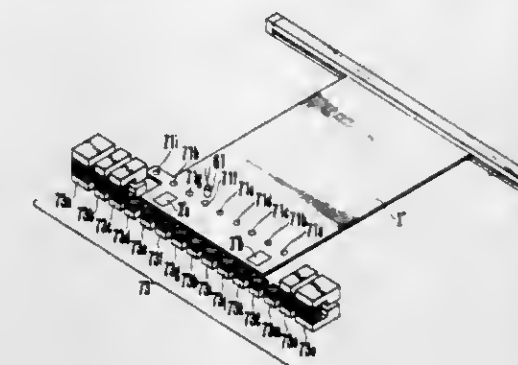
Int. Cl.³ G03B 9/42

U.S. Cl. 354—234

11 Claims

- 10. A slit exposure shutter, comprising: front shutter blade means and rear shutter blade means movable into and out of a light passage for blocking light through the passage;
- a plurality of permanent magnet means mounted on the front shutter blade means and the rear shutter blade means for movement along a predetermined travel path;
- a plurality of electromagnets disposed along the path and having magnetic poles which form a gap through which said permanent magnet means pass as they move along the path so that the magnetic poles of the electromagnets confront the poles of the permanent magnet means; and supply means for energizing said electromagnets which

cause the poles of the electromagnets to repel the permanent magnet means as said permanent magnet means pass through the gaps and cause said front shutter blade means and said rear shutter blade means to float as they travel



through the gaps of the electromagnets, said electromagnets being arranged to attract the magnetic poles of said permanent magnet means when said electromagnets are not excited and to inhibit travel of said front shutter blade means and said rear shutter blade means.

4,313,660

RELEASE DEVICE FOR A CAMERA

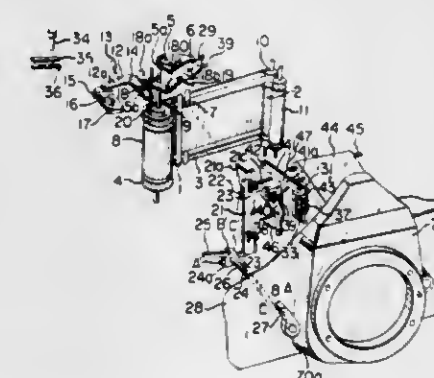
Yoshiyuki Nakano, Tokyo; Akihiko Sato, Kawasaki, and Masakazu Tomatsuri, Tokyo, all of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Filed Dec. 8, 1980, Ser. No. 214,046

Claims priority, application Japan, Feb. 5, 1980, 55-12445[U]
Int. Cl.³ G03B 9/08, 17/38

U.S. Cl. 354—234

4 Claims



1. A camera having a shutter device capable of controlling the movement of a forward shutter curtain and/or a rearward shutter curtain by electromagnetic means operatively associated with the depression of a shutter button and which is capable of controlling the movement of said two shutter curtains by mechanical means instead of said electromagnetic means, said camera including a shutter release member for operating said mechanical means, said member having an operating portion provided on the outer surface of the camera separately from said shutter button.

4,313,661

ELECTROMAGNETIC RELEASE DEVICE FOR CAMERA

Masayoshi Yamamichi, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 20, 1980, Ser. No. 122,843

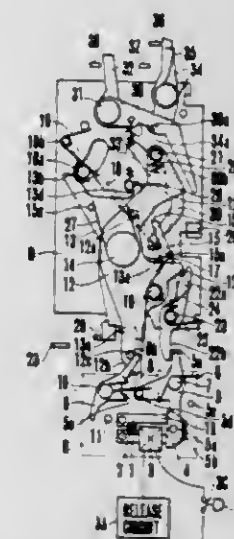
Claims priority, application Japan, Feb. 21, 1979, 54-19226
Int. Cl.³ G03B 9/08, 17/38

U.S. Cl. 354—235

8 Claims

- 1. An electromagnetic release device for use in a camera having a shutter, comprising:
- (a) a shutter release mechanism movable from a cocked position to a rest position for releasing the shutter;
- (b) holding means for releasably holding said shutter release mechanism at its cocked position;

- (c) a core including a permanent magnet for providing a magnetic attractive force;
- (d) release operation initiating means including an armature arranged to be retractably movable away from said core to disable said holding means to allow the movement of said shutter release mechanism to its rest position, said armature being attracted to said core by said magnetic attractive force;
- (e) a coil cooperable with said permanent magnet for canceling said attractive force upon energization of the coil;
- (f) applying means for applying a biasing force to retractably move said armature of said release operation initiating



means from said core, said applying means being arranged to disable the application of the biasing force and to cut off the engagement of the shutter release mechanism and the release operation initiating means after said release operation initiating means has disabled said holding means and before said shutter release mechanism reaches its rest position; and

(g) biasing means coupled with said release operation initiating means and responsive to the disablement of said applying means for applying a biasing force to reset said armature on said core independently of said shutter release mechanism.

4,313,662

SELF-TIMER DEVICE

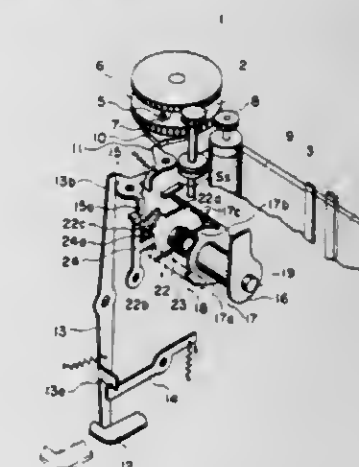
Hiroshi Kurei, Kawagoe, and Tahei Morisawa, Matsudo, both of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 17, 1980, Ser. No. 112,984

Claims priority, application Japan, Feb. 26, 1979, 54-24014[U]
Int. Cl.³ G03B 9/64, 17/38

U.S. Cl. 354—237

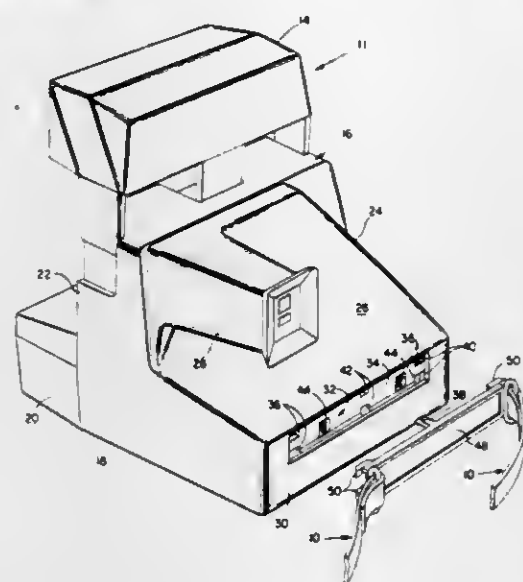
7 Claims



- 1. A self-timer device for a camera comprising: an external self-timer set lever rotatably mounted on the outside of the camera;

a first cam member rigidly coupled inside the camera to said set lever, said first cam member including a bent portion extending away from said set lever;
 a second cam member;
 a locking member mounted inside said camera;
 an internal shaft and an external release button rigidly coupled to said second cam member, said shaft being rotatable with said set lever but axially movable relative thereto;
 a stationary pin positioned adjacent to and parallel to said shaft; and
 a self-timer switch activatable by said bent portion; wherein: said self-timer lever, said first and second cam members, said shaft and release button, said stationary pin and said self-timer switch are positioned such that, prior to depression of said release button, a first cam surface of said second cam member abuts said stationary pin, and upon depression of said release button said second cam member moves inwardly beyond an edge of said stationary pin and is released therefrom, said bent portion of said first cam member abutting a second cam surface of said second cam member, and, upon rotation of said self-timer lever to a set position and release of said button, said self-timer switch is activated by said bent portion to start a time delay, said locking member engaging a third cam surface of said second cam member to hold said self-timer lever at the set position.

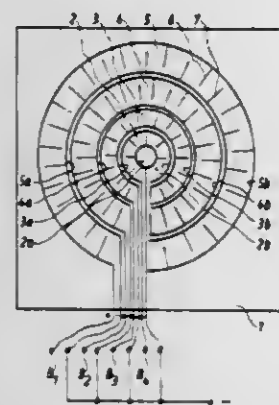
4,313,664
CARRYING STRAP ATTACHMENT FOR CAMERA
 Fred M. Finnemore, North Reading, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
 Filed Dec. 29, 1980, Ser. No. 220,896
 Int. Cl.³ G03B 17/02, 29/00; A44C 5/18
 U.S. Cl. 354—288 14 Claims



1. A photographic apparatus having a housing; a test terminal disposed in said housing and being electrically connected to at least one operational component that is to be tested so as to insure that the component functions in the manner intended, said housing having an access opening permitting said test terminal to be connected to a test source external of said housing; a cover member connected to said housing in covering relation to said access opening and said terminal, and a carrying strap connected to an internally disposed surface of said cover member with said strap extending exteriorly of said cover member and housing.

4,313,663
ELECTROOPTIC DIAPHRAGM AND CIRCUIT OPERATIVE FOR CAUSING THE DIAPHRAGM TO OPEN UP STEPWISE AND THEN CLOSE TO TERMINATE EXPOSURE

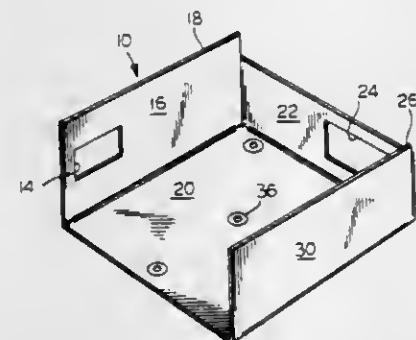
Otto Stemme, Munich, and Eduard Wagensohnner, Aschheim, both of Fed. Rep. of Germany, assignors to Agfa-Gevaert AG, Leverkusen, Fed. Rep. of Germany
 Filed Apr. 16, 1979, Ser. No. 29,911
 Claims priority, application Fed. Rep. of Germany, Apr. 18, 1978, 2816851
 Int. Cl.³ G03B 9/56; G02F 1/13
 U.S. Cl. 354—271



1. An electrooptic diaphragm arrangement for use in a photographic camera, comprising, in combination, a layer of electrooptic material defining a general plane; and a set of electrodes located along said general plane and spaced from one another in directions parallel to the general plane, adjoining ones of the electrodes defining between themselves zones within the general plane, said electrodes being relatively narrow and said zones being substantially broader than said electrodes, whereby when potential differences are applied across selected pairs of electrodes the electrooptic states of selected ones of said zones are controlled by means of electric fields which pass parallel to said general plane through the electrooptic material within said zones.

4,313,665
METHOD AND APPARATUS FOR PROJECTOR SUPPORT

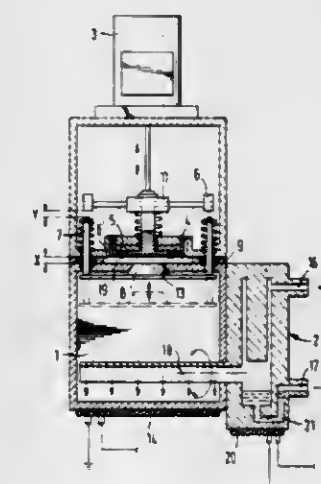
Jerold B. Spitz, 9 G Talcott Glen Rd., Farmington, Conn. 06032
 Filed Aug. 25, 1980, Ser. No. 180,635
 Int. Cl.³ G03B 17/00; F16M 11/12; A47B 19/00
 U.S. Cl. 354—293 19 Claims



1. The combination of a projector and mount comprising:
 a. a projector operable to project an image on a remote surface; and
 b. a mount supporting said projector and including a generally planar base portion having mounting means on its lower surface including a threaded aperture for seating the screw of an associated tripod or the like to support said mount on the associated tripod, said mount further including at least a pair of sidewall portions on opposite sides of said base portion and extending in the same generally vertical direction therefrom along at least a major portion of the length of said opposite sides, said projector resting on the upper surface of said base portion, said mount being dimensioned and configured for disposition

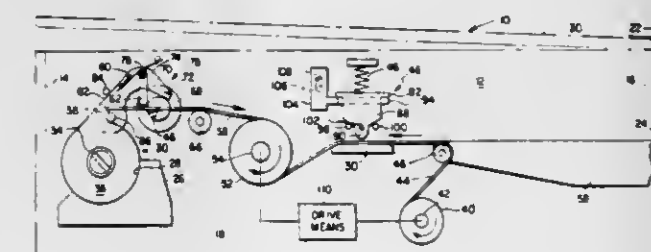
of said remote edges of said sidewall portions on a generally horizontal planar support surface to support said base portion above the support surface and thereby enable said mount to support said projector above the support surface when said mount is not supported on the associated tripod.

4,313,666
APPARATUS FOR DEVELOPING LIGHT-SENSITIVE RECORDING MATERIALS
 Jochen Koblo, Wiesbaden-Auringen, and Götz von dem Bussche, Schwalbach, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany
 Filed Jun. 27, 1980, Ser. No. 163,583
 Claims priority, application Fed. Rep. of Germany, Jun. 28, 1979, 2926084
 Int. Cl.³ G03D 7/00
 U.S. Cl. 354—299 7 Claims



1. An apparatus for developing light-sensitive recording material with a vaporous developing medium in a developing chamber, comprising housing means having a vapor space therein, aperture means in said vapor space, external and internal pressure means adapted to close said aperture means, said external pressure means having a height of lift X between the top of the housing and a final position of the external pressure means, and being equipped with heating means, said internal pressure means being adapted to close said aperture means in a gas-tight manner and having a height of lift Y, between a driving element for said internal pressure means and a closure guide means for said internal pressure means, which is greater than X, and vaporizer means connected to said vapor space.

4,313,667
FILM PROCESSOR HAVING AUTOMATICALLY ACTUATED FILM SEVERING MEANS
 Nicholas Gold, Arlington, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
 Filed Nov. 17, 1980, Ser. No. 207,362
 Int. Cl.³ G03D 5/06
 U.S. Cl. 354—303 10 Claims

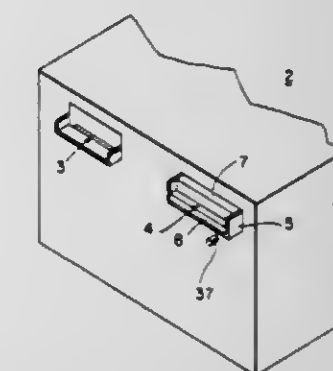


1. Apparatus for receiving a film cassette containing a roll of exposed, self-developing type transparency film preparatory to processing the film, the roll of film being wound upon a spool

and having one end thereof secured to the spool and an opposite end extending to the exterior of the film cassette via a film withdrawal slot, said apparatus comprising:
 a housing defining a lighttight enclosure in which photographically exposed film is adapted to be processed, said housing including a loading door providing access to the interior of said housing;
 first means for supporting a film cassette containing a roll of exposed, self-developing type transparency film;
 second means for supporting a supply of sheet material;
 means for withdrawing the sheet material and the exposed film from said second supporting means and the film cassette and orientating them in superposition, said withdrawing means being adapted to provide a back tension in the film after the film has been unwound from its spool which is sufficient to reorientate the film cassette relative to said first supporting means;
 first drive means for driving said withdrawing means in a direction so as to superpose the sheet material and the exposed film;
 means for applying a coating of processing composition to one side of either the sheet material or the film prior to said superpositioning, the processing composition being adapted to initiate the formation of visible images in either the film or the sheet material;
 means for severing the film to be superposed with the sheet material from its attachment to the spool within the film cassette; and
 means responsive to the reorientation of the film cassette relative to said first supporting means for activating said severing means to thereby separate the one end of the film from the film being superposed with the sheet material.

4,313,668
CONTROL CIRCUIT FOR A FILM PROCESSING APPARATUS

Henry F. Hope, 3192 Huntingdon Rd., Huntingdon Valley, Pa. 19006, and Stephen F. Hope, 2321 Wyandotte Rd., Willow Grove, Pa. 19090
 Continuation-in-part of Ser. No. 756,556, Jan. 3, 1977, Pat. No. 4,171,940, which is a continuation-in-part of Ser. No. 692,196, Jun. 2, 1976, Pat. No. 4,130,385, which is a division of Ser. No. 530,685, Dec. 9, 1974, Pat. No. 3,966,868, This application Aug. 21, 1978, Ser. No. 935,527
 Int. Cl.³ G03D 3/08; B29C 3/00
 U.S. Cl. 354—319 8 Claims



1. In an apparatus for the processing of a curled leading edge of a coiled strip of film, the apparatus comprising a pair of platens, having grooves which combine to impress longitudinal corrugations into the leading edge of the film inserted therebetween, the platens being adapted to move from a non-contact position to a contact position, and then back to the non-contact position upon the placement of the leading edge of film therebetween and to return the platens to their non-contact position at a preselected time thereafter, in response to signals from a control circuit, an improved control circuit comprising switching means capable of causing the platens to move

either from a non-contact position to the contact position or from the contact position to a non-contact position irrespective of the position of the platens with respect to each other.

4,313,669

PHOTOGRAPHIC PRINT STACKING TRAY

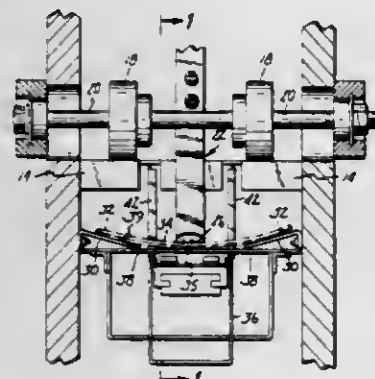
Louis A. Larson, Golden Vallue, and Charles L. Euteneuer, St. Michael, both of Minn., assignors to Pako Corporation, Minneapolis, Minn.

Filed Oct. 27, 1980, Ser. No. 200,932

Int. Cl.³ G03B 19/00; B65H 31/20

U.S. Cl. 354—354

8 Claims



1. A photographic print stacking tray device for stacking individual photographic prints as they are discharged in a machine direction from a discharge end of a print conveying apparatus, the device comprising:

tray means positioned generally below the discharge end to receive individual photographic prints and collecting the prints in a stack as the prints are driven in the machine direction out of the discharge end, the tray means being concavely bowed in a transverse direction; and central deflection means for deflecting each individual print driven from the discharge end downward toward the tray means, the central deflection means engaging a central portion of the print to cause the print to generally conform to the concave bow of the tray means in the transverse direction as it is stacked, and wherein the central deflection means has a lower end portion for engaging the stack of prints proximate the center of the stack such that the stack of prints is retained in a transversely bowed configuration.

4,313,670

REPRODUCTION MACHINE WITH A PIVOTAL STAPLING DEVICE

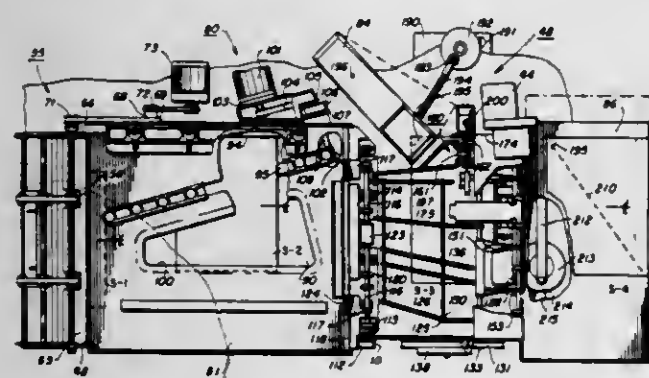
John R. Caldwell, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Oct. 30, 1979, Ser. No. 89,336

Int. Cl.³ G03G 15/00

U.S. Cl. 355—3 R

3 Claims



1. In an electrostatic reproduction system having a document handling apparatus for advancing document sheets to an exposure station, an electrostatic processor for

processing copy sheets, and an apparatus for producing attached sets of copy sheets, the improvement comprising:

means for moving processed copy sheets in a predetermined path of movement and compiling copy sheets preparatory to attaching the same into sets, copy sheet attaching apparatus arranged, when in an operative position, to apply a fixing element to a corner of a compiled set, said attaching apparatus being mounted on a pivotal axis and arranged to be pivoted from an inoperative position out of said predetermined path, toward the same, and back to said inoperative position in sequence during a fixing operation, drive means associated with said attaching apparatus for effecting said pivoting thereof when a set has been collected by said compiling means.

4,313,671

METHOD AND APPARATUS FOR CONTROLLING IMAGE DENSITY IN AN ELECTROPHOTOGRAPHIC COPYING MACHINE

Hiroshi Kuru, Hachioji, Japan, assignor to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

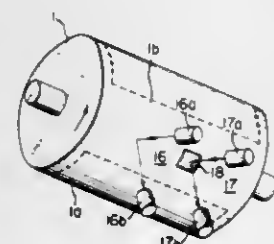
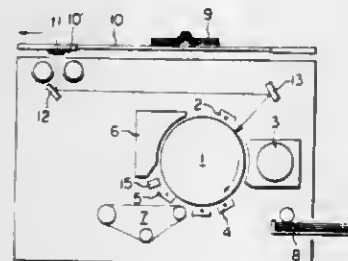
Filed Apr. 9, 1979, Ser. No. 28,203

Claims priority, application Japan, Apr. 14, 1978, 53-43303

Int. Cl.³ G03G 15/00

U.S. Cl. 355—14 D

3 Claims



1. An apparatus for detecting image density in an electrophotographic copying machine having an operatively movable photosensitive member, comprising:

a first optical density detecting sensor for detecting the density of a blank region on the photosensitive member in which region no toner image of an original to be copied is formed and for producing a first output signal in accordance with the detected density; a second optical density detecting sensor for detecting the density of a reference toner image formed on a portion of the blank region and for producing a second output signal in accordance with the detected density of the reference toner image; said first and second optical density detecting sensors being disposed in opposition to the photosensitive member and positioned in juxtaposition to each other in the direction transverse to the direction of movement of the member; and electrical means for receiving said first and second output signals and for differentially producing a control signal in accordance therewith for enabling a control of image density.

4,313,672

STEPPER MOTOR DRIVE SYSTEM IN COMPUTER FANFOLD REPRODUCTION

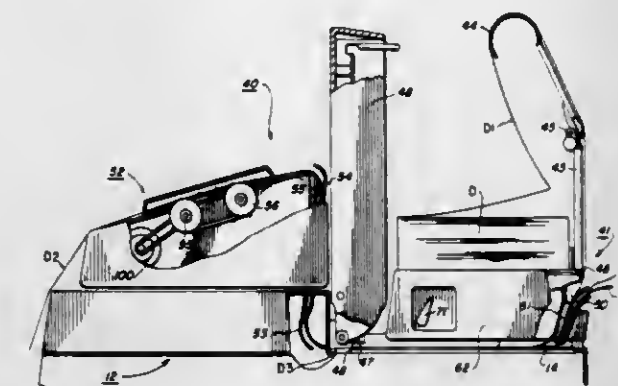
Russell G. Schroeder, II, Rochester, and Joseph W. Ward, Pittsford, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Sep. 17, 1979, Ser. No. 75,866

Int. Cl.³ G03G 15/00

U.S. Cl. 355—14 R

5 Claims



1. In a reproduction machine adapted to handle either individual documents, or document material in the form of a computer fanfold web consisting of a plurality of frame sections, the machine having an exposure platen on which said frame sections are positioned and a register element adjacent one side of the platen for locating an edge of each frame during copying thereof, the combination of:

a motor and a drive thereof actuatable upon the web to advance the same and effecting the location of a corresponding edge of each of the frames being reproduced adjacent the registration element, a circuit connected to said motor for energizing the same, means for generating a stream of pulses in said circuit for imparting stepped actuation of said motor thereby imparting incremental advancement of the fanfold web applicable to each frame, said circuit having means for producing a predetermined number of pulses for a preselected size of the frame of the fanfold web, and means for varying the predetermined number of said pulses in accordance with different sizes of frames of material to be reproduced.

4,313,673

DUPLEX OPERATION IN A REPRODUCTION MACHINE

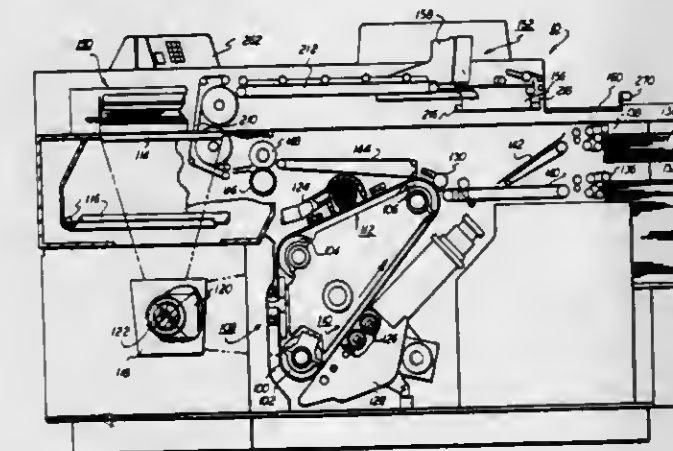
Raymond C. Wartinger, Webster; Charles D. Braswell, Rochester; Neal S. Buchalter; John W. Daughton, both of Fairport, and Robert G. Ellis, Penfield, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Oct. 30, 1979, Ser. No. 89,331

Int. Cl.³ G03G 15/00

U.S. Cl. 355—14 R

5 Claims



5. In a reproduction machine for producing impressions of an original, the combination of a photosensitive member and a

plurality of operating components cooperable with one another and the photosensitive member to produce the impressions on support material, a billing meter, a tray for feeding the support material, a second tray providing a buffer storage for duplex operation, a finisher area having a receiving tray, means to determine an odd number of documents to be copied, means to schedule a blank sheet and means to inhibit billing of the blank sheet.

4,313,674

CLEANING APPARATUS FOR COPYING OR THE LIKE

Hiroaki Ura, and Hiroyuki Honda, both of Hachioji, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

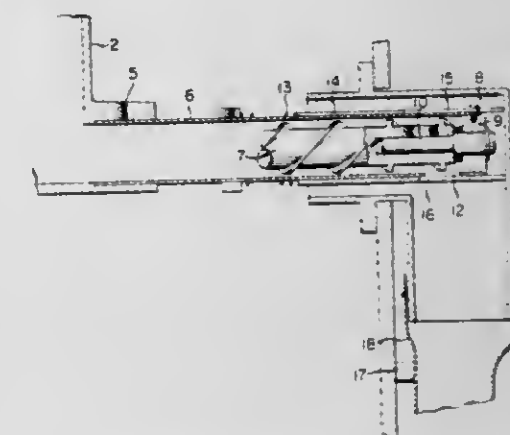
Filed Dec. 21, 1979, Ser. No. 105,909

Claims priority, application Japan, Dec. 27, 1978, 53-177291[U]

Int. Cl.³ G03G 21/00

U.S. Cl. 355—15

5 Claims



3. In an electrophotographic copying machine having a detachable cleaning apparatus for removing and recovering toner, the improvement comprising: a toner recovery box having a discharge opening, an exhaust pipe having an open entrance end connected to said discharge opening and an exit opening proximate its other end, means closing the said other end of said pipe, toner conveyor means supported within said pipe by said closing means for moving toner from the open entrance end to said exit opening, a shutter slidably mounted relative to said pipe and having an opening therethrough corresponding to the exit opening in said pipe, a hopper positioned to receive toner from the exit opening of said pipe and having an end wall adapted to be positioned adjacent the closed end of the pipe when the cleaning apparatus is connected to the copying machine, and spring means normally urging said shutter outwardly from the closed end of said pipe so that the exit opening of the pipe is normally out of alignment with the opening in said shutter and said exit opening is thereby closed, whereby when said cleaning apparatus is attached to the copying machine, said shutter is pressed against the end wall of said hopper to move the shutter relative to said pipe and against the action of said spring so that the openings in said pipe and said shutter coincide to permit toner moving through said pipe to be discharged.

4,313,675
EPISCOPE

Peter Ackeret, Kusnacht, Switzerland, assignor to Licinvest AG, Chur, Switzerland

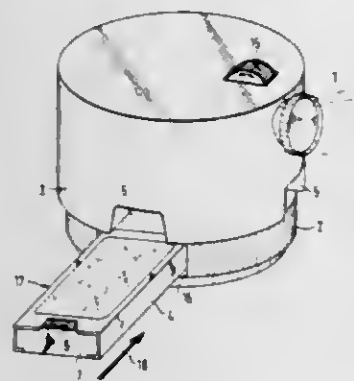
Filed Oct. 9, 1979, Ser. No. 82,772

Claims priority, application Fed. Rep. of Germany, Oct. 11, 1978, 2844282; Apr. 9, 1979, 2914283

Int. Cl.³ G03B 27/52, 23/14

U.S. Cl. 355—40

41 Claims



1. A device for displaying sheet shaped opaque pictures comprising
 - a housing with an image transmitting means facilitating display of the image at the exterior of the housing, there being a picture scene in the housing from which the image emanates,
 - a picture exchange magazine having a display window at the picture scene and means confining a stack of pictures with the top picture in the stack being disposed at the window and picture scene and the remainder of the pictures in the stack being confined behind the picture scene, the magazine including a first frame member and a second frame member which is relatively reciprocable parallel to said window and pictures scene for cyclic exchange of the top picture within the magazine, and
 - a releasable holder retaining the magazine on the housing, while allowing said frame members to remain relatively movable to each other.

4,313,676

METHOD OF AUTOMATICALLY ADJUSTING A PICTURE REPRODUCING APPARATUS

Sven Nygaard, Trekanten, Denmark, assignor to Eskofot, A/S, Ballerup, Denmark

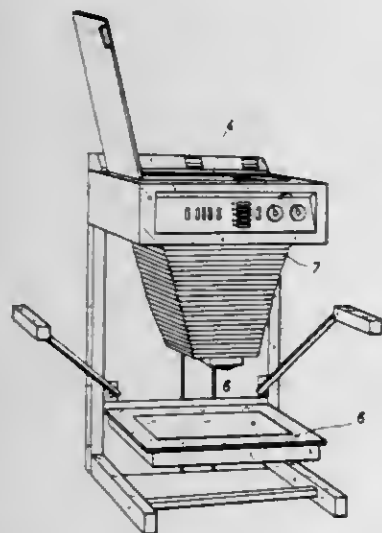
Filed Dec. 26, 1979, Ser. No. 107,381

Claims priority, application Denmark, Jan. 11, 1979, 117/79

Int. Cl.³ G03B 27/34, 27/40

U.S. Cl. 355—56

4 Claims



1. A method of adjusting a picture reproducing apparatus such as for instance a camera, which comprises an original plane, an objective plane, and a picture plane, by means of one or more driving means in the form of a plurality of direct-cur-

rent motors with a high starting moment, characterized by the direct-current motors being controlled by supplying a series of voltage pulses thereto, the torque required of the motor increasing as the motor approaches a desired position of adjustment, as a consequence of which the voltage across the motor drops, the individual motor being stopped after each supply of pulses, and by the width of the pulses being regulated in response to the voltage across the motor.

4. In a picture reproducing apparatus such as a camera which includes a direct current motor having a high starting moment coupled to a bellows having an objective mounted thereon, the motor acting to compress the bellows to an extent necessary to axially shift the objective closer to a picture plane so that the objective occupies a desired position, a motor-control circuit comprising:

- A a pulse generator to supply a series of drive pulses to the motor to cause the motor to compress the bellows to the desired extent, the torque required of the motor increasing as the objective approaches said desired position, as a consequence of which the voltage across the motor drops;
- B voltage-dependent timer means coupled to the pulse generator to vary the width of the pulses supplied to the motor; and
- C means responsive to the voltage developed across the motor and coupled to said timer to vary the width of the pulses as a function of said motor voltage.

4,313,677

NEG HOLD ASSEMBLY FOR PHOTOGRAPHIC PRINTER

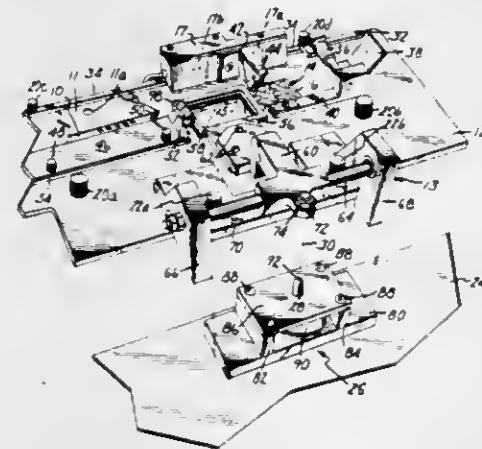
James F. Stewart, Shoreview, Minn., assignor to Pako Corporation, Minneapolis, Minn.

Filed Mar. 3, 1980, Ser. No. 126,871

Int. Cl.³ G03B 27/62, 27/64

U.S. Cl. 355—76

10 Claims



1. A neg hold assembly for use in a photographic printer comprising:
 - a base having a first light transmitting portion;
 - pivot means attached to the base for pivoting about a pivot axis and including an adjustment device;
 - a top clamping plate fixedly attached to the pivot means on a first side of the pivot axis, the top clamping plate having a second light transmitting portion for alignment with the first light transmitting portion when the top clamping plate is in a clamping position;
 - solenoid means having a movable plunger for upwardly engaging the adjustment device with increasing energization on a second, opposite side of the pivot axis pivoting the top clamping plate about the pivot axis into the clamping position against the bottom clamping surface when the solenoid means is energized wherein the adjustment device provides adjustment of the clamping force applied by the top clamping plate when the solenoid means is in a full energization state; and
 - bias spring means for pivoting the top clamping plate about

the pivot axis from the clamping position to an open position when the solenoid means is deenergized.

4,313,678

AUTOMATED SATELLITE MAPPING SYSTEM (MAPSAT)

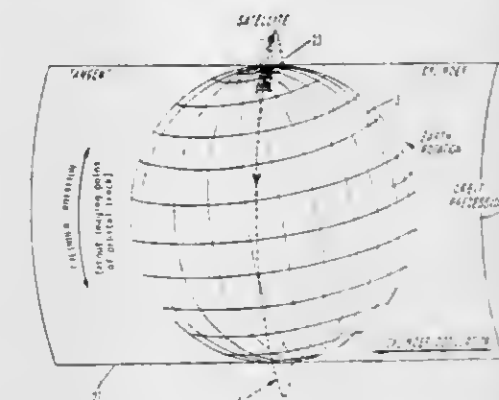
Alden P. Colvocoresses, Fairfax, Va., assignor to The United States of America as represented by the Secretary of the Interior, Washington, D.C.

Filed Sep. 24, 1979, Ser. No. 78,358

Int. Cl.³ G01C 7/02

U.S. Cl. 356—2

10 Claims



1. A method for acquiring panchromatic or multispectral topographic data of a celestial body through the use of a relatively stable platform spaced from said body and movable relative thereto, said platform carrying at least first and second linear array sets of radiometric sensing detectors aligned transversely to the direction of platform motion, said first and second sets being positioned on said platform at different angles from a geometric vertical with respect to the body for respectively sensing radiance from spaced areal elements of said body, comprising the steps of:

moving said platform across said body for sensing linear strips constituted by said areal elements of said body in a direction substantially parallel to the motion of said platform,

continuously sensing said areal elements by scanning said linear strips with said first array set from a first position on said platform to produce flows of signal elements representative of one-dimensional spatial and radiometric information,

continuously sensing the corresponding strips by scanning them with said second array set from a second position on said platform at said different angle aspect in epipolar planes defined by corresponding said first and second positions and said areal elements corresponding thereto, to produce a second series of flows of signal elements representative of one-dimensional spatial and radiometric information, and

comparing the signal elements of said first signal flows with the corresponding signal elements of said second signal flows within the same epipolar planes to derive output signals indicative of elevational information for each areal element of each sensed strip.

4,313,679

TEST SAMPLE SUPPORT ASSEMBLY

Ernest G. Wolff, Rolling Hills Estates, and Steven A. Eselun, Long Beach, both of Calif., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Nov. 29, 1979, Ser. No. 98,429

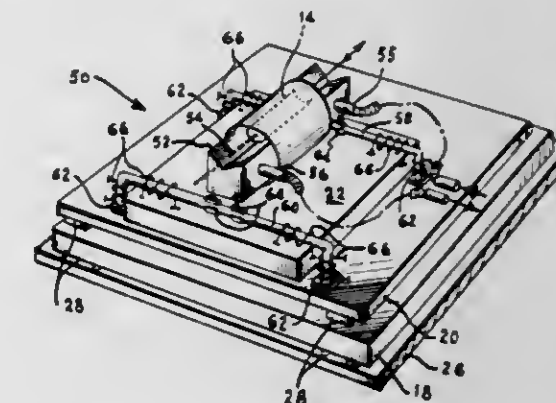
Int. Cl.³ G01N 21/01; G01B 11/02; G01N 25/16

U.S. Cl. 356—244

8 Claims

1. In a contactless length measuring device having a chamber for housing optical equipment for performing the length measurement operation of a sample and means for providing a preselected temperature within said chamber, the improve-

ment therein being in the form of a support assembly located within said chamber for holding said sample in optical alignment with said optical equipment, said sample support assembly comprising a main support on which said optical equipment is mounted, said main support being made of a material having ultra-low expansion properties, a first insulating member juxtaposed said main support, said first insulating member being made of a material having relatively high thermal conductivity thereby substantially eliminating temperature gradients in said main support, a second insulating member juxtaposed said first insulating member, said second insulating mem-



ber being made of an open porous material, means made of a thermally conductive material juxtaposed said second insulating member for supporting said sample in optical alignment with said optical equipment, said means for providing said preselected temperature being directly connected to said sample support means, and means interposed between said first insulating member and said sample support means for adjustably mounting said sample support means thereon whereby said main support and said optical equipment are rendered substantially unaffected by said preselected temperature within said chamber.

4,313,680

REACTOR FOR FAST REACTIONS

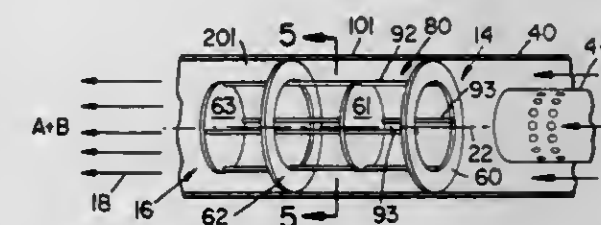
Lewis R. Honnen, Petaluma, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Nov. 5, 1979, Ser. No. 91,616

Int. Cl.³ B01F 5/06

U.S. Cl. 366—337

5 Claims



1. A reactor for mixing fluid components, comprising:
 - a cylindrical housing defining a reaction chamber having an intake and a discharge through which a stream of fluid components is to flow;
 - a plurality of annular-shaped flow-converging members extending longitudinally within said reaction chamber between the intake and discharge, and spaced from each other and extending from the inner walls of said housing to define a channel within said housing along the central axis of said reaction chamber for the flow of the fluid components along said central axis;
 - a flow-deflecting disc-shaped element disposed in said channel downstream of each of said flow-converging members to intercept substantially all of the body of fluid flow to divide the body of fluid and to divert the flow approximately 90° from said central axis to flow around said flow-deflecting element, said disc-shaped elements having

an area substantially equal to the area of said opening in said annular-shaped members;
an annular inlet means having a substantially coextensive outer perimeter with said reaction chamber housing for introducing a first reactant to said chamber; and
sparger means for introducing a second reactant into the annulus defined by said inlet means in an initially generally perpendicular flow pattern to said first reactant.

4,313,681

TYPE DISC POSITIONING MECHANISM

Josef Lendl, Ottenssoos, and Diethelm Puch, Nuremberg, both of Fed. Rep. of Germany, assignors to Triumph-Werke Nurnberg A.G., Nuremberg, Fed. Rep. of Germany

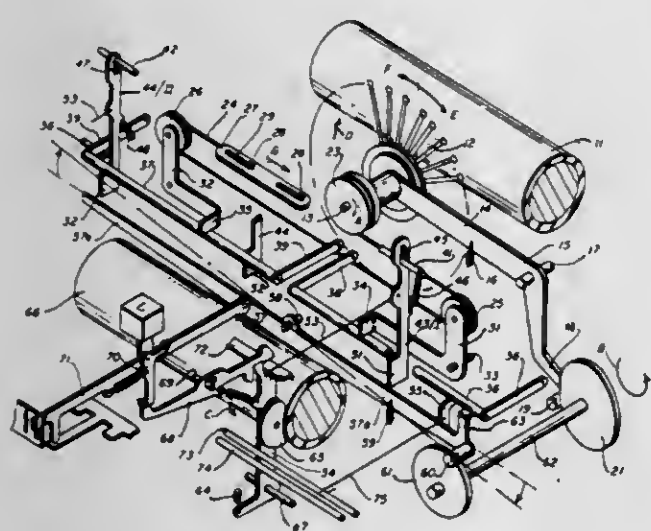
Filed May 1, 1980, Ser. No. 145,749

Claims priority, application Fed. Rep. of Germany, Apr. 5, 1979, 2918026

Int. Cl.³ B41J 1/30

U.S. Cl. 400—144.2

6 Claims



1. A typewriter including a rotatably mounted shaft, a type disc having character supporting spokes secured to said shaft, a spring drum secured to said shaft and normally urging said shaft in one direction, a cable secured to and wound about said spring drum, a frame, first and second spaced crank levers pivotally mounted on said frame, pulleys mounted on the ends of said levers, said cable extending from said spring drum around said space pulleys and connected at its other end to a frame supported part, whereby said first crank lever is urged in a clockwise direction and said second crank lever in a counter clockwise direction by said spring drum, first and second rocker bars located in the path of said first and second crank levers, first means for limiting the rocking movement of said first rocker bar under urging by said first crank lever, second means for limiting rocking movement of said second rocker bar under urging of said second crank lever thereby establishing a home position of said type disc, a cyclically operable drive lever pivoted intermediate its ends defining first and second arms, an array of key selectable interposers arranged for movement between the arms of said cyclically operable drive lever and said first and second rocker bars, and key controlled means for moving a selected interposer between said first and second arms of said drive lever and said first and second rocker bars and for cycling said drive lever, said key controlled means including means for releasing said second means to allow movement of said second rocker

bar when the interposer selected is between said second arm and said second rocker bar, said drive lever acting to drive said first rocker bar or allow movement of said second rocker bar through an angle determined by the location of a selected interposer relative to the pivot of said drive lever to cause angular movement from home position of said first and said second pulley levers and corresponding movement of said type disc to a selected position.

4,313,682

FINAL POSITIONING VIBRATION DAMPING DEVICE FOR TYPE DISC TYPEWRITERS

Rolf Theilen, Furth, Fed. Rep. of Germany, assignor to Triumph-Adler Aktiengesellschaft fur Buround Informationstechnik, Nuremberg, Fed. Rep. of Germany

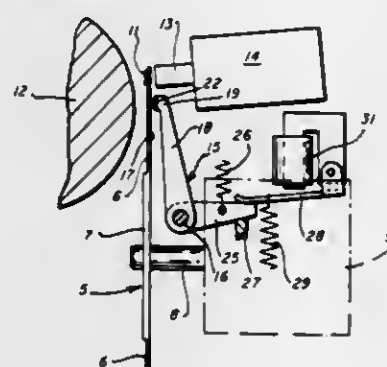
Filed Sep. 4, 1980, Ser. No. 183,978

Claims priority, application Fed. Rep. of Germany, Feb. 26, 1980, 3007108

Int. Cl.³ B41J 1/32

U.S. Cl. 400—144.3

5 Claims



1. In a typewriter or like machine having a platen, an axially movable printing hammer supported opposite a printing point on said platen, a type disc located between said platen and printing hammer having flexible spokes extending radially from a common axis, said spokes carrying type at the ends thereof on the side facing said platen, and means for rotating said type disc to present a selected spoke opposite said printing hammer, whereby printing hammer movement will impact the type on the selected spoke against said printing point, the improvement comprising

aligning and vibration damping means mounted for movement toward the side of said type disc facing said print hammer to flex the spoke selectively positioned opposite the printing hammer toward said platen and to touchingly engage several spokes to either side of said selected spoke thereby to align said selective spoke and damp axial and rotary vibrations of said type disc, and means for moving said aligning and vibration damping means toward said type disc after a selected spoke has been positioned and in advance of printing hammer movement.

4,313,683

MICROCOMPUTER CONTROL OF RIBBON DRIVE FOR PRINTERS

Earl T. Brown, and Barry R. Cavill, both of Boca Raton, Fla., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 19, 1979, Ser. No. 86,567

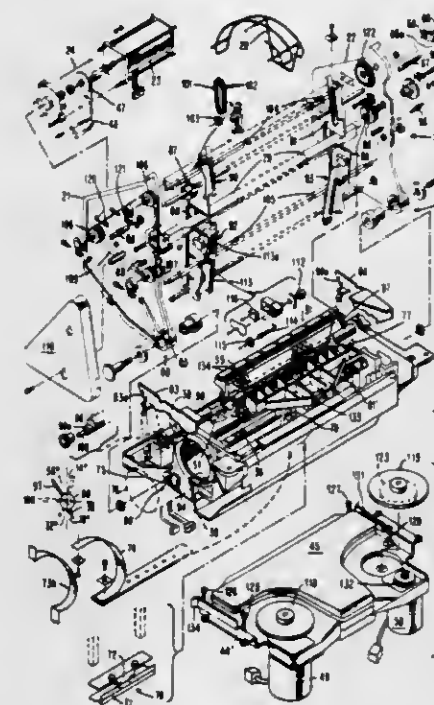
Int. Cl.³ B41J 33/14

U.S. Cl. 400—225

9 Claims

1. A ribbon control system for a printer unit having various assemblages for printing of characters on forms including a forms feed assembly and a print assembly, comprising:
a ribbon drive assembly in said printer unit including means to mount a pair of ribbon spools and motor drive means including a pair of ribbon drive motors individually asso-

ciated with said ribbon spools, said ribbon spools and related motor drive means serving alternately as ribbon supply and ribbon takeup during printing operations;
means for mounting a ribbon on said spools for guiding past a print station in said printer unit; and
a microcomputer interconnected directly with said ribbon drive motors and serving as a ribbon control element, said microcomputer issuing drive control signals as required in



order to activate said ribbon drive motors on a selective and alternate basis during operations of said printer unit to thereby drive said ribbon between said ribbon spools and said microcomputer being further responsive to emitter signals provided by said motors to monitor for proper movement of said ribbon, and to perform other ribbon control functions such as diagnostics and ribbon slack removal.

4,313,684

RECORDING APPARATUS

Shigemitsu Tazaki, Matsudo; Shigeru Okamura, and Hiroshi Kyogoku, both of Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

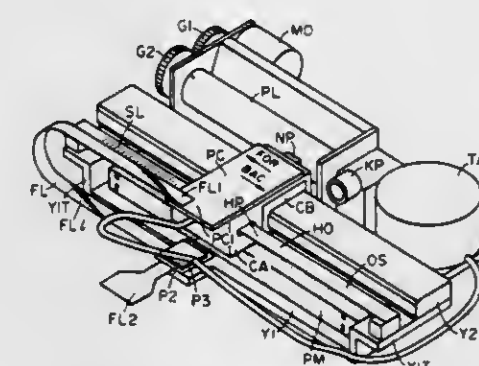
Filed Mar. 24, 1980, Ser. No. 133,141

Claims priority, application Japan, Apr. 2, 1979, 54-39476

Int. Cl.³ B41J 19/00; G01D 15/18

U.S. Cl. 400—322

4 Claims



1. A recording apparatus, comprising:
linear motor means;
a recording head driven by said linear motor means and having plural recording means;
a first position being the rest position of said recording head;
a second position being adapted to reverse a running direction of said recording head and being located closer to a

printing field as comparing with the location of said first position to the printing field;
means for applying a recording instruction signal to said recording head; and
means for causing said recording head to rest at said first position in the absence of a recording instruction signal from said applying means and to reverse the running direction of said recording head at said second position in the presence of the succeeding recording instruction signal.

4,313,685

PUSH-BUTTON SWITCH, PARTICULARLY FOR KEYBOARDS OF TYPEWRITERS AND SIMILAR DEVICES

Horst Stahl, Weidach, and Walter Wachs, Krailling, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

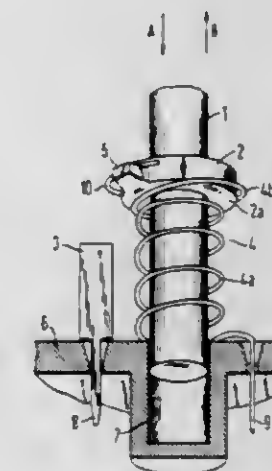
Filed Nov. 29, 1979, Ser. No. 98,406

Claims priority, application Fed. Rep. of Germany, Dec. 14, 1978, 2854096

Int. Cl.³ B41J 5/08

U.S. Cl. 400—479

13 Claims



1. A push-button switch, particularly for keyboards in typewriters and similar devices, comprising an actuating member movable from a rest position to a working position, a stationary contact, and a continuous helical spring member which forms a movable contact cooperable with said stationary contact, said spring member having two connected spring sections, a first spring section which is arranged to engage and apply force biasing said actuating member to its rest position and a second spring section which is arranged to resiliently engage said stationary contact when said actuating member reaches an intermediate position during movement thereof from its rest to its working position, wherein said second spring section is tensioned upon continuation of movement of said actuating member past said intermediate position to provide firm seating engagement of said second spring section with said stationary contact and said second spring section is so disposed relative to said actuating member and said first spring section that said second spring section attenuates final return movement of said actuating member into its rest position.

4,313,686

CONTAINER CAP WITH NECK ABUTTING RETRACTABLE APPLICATOR

Charles L. Proffer, P.O. Box 206, Gulfport, Miss. 39501

Filed Feb. 4, 1980, Ser. No. 118,569

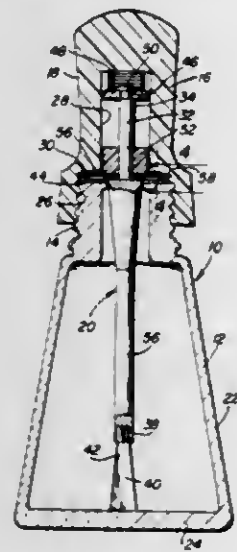
Int. Cl.³ A46B 11/00

U.S. Cl. 401—127

16 Claims

1. A screw cap and dispenser combination for reaching substantially completely to the bottom of the interior of an associated container, said combination including a cap body defining a first downwardly opening lower threaded recess therein for threadingly receiving a threaded container neck

and a second upper applicator shank mounting recess within said cap body above said first recess and opening downwardly thereinto, an elongated upstanding dispenser shank including liquid pickup means on its lower end, mounting means mounting the upper end of said dispenser shank in said second recess for limited vertical shifting therein as well as rotation of said shank about its longitudinal axis relative to said cap body, said shank and cap body including coacting means operable to releasably key said shank to said cap body against rotation of said shank relative to said cap body responsive to movement of



said shank upper end from its lower limit position toward its upper limit position, said applicator shank including a radially outwardly projecting abutment disc carried thereby for abutting with the outer end of a threaded container neck, said cap body including means defining an annular shoulder at the inner end of said first recess, said shank including a circumferential flange opposing and seated against said shoulder when said shank is in the upper limit position thereof, said coacting means including interfittingly engageable detent and projection means on said shoulder and flange when said shank is in said upper limit position.

4,313,687

PREFABRICATED SPATIAL STRUCTURE

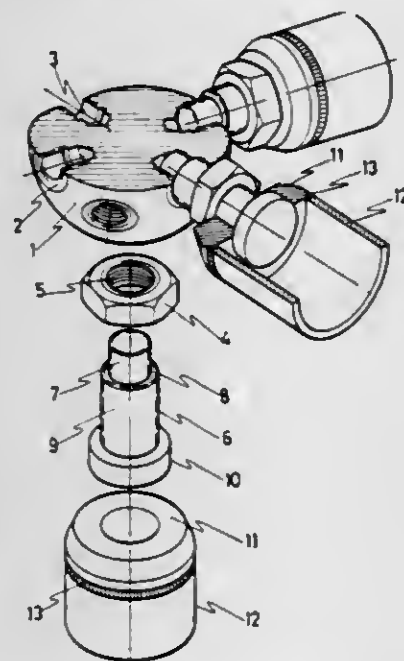
Juan Martínez Apeztegui, Jose Ma Salaverria 13-8°, and Ignacio Odriazola Espinosa de los Monteros, Sagrada Familia 4,9°, both of San Sebastian, Spain

Filed Sep. 5, 1978, Ser. No. 940,513

Int. Cl.³ F16B 7/00

U.S. Cl. 403—171

10 Claims



1. In a prefabricated spatial structure of the type including a plurality of nodes, a plurality of rods extending between and structurally joined to selected said nodes to form a predesigned

spatial configuration, and connecting means for joining each end of each said rod to a respective said node, the improvement wherein:

for each adjacent pair of said nodes to be connected by a said rod, the spacing between the centers of said pair of nodes, taken along the axis of said rod, comprises a predetermined first distance;

each said rod comprises a tube having a closed periphery and opposite ends, a cap fixedly joined to and closing each said tube end, said cap having therethrough a hole aligned coaxially with said tube;

each said node has therein a threaded hole aligned coaxially with said tube, and a seating surface on the exterior of said node surrounding the entrance to said threaded hole;

each said connecting means comprises a bolt having a head positioned interiorly of said tube and adapted to abut the interior surface of said cap, and a stem extending from said head, through said hole in said cap and axially exteriorly of said tube toward said threaded hole in said node, said stem including an inner first threaded portion adjacent said head and extending through said hole in said cap and an outer second threaded portion axially separated from said first threaded portion by a step adapted to abut said seating surface, the diameter of said first threaded portion being less than the diameter of said hole in said cap and greater than the diameter of said second threaded portion, the threads of said second threaded portion being complementary to the threads of said threaded hole in said node such that said second threaded portion may be threaded into said threaded hole until said step abuts said seating surface, the threads of said first threaded portion extending oppositely to said threads of said second threaded portion, and nut means threaded onto said first threaded portion for, upon rotation of said nut means and due to the opposite threading directions of said threads of said first and second threaded portions, selectively connected said rod to or disconnecting said rod from said node by creating relative threading rotation between said second threaded portion and said threaded hole in said node, thereby impart relative axial movement of said bolt with respect to said rod and to said node, and by creating relative threading rotation between said nut means and said first threaded portion, to thereby impart relative axial movement of said nut means with respect to said cap;

for said adjacent pair of nodes, the spacing between seating surfaces comprises a predetermined second distance; and when said rod is disconnected from said pair of nodes, the total length of said rod and the portions of said bolts extending axially beyond the ends of said rod is less than said predetermined second distance, such that said rod may be connected to or disconnected from said nodes without alteration of said predetermined first distance.

4,313,688

METHOD AND APPARATUS FOR ASSEMBLING WOOD DECKS OR THE LIKE

Phillip D. Daniels, 4979 Lake Bluff Rd., West Bloomfield Township, Oakland County, Mich. 48033

Filed Sep. 6, 1979, Ser. No. 73,073

Int. Cl.³ F16B 7/08, 9/00; E04B 1/56; E04C 1/32

U.S. Cl. 403—189

17 Claims

1. A connector for alternatively interconnecting a wooden post with a beam and a metal post with a beam, the post being vertically elongated and the cross-sectional size of the wooden post being larger than that of the metal post, and the beam lying closely adjacent to the end of the post, the beam being rectangular in cross-sectional configuration and having its longitudinal axis normal to and aligned with the axis of the post,

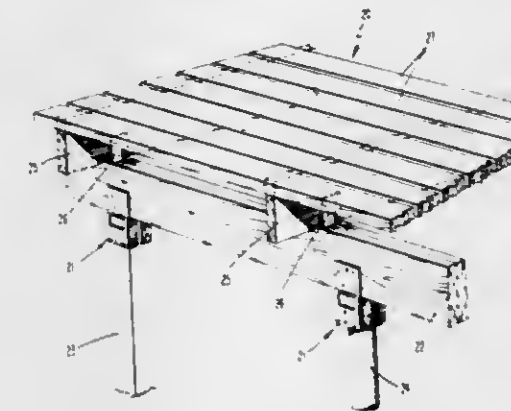
said connector comprising two complementary support elements each overlapping the juncture of the post and the beam, said elements, in combination, having first end portions partially embracing the end of the post and sec-

ond portions contacting the opposite sides of the adjacent beam,

said first end portions each having a central web lying parallel to the axis of the post and integral sides projecting normally from the central web,

said second end portions each being planar for contacting opposite sides of said beam,

and a flange integral with each support element and located intermediate said first and second end portions to project inwardly therefrom for overlying the end of said post, fastener means for securing said beam to the second end portions of said elements, and



alternate means for securing said elements, respectively, to the post,

said alternate means, where the post is wooden, comprising fastener means for projecting through said first end portions of said elements and into the wooden post, and

said alternative means, where the post is metal, comprising a stabilizing plate separate and distinct from said elements, said plate (1) being of a size to fit between said elements when assembled on a metal post, (2) having a central aperture receiving said metal post therethrough and (3) being fixedly interconnected to the two elements to center the elements on the metal post in spaced relation to the end of the post.

4,313,689

SET OF PAVING ELEMENTS FOR PRODUCTION OF PAVING AND METHOD OF USING THE SAME

Hans Reinschütz, Geigersbergstrasse 2, 7500 Karlsruhe 41, Fed. Rep. of Germany

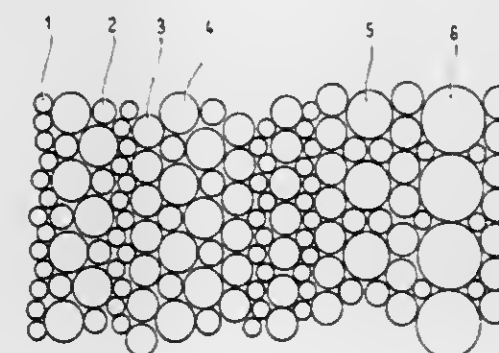
Filed Aug. 26, 1977, Ser. No. 828,094

Claims priority, application Fed. Rep. of Germany, Sep. 4, 1976, 7627698

Int. Cl.³ E01C 5/00

U.S. Cl. 404—73

8 Claims



1. A method of producing paving for paths, open spaces and the like comprising the steps of providing a plurality of sets of paving elements, each set comprising four cylindrical paving elements of different diameter, said four paving elements of each set having a predetermined specific diametric proportion to each other so as to permit a number of different predetermined strip combinations of paving to be laid utilizing said plurality of sets, wherein the paving elements in said strip

combinations are so close together that they are in mutual contact, and wherein said predetermined strip combinations can at random be laid next to each other so that adjacent paving elements are in mutual contact thereby producing a paving which looks random and arbitrary although it is laid according to a precise system, and laying at least one of said predetermined strip combinations of paving using paving elements from said plurality of sets of paving elements, and wherein a predetermined strip combination of paving is laid utilizing the smallest, second smallest and largest paving elements of the four cylindrical paving elements in the sets of paving elements; a predetermined strip combination of paving is laid utilizing the second smallest, third smallest and largest paving elements of the four cylindrical paving elements in the sets of paving elements; and a predetermined strip combination of paving is laid utilizing the smallest and third smallest paving elements of the four cylindrical paving elements in the sets of paving elements; the paving elements in each strip of paving being laid in mutual contact and the predetermined strips of paving being laid next to each other so that adjacent paving elements are in mutual contact thereby forming a paving which looks random and arbitrary although it is laid according to a precise system.

4,313,690

ASPHALT LAYING MACHINE

Svend Højbjerg, Vejlen, Denmark, assignor to AS Phonix, Vejlen, Denmark

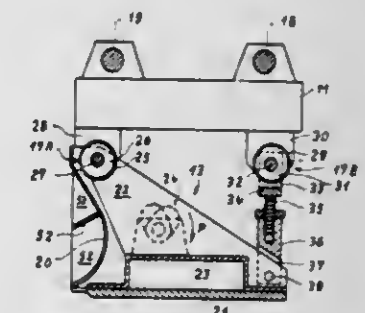
Filed Jan. 8, 1980, Ser. No. 110,488

Claims priority, application Denmark, Dec. 14, 1977, 5562/77; United Kingdom, Dec. 11, 1978, 47918/78; Fed. Rep. of Germany, Dec. 12, 1978, 2853601; Netherlands, Dec. 14, 1978, 7812175; Sweden, Dec. 14, 1978, 7812878

Int. Cl.³ E01C 19/38

U.S. Cl. 404—114

4 Claims



1. An asphalt laying machine with a compacting unit comprising a main section with vibration generating means, and comprising one or more additional sections for variably expanding the working range of the compacting unit, wherein the main section is suspended in vibration isolated manner from a main carrier and each additional section comprises respective vibration generating means and is suspended in a vibration isolated manner from a respective carrier frame, the carrier frame being slidably mounted on the main carrier, and wherein the said sections are connected to the respective carrier means exclusively by vibration dampers comprising vibration dampers on the forward portion of each section, seen in relation to the asphalt laying direction of the machine, the forward vibration dampers being arranged to damp both horizontal and vertical vibration of the associated section and comprising at the rear portion of the section vibration dampers permitting substantially undamped horizontal movements in the longitudinal direction of the machine, but damping vertical vibration of the associated section.

4,313,691

LUBRICATION AND BEARING STRUCTURE FOR CONCENTRIC, INDEPENDENTLY ROTATING DRUM AND VIBRATORY SHAFT

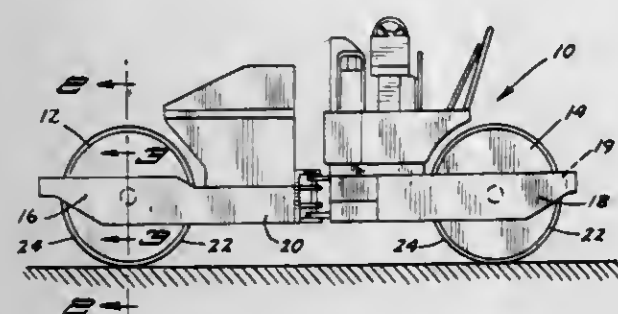
Zekeriya Yargici, Roseville, Minn., assignor to American Hoist & Derrick Company, St. Paul, Minn.

Filed May 23, 1980, Ser. No. 152,649

Int. Cl.³ E01C 19/38

U.S. Cl. 404—117

6 Claims



1. In a surface compacting machine including a main frame having parallel, spaced-apart side frame members, at least one hollow surface contacting drum rotatably mounted on a horizontal axis with the respect to said side frame members of said main frame, at least one shaft rotatably mounted within said drum on said horizontal axis, means to drive said drum at a relatively slow speed over a surface to be compacted, and means to drive said shaft separately from said drum to rotate at a relatively fast speed; the improvement including:

- A. at least one drum support assembly fixedly mounted to one of said side frame members, said assembly being provided with a main bearing housing;
- B. at least one main drum hub fixedly and concentrically associated with said drum;
- C. a main drum support bearing fixedly mounted in said main bearing housing and rotatably supporting said main drum hub for rotation on said horizontal axis;
- D. a rotary seal between said main bearing housing and an outer surface of said main bearing hub;
- E. said drum support assembly, said rotary seal and a portion of said outer surface of said main bearing hub defining a first oil sump;
- F. means to introduce a quantity of lubricating oil into said first sump to depth to immerse a substantial lower portion of the main drum support bearing;
- G. a shaft bearing housing at each end of the drum concentrically and fixedly mounted with respect to the drum and in fixed relationship to and in concentric alignment with said main drum hub;
- H. a shaft bearing fixedly mounted in each of said shaft bearing housings and rotatably supporting said shaft;
- I. a cylindrical second oil sump inside of said drum in concentric relationship with respect to said drum and encompassing said shaft and shaft bearings and in sealing relationship to each of said shaft bearing housings;
- J. means to introduce lubricating oil into said second sump; and
- K. means to cause oil in said second sump to lubricate said shaft bearings.

4,313,692

SEPTIC TANK DRAINAGE CONDUIT STRUCTURES

Wayne D. Johnson, 902 N. 4th, Garden City, Kans. 67846

Filed Jan. 28, 1980, Ser. No. 115,693

Int. Cl.³ E02B 11/00, 13/00

U.S. Cl. 405—43

3 Claims

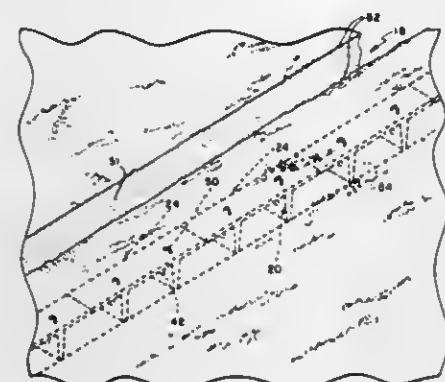
1. A conduit structure to be placed in a trench adapted to be connected to a conventional septic tank structure to convey waste water therefrom for absorption into the soil area surrounding said conduit structure, comprising:

- (a) said conduit structure having a main body assembly with

a top wall member mounted on spaced support leg members;

(b) said support leg members having a drainage hole therein to permit waste water flow therethrough;

(c) said main body assembly having an open area between said support leg members and downwardly of a lower surface of said top wall member to permit free flow of waste water downwardly therefrom into the soil area; and



(d) said support legs extended downwardly and perpendicular to said top wall member and transverse to the longitudinal axis of said top wall member, whereby the waste water can flow freely laterally of said top wall member starting at a position directly below a lower surface of said top wall member into the adjacent soil area which is of a generally solid clay type composition.

4,313,693

RAIN GUTTER JOINT

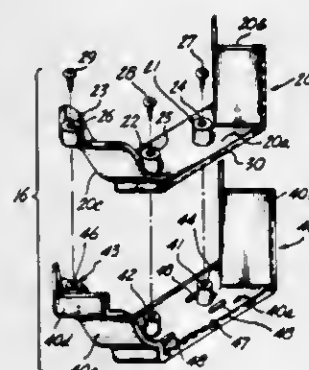
James S. Follows, 12848 Southridge Dr., Surrey, B.C., and Douglas Grant, 540 Newcroft Pl., West Vancouver, B.C., both of Canada

Filed Jan. 16, 1980, Ser. No. 112,625

Int. Cl.³ E04D 13/00, 13/04

U.S. Cl. 405—121

10 Claims



1. A rain gutter joint for connecting a pair of rain gutter troughs that terminate at trough ends adjacent one another, said joint comprising an upper clamping member and a lower clamping member, said upper clamping member having a lower surface cooperably conformable with the upper surfaces of said rain gutter troughs, and said lower clamping member having an upper surface cooperably conformable with the lower surfaces of said troughs, said lower clamping member having a plurality of raised pins extending upwardly from said upper surface of said lower clamping member along a substantially central midline of said lower clamping member, said upper clamping member having a plurality of integral sockets formed to cooperably receive said pins of said lower clamping member, said sockets extending upwardly from said upper clamping member and opening downwardly on said lower surface of said upper clamping member, and fastening means for fastening said pins in said sockets by exerting axial tensile force tending to draw said pins into said sockets.

4,313,694

SUBMERSIBLE PIPE INSTALLATION SYSTEMS

John W. Cox, Oklahoma City, Okla., assignor to Transworld Drilling Company, Oklahoma City, Okla.

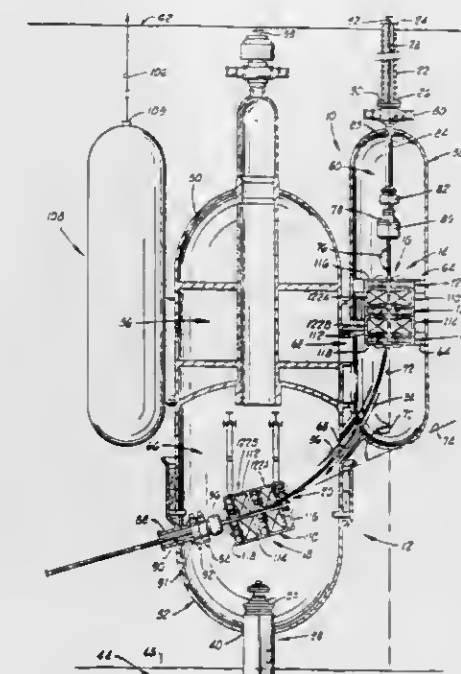
Division of Ser. No. 733,377, Oct. 18, 1976, Pat. No. 4,095,437.

This application Oct. 23, 1979, Ser. No. 86,883

Int. Cl.³ F16L 1/04

U.S. Cl. 405—168

4 Claims



1. A method for installing a pipe between a support structure and a remote second support structure beneath the surface of a body of water, the method comprising the steps of:

- passing the pipe through at least one forming assembly disposed in the support structure and forming portions of the pipe in a predetermined radius with each of the forming assemblies;
- forming a portion of the pipe with one of the forming assemblies on a radius to provide at least one curved section in the pipe;
- passing the pipe between the support structure and the remote second support structure; and
- positioning the curved section in the pipe between the support structure and the remote second support structure.

4,313,695

EARTH STRUCTURE STABILIZING METHOD, AND A FRICTION ROCK STABILIZER AND AN AXIAL EXTENSION THEREFOR

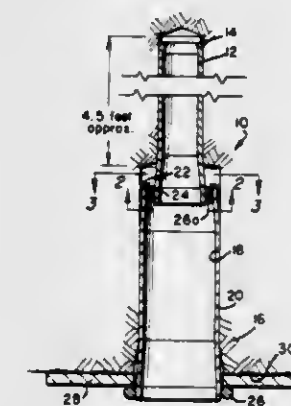
Clifford A. McCartney, Carnegie, Pa., assignor to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed Jan. 7, 1980, Ser. No. 110,129

Int. Cl.³ E21D 21/00

U.S. Cl. 405—259

10 Claims



1. A method of stabilizing an earth structure, such as a roof

or wall of a mine shaft, or tunnel, and like subterranean openings, comprising the steps of:

- forming a plurality of concentric boreholes, of discrete diameters in the earth structure; and
 - inserting, in each of said boreholes, a friction rock stabilizer comprising a generally tubular body of substantially one cross-sectional configuration along substantially its full length; wherein
- said stabilizers inserting step comprises inserting a first friction rock stabilizer in a first of said boreholes of said plurality thereof, and then passing a second friction rock stabilizer through said first stabilizer and inserting said second stabilizer in a second of said boreholes.

4,313,696

FRICTION ROCK STABILIZER AND METHOD FOR INSERTION THEREOF IN AN EARTH STRUCTURE BORE

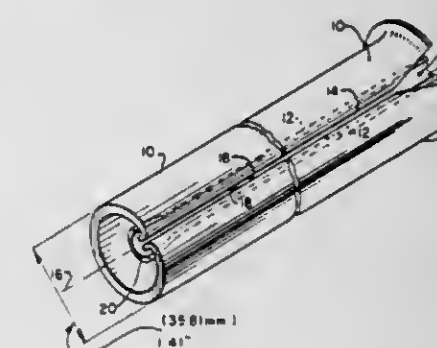
Carl R. Horten, Warren, N.J., assignor to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed Apr. 7, 1980, Ser. No. 138,208

Int. Cl.³ E21D 21/00, 20/00

U.S. Cl. 405—259

5 Claims



1. A method of inserting a radially-contractible, friction rock stabilizer, having a given, relaxed, greatest transverse dimension, into an earth borehole having a diameter of less than said given dimension, for stabilizing the earth, comprising the steps of:

- radially contracting the stabilizer to a prescribed transverse dimension which is substantially equal to the borehole diameter; and
 - forceably inserting the contracted stabilizer into the borehole; and further including the steps of
 - forming said stabilizer with at least one, substantially annular, relieved land, in the outer surface thereof, which land has a given depth; and
 - fixing a restraining band in said land, to retain said stabilizer in said prescribed dimension, prior to said inserting step; wherein
- said fixing step comprises fixing a band, in said land, which has a thickness of less than said given depth, whereby said band will avoid contact with any surface of the borehole during borehole insertion of the stabilizer.

4,313,697

MINE ROOF SUPPORT PLATE BOLT

Richard C. Rozanc, R.R. #3, McDonald, Pa. 15057

Filed Sep. 17, 1979, Ser. No. 76,506

Int. Cl.³ E21D 20/02

U.S. Cl. 405—261

1 Claim

1. A mine roof support plate bolt for securing an apertured support plate to a mine roof, and designed for use in a pre-formed hole bored into the mine roof, comprising: a metallic elongated rod having an arcuate surface with irregularities thereon and of a first diameter, with a head and flange at the outer end thereof and an inwardly bevelled inner end having a transverse groove therein, said end having a bevelled surface from said arcuate surface of the rod to the groove, forming

spaced cutting teeth along each side of the groove, and having a helical, counterclockwise, channel formed in the rod, directly communicating with said groove, and extending from said groove along a portion of the rod, the diameter of the rod at the area of the channel being smaller than said first diameter, whereby said cutting teeth effectively thread packages of fast



setting resin constituents that set-up on mixing and effect thorough mixing of the same, and said channel serves to pump resin constituents upwardly into said groove, through clockwise rotation of said rod, and retard the downflow of said resin constituents while said constituents set-up in said rock structure and about said rod in the mine roof.

4,313,698

HYDRAULIC SHIELD-TYPE SUPPORT

Alfred Maykemper; Gerhard Schorrardt, and Günter Werth, all of Wuppertal, Fed. Rep. of Germany, assignors to Hermann Hemscheidt Maschinenfabrik GmbH & Co., Wuppertal, Fed. Rep. of Germany

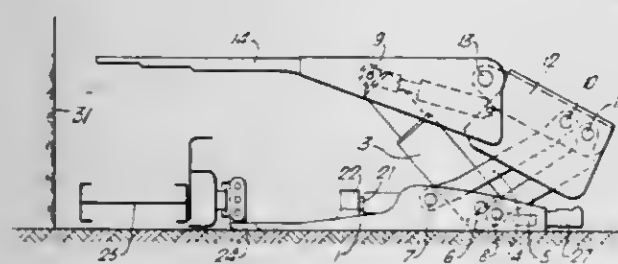
Filed Feb. 6, 1980, Ser. No. 119,186

Claims priority, application Fed. Rep. of Germany, Feb. 7, 1979, 2904544

Int. Cl.³ E21D 23/00

U.S. Cl. 405—296

4 Claims



1. A hydraulic shield-type mine-roof support comprising a pair of adjacent base slides adapted to slide along the floor of a mine, at least one hydraulic prop pivotally connected at a lower end thereof to said base slides, at least two control levers pivotally connected at lower ends thereof to said base slides, a shield pivotally connected to upper ends of said control levers whereby the shield can be lifted and lowered with respect to said base slides, a mine-roof engaging structure pivotally attached to an upper portion of said shield, a driving ram adapted to act at both ends and disposed between said base slides, means including an inspection platform connected to an extendable part of said ram for the purpose, in operation of the apparatus, of connecting said ram to a conveyor at the working face of a mine, a channel-section guide beam located between said base slides and arranged to support said driving ram, a transverse connecting yoke pivotally interconnecting said base slides at the rear ends thereof to permit relative movement between said base slides both longitudinally and vertically, means connecting an outer cylinder of the driving ram to said guide beam, means coupling said transverse yoke to the rear

end portion of said guide beam by at least one substantially vertical pivot pin, and means connecting said extendable part of said ram to an elongate tongue longitudinally guided by said guide beam within the channel thereof, below said driving ram, and connected to said inspection platform.

4,313,699

QUICK MOUNT HIGH PRESSURE BOOSTER VALVES

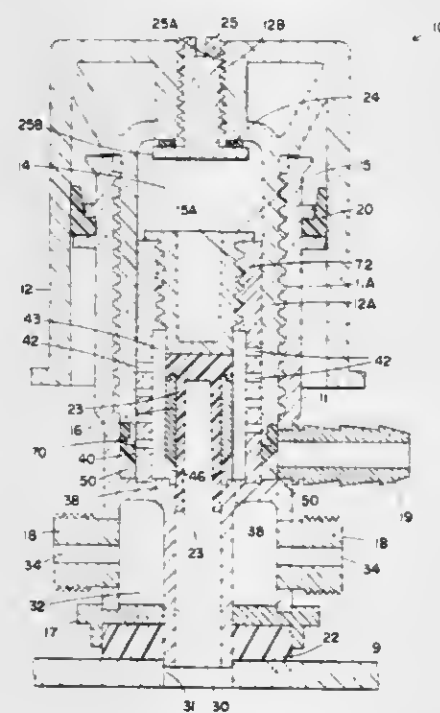
James R. Steele, Stillwater, Minn., assignor to Dynamic Air Inc., St. Paul, Minn.

Filed Jan. 31, 1980, Ser. No. 117,379

Int. Cl.³ B65G 53/58

U.S. Cl. 406—93

7 Claims



1. A booster valve for assisting the flow of material in a conveyor tube with fluid under pressure comprising:
a housing member having an inlet for attachment to a fluid source and an outlet for discharging a fluid into a conveyor tube, said outlet having means for engagement of the exterior of a conveyor tube to thereby discharge fluid into a conveyor tube at a specified location on a conveyor tube;
a cylindrical resilient seal located in said housing member, said cylindrical resilient seal having an exterior, an interior surface and a seal retaining guide located on one of said surfaces, said seal responsive to a pressure differential across said seal so that a higher pressure on said inlet than said outlet permits flexing of said seal to permit flow of fluid past said seal through said outlet and into a conveyor tube to thereby assist the flow of materials through a conveyor tube and where a higher pressure in said outlet than in said inlet permits the resiliency of said seal to return to its original shape to prevent back flow of material from said outlet to said inlet;
means for relieving the pressure in said booster valve and a removable member to permit replacement of said seal; and
means located on said booster valve to permit quick mounting of said booster valve to a conveyor tube.

4,313,700

FARE COLLECTION SYSTEM AND COMPONENTS THEREOF

Jim H. Gomez, Kankakee, and Jose E. Davila, Bourbonnais, both of Ill., assignors to Transit Systems Technology, Inc., Kankakee, Ill.

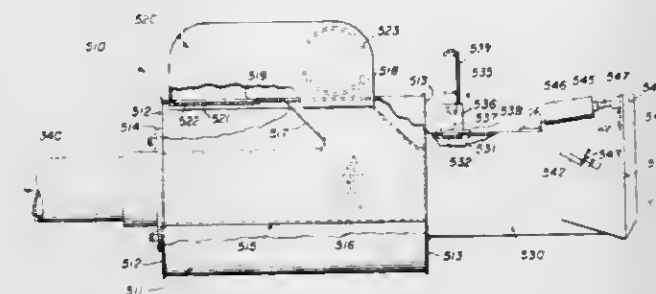
Division of Ser. No. 855,970, Nov. 30, 1977, Pat. No. 4,210,801.

This application May 14, 1980, Ser. No. 149,844

Int. Cl.³ B65G 51/02

U.S. Cl. 406—156

5 Claims



1. A slowdown mechanism for use in a fare collection system utilizing an air stream to convey the contents of the fare box to a storage vault, said slowdown mechanism comprising a slowdown chamber, a perforated conduit disposed in said slowdown chamber and having an inlet for receiving the air stream carrying the contents of a fare box and an outlet for communication with a storage vault, the longitudinal axis of said perforated conduit being inclined to the horizontal with the inlet disposed higher than the outlet, a paper-air conduit connected to said perforated conduit intermediate the ends thereof and extending upwardly therefrom and outside said slowdown chamber for receiving a portion of the air stream and any paper drawn from the associated fare box, said paper-air conduit including a paper chamber disposed externally of said slowdown chamber, means providing communication between said paper chamber and said slowdown chamber and permitting passage of air therebetween but preventing passage of paper therebetween, a coin collecting chamber at the outlet of said perforated conduit for collecting any coins from the associated fare box, and a door on said collection chamber for permitting discharge of the coins therefrom into the associated storage vault.

4,313,701

REMOVABLE CONTAINER GIMBALS MOUNTING ON A TRANSPORTING CAR CONTAINER

Gerhard Brust, Berlin, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Aug. 6, 1979, Ser. No. 63,935

Claims priority, application Fed. Rep. of Germany, Aug. 10, 1978, 7824049[U]

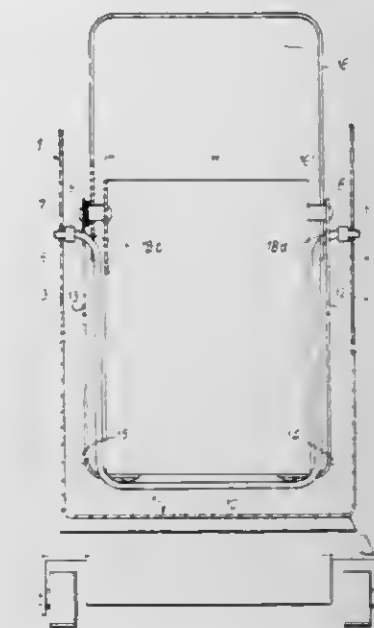
Int. Cl.³ B60P 1/64; B65J 1/20, 1/22, 1/02

U.S. Cl. 410—52

7 Claims

1. A transport car assembly comprising a transport car container (1) having two limiting walls (2, 3) lying opposite one another, a removable container insert (11) disposed within said car container (1) and between said two limiting walls, said two limiting walls (2, 3) having respective recesses (4, 5) which are aligned with each other for defining a pivot axis,
a U-shaped support bracket (10) supporting the container insert (11) and having respective arms with outwardly bent end areas providing respective pivot pins (6, 7) inserted into the respective recesses (4, 5) so that the U-shaped support bracket (10) and the container insert (11) supported thereby are pivotally mounted within said car container (1) by means of said pivot pins (6, 7) for pivotal movement about said pivot axis relative to said car container (1),
said container insert (11) having side members (14, 15) disposed parallel to said limiting walls (2, 3), and said side

members (14, 15) having respective slots (12, 13) receiving the respective arms of said U-shaped support bracket (10) for releasably interengaging the container insert (11) with



the U-shaped support bracket (10) so as to provide for joint pivotal movement relative to said car container (1) of the U-shaped support bracket (10) and the container insert (11) about said pivot axis.

4,313,702

CONTAINER CONSTRAINER SYSTEM

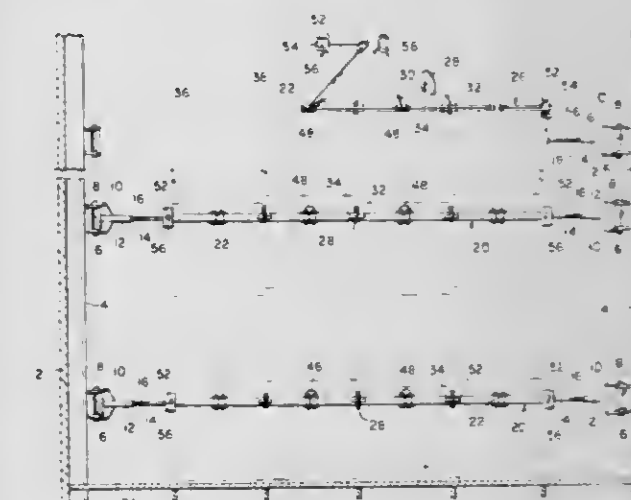
John M. DiMartino, Sayville, N.Y., assignor to Line Fast Corporation, Holbrook, N.Y.

Filed Jan. 7, 1980, Ser. No. 109,786

Int. Cl.³ B60P 3/06

U.S. Cl. 410—94

8 Claims



1. A constrainer for shipping containers for maintaining container position with respect to the walls of a vessel, said vessel having at least two walls in opposition to each other comprising:

- (a) first mounting means affixed to a first wall of the vessel;
- (b) second mounting means affixed to a second wall of the vessel, said second wall of the vessel being in opposition to said first wall of the vessel;
- (c) linear bridge means connectable to both the first mounting means and the second mounting means capable of running adjacent to a first side wall of a shipping container located in said vessel;
- (d) a plurality of chock means mounted on said bridge means capable of encompassing a portion of a second and a portion of a third side wall of the container to constrain lateral motion of the container with respect to the linear alignment of the bridge means.

4,313,703

APPARATUS FOR BREAKING UP STACKS OF PAPER SHEETS OR THE LIKE

Paul Fabrig, Neuffen, Fed. Rep. of Germany, assignor to Womahn Maschinenkonstruktionen GmbH, Nürtingen, Fed. Rep. of Germany

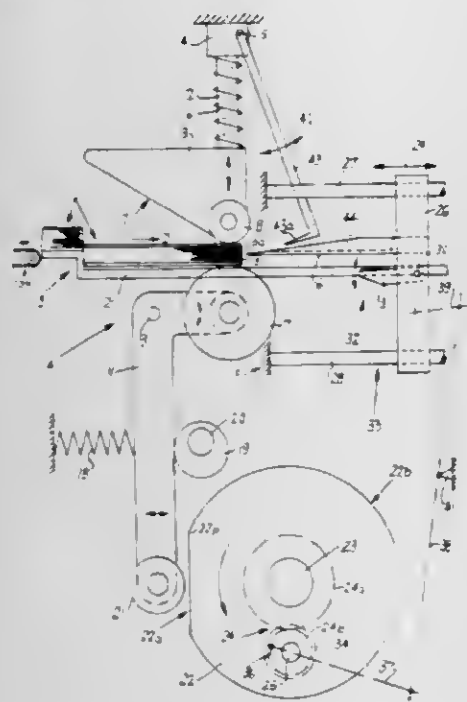
Filed Nov. 5, 1979, Ser. No. 91,080

Claims priority, application Fed. Rep. of Germany, Nov. 17, 1978, 2849949

Int. Cl.³ B65G 59/06

U.S. Cl. 414—115

17 Claims



1. In an apparatus for dividing stacks of overlapping sheets into a plurality of layers including a last layer and a preceding layer and wherein each stack includes an edge face extending substantially at right angles to the planes of the sheets, the combination of a tongs having mobile first and second jaws; means for guiding successive stacks into said tongs so that the jaws are disposed in the region of the edge face of the stack in said tongs; a dividing tool movable into the edge face of the stack in said tongs to subdivide the stack into layers; means for shifting said tool relative to said tongs; means for removing successive layers from said tongs; and means for moving one of said jaws relative to the other jaw along a predetermined path wherein said one jaw has a component of movement substantially at right angles to the planes of sheets in the stack between said jaws, said moving means including a device for moving said one jaw away from said tool at least subsequent to shifting of said tool in a direction to penetrate intermediate said other jaw and the last layer of the stack between said jaws and for moving said one jaw to a predetermined operative position upon removal of the last layer of a stack from said tongs.

4,313,704

GAS-TIGHT CLOSURE

Werner Kucbarzyk, Essen, and Wolfgang Rübde, Essen-Heisingen, both of Fed. Rep. of Germany, assignors to Bergwerksverband GmbH and Didier Engineering GmbH, both of Essen, Fed. Rep. of Germany

Filed Apr. 23, 1979, Ser. No. 32,495

Claims priority, application Fed. Rep. of Germany, Apr. 22, 1978, 2817736

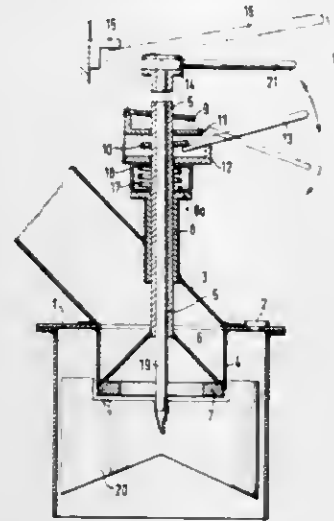
Int. Cl.³ C10J 3/50

U.S. Cl. 414—199

12 Claims

1. A gas-tight closure for a feeding pipe having an outlet communicating with a filling space, comprising a thin-walled tubular extension projecting from said outlet into said space and having a yielding deformable cylindrical free end portion; and sealing means, including a frusto-conical sealing member having a bottom base slightly smaller than the inner radial cross-section of said extension and, connected to said

bottom base, a plug-like sealing part defining an upper end and a lower end, the outer surface of said sealing part being slightly inwardly inclined toward said free end so that the radial cross-section of its upper end is slightly smaller and the radial cross-section of its lower end is slightly greater than said inner radial cross-section; and an actuating rod connected to said sealing



member and projecting through said extension to the outside of said pipe, said actuating rod being movable between an open position in which said sealing member is spaced from said free end portion and a sealing position in which said sealing member is drawn into said extension and said peripheral edge face yieldingly deforms said cylindrical free end portion to form a seal therewith.

4,313,705

UNLOADER FOR STORAGE BINS

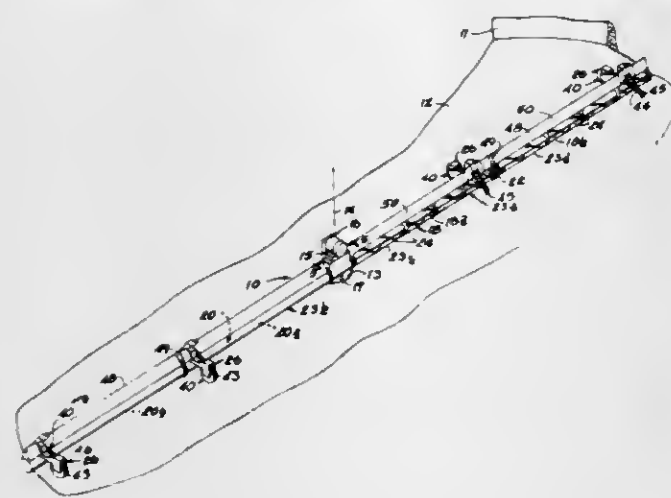
William J. Jackson, P.O. Box 266, Mendota, Ill. 61342

Filed Jan. 26, 1979, Ser. No. 6,765

Int. Cl.³ B65G 65/46

U.S. Cl. 414—312

9 Claims



1. A device for unloading particulate material from a pile in a circular storage bin to a central outlet sump in a floor of the bin beneath the pile, comprising:

- a first auger extending radially outwardly from a central vertical axis for rotation about a first auger axis;
- a second auger extending radially outward from the vertical axis in diametric opposition to the first auger for rotation about a second auger axis;
- a central counter rotating auger drive means operatively connecting the first and second augers adjacent the vertical axis for axially aligning the first and second augers to diametrically opposed relationship with the first and second auger axes being coaxial and for rotating the augers in opposite rotational directions;

pivot drive means for pivoting the diametrically opposed first and second augers in a forward direction about the vertical axis;

wherein the central counter rotating auger drive means includes;

- a worm wheel on each auger adjacent the vertical axis;
- a worm gear in meshing engagement with each worm wheel;
- a single drive shaft;
- means interconnecting the single drive shaft and worm gears for turning the worm wheels in opposite directions in response to turning motion of the drive shaft; and
- central power means for turning the single drive shaft.

4,313,706

GRAIN CAKE BREAKER

Jack D. Danford, Box 98, Watkins, Colo. 80137, assignor to

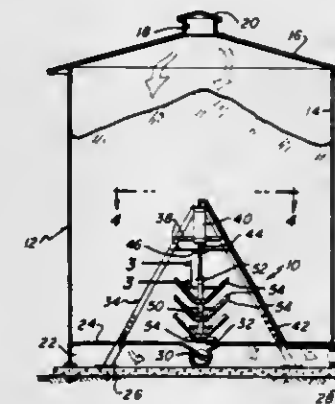
Jack D. Danford and H. H. Champlin, both of Watkins, Colo.

Filed May 2, 1980, Ser. No. 145,972

Int. Cl.³ B65G 65/00, 3/00

U.S. Cl. 414—326

9 Claims



1. An apparatus for breaking up grain cake in a grain storage bin of the type including a housing, a base floor, a bin floor for supporting grain in the bin spaced above the base floor, a conveyor located between the base floor and the bin floor extending across the bin and through the housing for discharging grain from the bin, and at least one opening in the bin floor above the conveyor through which grain from the bin is fed to the conveyor, said apparatus including:

- a support structure positioned within the storage bin;
- hydraulic means mounted on said support structure;
- a shaft coupled to said hydraulic means so that, upon activation of said hydraulic means, said shaft reciprocally moves in a substantially vertical direction; and
- a plurality of rigid cutting arms connected along said shaft, said cutting arms extending outwardly from said shaft to reciprocally move with said shaft for loosening grain cakes that form above the opening in the bin floor so that a continuous flow of grain to the conveyor is provided.

4,313,707

SIDE LOADING APPARATUS FOR TRASH COLLECTION SYSTEM

John W. Bingman, 1714 E. Gary, Mesa, Ariz. 85203, and Julius

A. Barker, Jr., 2501 N. 69th St., Scottsdale, Ariz. 85257

Continuation-in-part of Ser. No. 762,412, Jan. 25, 1977,

abandoned. This application Jan. 29, 1979, Ser. No. 7,398

Int. Cl.³ B65B 21/02

U.S. Cl. 414—409

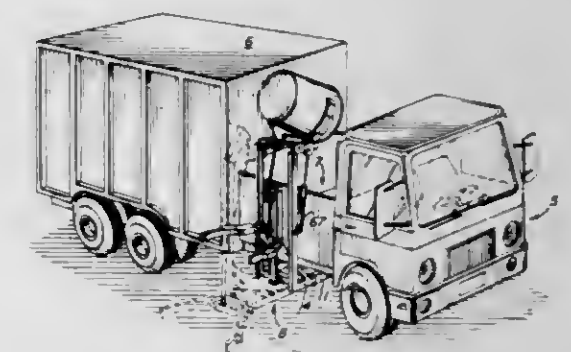
2 Claims

1. In a trash collection system for loading trash into the truck body of a side loading trash collection vehicle, the improvements comprising:

- a. a frame member extendably secured to said truck body for horizontal movement away from and toward said truck body;
- b. a pair of guide rails, parallel to each other, mounted on said frame member and extending substantially vertically upwardly therefrom along side said truck body, said guide rails movable with said frame member toward and away from said truck body; each of said guide rails having a top

section hingedly secured to the remainder of said rail for tilting movement about a horizontal hinge axis;

- c. a carriage having a lower pair of rollers mounted for rotation about a common horizontal axis of rotation and an upper pair of rollers, each of said lower pair of rollers engaging a different one of said pair of guide rails and each of said upper pair of rollers engaging a different one of said pair of guide rails for guiding said carriage along said rails from a rest position near the bottom of said rails to a dump position near the top of said rails;
- d. a pair of gripping arms mounted on said carriage, each of said arms pivotal about a vertical axis for movement toward and away from each other for gripping a trash container, said arms also pivotal about a horizontal axis for movement into a stowing position in a substantially vertical plane;
- e. lifting means for raising said carriage along said rails, said lifting means including a piston and cylinder secured at one end thereof to said frame member and having a



sprocket secured to the other end, a chain secured at one end thereof to said frame member, said chain passing over said sprocket and secured at its other end to said carriage about a horizontal pivot axis to permit pivotal movement of said carriage with respect to said chain about said horizontal pivot axis, said horizontal pivot axis being coincident with said common horizontal axis of rotation; f. stop means secured to at least one of said guide rails below the top section thereof, and positioned to contact said carriage to stop said carriage with said common horizontal axis of rotation coincident with said horizontal hinge axis, whereby said horizontal hinge axis, said common horizontal axis of rotation, and said horizontal pivot axis are all coincident with each other when said carriage is in said dump position; and

- g. tilting means connected to the top section of said rails for tilting said top section about said horizontal hinge axis when said carriage is positioned on said top section and said common horizontal axis of rotation of said lower pair of rollers coincides with said horizontal hinge axis.

4,313,708

PORTABLE LIFTING AND DELIVERING APPARATUS FOR BIN CONTAINERS

Mike J. Tiliakos, 291 Twelfth St., Campbell, Ohio 44405

Filed Jun. 13, 1980, Ser. No. 159,302

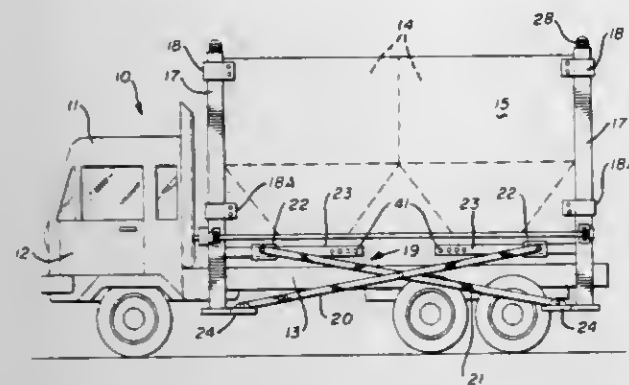
Int. Cl.³ B60P 1/54

U.S. Cl. 414—498

4 Claims

1. A portable container having at least one bin therein, means for elevating said container relative to a supporting surface, said container having four right angular vertical walls joined by inwardly extending right angular corner configurations defining vertical paths, said means for elevating said container comprising four posts, each having a cross sectionally I-beam configuration, said posts disposed in said inwardly extending corner configurations, L-shaped post guides on said vertical walls partially enclosing said inwardly extending corner configurations to that said posts may move vertically on said paths, horizontally disposed rotatable shafts extending between said posts, pulleys on said posts and cables attached to

said post guides and trained over said pulleys and engaged on said shafts, means for rotating said shafts simultaneously so as



to move said cables and said container and said posts relative to one another.

4,313,709

DEVICE FOR REMOVING AND/OR RE-INSTALLING MANHOLE LIDS ON AN APPARATUS UNDER PRESSURE

Michel M. Herman, rue Haute-Roquette, 116, B.4120 Flemalle (Ramet), Belgium

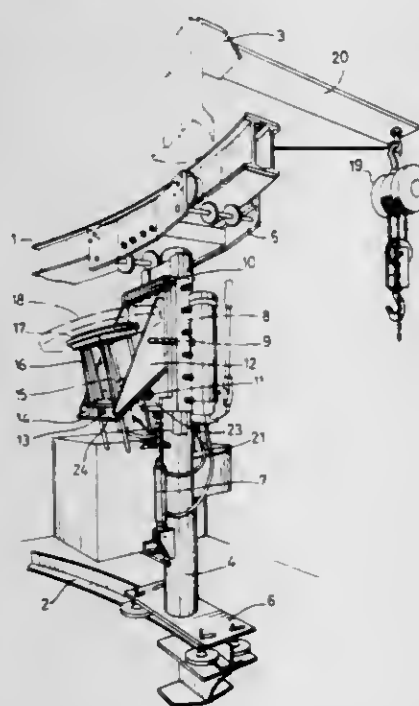
Filed Mar. 23, 1979, Ser. No. 23,313

Claims priority, application Belgium, Mar. 23, 1978, 646405

Int. Cl.³ B66C 11/12, 23/18

U.S. Cl. 414-684.3

2 Claims



1. A device for removing and re-installing manhole lids in an apparatus under pressure, comprising:

- guide means extending about at least a portion of the periphery of said apparatus;
- carriage means movable along the guide means;
- vertical column means mounted on said carriage means for rotation about a vertical axis with respect to said carriage means;
- rack means vertically slidably mounted on said column means;
- support means hinged to said rack means for pivoting relative to said rack means in a plane containing the rotation axis of the column means, said support means comprising a first supporting plate extending in a plane inclined at an acute angle to the rotation axis of said column means;
- supporting table means slidably mounted on said first sup-

porting plate for translation movement in a direction inclined at an angle to the axis of said column means;

first driving means for moving the rack means along said column means;

second driving means for pivoting the column means about said axis;

third driving means for pivoting said support means relative to the rack means in said plane; and

fourth driving means for displacing said supporting table means with respect to said first supporting plate.

4,313,710

WIND MOTOR

Romeo La Ferte, 3905 Beethoven St., Ville Brossard, Province of Quebec, Canada J4Z 2W5

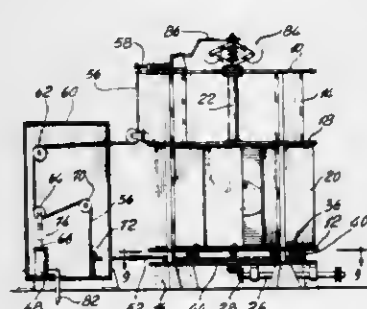
Filed Aug. 28, 1980, Ser. No. 182,460

Claims priority, application Canada, May 26, 1980, 352691

Int. Cl.³ F03D 7/06

U.S. Cl. 415-2 R

2 Claims



1. A wind motor comprising:

- (a) a stator including imperforate top and bottom horizontal discs spacedly mounted on upstanding posts, an intermediate annular disc parallel to the top and bottom discs and also secured to said posts, and a plurality of directing blades pivotally mounted between said intermediate and bottom discs, said top and intermediate discs defining a space there between which is open to the exterior completely around said discs;
- (b) a rotor having a vertical shaft journaled at the center of said top and bottom discs and vertical blades secured to said shaft and extending radially towards the blades of the stator, whereby the wind is directed by the stator blades onto the rotor blades and ejected through the central opening in the intermediate disc and the space between the top and intermediate discs, said annular disc defining a central circular opening which is coaxial with said shaft and which has a diameter substantially equal to the rotor diameter; and
- (c) means for automatically varying the angular position of the stator blades between open and closed positions, so as to control the speed of the rotor; so arranged that the wind passing directly between said top and intermediate discs assists the ejection of the air from the rotor, and closing of the stator blades creates a suction of the trailing surface of the rotor blades, thus helping in retarding the rotor.

4,313,711

TURBINE AND LIKE ROTARY MACHINES

Alan S. Lee, Leicester, England, assignor to The English Electric Company Limited, London, England

Filed Aug. 22, 1978, Ser. No. 935,789

Claims priority, application United Kingdom, Aug. 24, 1977, 35468/77

Int. Cl.³ F03B 13/12, 3/04, 3/12

U.S. Cl. 415-7

15 Claims

1. A water turbine comprising a rotor for mounting below the surface of an expanse of water, and incorporating a plurality of generally radially extending rotor blades fixed in position relative to the rotor wherein each rotor blade is substantially

4,313,713

APPARATUS FOR IMPROVING THE PERFORMANCE OF A ROTATIONAL WIND ENERGY CONVERSION SYSTEM

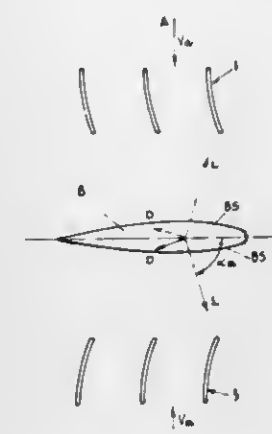
Lambros Lois, 6104 Dunleer Ct., Bethesda, Md. 20034

Filed Jul. 2, 1980, Ser. No. 165,473

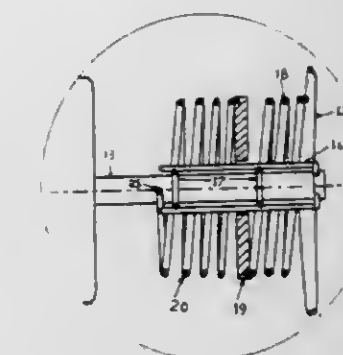
Int. Cl.³ F03D 11/02

U.S. Cl. 416-135

10 Claims



past the blades generally parallel to the rotor axis produces a movement of the blades in a direction parallel to said plane of symmetry, and hence a rotation of the rotor in said circumferential direction.



- 1. A rotational energy conversion system comprising, a wind drivable blade which rotates in response to wind forces,
- a rotor shaft having one end connected to said wind driven blade, such that under the influence of wind forces, the blade rotation is about an axis coinciding with said rotor shaft, causing said rotor shaft to rotate in the same direction, and
- a driven shaft connectable at one end to an end device which makes use of rotational energy transmitted by said driven shaft,
- said rotor and driven shafts, at their other ends, being attached to one another by a coil spring and mass element system, such that, under the influence of wind forces, said driven shaft will be caused to rotate in the same direction as said rotor shaft,
- said coil spring and mass element system comprising, a series of at least two coil springs, the first and last of which are terminal springs, each adjacent pair separated from each other by and connected to opposite sides of a generally circular wheel-shaped mass element which is not attached to the rotor or driven shafts, the ends of the terminal springs which are not attached to one of said masses, being attached one to said rotor shaft and the other to said driven shaft, the configuration of said springs being such that they wind up in response to the normal rotational motion of said rotor shaft in response to wind forces.

4,313,712

MOUNTING OF ROTOR ASSEMBLIES

Henry R. Briggs, Bristol, England, assignor to Rolls-Royce Limited, London, England

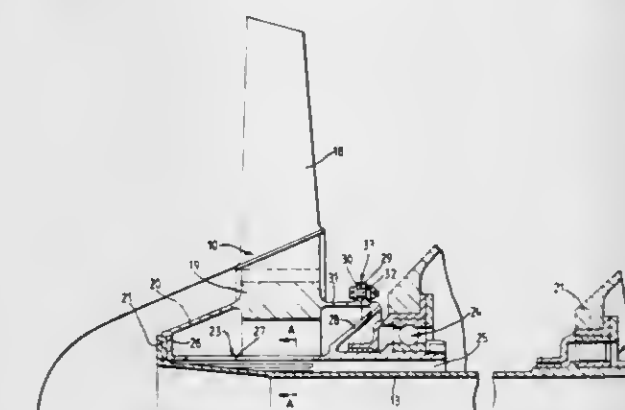
Filed Feb. 19, 1980, Ser. No. 122,700

Claims priority, application United Kingdom, Mar. 17, 1979, 09460/79

Int. Cl.³ F01D 5/02

U.S. Cl. 416-2

6 Claims



1. A rotor assembly comprising, a drive shaft mounted in a first bearing means at a location spaced from a first end of the shaft, and supported at the first end by a support means which is more flexible in bending and in torsion than the drive shaft, the support means being mounted for rotation in a second bearing means co-axial with the first bearing means, a rotor connected to the first end of the drive shaft to be driven thereby, the rotor being supported in the second bearing means through a frangible coupling designed to break the connection between the rotor and the second bearing means only when the rotor is subjected to a predetermined out-of-balance load to allow the rotor and drive shaft to run inverted, and the rotor is connected to a first part of the frangible coupling and a second part of the frangible coupling is supported for rotation in the second bearing means.

4,313,714

HIGH PRESSURE RADIAL PUMP

Johony D. Kubezka, 6002 Viking, Houston, Tex. 77092

Filed Oct. 1, 1979, Ser. No. 80,933

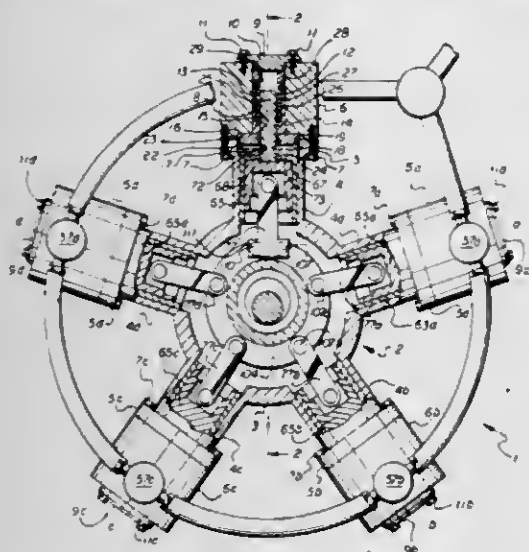
Int. Cl.³ F04B 1/18

U.S. Cl. 417-273

5 Claims

- 1. A high pressure rotary pump comprising housing means including a central chamber portion comprising a fluid-tight chamber substantially filled with lubricating oil and a plurality of hollow portions extending radially outward therefrom,
- said radially extending portions each including means forming a pumping cylinder having an inlet and an outlet for pumping liquid therethrough,
- a plurality of pump piston means, each comprising a cross head drive portion and a separate pump piston removably secured thereon guided in one of said hollow portions and extending into one of said pumping cylinders,
- said cross head pistons each having a T-slot therein,
- said pump pistons each being a rod with a slotted end portion of a size and shape removably secured to said cross

head piston by insertion in said T-slot in one direction followed by 90° rotation thereof, said cross head pistons each having apertures permitting flow of oil through the end wall thereof, said pumping cylinders each including sealing means surrounding the respective pump pistons to seal against lubricating oil entering therein, a first conduit means interconnecting said inlets for conducting fluid thereto, a second conduit means interconnecting said outlets for conducting fluid therefrom, rotary operating means comprising a rotary drive shaft extending into said fluid-tight chamber and having a cylindrically shaped offset cam portion and a ring member



surrounding the same for operation thereby supported for rotation in said chamber, connecting means comprising a plurality of connecting rod members each connected at one end to said ring member and at the other end to one of said pump piston means for moving the same reciprocally and sequentially into and out of said hollow portions and said pumping cylinders, one of said connecting rod members being connected to said ring member by a non-pivotal connection, all of the other connecting rod members being connected to said ring member by pivotal connections, and all of said connecting rods being connected to respective ones of said cross head drive pistons by pivotal connections.

4,313,715

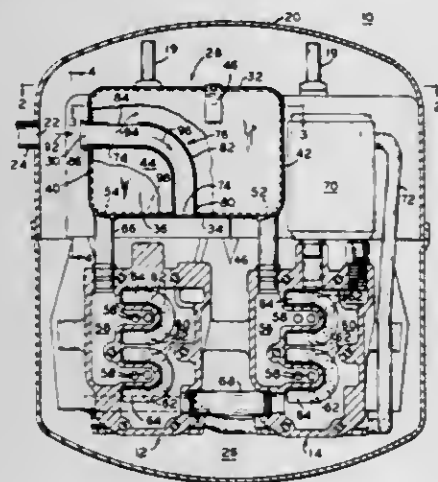
ANTI-SLUG SUCTION MUFFLER FOR HERMETIC REFRIGERATION COMPRESSOR

Hubert Richardsoo, Jr., Brooklyn, Mich., assignor to Tecumseh Products Company, Tecumseh, Mich.

Filed Dec. 21, 1979, Ser. No. 106,287
Int. Cl.³ F04B 39/16

U.S. Cl. 417—312

10 Claims



1. In a hermetic refrigeration motor-compressor assembly

including a motor driving a compressor having suction and discharge ports, a hermetically sealed casing enclosing said motor and compressor and having a gas inlet opening and a sump therein, a discharge conduit coupled to said compressor discharge port and extending out of said casing, and a suction muffler in said casing having a wall defining a chamber, said wall having inlet and outlet openings therein communicating with said chamber, said casing and muffler inlet openings being in closely-spaced alignment thereby to provide semi-direct suction, said muffler outlet opening being directly coupled to said compressor suction port: the improvement wherein said muffler wall has another opening therein spaced from said inlet and outlet openings and communicating with said chamber, and comprising a passage in said muffler chamber extending between said inlet and said another openings and having opposite ends respectively coupled thereto, said passage having a vent opening therein communicating with said chamber, whereby gas entering said passage through said muffler inlet opening flows through said vent opening into said chamber and thence through said outlet opening to said compressor suction port whereas, a slug of liquid refrigerant flows through said passage and out of said another opening to said sump.

4,313,716

ARTICULATED, ENERGY CONVERTING STRUCTURE

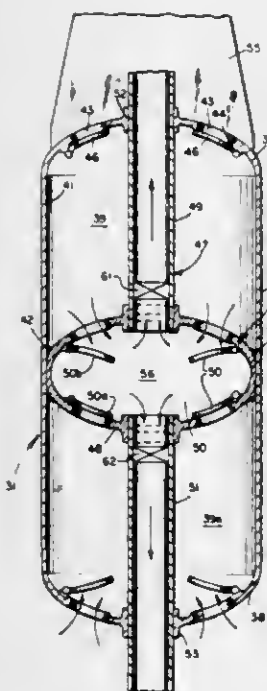
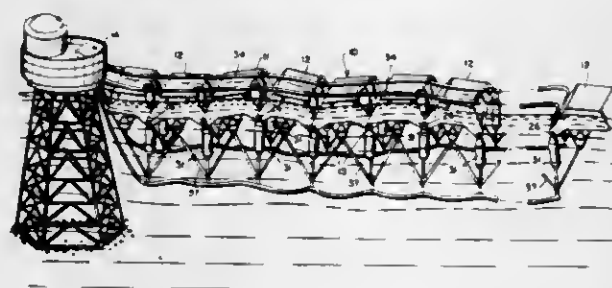
Asberry B. Jones, Slidell, La., assignor to Texaco Inc., White Plains, N.Y.

Filed May 10, 1979, Ser. No. 37,619

Int. Cl.³ F04B 17/00; E02B 9/08

U.S. Cl. 417—331

2 Claims



1. In combination with a wave articulated facility adapted to be floatably positioned in a body of water and having at least two adjacently positioned rafts which are hinged along a common pivot edge to permit independent movement of each raft about said pivot edge in response to wave movement beneath the facility, and flow conduit means carried on the facility to conduct pumped water therethrough,

a double acting pump operably carried on said facility and comprising an elongated casing having opposed end walls, one end thereof being pivotally engaged with the respective adjacently positioned rafts at said pivot edge, and said casing being communicated with said body of water through check valve means formed at opposite ends of said casing to permit entry of water into the casing, a double ended piston disposed within said elongated casing having a valved plunger in slidable registry with the casing inner wall, which valved plunger includes an inner compartment, check valves at opposed longitudinal ends of said plunger, being operable to open into said compartment whereby to admit water to said inner compartment when the plunger is reciprocated, a pair of hollow shafts defining flow passages, and disposed coaxially with said casing and with each other, each being suitably registered at the casing ends to permit reciprocatory movement of the piston through the casing, said respective hollow shafts having an inner end thereof connected to said valved plunger, and being in communication with the inner compartment thereof, check valve means in the respective shafts being operable to permit a unidirectional flow of water from said inner compartment into the respective hollow shafts and the latter being communicated with said flow conduit means on said facility to direct flows of water therethrough, whereby relative movement between adjacently positioned hinged rafts will cause reciprocal movement of said double ended piston through the pump casing and urge a flow of water through the respective flow conduits.

4,313,717

ADJUSTABLE PRESSURE EXTRUSION PUMP

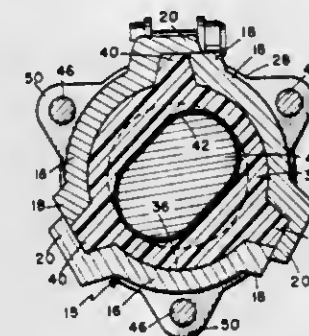
Eugene F. Kopecky, 5959 Madra Ave., San Diego, Calif. 92120

Filed Oct. 4, 1979, Ser. No. 81,836

Int. Cl.³ F04C 2/00; 5/00

U.S. Cl. 418—48

3 Claims



1. An adjustable cavity pump comprising: an elongated housing consisting of three identical elongated arcuate housing segments defining a generally cylindrical chamber; said segments each include a stub flange extending outward from the outer surface and extending along one longitudinal edge and a cap flange spaced outward from the outer surface and extending along the other longitudinal edge, the stub and cap flanges on the adjacent segments cooperatively engaging with the cap flange overlapping the stub flange for defining an adjustable width longitudinal groove tapering outwardly on both sides of the groove to a narrower width at the juncture of the flanges of adjacent housing segments and having a depth exceeding the thickness of said segment extending the length of the cylindrical cavity and for guiding said housing segments radially inwardly and outwardly, an elongated elastomeric stator having a helical bore for receiving a helical rotor and detachably mounted in said chamber, and including a plurality of radially extending lugs having a radial dimension of about the minimum thickness of said stator engaging said grooves for prevent-

ing rotation of the stator and for transferring circumferential displacement of said flanges to radial displacement of said lugs inwardly, and said housing including band clamp adjusting means for adjusting said housing segments radially inwardly and outwardly for adjusting the diameter of said helical bore.

4,313,718

METHOD FOR THE MANUFACTURE OF FLEXIBLE DISKS AND APPARATUS FOR PERFORMING THIS METHOD

Raymond Llabres; Robert Antoine; Jean P. Lacotte, and Charles Marchi, all of Paris, France, assignors to Thomson-CSF, Paris, France

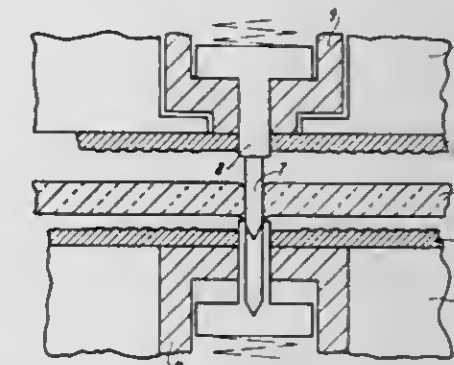
Filed Jan. 2, 1980, Ser. No. 109,041

Claims priority, application France, Jan. 4, 1979, 79 00199

Int. Cl.³ B29D 17/00

U.S. Cl. 425—290

3 Claims



1. An apparatus for manufacturing flexible disks having a compression press with a fixed plate and a moving plate, a punch of diameter d_1 provided with a base of diameter $d_2 > d_1$ forming a centering means, d_1 being the diameter of a preliminary hole and d_2 the diameter of a central hole to be cut in the disks, said punch being able to slide in a sleeve provided for this purpose in one of said plates, a second punch of diameter d_2 having a funnel-shaped hole whose bottom has a diameter d_1 is accurately adapted to the first punch, said second punch being able to slide in a sleeve provided for this purpose in the other of said plates, the sleeve located in the upper plate being movable therein so as to permit the guidance of the first punch in the second punch, the apparatus also having means for applying a force which is at least equal to the force necessary for making said preliminary hole with said first punch and a force which is at least equal to that necessary for making said central hole with said second punch.

4,313,719

DEVICE FOR ROLLING UP PIECES OF MATERIAL

Bror F. Lundgren, Bjur, Sweden, assignor to Societe d'Assistance Technique pour Produits Nestle S.A., Lausanne, Switzerland

Filed Feb. 20, 1981, Ser. No. 236,172

Claims priority, application Sweden, Mar. 6, 1980, 8001770

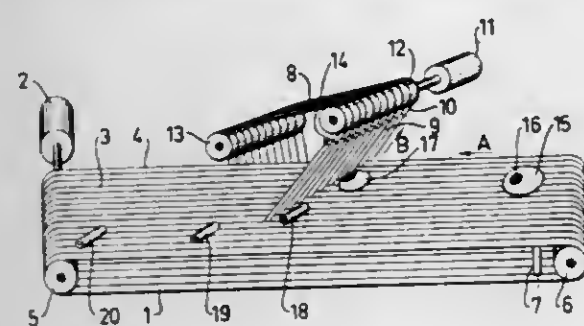
Int. Cl.³ B29C 17/00; B29D 3/00

U.S. Cl. 425—335

8 Claims

1. A machine for rolling pieces of soft material in leaf form, comprising a plurality of endless belts, each belt being formed by a plurality of endless elements spaced apart from one another and running parallel to the direction of movement of the belt, the plurality of endless belts being made up of a first belt moving substantially in a horizontal plane and at least one second belt moving in an oblique plane relative to the plane of the first belt so that it crosses the first belt by passage of its elements through the spaces between the elements of the first belt along a line of intersection which forms an acute angle with the direction of movement of the first belt, the first belt

forming an obtuse angle with the second belt, as measured in a plane perpendicular to their line of intersection, the direction



of movement of the second belt forming an acute angle with the line of intersection of the two belts.

4,313,720

PARISON TRANSFER MEANS

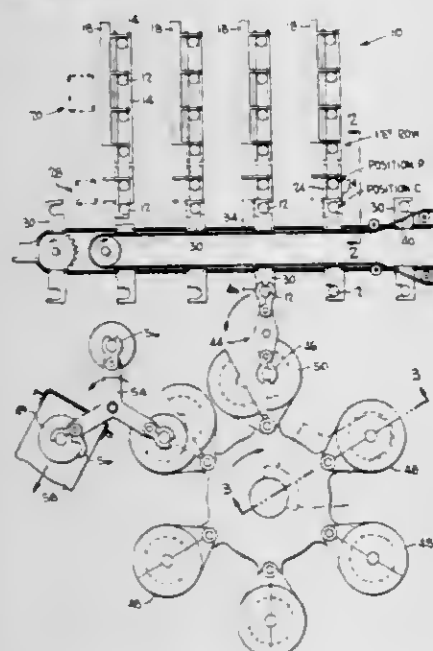
Robert Spurr, West Hartford, Conn., assignor to Emhart Industries, Inc., Farmington, Conn.

Filed Mar. 3, 1980, Ser. No. 126,834

Int. Cl.³ B29C 17/07

U.S. Cl. 425—526

7 Claims



1. In a machine system for manufacturing plastic bottles comprising a plurality of parison-forming stations, a plurality of blowing stations fewer in number than the number of parison-forming stations, a storage station for holding parisons formed at said parison-forming stations, and means for transferring parisons from said parison-forming stations to said storage station and from said storage station to said blowing stations; the improvement wherein the storage station includes support means for receiving a plurality of parisons X from said parison-forming stations, and the transfer means from said storage station to said blowing stations include shuttle means for sequentially transferring from said support means a plurality of parisons Y, which plurality is fewer in number than said plurality of parisons X to a station intermediate of said support means and said blowing stations, and conveyor means for simultaneously receiving said plurality of parisons Y from said intermediate station and continuously transferring said plurality of parisons Y individually and sequentially from said intermediate station to said blowing stations.

4,313,721

OIL BURNER DIFFUSER

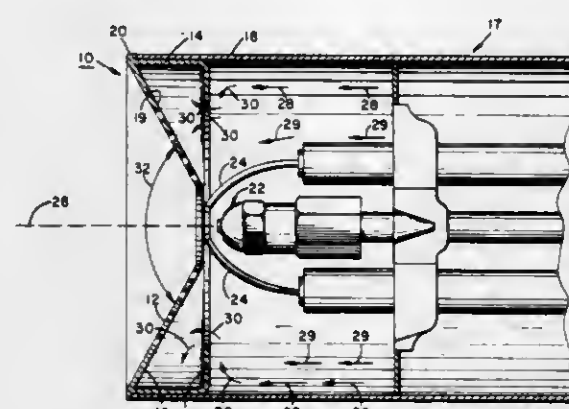
Joseph Henriques, 32 Hidden Brook Dr., Brookfield, Conn. 06804

Filed Mar. 15, 1979, Ser. No. 20,932

Int. Cl.³ F23Q 3/00

U.S. Cl. 431—265

24 Claims



1. An oil burner diffuser for increasing the combustion efficiency in a gun-type oil burner having a fuel injector nozzle for discharging a conically-shaped fuel spray pattern centrally about a central blast tube and means for supplying pressurized air to the blast tube, wherein the improved combustion efficiency is obtained with a minimal amount of excess air and with negligible carbon buildup on the diffuser and associated oil burner components, wherein the diffuser comprises:

- (A) a cone having a central opening at its upstream end axially positionable with the oil burner nozzle, and holes positioned in radially extending circles about this central opening, with the hole to non-hole surface area ratio for these circles decreasing from a maximum near the cone central opening to a minimum near the downstream end of the cone and then increasing, at the extreme downstream end thereof, to a value intermediate the maximum and minimum values;
- (B) a rearwardly extending cylindrical member attached to the outer, downstream periphery of the cone; and
- (C) a back ring extending radially inwardly from the rearward termination of the cylindrical member.

4,313,722

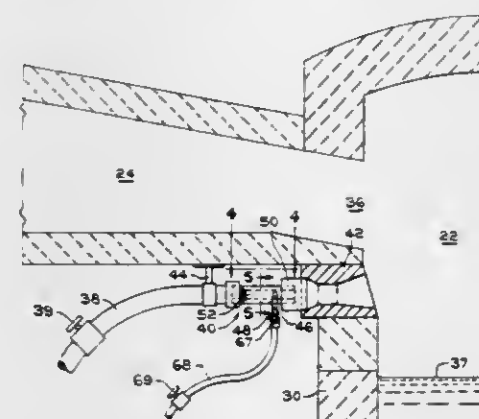
FLUID SHIELDED BURNER TIP FOR USE WITH A GLASS MELTING FURNACE

Jeffrey S. Yigdall, Conneaut Lake, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Sep. 18, 1980, Ser. No. 188,430

Int. Cl.³ F27D 17/00; B05B 15/00; F23D 11/36; F23C 5/08
U.S. Cl. 432—1

12 Claims



8. A method of heating the interior of a chamber, the interior of said chamber defined by the interior surfaces of wall portions and port walls communicating with said wall portions, said port walls defining ports for passing combustion air into said chamber during a firing cycle and passing combustion

products out of said chamber during an off-firing cycle, said chamber including at least one fuel input passageway formed in said wall portions or said port walls and extending between the interior and the exterior of said chamber, comprising the steps of:

- mounting a burner tip spaced from the interior of said chamber, said burner tip having an inlet end, an outlet end adjacent said fuel input passageway of said chamber, and a fuel passage between said inlet end and said outlet end; directing fuel along said fuel passage of said burner tip into said fuel input passageway of said chamber and there-through into the interior of said chamber during said firing cycle;
- discontinuing said fuel directing step at the end of said firing cycle; and
- passing a cooling fluid through said burner tip along a discrete cooling fluid passage therein toward the fuel input passageway of said chamber during said off-firing cycle to shield said burner tip from corrosive combustion products which tend to escape the interior of said chamber through said fuel input passageway during said off-firing cycle.

4,313,723

APPARATUS FOR PRODUCING CARBON BLACK

Robert H. Kallenberger, Bartlesville, Okla., and John E. Anderson, Corpus Christi, Tex., assignors to Phillips Petroleum Company, Bartlesville, Okla.

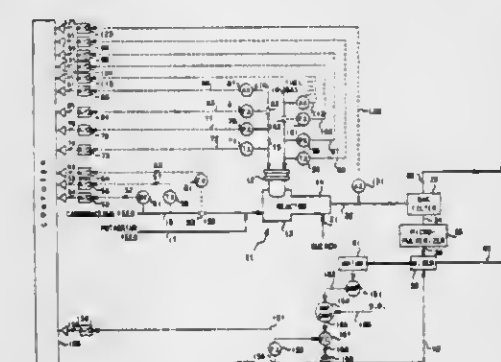
Division of Ser. No. 19,948, Mar. 12, 1979, Pat. No. 4,259,308.

This application Nov. 6, 1980, Ser. No. 204,664

Int. Cl.³ F27B 9/40; F27D 19/00; F26B 19/00

U.S. Cl. 432—37

8 Claims



- 1. Apparatus comprising:
- a carbon black dryer means;
- means for supplying wet carbon black to said carbon black dryer means;
- means for removing dried carbon black from said carbon black dryer means;
- a furnace means;
- means for supplying fuel to said furnace means;
- means for supplying heat from said furnace means to said carbon black dryer means;
- means for establishing a first signal representative of the heat required per unit time to produce said dried carbon black at a desired temperature;
- means for establishing a second signal representative of the efficiency of said carbon black dryer means;
- means, responsive to said first signal and said second signal, for establishing a third signal representative of the heat which must be supplied per unit time from said furnace means to said carbon black dryer means to produce said dried carbon black at the desired temperature;
- means for establishing a fourth signal representative of the heat, per unit of said fuel, which is given up in said carbon black dryer means;
- means, responsive to said third signal and said fourth signal, for establishing a fifth signal representative of the flow rate of said fuel to said furnace means required to produce said dried carbon black at the desired temperature; and

means for manipulating the flow rate of said fuel in response to said fifth signal.

4,313,724

CERAMIC BURNER FOR USE IN AN AIR HEATER

Rudolf Müller, Merzenich; Hans Kuckertz, and Erich Marx, both of Düren, all of Fed. Rep. of Germany, assignors to Hermann Rappold & Co. GmbH, Düren, Fed. Rep. of Germany

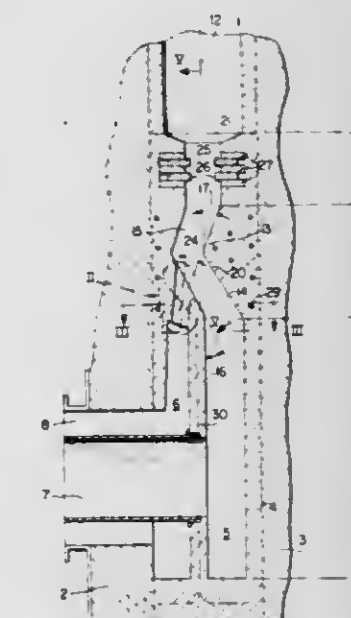
Filed Jan. 11, 1980, Ser. No. 111,302

Claims priority, application Fed. Rep. of Germany, Jan. 27, 1979, 2903147

Int. Cl.³ F28C 3/10

U.S. Cl. 432—217

9 Claims



- 1. In a ceramic burner for use in an air heater of the type including an axially extending combustion chamber, said burner including a mouth portion adapted to open into the combustion chamber of the air heater, a fuel gas supply conduit having a gas delivery region opening into said mouth portion and a mixing and aspiration region communicating with said gas delivery region and adapted to extend in a direction inclined with respect to the axis of the combustion chamber of the air heater, and an air supply conduit having nozzles opening into said mixing and aspiration region of said fuel gas supply conduit, the improvement wherein:
- said mixing and aspiration region of said fuel gas supply conduit has an angular configuration including a first segment inclined with respect to the axis of the combustion chamber in a direction toward said nozzles of said air supply conduit and a second segment inclined with respect to said first segment and in communication therewith at a position of directional change;
- said gas delivery region of said fuel gas supply conduit is in communication with said second segment of said mixing and aspiration region and is adapted to extend coaxially with respect to the combustion chamber of the air heater;
- said nozzles of said air supply conduit comprise a first set of nozzles and a second set of nozzles, said first set of nozzles being directed toward an opposite wall of said first segment of said mixing and aspiration region adjacent said position of directional change, and said second set of nozzles being directed toward said mouth portion; and
- said gas delivery region having extending thereinto, at positions adjacent said mouth portion, a plurality of projections.

4,313,725

DENTAL HANDPIECE AND COLLET WRENCH THEREFOR

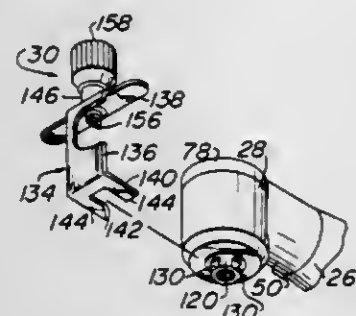
Nathaniel H. Lieb, Narberth; Albert D. Alderman, Jr., Skip-pack, and James L. Alago, Lansdale, all of Pa., assignors to Venture Technology, Inc., West Conshohocken, Pa.

Filed May 7, 1980, Ser. No. 147,696

Int. Cl.³ A61C 1/08

U.S. Cl. 433—126

19 Claims



1. A dental handpiece comprising a turbine housing, a turbine rotatably mounted therein, a collet secured within said turbine, said collet having a plurality of jaws at the bottom thereof, said collet being externally threaded in the area of said jaws, a collet nut threadably secured on said collet at said threads, said collet being externally tapered at the bottom thereof, said collet nut being internally tapered, with the taper of said collet nut complementing the taper of said collet, means for rotating said collet relative to said collet nut whereby the advancing of said collet nut on said collet causes the compressing of said collet jaws through the pressure of the mating of said tapered surfaces, and means on said collet nut to prevent said collet nut from becoming disengaged from said collet during the rotation of said collet.

4,313,726

ENVIRONMENTAL FOG/RAIN VISUAL DISPLAY SYSTEM FOR AIRCRAFT SIMULATORS

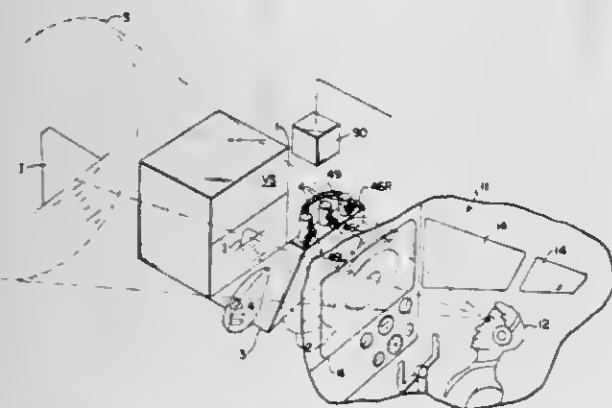
Wendell D. Chase, Saratoga, Calif., assignor to The United States of America as represented by the Administrator of National Aeronautics and Space Administration, Washington, D.C.

Filed Jun. 29, 1979, Ser. No. 53,566

Int. Cl.³ G09B 9/08

U.S. Cl. 434—42

30 Claims



1. Apparatus for visually simulating to a pilot trainee the flight of an aircraft through environmental conditions to an aircraft landing site comprising:
means accessible to said trainee for enabling said trainee to control the flight of said aircraft;
means for displaying a color image of said landing site and the terrain adjacent thereto, said displaying means including a color television monitor;
environmental condition simulation means for dispersing

natural water particles into the optical path between said trainee and said image;
lamp means for directing a controlled amount of light downward on said water particles, said lamp means having a spectra substantially similar to that of the sun;
optical means for collimating the light from said image and the light scattered from said water particles to enhance the depth effect perceived by said pilot trainee;
means responsive to said enabling means for controlling the image viewed by said trainee; and
means responsive to the position of said aircraft relative to said landing site for controlling the amount and size of water particles in said optical path;
said environmental condition simulating means comprising:
an environmental effects chamber having two walls having transparent portions disposed in said optical path between said pilot trainee and said image;
a container with an opening adapted to release water particles into said chamber.
means for maintaining a supply of water within said container at a predetermined level;
a manifold submerged in said water and having a plurality of exhaust orifices located near the water surface;
a plurality of stacked screens located above said water and said exhaust orifices; and
means for driving air through said manifold and exhaust orifices whereby water particles are jetted through said screens and allowed to escape said container via said opening.

4,313,727

EDUCATIONAL FRAME DEVICE HAVING A ROTATABLE BODY AND ROTATABLE SYMBOL-BEARING INSERTS

Johnathan J. Hulst, 4022 Ridgedale St., Memphis, Tenn. 38127

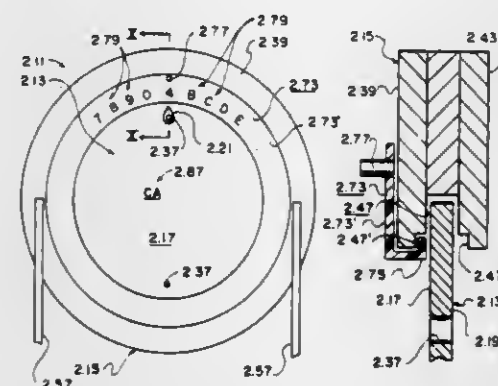
Continuation-in-part of Ser. No. 951,782, Oct. 16, 1979,

abandoned. This application Nov. 30, 1979, Ser. No. 98,915

Int. Cl.³ G09B 1/22, 19/12; A43C 15/00

U.S. Cl. 434—174

3 Claims



1. A board-type educational device comprising: a body member having a substantially flat face surface, and a frame means for extending around at least a portion of the periphery of said face surface of said body member; said body member having a pointer indicia means attached to said face surface thereof, said pointer indicia means pointing towards the periphery of said face surface of said body member, said frame means having a face surface located substantially adjacent the periphery of said face surface of said body member and having a plurality of spaced apart symbol indicia means attached to said face surface thereof, said pointer indicia means and said symbol indicia means being rotatable relative to one another whereby said pointer indicia means can be selectively caused to point towards various specific ones of said symbol indicia means of said frame means, said face surface of said body member including means for allowing indicia to be drawn thereon, said body member being in the shape of a substantially flat, substantially thin disk, said frame means being in the shape of a ring and extending completely around the periphery of

4,313,728

VARIABLE SPEED DRIVE CLUTCH

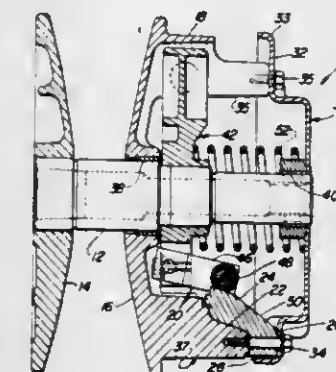
Keni K. Prasad, Beaver Dam, Wis., assignor to Deere & Company, Moline, Ill.

Filed Feb. 19, 1980, Ser. No. 122,594

Int. Cl.³ F16H 11/06, 55/52

U.S. Cl. 474—14

2 Claims



2. In a variable speed pulley including a drive shaft, a first sheave half fixed on the shaft, a second sheave half axially shiftable mounted on the shaft beside the first sheave half and including an annular rim extending axially away from the first sheave, a spider member fixed to the shaft within the annular rim, a plurality of flyweights mounted on the spider at equally spaced angular locations and including rollers, a plurality of stepped surface portions located on the inside of the annular rim at angular locations coinciding with those of the flyweights, a plurality of ramp elements respectively shaped complementary to and seated in the stepped surface portions and including radially outer end portions forming axial extensions of the rim, a plurality of fasteners respectively extending through the outer end portions of the ramp elements for securing the latter in place against the plurality of stepped surfaces, a wall releasably secured to the annular rim and cooperating therewith to form a housing enclosing the spider and flyweights, and a compression spring acting between the spider and the cover for biasing the second sheave half away from the first sheave half, the improvement comprising, said wall being seated against the outer end portions of the ramp elements and said plurality of fasteners also serving to releasably secure the wall to the annular rim.

4,313,729

ADJUSTABLE MOUNT FOR A BELT IDLER PULLEY

Larry R. James, Olathe, Kans., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Mar. 26, 1980, Ser. No. 134,187

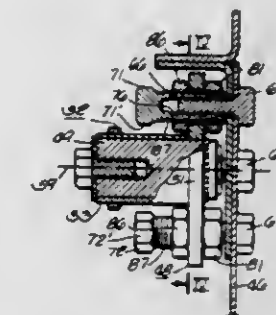
Int. Cl.³ F16H 7/12

U.S. Cl. 474—135

5 Claims

1. A mechanism for adjustably mounting a belt idler pulley on a support wall characterized by
a mounting structure supporting said belt idler pulley presenting an opening and
means adjustable securing said mounting structure to said support wall including

a threaded stud nonrotatably secured to and extending from said support wall,
an adjustable sleeve-like mounting member extending respectively through said opening in said mounting structure and having
a threaded cavity extending from one end of said member and in threaded engagement with said threaded stud,
a threaded exterior portion concentric with said threaded cavity,



shoulder means fixed on said one end of said member in abutting relation to said mounting structure to limit movement of the latter in the direction toward said support wall, and
a wrench-receiving portion on the other end of said member, and
a lock nut in threaded engagement with said threaded exterior of said member and operable to exert thrust against mounting structure in the direction toward said support wall.

4,313,730

METAL CHAIN BELT

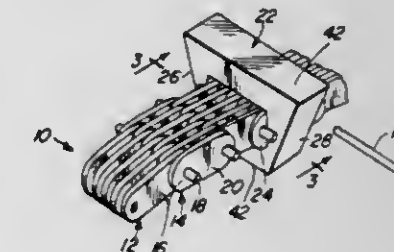
Edward H. Cole, Jr., Ithaca; John M. Kern, Moravia, and James A. Wyckoff, Interlaken, all of N.Y., assignors to Borg-Warner Corporation, Chicago, Ill.

Filed Mar. 17, 1980, Ser. No. 130,772

Int. Cl.³ F16G 13/08

U.S. Cl. 474—201

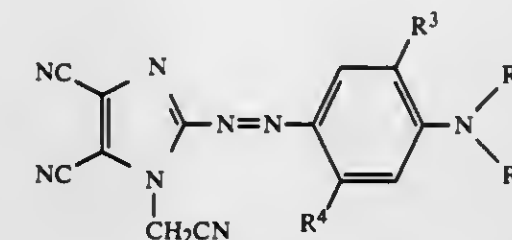
6 Claims



1. A flexible power transmission belt assembly especially adaptable for use in a pulley transmission comprising:
a plurality of interleafed sets of links;
means joining each set of links to its next adjacent set of links to permit articulation of said assembly;
each joining means extending laterally beyond the side edges of the links; and
a plurality of metal load blocks surrounding said links, each of said load blocks being positioned between adjacent joining means in substantial contact therewith to transmit load to said joining means and thus to said links, each load block having side edges contoured to contact the pulleys of a transmission.

4,313,731
**MONO-AZO COMPOUND, MONO-AZO DYE AND
 DYEING PROCESS FOR POLYESTER FIBERS**
 Seichi Imahori, Kawasaki; Kiyoshi Himeno, Yokohama, and
 Maeda, Shuichi, Saitama, all of Japan, assignors to Mitsubishi
 Chemical Industries Limited, Tokyo, Japan
 Filed Sep. 12, 1980, Ser. No. 186,372
 Int. Cl.³ D06P 5/12; C09B 12/36

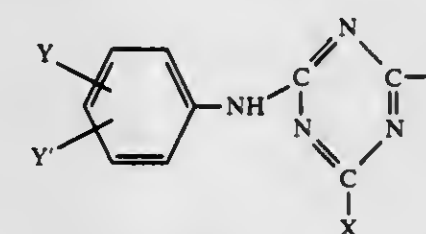
U.S. Cl. 8-451 3 Claims
 1. A mon-azo dye represented by the following general
 formula:



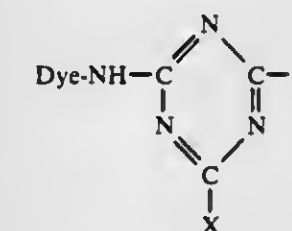
wherein R¹ and R² individually represent hydrogen atom, substituted or non-substituted alkyl group, alkenyl group, and cyclohexyl group, R³ represents hydrogen atom, chlorine atom, bromine atom, alkyl group, substituted or non-substituted alkoxy group or alkenyl group, and R⁴ represents hydrogen atom, chlorine atom, bromine atom, alkyl group, alkoxy group, hydroxy group, acylamino group, alkoxycarbonylamino group, aralkyloxycarbonylamino group or alkylaminocarbonylamino group.

4,313,732
**PROCESS FOR IMPROVING WASHFASTNESS OF
 INDIGO-DYED FABRICS**
 Edward W. Teague, Raleigh; Louis A. Graham, and Bobby L.
 McConnell, both of Greensboro, all of N.C., assignors to
 Burlington Industries, Inc., Greensboro, N.C.
 Continuation of Ser. No. 202,430, Oct. 30, 1980, abandoned,
 which is a continuation of Ser. No. 112,499, Jan. 16, 1980,
 abandoned. This application Dec. 2, 1980, Ser. No. 212,109
 Int. Cl.³ C09B 62/00

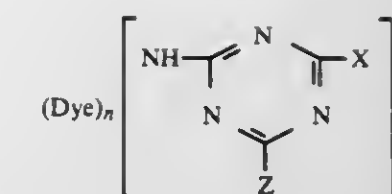
U.S. Cl. 8-541 9 Claims
 1. A process for fixing indigo dye on a cellulosic fiber sub-
 strate to improve the washfastness thereof comprising apply-
 ing to an indigo-dyed substrate a fixing solution of:
 (1) a dihalo-s-triazine of the formula:



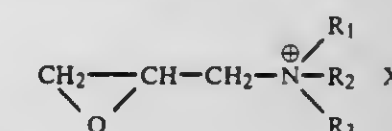
wherein Y and Y' which are the same or different are
 selected from sulfonic, phosphonic, phosphoric or carbox-
 ylic groups, provided that one of Y or Y' may be hydro-
 gen, and X is chlorine, fluorine or bromine;
 (2) a dihalo-s-triazine reactive dye of the formula:



wherein Dye is a chromophore and X is as defined above;
 (3) a poly(halo-s-triazine) reactive dye of the formula:



where each Dye, which represents a chromophore, may
 be terminally or internally bonded to one or more of the
 triazine rings; n is 1 or 2, m is 2 or 3, X is as defined above;
 and Z is at least one of X, NH, a non-colored bridging link
 which may be or include another triazine ring, or combi-
 nations of two or more of these:
 (4) a quaternary ammonium compound of the formula:



wherein R₁, R₂, and R₃, which are the same or different
 are C₁-C₃ alkyl groups and X is as defined above;
 (5) mixtures of (1) and (2); or
 (6) mixtures of (1) and (3);
 at a pH of 7.0 to about 12, and thereafter curing the thus treated
 substrate.

4,313,733
**ASSISTANT MIXTURE FOR THE DYEING OR
 FLUORESCENT BRIGHTENING**
 Jacques Zurbuchen, Kaiseraugst, Switzerland; Alain Lauton, St.
 Louis, and Jean P. Luttringer, Rixheim, both of France, as-
 signors to Ciba-Geigy Corporation, Ardsley, N.Y.
 Filed Feb. 11, 1980, Ser. No. 120,233
 Claims priority, application Switzerland, Feb. 13, 1979,
 1402/79

Int. Cl.³ D06P 1/62, 1/60, 1/613, 1/667
 U.S. Cl. 8-582 36 Claims
 1. An assistant for the dyeing or fluorescent brightening
 which comprises at least
 (A) an acid ester, or a salt thereof, of a polyadduct of propy-
 lene oxide with a polyfunctional aliphatic amino or hy-
 droxy compound with contains 2 to 9 carbon atoms and
 has at least one amino or hydroxyl group capable of enter-
 ing into an addition reaction;
 (B) an acid ester, or a salt thereof, of a polyadduct of an
 alkylene oxide with a phenol containing at least one alkyl,
 benzyl or phenyl group and
 (C) an aliphatic ester, containing at least 6 carbon atoms, of
 a mono- or di-carboxylic acid.

4,313,734
METAL SOL PARTICLE IMMUNOASSAY
 Johannes H. W. Leuvering, Heesch, Netherlands, assignor to
 Akzona Incorporated, Asheville, N.C.
 Filed Jul. 13, 1979, Ser. No. 57,309
 Claims priority, application Netherlands, Jul. 13, 1978,
 7807532

Int. Cl.³ G01N 33/54, 33/58
 U.S. Cl. 23-230 B 48 Claims
 1. The process for the detection and/or determination of one
 or more components of the reaction between a specific binding
 protein and the corresponding bindable substance in an aque-
 ous test sample, by applying the known binding affinity of such
 components for one another, comprising:
 (a) employing one or more labelled components, obtained by
 coupling directly or indirectly the desired component of said
 reaction to particles of an aqueous sol dispersion of a metal,
 metal compound or polymer nuclei coated with a metal or
 metal compound, having a particle size of at least 5 nm, and

(b) detecting and/or determining during the reaction or after an adequate reaction time and optionally after separation of the bound and free labelled components, the physical properties and/or the amount of the metal and/or a formed agglomerate containing said sol dispersed particles in the test sample or one of the derived fractions, which detection and/or determination provides a qualitative and/or quantitative indication of the component or components to be detected and/or determined.

14. A test kit, to be used for the detection and/or determination of one or more components of the reaction between a specific binding protein and a corresponding bindable substance thereto in an aqueous medium according to a predetermined protocol, comprising:

- (a) a metal-labelled component which has been obtained by coupling a component of said reaction to particles of an aqueous sol dispersion of a metal, metal compound or polymer nuclei coated with a metal or metal compound, which particles have a size of at least 5 nm;
- (b) one or more additional immunochemical reagents of which at least one reagent is a ligand or an immobilized ligand, which ligand is selected from the group consisting of
 - (aa) a ligand capable of binding with the metal-labelled component (a);
 - (bb) a ligand capable of binding with a binding partner of the metal-labelled component (a);
 - (cc) a ligand capable of binding with at least one of the component(s) to be determined; and
 - (dd) a ligand capable of binding with at least one of the binding partners of at least one of the component(s) to be determined; and
- (c) directions for the performance of a protocol for the detection and/or determination of one or more components of an immunochemical reaction in an aqueous medium between a specific binding protein and a corresponding bindable substance thereto.

4,313,735

AUTOMATIC CHEMICAL ANALYZING METHOD AND APPARATUS

Katsuji Yamashita, Katsuta, and Yasushi Nomura, Mito, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

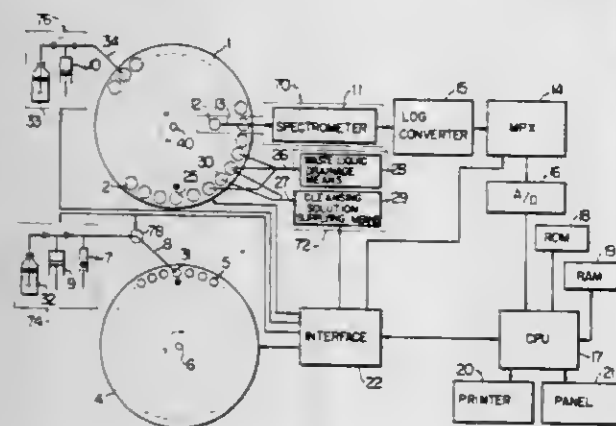
Filed Aug. 22, 1980, Ser. No. 180,476

Claims priority, application Japan, Aug. 22, 1979, 54/105904

Int. Cl.³ G01N 35/04, 35/06

U.S. Cl. 23—230 R

6 Claims



1. An automatic chemical analyzing method comprising a step of putting a sample and a reagent into at least specified one of a train of cuvettes to produce a reactant solution, said train of cuvettes being conveyed along a circular path;
- a step of conveying said train of cuvettes along said circular path each time reagent is added to a sample, and of causing all of said cuvettes to traverse the light beam in the light measuring apparatus placed in said circular path;
- a step of storing as a first measured value the value obtained

by measuring the light having passed through said specified cuvette filled with said reactant solution;

a step of draining said reactant solution out of said specified cuvette;

a step of pouring blank solution into said specified cuvette which was previously emptied during the period for which said specified cuvette is at rest;

a step of producing reactant solution in at least one of said cuvettes other than said specified cuvette during said period of said specified cuvette being at rest;

a step of conveying said train of cuvettes along said circular path each time blank solution is added, so that all the cuvettes may be caused to traverse said light path;

a step of storing as a second measured value the value obtained by measuring the light having passed through said specified cuvette filled with said blank solution; and

a step of displaying the concentration of any analysis item in said sample in accordance with the magnitude of the difference between said first and second measured values.

4,313,736

FIELD TEST FOR METHAQUALONE AND MECLOQUALONE

John F. Fischer, 2409 Oberlin Ave., Orlando, Fla. 32804, and Wayne A. Morris, 400 S. Edgemoo, Winter Springs, Fla. 32708

Filed Dec. 8, 1980, Ser. No. 214,128

Int. Cl.³ G01N 31/22, 33/15

U.S. Cl. 23—230 M

6 Claims

1. A method of indicating the presence of methaqualone or mecloqualone comprising the steps of:
 - adding a quantity of a formic acid solution of predetermined concentration to the sample;
 - adding a quantity of sodium nitrite solution, so that the ratio of formic acid to sodium nitrite is between 20 to 1 and 83 to 1 by weight;
 - adding a quantity of non-polar organic liquid sufficient to form two distinct layers, one of which primarily consists of the non-polar organic liquid; and
 - visually detecting a yellow color which is extracted in the non-polar organic liquid layer.

4,313,737

METHOD FOR SEPARATING UNDESIRABLE COMPONENTS FROM COAL BY AN EXPLOSION TYPE COMMUNUTION PROCESS

Lester G. Massey, Moreland Hills, Ohio; Robert I. Brabets, Lombard, and William A. Abel, Joliet, both of Ill., assignors to Consolidated Natural Gas Service, Cleveland, Ohio

Filed Mar. 6, 1980, Ser. No. 127,740

Int. Cl.³ C10L 9/08, 1/32

U.S. Cl. 44—1 C

42 Claims

1. A method for separating a porous hydrocarbonaceous solid containing an admixture of hydrocarbonaceous components and mineral components into a hydrocarbonaceous enriched fraction and a mineral enriched fraction which comprises
 - (a) comminuting the hydrocarbonaceous components of the hydrocarbonaceous solid selectively without substantially comminuting the mineral components therein under conditions sufficient to substantially scission the hydrocarbonaceous components from the mineral components and to produce a mixture of comminuted discrete hydrocarbonaceous particles in admixture with discrete mineral particles wherein the mean particle size of the comminuted hydrocarbonaceous particle is less than about 5 microns in diameter, and the mean particle size of the mineral particles both before and after comminution is substantially unchanged; and
 - (b) separating the resultant product.
4. A method according to claim 1 wherein the porous hydrocarbonaceous component is comminuted into a shattered prod-

uct having a volumetric mean particle size of less than about 5 microns in diameter, by

- (a) preparing a slurry of a liquid and the hydrocarbonaceous solid;
- (b) raising the pressure imposed on said slurry to a pressure above the critical pressure of the liquid to force liquid into the pores of the solid;
- (c) raising the temperature of the slurry to a temperature above the critical temperature of the liquid to convert the liquid into a supercritical fluid;
- (d) maintaining the slurry above the critical temperature and pressure of the liquid for a length of time sufficient to permit the supercritical fluid to substantially saturate the pores of the solid; and
- (e) substantially instantaneously reducing, in an expansion zone, the pressure imposed on said slurry to a second lower pressure to provide a pressure differential between the supercritical fluid within the solids and the surface of the solids sufficient to provide the shattered product.

4,313,738

SUBSTITUTED DIHYDRO OXAZINES AS HYDROCARBON ANTIOXIDANTS

Robert M. Parlman, and Lyle D. Burns, both of Bartlesville, Okla., assignors to Phillips Petroleum Co., Bartlesville, Okla.

Filed Apr. 14, 1980, Ser. No. 140,274

Int. Cl.³ C10L 1/14

U.S. Cl. 44—63

4 Claims

1. A hydrocarbon composition suitable as a fuel for combustion engines comprising a hydrocarbon fuel and an amount of substituted dihydro oxazine in the range of about 1 weight percent to about 0.0001 weight percent sufficient to stabilize said fuel against oxidative deterioration.

3. A method for stabilizing a hydrocarbon fuel for combustion engines comprising admixing with said hydrocarbon fuel an amount of substituted dihydro oxazine in the range of about 1 weight percent to about 0.0001 weight percent sufficient to stabilize said hydrocarbon fuel against oxidative deterioration.

4,313,739

REMOVAL OF CONTAMINANTS FROM GASES

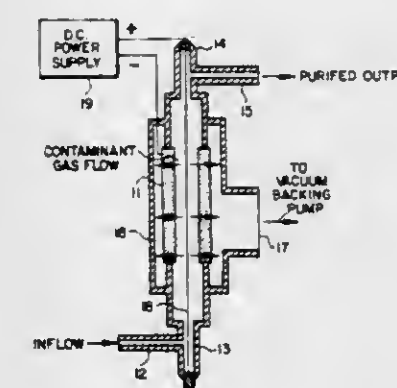
Diarmuid H. Douglas-Hamilton, Boston, Mass., assignor to Avco Everett Research Laboratory, Inc., Everett, Mass.

Continuation of Ser. No. 80,946, Oct. 1, 1979, abandoned. This application Oct. 27, 1980, Ser. No. 200,962

Int. Cl.³ B03C 3/00

U.S. Cl. 55—2

4 Claims



1. The method of selectively removing a first contaminant gas having a first ionization potential from admixture with a gaseous stream of a second gas having a second higher ionization potential and for selectively removing a first contaminant gas having a first electron attachment potential from admixture with a second gas having a second lower electron attachment potential, comprising:
 - (a) passing said admixture into an inlet end of an electrically

conductive pipe section having an outlet end and a plurality of small passages through its wall;

- (b) applying a DC voltage between said pipe section and a small diameter wire electrode centrally disposed in and extending at least substantially the length of said pipe section to produce an electrical field and a corona discharge therebetween, producing ionized molecules and attached electrons in said admixture;
- (c) permitting charge exchange between molecules of said admixture of gases whereby ionization is transferred to contaminant gas molecules of lower ionization potential and whereby attached electrons are transferred to contaminant gas molecules of higher electron attachment potential;
- (d) selecting polarity of said DC voltage so that said contaminant molecules are accelerated by said electric field to said wall of said pipe section where they are neutralized;
- (e) providing a reduced pressure exterior of and around said wall of said pipe section for removing from said pipe section through said small passages gas adjacent thereto in a volume forming a small percentage of said admixture and comprising said contaminant gas molecules neutralized at said wall; and
- (f) removing the remainder of said admixture through said outlet end of said pipe section as an admixture comprising essentially said second gas denuded of said first contaminant gas.

4,313,740

AIR FILTER

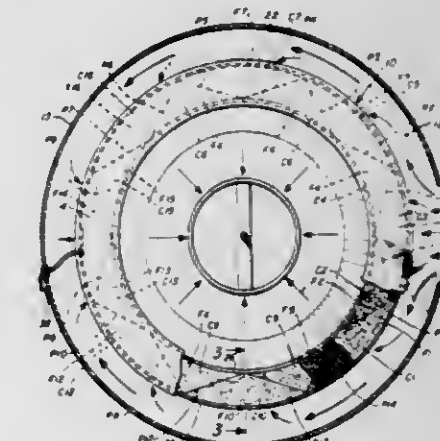
Calvin Kalishman, 5 Margaret Rd., Stoneham, Mass. 02180

Filed Dec. 8, 1980, Ser. No. 213,819

Int. Cl.³ B03C 3/00

U.S. Cl. 55—131

13 Claims



1. An air filter for filtering air to the carburetor of an internal combustion engine, comprising:
 - a toroidal-shaped housing having a bottom and inner and outer air-pervious side walls,
 - air cleaner housing means for supporting the toroidal-shaped housing defining with the housing a toroidal-shaped air passage adapted to extend about the outer side wall of the housing and having means defining an air inlet at one side of said housing and an outlet spaced from the inlet, said housing being positioned between the inlet and outlet,
 - and a plurality of replaceable adjacent cartridge filters located within said housing and each comprising a metal wool,
 - said filters each being of uniform density with different ones thereof having different porosity with the more dense filter disposed closer to the air inlet and the less dense filter disposed remote from the air inlet with said dense to less dense filters extending circumferentially,
 - whereby uniform air dispersion occurs through the filters, said air flow passing from the air inlet branching in a circular flow to either side of the housing,
 - said toroidal-shaped air passage having uniform width there-

about with uniformity of flow being attained by filter density variation.

4,313,741

ELECTRIC DUST COLLECTOR

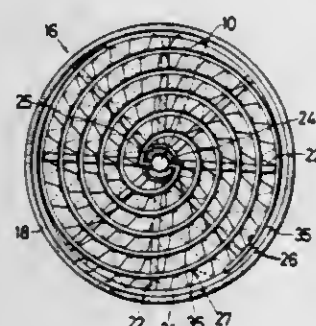
Senichi Masuda, 605 Nishigahara 1-chome, Kita-ku, Tokyo, Japan 114, and Naoki Sugita, 52-Izumi-cho, Itabashi-ku, Tokyo, Japan 174

Continuation-in-part of Ser. No. 39,206, May 15, 1979, abandoned. This application Jul. 21, 1980, Ser. No. 170,911
Claims priority, application Japan, May 23, 1978, 53-61426; May 23, 1978, 53-61427; Jul. 18, 1978, 53-87319; Jul. 28, 1978, 53-91560; Nov. 22, 1978, 53-161115[U]

Int. Cl.³ B03C 3/12, 3/45

U.S. Cl. 55-138

5 Claims



1. In an electric dust collector, including

(a) a case (9) having a longitudinal dust treatment travel path defined therein, with a dust-containing gas inlet (10) on one side of said travel path, a clean gas outlet (11) on the other side of said travel path, and, a dust collection zone having an input side at one end receiving dust-containing gas from said gas inlet and an output side at the other end to discharge clean gas through said gas outlet; the improvement in said dust collection zone comprising:

(b) a charging section (45) on said input side having a corona discharge wire means (42) at said one end and, electrode means (41) within said charging section (45) spaced from said corona discharge wire means (42) whereby gas from the gas inlet (10) passing through said corona discharge wire means (42) is electrically charged in said charging section (45);

(c) a particle collection section in said particle collection zone, intermediate said zone input side and said zone output side, disposed so as to be fed the charged gas which has passed through the charging section (45) said particle collection section having a plurality of particle attracting alternatively positioned parallel positive and negative electrodes, each consisting of a ribbon-like shaped insulating material having side edges, with an electrically conductive layer thereon, spaced from said side edges and of a width considerably narrower than that of the ribbon-like shaped insulating material so as to define insulating sections on both sides of said conductive layer;

(d) insulative spacing arrangement means positioned and arranged with respect to said insulating sections to provide air passage gaps between said electrodes; and,

(e) flame arrester net means (47) disposed on the output side to prevent the accidental propagation of fire to the outside of the dust collection zone.

4,313,742

MULTIPLE ANGLE SINGLE STAGE SCRUBBER

L. David Ostlie, Rte. 1, Becker, Minn. 55308

Continuation of Ser. No. 33,509, Apr. 26, 1979, abandoned. This application Jul. 10, 1980, Ser. No. 168,181

Int. Cl.³ B01D 47/06

U.S. Cl. 55-241

5 Claims

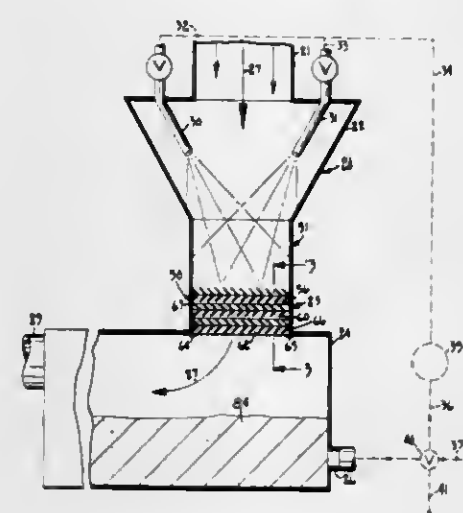
1. A scrubber for cleansing flue gases comprising, in combination:

a channel having a flue gas inlet adjacent an upper end of the channel and a flue gas outlet disposed below said inlet,

said channel extending generally vertically for guiding the flue gases downwardly from said inlet to said outlet; means in said channel for introducing scrubbing liquid into gas flowing downwardly in said channel whereby said liquid and gases flow generally downwardly concurrently;

a scrubber stage in said channel below the last-named means for causing intimate contact between the gases and the liquid, said scrubber stage comprising an array of deflecting means extending across said channel, said deflecting means including first and second rows of generally parallel, generally horizontal deflecting members of generally L-shaped cross-section;

mounting means for supporting said first row of members above said second row of members in a vertically spaced generally parallel relationship, with said members in mutually spaced generally parallel relation with the vertices of said members directed along a horizontal axis to which said members are transverse whereby a plurality of flow paths are defined by adjacent ones of said members;



each of said deflecting members of said first and second rows having an upper arm and a lower arm extending downwardly at an angle therefrom, adjacent pairs of said upper arms defining a flow inlet to a respective one of said flow paths and adjacent pairs of said lower arms defining a flow outlet from a respective one of said flow paths, an uppermost edge of each of said upper arms of said second row of deflecting members being disposed in an area between a vertical projection from a lowermost edge of adjacent lower arms of said first row of deflecting members whereby downwardly flowing gases and liquid exiting one of the flow paths defined by members of said first row are divided into two streams by one of said uppermost edges to enter the flow inlet on either side of said last-mentioned uppermost edge;

means below said scrubber stage for thereafter separating the liquid from the gases and said separating means having clean gas outlet means.

4,313,743

ELECTROLYTIC MOISTURE INDICATOR INSIDE CHEMICAL CARTRIDGES

Richard A. Wallace, 7304 SW, 53rd Ave., Portland, Ore. 97219

Filed Mar. 24, 1980, Ser. No. 132,854

Int. Cl.³ B01D 53/04

U.S. Cl. 55-275

3 Claims

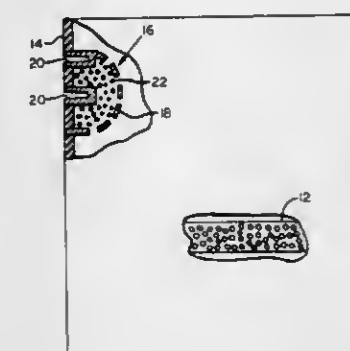
1. In combination with a walled container having an interior air space and a predetermined quantity of hygroscopic sorbent chemicals in said air space having a first predetermined affinity for moisture, an electrolytic moisture detection device for detecting the occurrence and degree of moisture intrusion within said container and comprising:

(a) an enclosure mounted in one of the walls of said container such that a portion of said enclosure extends into

said air space in spaced relation with said hygroscopic sorbent chemicals;

(b) said enclosure comprising perforated wall means which define a plurality of openings in said portion of said enclosure extending into said air space for permitting moisture to enter into said enclosure;

(c) a plurality of superhygroscopic salt particles contained in said enclosure, each having a cross section greater than that of said openings, a second predetermined affinity for



moisture greater than said first predetermined affinity and significantly high ohmic resistance when dry; and

(d) a pair of electrically conductive terminals mounted in said enclosure in spaced apart relation and electrically insulated from one another, both of said terminals engaging said particles and being positioned and arranged with respect to said one wall to thereby define means for coupling said device with a D.C. voltage source and terminal to the other through said particles.

4,313,744

METHOD AND DEVICE FOR AUTOMATICALLY FUSING OPTICAL FIBERS

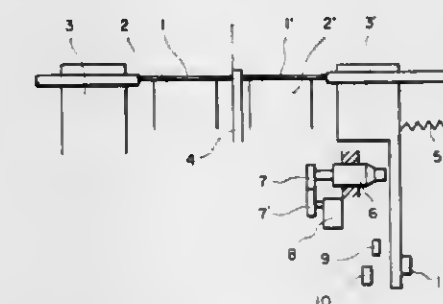
Yuichi Toda, Yokohama, Japan, assignor to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Apr. 11, 1980, Ser. No. 139,522

Int. Cl.³ C03B 23/20

U.S. Cl. 65-4.21

5 Claims



3. A method for fusing optical fibers in which optical fibers are held by fiber supporting stands and fiber holding stands, one fiber holding stand being movable and initially retained by lock means, the ends of said optical fibers initially held in abutment with both sides of a reference element, comprising the steps of: retracting said reference element; releasing said lock means to allow said movable fiber holding stand to move to a micrometer head; operating an electric motor to move said micrometer head backwardly to allow said movable fiber holding stand to move forwardly to a position in abutment with a first stop; retracting said first stop; starting a discharge heat source a predetermined period of time after retracting said first stop; moving said micrometer head further backwardly to allow said movable fiber holding stand to move forwardly to a second position in abutment with a second stop; stopping said discharge heat source; and returning said movable fiber holding stand, said reference element, said first stop and said micrometer head to their initial positions.

5. A method for fusing optical fibers in which optical fibers are held by fiber supporting stands and fiber holding stands,

one of said fiber holding stands being movable, the ends of said optical fibers initially held in abutment with both sides of a reference element, comprising the steps of: retracting said reference element; operating a pulse motor to move a micrometer head backwardly to allow said movable fiber holding stand to move to a first predetermined position; starting a discharge heat source a predetermined period of time after said movable fiber holding stand has reached said first predetermined position; moving said micrometer head further backwardly by operation of said pulse motor to allow said movable fiber holding stand to move forwardly to a second predetermined position; stopping said discharge heat source; and returning said movable fiber holding stand, said reference element and said micrometer head to their initial positions.

4,313,745

METHOD OF FORMING FROZEN SPHERES IN A FORCE-FREE DROP TOWER

Alan M. Lovelace, Acting Administrator of the National Aeronautics and Space Administration, with respect to an invention of, and James M. Kendall, Jr., Pasadena, Calif.

Filed Dec. 24, 1980, Ser. No. 219,680

Int. Cl.³ C03B 19/10

U.S. Cl. 65-21.4

6 Claims



1. A method of forming solid spheres from a hardenable liquid material, the steps comprising:

A. establishing a flowing stream of gaseous fluid with said stream flowing in a substantially vertical downward direction;

B. introducing droplets of hardenable liquid material into said stream with the droplets accelerating in the direction of said stream and at a common rate of acceleration with said stream, which rate is substantially one-G; and

C. cooling said droplets a sufficient amount within said stream to harden said droplets.

4,313,746

PROCESS FOR MAKING FORMED GLASS FROM PLATE GLASS

Karl-Heinz Juras, Mainz-Mombach, Fed. Rep. of Germany, assignor to Jenaer, Glaswerk, Schott & Gen., Fed. Rep. of Germany

PCT No. PCT/DE79/00076, § 371 Date Apr. 3, 1980, § 102(e) Date Apr. 3, 1980, PCT Pub. No. WO80/00336, PCT Pub. Date Mar. 6, 1980.

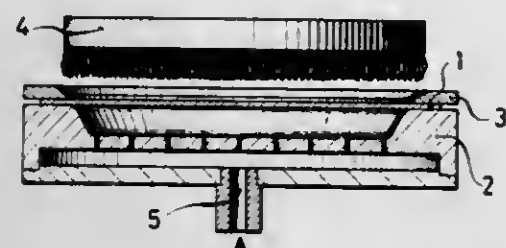
PCT Filed Jul. 21, 1979, Ser. No. 193,409

Claims priority, application Fed. Rep. of Germany, Aug. 9, 1978, 2834867

Int. Cl.³ C03B 23/025

U.S. Cl. 65—25.4

6 Claims



1. A process for making formed glass from plate glass, wherein a cut-to-size piece of plate glass is heated and lowered into a mold, and wherein during the heating, the softening piece of plate glass is prevented from lowering itself, the improvement consisting in that the piece of plate glass, during the heating, is carried by a gas cushion at super-atmospheric pressure, and that thereafter the lowering of the softened piece of plate glass is accelerated by using a vacuum in the hollow space between the mold and the piece of plate glass.

4,313,747

PROCESS FOR MAKING GLASS WITH AGGLOMERATED REFINING AGENTS

James L. Barton, Paris, France, assignor to Societe Generale pour l'Emballage, Paris, France

Filed May 16, 1980, Ser. No. 150,582

Claims priority, application France, May 17, 1979, 79 12572

Int. Cl.³ C03B 1/00

U.S. Cl. 65—27

12 Claims

1. In the process for making glass in which a refining agent comprising a mixture of metal sulfates and reducing agents is dispersed uniformly throughout the vitrifiable charge of glass-making raw materials prior to melting the charge, and in which the vitrifiable charge is heated to melt the charge and to cause the refining agent to evolve gases which enlarge bubbles of other gasses and remove them from the molten glass as the bubbles rise upwardly in the molten glass to escape therefrom at the upper surface thereof;

the improvement which comprises employing as the refining agent finely-divided particles of metal sulfate and a reducing agent having a particle size of less than about 0.1 mm, the finely-divided particles of metal sulfate and reducing agent being intimately mixed together and formed into agglomerates at least 10 times greater in size than the average particle size of their constituent materials, and wherein the relative amounts of reducing agent and metal sulfate in the agglomerates is such that the reducing agent can reduce at least one-fourth of the sulfate ions (SO_4^{2-}) to the state of sulfide ions (S^{2-}), and wherein the amount of refining agent added to the vitrifiable charge of glass-making raw materials is such that the amount of created sulfide, expressed as SO_3 , is at least 0.05% by weight of the glass to be obtained.

4,313,748

METHOD FOR PRODUCING A STRENGTHENED GLASS STRUCTURAL MEMBER

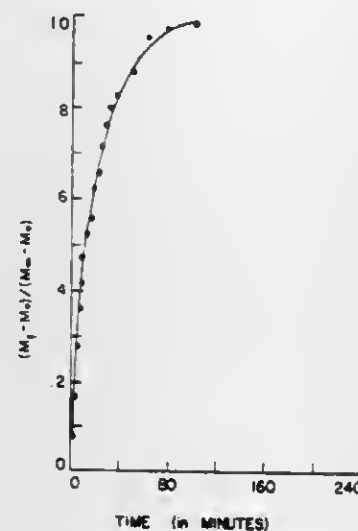
Pedro B. Macedo, 6100 Highboro Dr., Bethesda, Md. 20034, and Theodore A. Litovitz, 904 Devere Dr., Silver Spring, Md. 20903

Division of Ser. No. 917,101, Jun. 19, 1978, Pat. No. 4,220,682, which is a division of Ser. No. 635,727, Nov. 26, 1975, Pat. No. 4,110,096, which is a continuation-in-part of Ser. No. 462,481, Apr. 22, 1974, Pat. No. 3,938,974, and Ser. No. 559,512, Mar. 18, 1975, abandoned, said Ser. No. 462,481, is a continuation-in-part of Ser. No. 355,164, Apr. 27, 1973, abandoned. This application Feb. 25, 1980, Ser. No. 123,979

Int. Cl.³ C03B 32/00; C03C 17/10, 17/25

U.S. Cl. 65—30.1

2 Claims



1. Process for producing a rigid glass product which comprises washing a porous silicate glass with sodium hydroxide, then immersing the washed porous silicate glass in a liquid solution of a dopant in a liquid solvent therefor to stuff the pores of said washed glass with said solution, subsequently removing said solvent from said pores and thereafter heating to collapse said pores.

4,313,749

METHOD FOR MAKING LIGHTWEIGHT MIRROR FACESHEETS

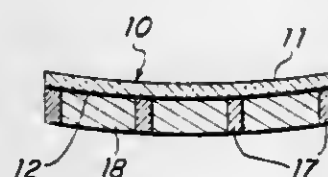
Robert L. Milamed, Swampscott, Mass., assignor to Itek Corporation, Lexington, Mass.

Filed May 27, 1980, Ser. No. 153,518

Int. Cl.³ C03C 27/04

U.S. Cl. 65—43

8 Claims



1. A method for making lightweight mirrors comprising:
a. providing a mirror means, said mirror means including a front reflective surface and a back surface,
b. metallizing a precise pattern on the back surface of said mirror means, and
c. soldering support structure to said mirror means at said metallized pattern.
5. A method for making glass lightweight mirror facesheets for active mirror systems comprising:
a. providing a thin mirror member;
b. metallizing a precise pattern on the back surface of said mirror member, and
c. soldering stiffening ribs to said mirror member at said metallized pattern.

4,313,750

ELECTRONICALLY CONTROLLED ROBOT FOR HANDLING GLASSWARE

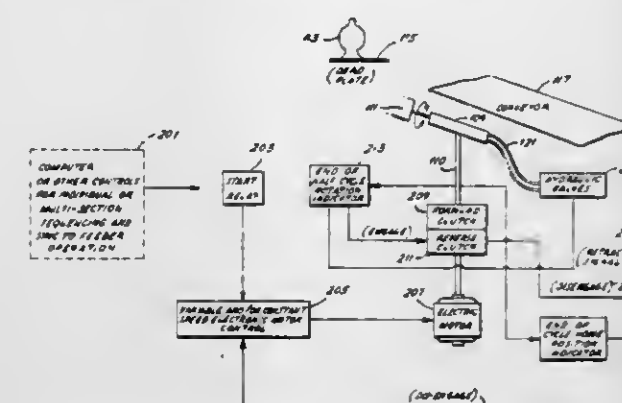
Donald A. Lulejian, Cornwells Heights; Alphonse W. Faure, Warminster, and Eugene F. Fijalkowski, Philadelphia, all of Pa., assignors to CSS International Corporation, Philadelphia, Pa.

Filed Sep. 12, 1980, Ser. No. 186,440

Int. Cl.³ C03B 9/40

U.S. Cl. 65—160

58 Claims



1. A camless electronic glassware conveyor delivery apparatus (GCDA) having pushout robot means being in operative association with glassware forming apparatus having at least one synchronous operation point, comprising:
camless electronic means responsive to said synchronous point for electronically controlling said pushout robot rotational operation including a digital stepping motor operatively coupled to rotate said pushout robot, said motor speed being varied with pulse signals which vary according to a stored program; and
means for electronically altering said pushout robot rotational operation by changing said stored program, said altering means being connected to said controlling means.

4,313,751

MOLD WITH EXTERIOR HEAT CONDUCTING ELEMENTS

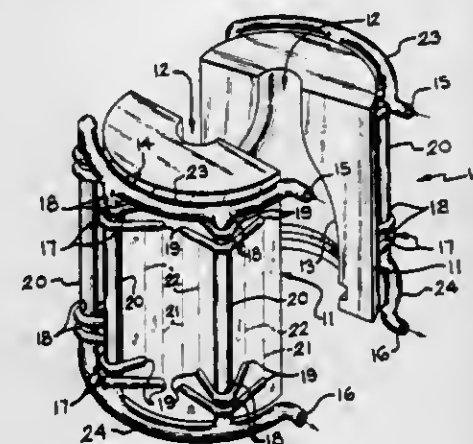
Julius J. Torok, 3411 Kingsgate Blvd., Toledo, Ohio 43606

Filed Feb. 19, 1981, Ser. No. 235,923

Int. Cl.³ C03B 9/38, 11/12

U.S. Cl. 65—267

14 Claims



1. In a mold having a heat dissipating surface and a forming surface in heat transfer communication with the heat dissipating surface, the improvement of a conduit exterior of and spaced from the mold and a plurality of heat conducting elements mounted spaced from one-another along the length of the conduit, and extending to the surface of the mold each of which is in heat transfer communication with said conduit and with a portion of the heat dissipating surface, each of said elements being of such size, shape and material, and being so situated with respect to heat transfer from the heat dissipating surface that, when the mold is in service and a heat transfer

fluid is circulated through said conduit, heat transfer from the heat dissipating surface, through said heat conducting elements and to the conduit maintains each segment of the forming surface at a predetermined temperature.

4,313,752

2,2-DIMETHYLVALERIC ACID FOR GROWTH ENHANCEMENT OF SUGARCANE

Sidney R. Siemer, Fresno, Calif., assignor to W. R. Grace & Co., New York, N.Y.

Filed Aug. 26, 1980, Ser. No. 181,731

Int. Cl.³ A01N 37/00

U.S. Cl. 71—27

8 Claims

1. A process for enhancing growth in sugarcane plants which comprises applying to the plant, 2,2-dimethylvaleric acid at a dosage rate per acre of 1 to 10 lbs.

4,313,753

PROCESS FOR PRODUCING POTASSIUM SILICATE FERTILIZER AND APPARATUS FOR PRACTICING SAID PROCESS

Hiroshi Segawa, Tokyo, and Katsufumi Akizuki, Yokohama, both of Japan, assignors to Denpatsu Fly Ash Company, Tokyo, Japan

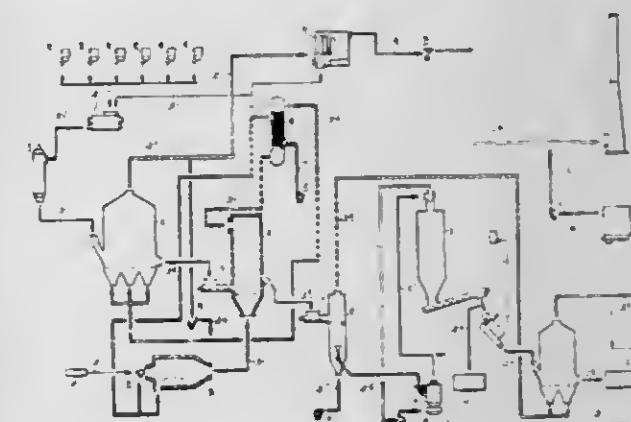
Filed Jun. 13, 1979, Ser. No. 48,121

Claims priority, application Japan, Jun. 13, 1978, 53-70380; Oct. 9, 1978, 53-123668

Int. Cl.³ C05D 1/00

U.S. Cl. 71—61

41 Claims



1. A process for producing citric acid soluble potassium silicate fertilizer, said process comprising:
(a) forming a mixture comprising a solution of caustic potash as a binder, potassium carbonate, fly ash and pulverized coal;
(b) kneading said mixture by means of a continuous kneader;
(c) forming the resulting kneaded mixture into granules by means of an extruder;
(d) drying said granules to a state of substantially absolute dryness by means of a fluidized dryer; and
(e) calcining the resulting dried granules by means of a fluidized calcining furnace in order to chemically react the potassium with silicon present in said fly ash and thereby form a citric acid soluble potassium silicate;
(f) cooling the product resulting from said fluidized calcining furnace by means of a high speed cooling device; and
(g) pulverizing said product into powder by means of a pulverizer.

4,313,754

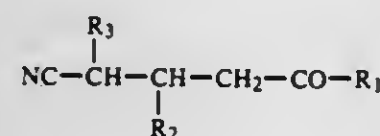
POLYSUBSTITUTED BUTANOIC ACIDS, ESTERS AND DERIVATIVES THEREOF UTILIZING THE SAME AS HERBICIDES

Stephen S. Szucs, Trenton, N.J., assignor to American Cyanamid Company, Stamford, Conn.
Division of Ser. No. 903,379, May 5, 1978, Pat. No. 4,224,052.
This application Jan. 28, 1980, Ser. No. 115,838
Int. Cl.³ A01N 43/40

U.S. Cl. 71-94

4 Claims

1. A method for the control of undesirable monocotyledonous and dicotyledonous plant species comprising applying to the foliage and stems of said plants or to soil containing seeds or other propagating organs of said plants, a herbicidally effective amount of a compound of the formula:



wherein R₁ is OH, OR₄, NR₅R₆ or OM; R₂ and R₃ are each phenyl, monohalophenyl or pyridyl, provided that when R₂ is phenyl or monohalophenyl R₃ is pyridyl and when R₂ is pyridyl R₃ is phenyl or monohalophenyl; R₄ is alkyl C₁-C₈, monohaloalkyl C₁-C₄, monohaloalkenyl C₃-C₄, monohaloalkenyl C₃-C₄, alkoxy C₁-C₄ alkyl C₁-C₄ or hydroxyalkenyl C₂-C₄; R₅ and R₆ are each independently H or alkyl C₁-C₂; M is an alkali metal, ammonium, C₁-C₈ mono- or di-alkylammonium or hydroxyethylammonium.

4,313,755

N-CYCLOPYROPYL-N-(FLUOROPHENYL)-N-ACYLUREAS AND THEIR HERBIDICAL USE

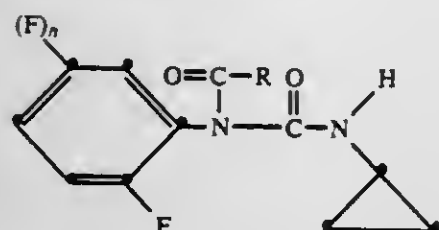
Kurt H. Pilgram, Modesto, Calif., assignor to Shell Oil Company, Houston, Tex.

Continuation-in-part of Ser. No. 170,421, Jul. 21, 1980, abandoned. This application Feb. 2, 1981, Ser. No. 230,777
Int. Cl.³ E05B 63/14; C07C 127/22

U.S. Cl. 71-120

3 Claims

1. A compound of the formula:



wherein n is zero or one and R is hydrogen or methyl.

4,313,756

PROCESS FOR UPGRADING IRON ORE PELLETS

Kazuo Kiyonaga, Tarrytown, N.Y., assignor to Union Carbide Corporation, New York, N.Y.
Continuation-in-part of Ser. No. 712,138, Aug. 6, 1976, abandoned. This application Dec. 19, 1977, Ser. No. 862,203
The portion of the term of this patent subsequent to Feb. 2, 1999, has been disclaimed.

Int. Cl.³ C22B 1/14

U.S. Cl. 75-3

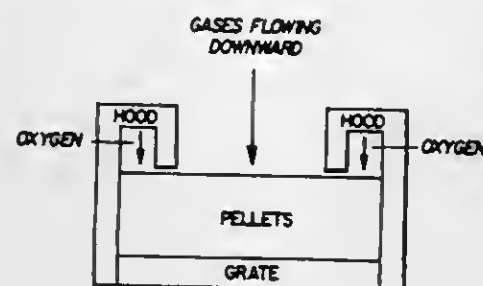
3 Claims

1. In a process for hardening oxidizable green iron ore pellets in a closed grate-kiln furnace adapted therefor, said process comprising passing the grate with a bed of pellets thereon along a horizontal path through the furnace to dry and preheat the pellets and then introducing the pellets into the kiln to undergo additional heating and induration, all by contact with hot gases, said grate passing through a preheating zone in which the average pellet temperature in the bed is in the range of about 1100° F. to about 2200° F. and in which zone the flow

of gases is in a downward direction towards the bed of pellets on the grate,

the improvement comprising:

(a) covering the periphery of at least part of the zone with at least two hoods to provide a hooded area on each side of the top of the grate under which the periphery of the grate passes, the distance between the inner edges of the periphery of the grate, as measured horizontally from inner edge to inner edge across the width of the grate along a line perpendicular to the path of the grate, being at least about



4 feet, and the hoods being located below the theoretical midpoint between the top of the pellet bed and the roof of the furnace; and

(b) passing at least one gas stream consisting essentially of oxygen within each hooded area in such a manner that the stream flows in a downward direction towards and through the periphery of the bed of pellets on the grate passing through the hooded areas, the amount of oxygen being in excess of that theoretically required to convert any magnetite in the periphery to hematite.

4,313,757

PROCESS FOR UPGRADING IRON ORE PELLETS

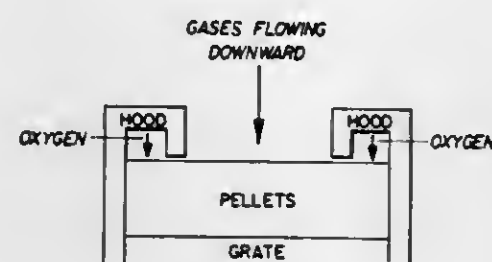
Kazuo Kiyonaga, Tarrytown, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 712,137, Aug. 6, 1976, abandoned. This application Dec. 19, 1977, Ser. No. 862,202
The portion of the term of this patent subsequent to Feb. 2, 1999, has been disclaimed.

Int. Cl.³ C22B 1/14

U.S. Cl. 75-3

3 Claims



1. In a process for hardening oxidizable green iron ore pellets in a closed horizontal grate or a circular grate furnace adapted therefor, said process comprising passing the grate with a bed of pellets thereon along a horizontal path through the furnace wherein said pellets are heated by contact with hot gases, the furnace having a zone in, or downstream of, the area where the peak temperature of the furnace is attained, in which zone the average pellet temperature is in the range of about 1100° F. to about 2200° F. and in which zone the flow of gases is in a downward direction towards the pellets on the grate the improvement comprising:

(a) covering the periphery of at least part of the zone with at least two hoods to provide a hooded area on each side of the top of the grate under which the periphery of the grate passes, the distance between the inner edges of the periphery of the grate, as measured horizontally from inner edge to inner edge across the width of the grate along a line perpendicular to the path of the grate, being at least about

4 feet, and the hoods being located below the theoretical midpoint between the top of the pellet bed and the roof of the furnace; and

(b) passing at least one gas stream consisting essentially of oxygen within each hooded area in such a manner that the stream flows in a downward direction towards and through the periphery of the bed of pellets on the grate passing through the hooded areas, the amount of oxygen being in excess of that theoretically required to convert any magnetite in the periphery to hematite.



4,313,758

METHOD FOR ADDING UNALLOYED MAGNESIUM METAL TO MOLTEN CAST IRON

William A. Henning, Lewiston, and Henry F. Linebarger, Amherst, both of N.Y., assignors to Union Carbide Corporation, New York, N.Y.

Filed Oct. 1, 1980, Ser. No. 192,702

Int. Cl.³ C22C 33/08

U.S. Cl. 75-130 R

4 Claims

1. A method for adding magnesium to a molten base iron which comprises preparing a blended mixture consisting essentially of unalloyed magnesium metal suitably sized about 1/4" and finer with ferrosilicon base alloy suitably sized to 3/4" and finer; placing blended mixture in a suitable container; and plunging said container beneath molten base iron, the amount of unalloyed magnesium metal in said mixture being from about 4% to 40% by weight of the weight of said ferrosilicon base alloy and unalloyed magnesium.

4,313,759

WEAR RESISTANT ALUMINIUM ALLOY

Derek Raybould, Preverenges, Switzerland, assignor to Institut Cerac S.A., Ecublens, Switzerland

Filed Jul. 16, 1980, Ser. No. 169,317

Claims priority, application Sweden, Jul. 16, 1979, 7906128

Int. Cl.³ B22F 3/00

U.S. Cl. 75-249

8 Claims

1. A wear resistant alloy of aluminium and iron-based material comprising iron-based powder particles in a matrix of aluminium powder particles, said powder particles being compacted, characterized thereby that the interparticle bonds have been produced by a shock wave pressure pulse, the rise time of which is sufficiently short to cause melting of the surface regions only of the aluminium particles whereby the particles are welded together into a strong solid body, said surface regions being rapidly cooled by the rest of the particles during the duration of said pressure pulse whereby chemical reactions between the iron-based and aluminium particles are avoided, and that the content of iron-based material is from 10% to 60% by volume.

4,313,760

SUPERALLOY COATING COMPOSITION

Louis E. Dardi, and Srinivasan Shankar, both of Muskegon, Mich., assignors to Howmet Turbine Components Corporation, Muskegon, Mich.

Continuation-in-part of Ser. No. 43,146, May 29, 1979, abandoned. This application Aug. 16, 1979, Ser. No. 67,097
Int. Cl.³ B22F 1/00

U.S. Cl. 106-1.12

10 Claims

1. A coating composition for application to nickel, cobalt, and iron base superalloys consisting essentially by weight of from 10 to 50% chromium, 3 to 15% aluminum, up to 1.5% tungsten, 1 to 15% of a metal mixture, and the balance selected from the group consisting of nickel, cobalt and iron, and com-

binations thereof, said metal mixture consisting essentially of at least 20% by weight tantalum and the balance manganese, said

coating containing at least about 0.5% by weight tantalum and at least about 0.5% by weight manganese.

4,313,761

REACTION PRODUCTS OF METAL OXIDES AND SALTS WITH PHOSPHORUS COMPOUNDS

Samuel F. Joyce, III, Ballwin, Mo.; Albert W. Morgan, Collinsville, Ill.; Norman W. Touchette, and William Vanderlinde, both of St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

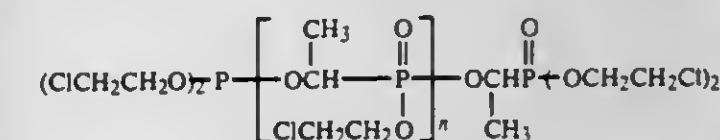
Division of Ser. No. 88,308, Oct. 25, 1979, Pat. No. 4,260,542, which is a division of Ser. No. 898,590, Apr. 21, 1978, Pat. No. 4,206,133, which is a division of Ser. No. 724,192, Sep. 17, 1976, Pat. No. 4,133,823, which is a continuation-in-part of Ser. No. 553,947, Feb. 28, 1975, abandoned, which is a continuation of Ser. No. 223,295, Feb. 3, 1972, abandoned. This application Oct. 24, 1980, Ser. No. 200,115

Int. Cl.³ C08K 5/59, 5/53

U.S. Cl. 106-18.19

10 Claims

1. A composition comprising a natural polymer and a reaction product of a phosphite/phosphonate of the formula



wherein n has a value from 0 to 4 and a compound selected from the group consisting of a metal oxide and a metal salt.

4,313,762

METHOD OF WASTING FLY ASH AND PRODUCT PRODUCED THEREBY

Joseph H. Pound, Mt. Prospect, Ill., assignor to American Fly Ash Company, Des Plaines, Ill.

Filed Oct. 10, 1978, Ser. No. 949,659

Int. Cl.³ C04B 7/12

U.S. Cl. 106-85

9 Claims

1. In an environmentally acceptable method of disposing of fly ash, the steps of conveying fly ash in a dry condition from a source location to a processing installation, forming a pumpable slurry at the processing installation, said pumpable slurry consisting of fly ash and water, said water content lying in the range of from no less than about 25% to no more than about 50% of weight of water to weight of dry fly ash, said slurry further having the characteristic of being pumpable for a distance of up to several thousand feet, depositing the fly ash-water slurry into a disposal site having wall means which contain the slurry until set up occurs, said disposal site being exposed to ambient air and ground environmental conditions, and hardening the slurry at the disposal site by subjection of said slurry to said conditions.

4,313,763

CEMENT COMPOSITIONS CONTAINING SELF-SETTING POZZOLANS

Raymond C. Turpin, Jr., 3825 Wieuca Ter., NW., Atlanta, Ga. 30342

Continuation-in-part of Ser. No. 120,838, Feb. 12, 1980, Pat. No. 4,256,500, which is a continuation of Ser. No. 899,699, Apr. 24, 1978, abandoned, which is a continuation-in-part of Ser. No. 823,321, Aug. 11, 1977, abandoned, which is a continuation-in-part of Ser. No. 721,050, Sep. 7, 1976, abandoned. This application Oct. 29, 1980, Ser. No. 201,725 Int. Cl.³ C04B 7/02

U.S. Cl. 106—88

49 Claims

1. A cement composition consisting essentially of a portland cement, at least one self-setting pozzolan material, a fine aggregate, air, water, at least one alkali metal constituent selected from the group consisting of sodium, potassium and lithium ions, at least one anionic constituent, selected from the group consisting of chloride, bromide, nitrite, thiocyanate, cyanate and lactate, which is soluble in water and forms a calcium salt which is also soluble in water, and at least one water soluble oxide of boron compound, wherein:

- said alkali metal constituent is present in an amount up to approximately 4.0 percent by weight, in terms of the equivalent weight of said sodium ions, of said self-setting pozzolan material;
 - said anionic constituent is present in an amount up to approximately 6.0 percent by weight, in terms of the equivalent weight of chloride ions, of said self-setting pozzolan material;
 - said water soluble oxide of boron compound is present in the range of about 0.01 to 2.0 percent by weight, in terms of the equivalent weight of boron ions, of said self-setting pozzolan material; and
- said cement composition being further characterized by:
- having a solid volume ratio of said portland cement to said self-setting pozzolan material within a range of approximately 0.05 to 2.0;
 - having a ratio of the volume of a paste, comprising said self-setting pozzolan material, said portland cement, said air and said water, to the solid volume of said fine aggregate within the range of approximately 0.75 to 2.5; and
 - having a ratio of the solid volume of said portland cement to the volume of said cement composition of less than about 0.19.

4,313,764

ISOCYANATE POLYOXYALKYLENES

David J. Tracy, Lincoln Park; Lindley S. Wood, Montclair, and Paritosh M. Chakrabarti, Wayne, all of N.J., assignors to GAF Corporation, New York, N.Y.

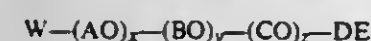
Filed Jul. 31, 1980, Ser. No. 174,047

Int. Cl.³ C08L 1/12, 33/20, 77/06; D06M 13/42

U.S. Cl. 106—188

1 Claim

1. The process of increasing the hydrophilicity of an hydrophobic polymeric material by incorporating in said material between about 0.01 and about 10 weight percent of an isocyanate of polyoxyalkylene product having the formula:



wherein E is amino or —W; W is an isocyanate radical; A, C and D represent lower alkylene of 2 to 4 carbon atoms; B is alkylene of 2 to 8 carbon atoms; y and z are each integers having a value of from 0 to 50; x is an integer having a value of from 2 to 50; and intermixtures of said isocyanate polyoxyalkylene compounds.

4,313,765

SYNERGISTIC BLENDS OF CELLULOSE-FREE XANTHAN GUM AND CELLULOSICS

John K. Baird, San Diego; Paul A. Sandford, Del Mar, and Jaewon L. Shim, San Diego, all of Calif., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Sep. 24, 1980, Ser. No. 190,546

Int. Cl.³ C09L 1/28, 5/00

U.S. Cl. 106—197 C

4 Claims

1. A 1:1 (weight basis) blend composition of cellulase-free xanthan gum and either carboxymethylcellulose, hydroxyethylcellulose or hydroxypropylmethylcellulose.

4,313,766

PROCESS FOR THE PRODUCTION OF A PIGMENT COMPOSITION

Ronald Barraclough, Johnstone, and Robert Langley, Glasgow, both of Scotland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed May 27, 1980, Ser. No. 153,646

Claims priority, application United Kingdom, Jun. 1, 1979, 19198/79

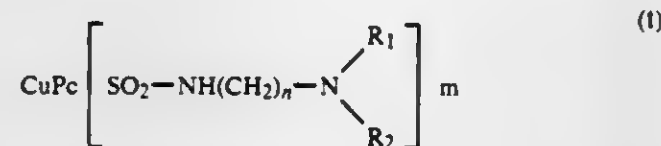
Int. Cl.³ C08K 5/34; C09B 47/04

U.S. Cl. 106—288 Q

8 Claims

1. A process for the production of a pigment composition comprising:

- milling a crude copper phthalocyanine blue pigment in the presence of 0–50%, by weight of milled material, of a salt; and
- subsequently treating the milled material with from 0.5 to 20 parts by weight of the pigment in step (a) of a polar aliphatic solvent in the presence of 0.5 to 4 parts by weight of an aliphatic carboxylic acid having 1 to 10 C atoms, based on the weight of the additive in step (c); whereby
- 8 to 12% by weight based on crude pigment of a non-flocculating copper phthalocyanine additive of the formula I



wherein CuPc is the residue of copper phthalocyanine, m and n are each an integer of from 1 to 4, and R₁ and R₂ are each an optionally substituted alkyl group, or R₁ and R₂, together with the N atom to which they are bonded, form a heterocycle, is added to the crude milled pigment prior to, during or after the solvent treatment of step (b); and, (d) by the addition to the mixture obtained after removal of the solvent, of an amount of a base sufficient to give a pH 6–12, and subsequently filtering and drying the pigment composition is then isolated.

4,313,767

METHOD AND APPARATUS FOR CLEANING CONTAINERS WITH AN IONIZED GAS BLAST

Lester E. Bemis, Schaumburg; Charles M. Kincaid, Elgin, both of Ill., and Hugh L. White, Warrenton, Mo., assignors to American Can Company, Greenwich, Conn.

Continuation-in-part of Ser. No. 100,196, Dec. 4, 1979, abandoned. This application Sep. 2, 1980, Ser. No. 183,589

Int. Cl.³ B08B 5/02, 9/08

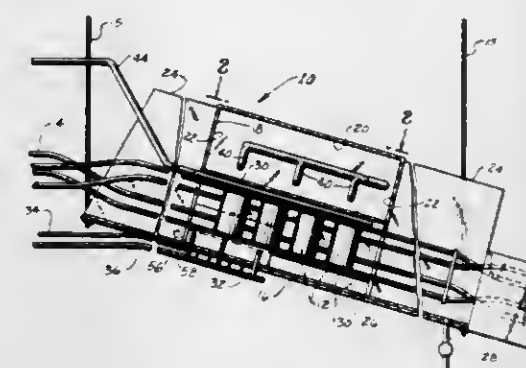
U.S. Cl. 134—1

12 Claims

1. A method for cleaning particulate matter from the interior of hollow container bodies open at one end and closed at the other, comprising the steps of:

- establishing a corridor by providing two parallel pressurized fluid curtains;
- moving said container bodies open end down along said corridor between said pressurized curtains;

- subjecting the interior of said container bodies to an upwardly disposed blast of ionized gas to purge said particulate matter from said container bodies;
 - entraining said expelled particulate matter in a liquid spray mist;
- such that the coating formed from said solution has an improved tendency to resist being discolored by hot water.



- condensing said mist to form a waste stream which includes said entrained particulate matter; and
- collecting and discharging said waste stream.

4,313,768

METHOD OF FABRICATING IMPROVED RADIATION HARDENED SELF-ALIGNED CMOS HAVING SI DOPED AL FIELD GATE

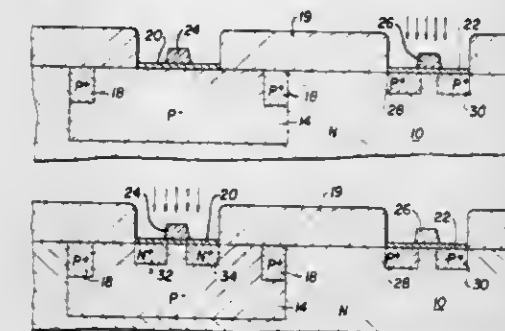
Thomas J. Sanders, and William H. White, both of Indialantic, Fla., assignors to Harris Corporation, Melbourne, Fla.

Filed Apr. 6, 1978, Ser. No. 893,929

Int. Cl.³ H01L 21/225, 7/00

U.S. Cl. 148—1.5

10 Claims



- In a method of fabricating CMOS devices including forming source and drain regions in a first region of a first conductivity type and in a substrate of a second conductivity type opposite said first conductivity type using gates formed on gate oxides over portions of said first region and said substrate as masks, the improvement comprising:
 - forming said gate by a low temperature process on said gate oxide of a metal doped with the same semiconductor material as said substrate, and
 - forming said source and drain regions using said gates as masks by ion implantation and low temperature annealing.

4,313,769

COATING SOLUTION FOR METAL SURFACES

Frank J. Frelia, Norristown; Timm L. Kelly, Orelana, and Anthony J. Malloy, Willow Grove, all of Pa., assignors to Amchem Products, Inc., Ambler, Pa.

Filed Jul. 3, 1980, Ser. No. 165,734

Int. Cl.³ C23F 7/06

U.S. Cl. 148—6.27

34 Claims

1. An acidic aqueous coating solution which is effective in forming a non-resinous, non-chromate, corrosion-resistant coating on an aluminum surface, said solution consisting essentially of a metal selected from the group consisting of zirconium, titanium and hafnium and mixtures of two or more of said metals, said metal being present in an amount of at least about 0.5×10^{-3} m/l, fluoride in an amount at least sufficient to combine with all of said metal, and surfactant in an amount

4,313,770

METHOD OF PRODUCING COLD ROLLED STEEL STRIP HAVING IMPROVED PRESS FORMABILITY AND BAKE-HARDENABILITY

Masashi Takahashi, Kawanishi, and Atsuki Okamoto, Ashiya, both of Japan, assignors to Sumitomo Metal Industries, Ltd., Osaka, Japan

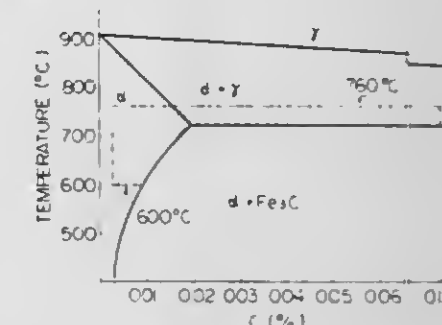
Filed Jun. 13, 1980, Ser. No. 159,346

Claims priority, application Japan, Jun. 28, 1979, 54-82510; Jun. 28, 1979, 54-82511

Int. Cl.³ C21D 9/46, 9/48

U.S. Cl. 148—12 C

7 Claims



1. A method of producing a cold rolled steel strip having improved press formability and bake-hardenability, in which the steel consists essentially of:

- C: 0.003–0.150%,
 Si: not more than 1.50%,
 Mn: 0.03–0.25%,
 P: 0.03–0.20%,
 sol. Al: 0.02–0.15%, N: 0.002–0.015%,
 balance being iron and incidental impurities comprising hot rolling, pickling, cold rolling, then passing the resulting steel strip to a box annealing furnace in which the steel strip is subjected to recrystallization annealing by heating it at a temperature lower than 760° C. but higher than the recrystallization temperature of the steel in a steel composition area comprised of a single phase of ferrite or a dual phase of ferrite plus austenite in the Fe-C binary phase diagram and cooling it in the temperature range of from 500° C. to 200° C. at an average cooling rate of 10°–250° C./hr. and then temper rolling the annealed steel strip.

4,313,771

LASER HARDENING OF STEEL WORK PIECES

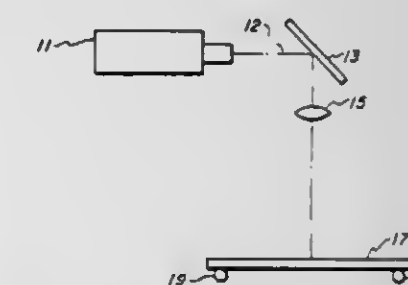
Roberto Lorenzo, Penfield, and Frank J. Wolf, Rochester, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Feb. 29, 1980, Ser. No. 125,819

Int. Cl.³ C21D 1/06

U.S. Cl. 148—14

8 Claims



1. A method of heat treating the surface of carbon steel work pieces which comprises blackening the surface of the steel work piece by a blackening composition containing an alkali metal hydroxide, and an alkali metal nitrate or an alkali metal nitrite, so that at least 65% of the light emitted by a CO₂ laser is absorbed thereby, and directing a CO₂ laser beam having a

power output ranging from about 450 watts to about 600 watts at the surface of the work piece for a time sufficient to raise the surface temperature into the gamma range.

4,313,772

CONTINUOUS HEAT-TREATMENT PROCESS FOR STEEL STRIP

Philippe A. Paulus, Liege, Belgium, assignor to Centre de Recherches Metallurgiques-Centrum voor Research in de Metalurgie, Brussels, Belgium

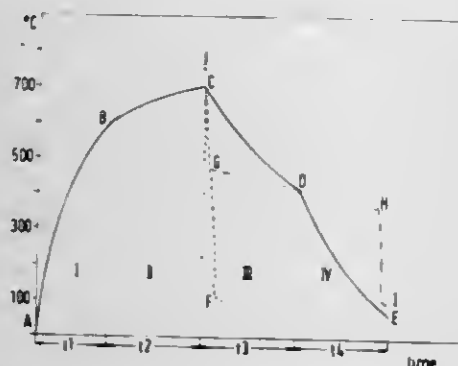
Filed May 23, 1978, Ser. No. 908,684

Claims priority, application Belgium, May 24, 1977, 854999

Int. Cl.³ C21D 1/18, 9/52

U.S. Cl. 148—142

2 Claims



1. A process for the continuous heat treatment of a cold-rolled steel strip, having a thickness of about from 0.05 to 1.0 mm for subsequent use in the production of tin plate of a class of hardness higher than T₄, comprising the sequential steps of heating said strip to a temperature within the range of about from 705° C. to 850° C., holding the strip at this temperature for more than one second, subjecting the resulting strip to a cooling operation comprising quenching the strip in an aqueous bath kept at a temperature higher than 75° C. for a time duration of less than 10 seconds, the strip emerging from the aqueous bath at a temperature of about from 75° C. to 300° C., holding the strip at a temperature of less than 300° C. for a time duration of at least one second and cooling the strip to ambient temperature.

4,313,773

METHOD FOR REMOVING BOROSILICATE AND BORON RICH OXIDES FROM A SILICON BODY PRIOR TO DOPING SILICON BODIES WITH A SiB₆ SOLID SOURCE

Marian Briska, Boeblingen; Gert Metzger, Schoenaich, and Klaus P. Thiel, Boeblingen, all of Fed. Rep. of Germany, assignors to International Business Machines Corporation, Armonk, N.Y.

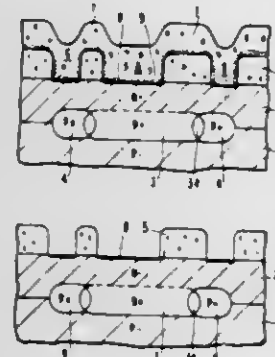
Filed Dec. 3, 1980, Ser. No. 212,304

Claims priority, application Fed. Rep. of Germany, Dec. 20, 1979, 2951292

Int. Cl.³ H01L 21/225, 21/306

U.S. Cl. 148—188

11 Claims



1. In a method for doping silicon bodies where the silicon

bodies are exposed in a first heating process to a gas mixture containing a predetermined boron quantity and boron and oxygen in a predetermined quantitative ratio to form a borosilicate glass layer, a boron-rich silicon dioxide layer and a SiB₆ layer, and where in a second heating process at least part of the boron is driven into the silicon, and that prior to the second heating process the borosilicate glass is completely stripped off without the SiB₆ layer being substantially affected, the improvement comprising stripping the borosilicate glass layer and the boron-rich silicon dioxide layer by first immersing the silicon bodies in hydrofluoric acid diluted with water and subsequently in an aqueous sulfuric acid/potassium permanganate solution.

9. The method as claimed in claim 1, wherein after the first heating process and the stripping of the borosilicate glass the boron is driven into the silicon in an oxidizing atmosphere during a second heating process.

4,313,774

MOPHEAD AND METHOD OF MANUFACTURING

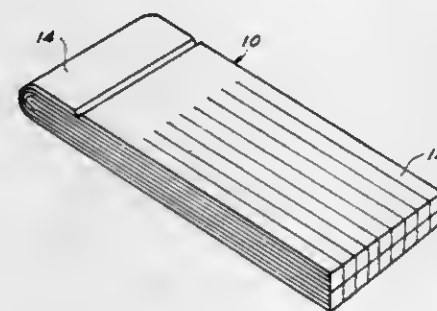
Jack P. Arthur, Bel Air, Md., assignor to Wm. E. Hooper & Sons Co., Baltimore, Md.

Filed Jul. 10, 1980, Ser. No. 167,397

Int. Cl.³ A47L 13/20; B32B 31/18, 31/20

U.S. Cl. 156—73.1

10 Claims



1. The method of continuously forming a mophead made of a nonwoven fabric of a cellulose and synthetic resin fiber blend by sealing and cutting the nonwoven fabric comprising the steps of:

- combining a plurality of nonwoven continuous fabric sheets having a length, a width and a center area together in a composite superimposed stack;
- intermittently moving said composite superimposed stack to an ultrasonic sealing station and forming at least one ultrasonic seal continuously and transversely to the length of the sheet in the center area of said composite superimposed stack;
- intermittently moving said composite superimposed stack from said ultrasonic sealing station to a cutting station; and
- dividing said composite superimposed stack transversely into mophead widths while simultaneously cutting the mopheads to include a saddle portion defined by said at least one ultrasonic seal and a pair of plural strips extending inwardly from the ends of the mophead and communicating with the uncut saddle portion.

4,313,775

WOOD BRICK

Luther L. Moore, 1862 Helena Ave., Reno, Nev. 89512

Filed Dec. 20, 1979, Ser. No. 105,508

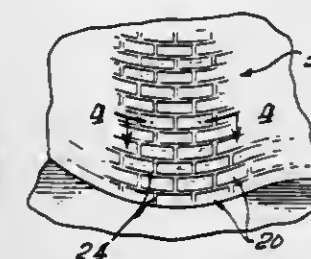
Int. Cl.³ B32B 21/04, 31/04

U.S. Cl. 156—196

4 Claims

1. The method for producing a simulated brick surface which includes: (1) cutting a thin slice of wood from a plank of lumber along a plane generally across the grain direction of said plank of lumber, said plane being at an angle different than a plane normal to two parallel surfaces of said plank; and resulting in surface irregularities on the bottom, top, and side edges of said thin slice of wood (2) applying an adhesive means

to a surface being prepared for a simulated brick covering; (3) pressing a plurality of said thin slices of wood onto said adhesive means on said surface in such a pattern as to produce a laid brick surface having grout-receiving spaces there between; (4) filling said grout-receiving spaces with a grout means in such a



manner that the grout means conforms to and is retained by the irregular edges formed on said slice of wood by said cut plane; and (5) applying a coating on the exposed surfaces of said slice of wood and said exposed grout means of a protective and color enhancing polyester coat.

4,313,776

METHOD OF PRODUCING SEAT CUSHION MEMBER

Muneharu Urai, Tokyo; Tadafumi Abe, Kokubunji; Youichiro Haraguchi, Hamuramachi, and Koji Hayashi, Akishima, all of Japan, assignors to Tachikawa Spring Co., Ltd., Akishima, Japan

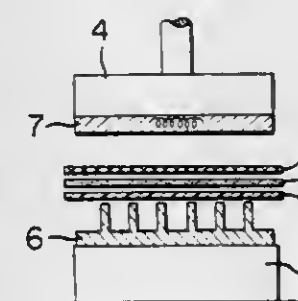
Filed Dec. 11, 1979, Ser. No. 102,399

Claims priority, application Japan, Dec. 14, 1978, 53/153621; Dec. 20, 1978, 53/156297

Int. Cl.³ B29C 27/04; B32B 31/14

U.S. Cl. 156—220

9 Claims



1. A method of producing a seat cushion member comprising the steps of laminating a sheet of surface material, a sheet of untreated polyurethane foam material and a reinforcing web of fabric material in the above order, and subjecting said three-layer laminate to high-frequency dielectric heating by high-frequency welding means, while, at the same time, heating it by a second type of heating means, thereby locally fusing at least spaced areas of said sheet of untreated polyurethane foam material so as to weld said three layers into an integral structure at said spaced areas.

4,313,777

ONE-STEP DUAL PURPOSE JOINING TECHNIQUE

John D. Buckley, Newport News; Robert J. Swaim, Hampton, and Robert L. Fox, Hayes, all of Va., assignors to The United States of America as Represented by the United States National Aeronautics and Space Administration, Washington, D.C.

Filed Aug. 30, 1979, Ser. No. 70,774

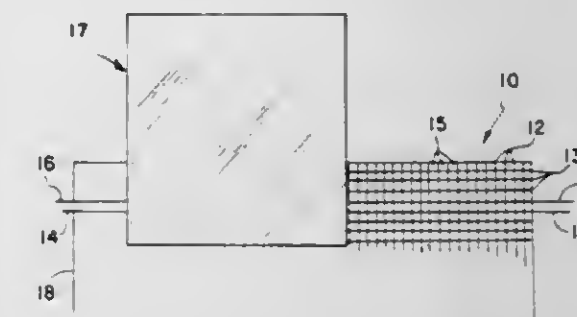
Int. Cl.³ B23K 13/00; B29C 27/04

U.S. Cl. 156—272

9 Claims

1. A method for fastening sheets of thermoplastics and providing electrical conduction means therethrough comprising: sheathing conducting wires with insulation material;

positioning said conducting wires as selected longitudinal components of an inductive wire screen; positioning said wire screen between the sheets of thermoplastics at the area to be joined;



subjecting the wire screen to electromagnetic energy to generate heat in said inductive wire screen for softening the thermoplastic sheets; subjecting the wire screen to said electromagnetic energy for a time period sufficient to effect a bond between said wire screen and thermoplastics.

4,313,778

ULTRASONIC SEAMING APPARATUS

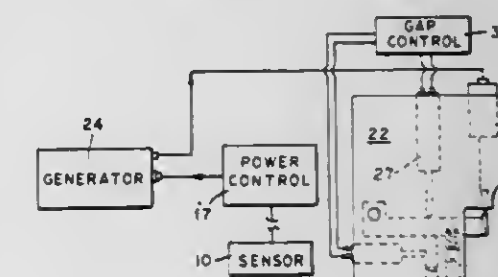
Bruce L. Mims, Westport, Conn., assignor to Branson Ultrasonics Corporation, New Canaan, Conn.

Filed Sep. 22, 1980, Ser. No. 189,344

Int. Cl.³ B29C 27/08; B32B 31/20

U.S. Cl. 156—358

12 Claims



1. An ultrasonic seaming apparatus comprising: an electroacoustic converter adapted to provide mechanical high frequency vibrations in response to applied electrical energy; a horn coupled to said converter for receiving at an input end thereof said vibrations and providing at an opposite output end said vibrations to material in contact with said horn; movable anvil means disposed opposite said output end of said horn for providing with said horn a nip through which thermoplastic material to be seamed is conveyed and seamed responsive to the transfer of ultrasonic energy from said output end to the material while the material is in forced contact with said horn; force means coupled to said anvil means for urging said anvil means into motion toward contact with said output end of said horn; motive means coupled to said anvil means for causing when actuated motion of said anvil means in a direction opposite to that urged by said force means; clamping means disposed for clamping said anvil means in fixed position relative to said output end to maintain a predetermined gap between said output end and said anvil means responsive to the position of said output end, the force exerted by said force means, and the thickness of material disposed in said nip, and control means coupled to said motive means and said clamping means for cyclically actuating said motive means and said clamping means whereby to cyclically reset said gap

and maintaining said reset gap for a predetermined duration.

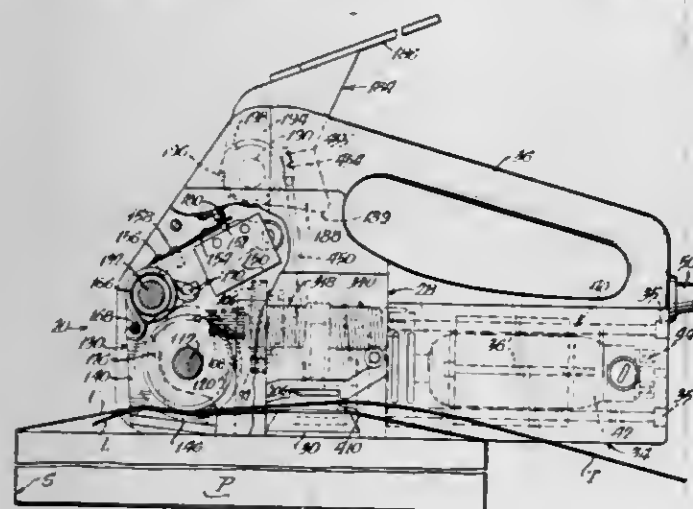
4,313,779

ALL ELECTRIC FRICTION FUSION STRAPPING TOOL
Robert J. Nix, Park Ridge, Ill., assignor to Signode Corporation, Glenview, Ill.

Continuation-in-part of Ser. No. 61,900, Jul. 30, 1979, abandoned. This application Jun. 4, 1980, Ser. No. 153,782
Int. Cl.³ B32B 31/00

U.S. Cl. 156—361

35 Claims



1. A tool for constricting and closing a loop of thermoplastic strap that encircles an article and has overlapping strap segments, said tool comprising:

means for constricting said loop;

reversible motor means for rotating initially in a first direction and then in a second, opposite direction;

drive shaft means driven by said reversible motor means sequentially in said first and second directions of rotation for engaging and operating said constricting means to constrict said strap loop only when said drive shaft means is rotated in said first direction;

sensing and control means for sensing a predetermined level of tension in the constricted strap loop and for reversing the rotation of said motor means to change the rotation of said drive shaft means from said first direction of rotation to said second direction of rotation; and

means responsive to rotation of said drive shaft means in said second direction for pressing said overlapping strap segments together after said strap loop has been constricted to said predetermined tension level and for moving at least one of said overlapping strap segments relative to the other strap segment to effect a friction fusion weld of said overlapping segments.

29. In a tool for constricting and closing a loop of thermoplastic strap that encircles an article and has overlapping strap segments and that has a frame on which is mounted means for constricting said loop; sensing and control means for sensing a predetermined level of tension in the constricted strap loop; and means responsive to said sensing and control means for pressing the overlapping strap segments together after the loop has been constricted to said predetermined tension level and for moving at least one of said overlapping strap segments generally transversely of the strap length relative to the other strap segment to effect a friction fusion weld of said overlapping segments; the improvement comprising:

a saw blade having projecting saw teeth, said saw blade being pivotably mounted on said frame and being restrained against reciprocating movement, said saw blade being adapted to be pivoted between a lowered position for contacting a surface of said one overlapping strap segment and an elevated position in which the strap may be disposed in, or removed from the tool whereby, when said pressing means is moving said one overlapping strap segment relative to said other overlapping strap segment to effect a friction fusion weld of the overlapping seg-

ments, said one overlapping strap segment is moved across the teeth of said saw blade so that said saw blade cuts through said one overlapping strap segment before the welding of the straps is completed and thereby at least substantially severs the trailing portion of the strap loop from the tensioned strap loop encircling the article.

4,313,780

ROADWAY STRIPER

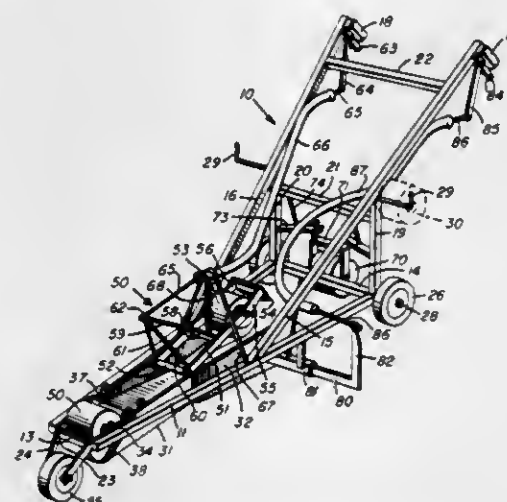
Jere B. Ford, Jr., Dyersburg, Tenn., assignor to Jere B. Ford, Inc., Dyersburg, Tenn.

Filed Mar. 18, 1980, Ser. No. 131,686

Int. Cl.³ B32B 31/00

U.S. Cl. 156—523

10 Claims



1. A portable, hand-propelled or towable machine for applying marking tape to a roadway or like surface comprising, an elongated framework, transport wheels supporting said framework on the surface to be marked, means on said framework near the front thereof to support a spool of marking tape, pulling wheel means mounted on said framework for vertical movement via manually actuated means between a raised stowed position and a lowered position pressing said tape against the said surface, cutting means extending substantially normal to the longitudinal center line of said framework and mounted thereon above the tape for vertical movement, and a cutter bar mounted on said framework below said cutting means and movable via manually actuated means from a stowed position lateral of said center line and of said tape into a fixed working position across and normal to said center line below said tape and cooperable with said cutting means to sever said tape, said cutting means being mounted on said pulling wheel means and moving vertically therewith.

4,313,781

METHOD AND APPARATUS FOR CUTTING AND SEALING THERMOPLASTIC MATERIAL

Luis Rovigo, Flushing, N.Y., assignor to Ro-Ann Industries Corporation, Maspeth, N.Y.

Filed Jun. 26, 1980, Ser. No. 163,412

Int. Cl.³ B32B 31/00; B31B 1/14

U.S. Cl. 156—530

11 Claims

1. In cutting and sealing apparatus for use in a bag-making machine of the non-continuous type for manufacturing bags from a two-ply web of thermoplastic material of tubular flexible stock, including:

means for intermittently advancing the web in a downstream direction;

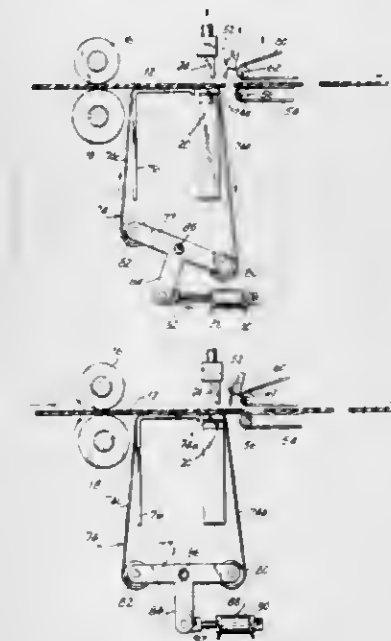
a sealing pad extending transversely to said downstream direction, said advancing means being adapted to intermittently advance the web until a portion thereof overlies said sealing pad while the web is at rest between intermittent advancements thereof;

means for applying tension to said web while the web is at rest;

a blade member extending transversely to the downstream direction over the width of the web and mounted for reciprocal movement onto and away from the web;

means for reciprocating said blade member when the web is at rest to sever the web downstream from said sealing pad;

a heated sealing member extending transversely to said downstream direction over said sealing pad and mounted for reciprocal movement toward and away from said sealing pads;



means for reciprocating said sealing member when the web is at rest to seal the plies of the web at the portion thereof which overlies the sealing member;

the improvement comprising:

a sheet member, at least a portion of which is formed of a non-stick material, located over said sealing pad so as to be interposed between the web and sealing pad; and means for moving said non-stick sheet member in the downstream direction subsequent to said cutting and sealing steps and while the web is at rest to strip any portion of the sealed portion of the web which may have been bonded thereto during the sealing operation.

4,313,782

METHOD OF MANUFACTURING SUBMICRON CHANNEL TRANSISTORS

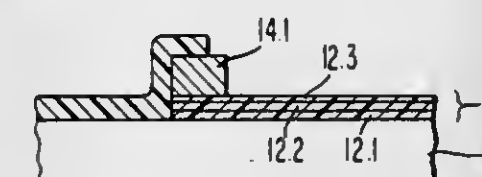
Joseph C. Sokoloski, East Brunswick, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Nov. 14, 1979, Ser. No. 94,215

Int. Cl.³ H01L 21/308

U.S. Cl. 156—628

5 Claims



1. A method of manufacturing a semiconductor device, comprising the steps of:

providing a semiconductor body having a boundary surface;

growing a first layer of oxide on the boundary surface;

depositing a layer of silicon nitride on the oxide layer;

growing a second layer of silicon oxide on the nitride layer;

depositing a layer of polycrystalline silicon on the oxide layer;

depositing a layer of apertured masking material on the polycrystalline silicon layer;

etching unmasked portions of the polycrystalline silicon

layer to expose the unetched edges of the polycrystalline silicon material under the masking layer;

doping the exposed edges of the unetched polycrystalline silicon layer to form a narrow line of doped polycrystalline silicon in the polycrystalline silicon layer, the doping step forming a doped oxide on the apertured masking material and exposed second oxide layer;

etching the doped oxide, the apertured masking material, and the exposed portions of the plural level insulator layer to expose the doped and undoped portions of the polycrystalline silicon layer and unmasked portions of the silicon body;

forming a second masking layer over the doped and undoped portions of the polycrystalline silicon layer and over the exposed portions of the silicon body;

forming a third apertured masking layer over selected portions of the second masking layer to mask at least the doped portions of the polycrystalline silicon layer and the exposed portions of the silicon body;

etching the exposed portions of the second masking layer to expose only the undoped portions of the polysilicon layer; selectively etching the undoped portions of the polycrystalline silicon layer;

removing the second and third masking layers to expose the masked portions of the silicon body and the plural insulator layer; and removing the remaining exposed portions of the plural insulator layer.

2. The method in accordance with claim 1 comprising the further steps of:

providing a substrate of insulative material selected from the group consisting of sapphire, monocrystalline beryllium and spinel; and

forming the silicon body on the insulative substrate.

4,313,783

COMPUTER CONTROLLED SYSTEM FOR PROCESSING SEMICONDUCTOR WAFERS

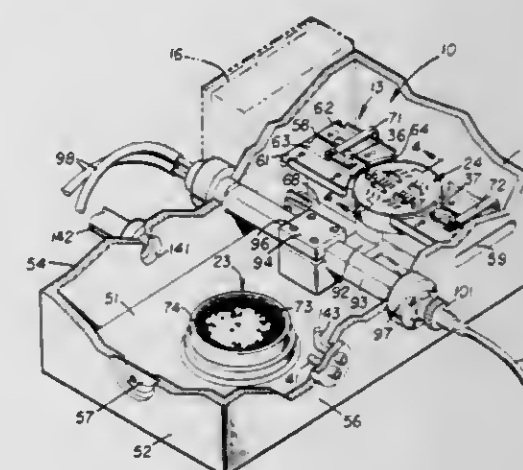
John T. Davies, El Sobrante, and Richard F. Reichelderfer, Castro Valley, both of Calif., assignors to Branson International Plasma Corporation, Hayward, Calif.

Filed May 19, 1980, Ser. No. 151,169

Int. Cl.³ C23C 15/00; H01L 21/306

U.S. Cl. 156—643

26 Claims



17. In a wafer processing system: means defining a reaction chamber having inlet and outlet ports, load locks operable to provide access to the chamber through the ports while maintaining the chamber in a closed condition, conveyor means for carrying a wafer into and out of the chamber through the load locks, a first electrode mounted in a stationary position within the chamber, a second electrode mounted on a swinging arm for movement between an upright receiving position adjacent to the conveyor means and an inverted wafer processing position above the first electrode, means for securing the wafer to the second electrode for movement therewith, flow control

means for controlling the admission of gas into the chamber, means for energizing the electrodes to ionize the gas to form a plasma for processing the wafer, and exhaust pump for evacuating the chamber, and computer means for controlling operation of the conveyor means, the load locks, the swinging arm the flow control means, the exhaust pump and energization of the electrodes to process the wafer in a predetermined manner.

19. In a process for processing a wafer having a generally planar surface in a system comprising a reaction chamber, a conveyor for carrying the wafer into and out of the chamber, a first electrode mounted in a stationary position within the chamber, and a second electrode mounted on a swinging arm for movement between a wafer receiving position and a wafer processing position, the steps of: transporting the wafer into the chamber on the conveyor transferring the wafer from the conveyor to the second electrode, securing the wafer to the second electrode, swinging the arm about an axis parallel to the wafer surface to move the second electrode and the wafer from the receiving position to the processing position, introducing reagent gas into the chamber, and energizing the electrodes to ionize the gas and form a plasma for processing the wafer.

23. In a wafer processing system: means defining a reaction chamber, a first electrode mounted in a predetermined position within the chamber, a second electrode mounted on a swinging arm for movement between a wafer receiving position adjacent to the first electrode, conveyor means comprising a walking beam having relatively moveable elongated rails for carrying the wafer to and from the reaction chamber, a plurality of fingers operatively connected to the rails and extending through openings in the second electrode for moving the wafer onto and off of the second electrode when said electrode is in the wafer receiving position, means for securing the wafer to the second electrode for movement with said electrode between the wafer receiving position and the wafer processing position, means for introducing a reagent gas into the chamber, and means for energizing the electrodes to ionize the gas and form a plasma for processing the wafer between the electrodes when the second electrode is in the processing position above the first electrode.

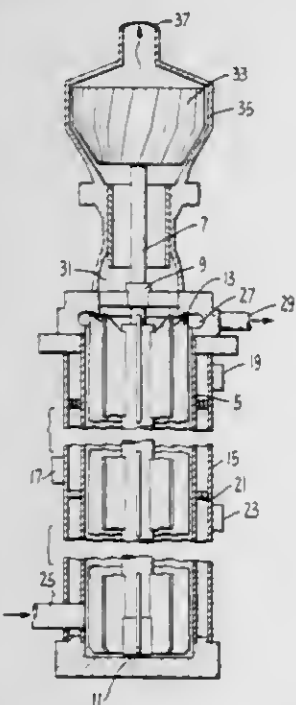
4,313,784

CLIMBING FILM HEAT EXCHANGE APPARATUS
Floyd C. Haley, Glendora, Calif., assignor to International Refining Equipment, Walnut Creek, Calif.

Filed Jun. 17, 1977, Ser. No. 807,734
Int. Cl.³ B01D 5/22

U.S. Cl. 159—6 W

5 Claims



1. In a thin film climbing heat treating apparatus of the type having an annular chamber with a shaft having a plurality of

flat blades extending radially from said shaft, mounted for rotation within said chamber and requiring means to drive said shaft, the improvement comprising a turbine mounted on said shaft and spaced from said flat blades and means for causing a fluid to flow upwardly through the chamber past said flat blades and then through the turbine thereby causing said turbine to rotate said shaft.

4,313,785

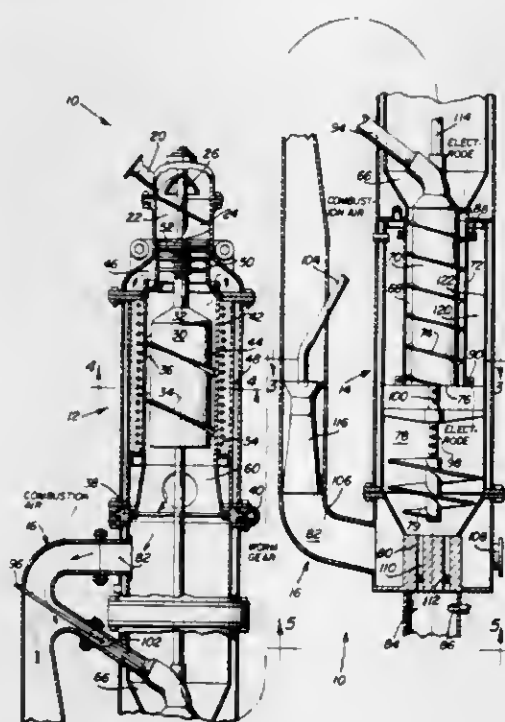
METHOD AND APPARATUS FOR TREATING WASTE ROCK CUTTINGS

Herman J. Schellstede, P.O. Box 208, New Iberia, La. 70560
Filed Oct. 25, 1979, Ser. No. 87,947

Int. Cl.³ B01D 1/22

U.S. Cl. 159—6 W

14 Claims



1. A device for removing combustible material from cuttings resulting from well drilling operations, said cuttings consisting of a slurry of underground strata chips, an oil base phase containing hydrocarbons and an aqueous phase, the device comprising a preheating stage wherein said cuttings are preheatable and the major fraction of said hydrocarbons and aqueous phase are removable, a second stage in axial alignment with and receiving material from the preheating stage, said second stage including a vertically disposed open cylindrical outer tube having inlet means at the upper end thereof and outlet means, an inner support shaft concentric with the outer tube, a screw auger on the shaft for conveying said slurry through the annular space between the outer tube and the support shaft wherein the outer tube is adapted for heating said slurry in the annular space so that said hydrocarbons are volatilized and removed from the tube and a residual solid material substantially free of hydrocarbons is removable from the outlet means of the tube, a collecting tube attached to said preheating stage, a blower interposed between the collecting tube and the preheating stage for gathering said volatilized hydrocarbons therefrom, whereby the volatilized hydrocarbons are conducted away from the preheating stage and gas injection means for introducing an oxygen containing gas to said volatilized hydrocarbons in the collecting tube, said injection means being connected to said cylindrical tube for ignition and combustion of the volatilized hydrocarbons, and introduction into said cylindrical tube.

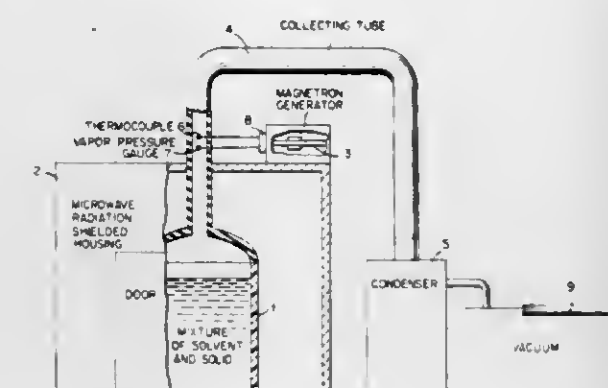
4,313,786

MAGNETRON SOLVENT RECOVERY SYSTEM
Jerold B. Smith, P.O. Box 4234, Wilmington, Del. 19807
Continuation of Ser. No. 59,599, Jul. 23, 1979, abandoned. This application Oct. 9, 1980, Ser. No. 195,427

Int. Cl.³ B01D 1/00

U.S. Cl. 159—22

2 Claims



1. An apparatus for recapturing solvent from a liquid comprised of a solution of solvent and polymer or a mixture of solvent and pigment which comprises a nonmetallic holding vessel for retaining said liquid solvent-solid mixture or solution; a microwave radiation shielded housing sufficiently large to accommodate said nonmetallic holding vessel; a collecting tube of nonmetallic material passing through the top of the housing and connecting the holding vessel in sealed relationship to a condenser located outside of the housing and at substantially the same level as the vessel, said connecting tube receiving distilled solvent from the liquid solution or liquid solvent-solid mixture and allows transfer of the distilled solvent from the vessel to the condenser; a magnetron radiation power source contained within said microwave radiation shielded housing and activated exteriorly of the housing by a magnetron generator; a thermocouple and vapor gauge within the collecting tube controlling the operation of the magnetron generator through a switch; the said thermocouple responding to predetermined temperature of the distilled solvent and the gauge responding to an essentially zero solvent vapor pressure, respectively, in the generator control.

4,313,787

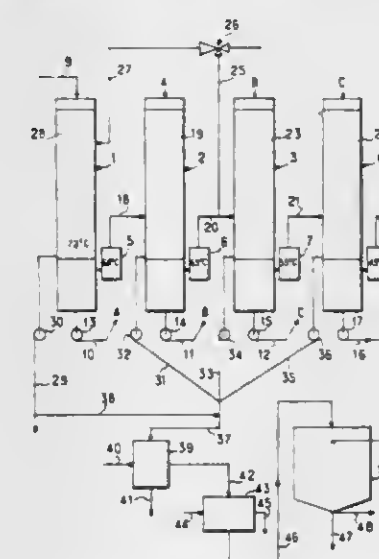
METHOD FOR PREHEATING THE AIR CIRCULATING IN AN INSTALLATION COMPRISING AN EVAPORATOR COUPLED TO A DRYING UNIT

Jacques J. Cibot, Paris, and Eric C. Pradines, Versailles, both of France, assignors to Laguilharre S.A., Nanterre, France
Filed Jul. 23, 1980, Ser. No. 171,295

Claims priority, application Luxembourg, Aug. 3, 1979, 81573
Int. Cl.³ B01D 1/16, 1/26

U.S. Cl. 159—48 R

10 Claims



1. In a method for concentrating a liquid product into a powdered product wherein said liquid product is treated in a

multi-stage evaporator system to form a condensed concentrate product and a condensate and said condensed concentrate product is subsequently dried with hot air to produce a powdered product, the improvement which comprises heating the condensates of said multi-stage evaporator by means of a fluid issuing from said evaporator system to form a hot condensate and bringing said hot condensate issuing from said evaporator system into indirect heat exchange with air to form said hot air, said hot air being used to dry said condensed concentrate product.

4,313,788

PROCESS FOR REDUCING OXYGEN CONSUMPTION IN BLACK LIQUOR OXIDATION

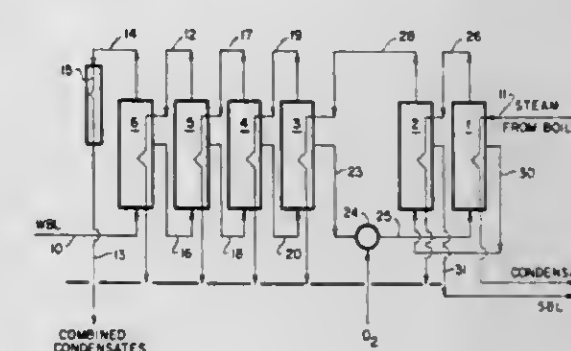
Mark R. Gulley, Emmaus, Pa., assignor to Air Products and Chemicals, Inc., Allentown, Pa.

Filed May 12, 1980, Ser. No. 148,630

Int. Cl.³ D21C 11/10, 11/14

U.S. Cl. 162—31

4 Claims



1. In the oxidation of black liquor obtained from wood pulping with sulfur-containing compounds in a system employing multiple effect evaporation utilizing reverse flow of the liquor up to effect #3 for concentration of such liquor and wherein the heat evolved in the oxidation reaction is utilized to reduce the external heat requirement for concentration of the initially weak black liquor charged to such evaporation system, the improvement which comprises withdrawing the partly concentrated liquor exiting from the #3 effect of said multi-effect evaporation system, oxidizing the withdrawn liquor by contact with a gas stream containing molecular oxygen, with consequent temperature elevation as a result of the heat of the oxidation reaction; introducing the oxidized liquor directly into the #1 effect of such evaporation system wherein it is further concentrated by heating above its boiling point by extraneous heat introduced into said #1 effect, thereby producing a heated liquor and a vapor portion; discharging the heated liquor from said #1 effect into the #2 effect, heating the liquor in said #2 effect by the vapor portion discharged overhead from the #1 effect, and discharging the concentrated and oxidized black liquor from said #2 effect.

4,313,789

LIGHTWEIGHT REFRACTORY FIBER BURNER BLOCK
Carl E. Frahme, Canyon Country, Calif., assignor to Industrial Insulations Inc., City of Industry, Calif.

Filed Dec. 17, 1979, Ser. No. 104,354

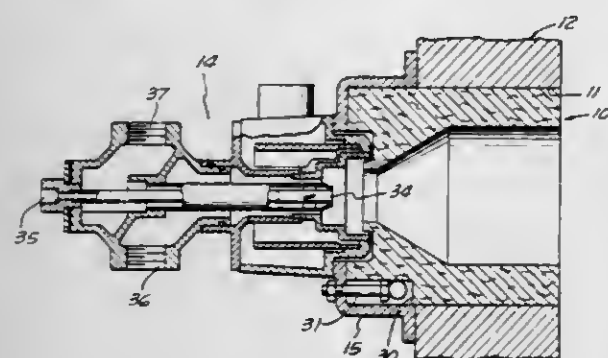
Int. Cl.³ B29C 13/00; F23C 5/00

U.S. Cl. 162—152

14 Claims

1. A lightweight dimensionally-stable, homogeneous burner block adapted for installation about a burner nozzle discharging through a furnace wall into a furnace typically operating at temperatures of 1600° F. and higher, said block being formed essentially of refractory fibers having a length of 3 to 6 inches or more accreted by vacuum deposition from an aqueous slurry of said fibers to a radial thickness of at least three inches about a perforated inner mold member having a surface of revolution, said perforated surface of said tubular burner block conforming to the shape of an imperforate outer cup-shaped

mold member embracing said perforated mold member and having an inlet for said slurry of fibers only at the end thereof remote from said one end wall of said burner block and said



inner and outer mold members being removable from said burner block after the cavity therebetween has been filled with said vacuum deposited fibers.

4,313,790

ADDITIVES FOR INCREASED RETENTION AND PITCH CONTROL IN PAPER MANUFACTURE

Robert H. Pelton; Lawrence H. Allen, both of Pointe Claire, and Henry M. Nugent, Dollard des Ormeaux, all of Canada, assignors to Pulp and Paper Research Institute of Canada, Pointe Claire, Canada

Filed Mar. 31, 1980, Ser. No. 135,596

Int. Cl.³ D21H 3/18

U.S. Cl. 162-163

15 Claims

1. In a papermaking process utilizing an aqueous wood pulp slurry, the improvement which effects increasing the retention of fines, fillers and pigments while at the same time decreasing the deposition of pitch on the papermaking apparatus which improvement comprises: adding to the slurry an effective amount of a poly(oxyethylene) having a molecular weight of 10^5 or greater and a kraft lignin product wherein the poly(oxyethylene) is added to the slurry at a rate of between 0.002 and 0.5 percent by weight and the kraft lignin product is added at a rate of between 0.01 and 12 percent by weight both rates being based on the weight of oven-dried pulp.

4,313,791

METHOD FOR LOCATING DEFECTIVE NUCLEAR FUEL ELEMENTS

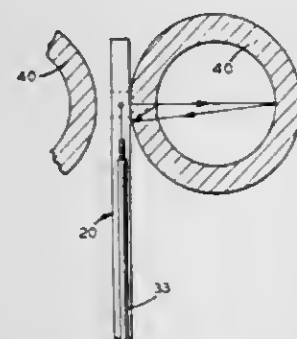
William E. Lawrie; Robert E. Womack, and Norvell W. White, Jr., all of Lynchburg, Va., assignors to The Babcock & Wilcox Company, New Orleans, La.

Filed May 6, 1977, Ser. No. 794,507

Int. Cl.³ G21C 17/00

U.S. Cl. 376-252

10 Claims



1. A method of ultrasonically detecting defective fuel elements of the type used in water cooled reactors, while under water and within a nuclear fuel assembly including a plurality of the fuel elements closely arranged in a transversely spaced array which comprises the steps of inserting an ultrasonic search unit having an ultrasonic transducer element into the

spaces between the fuel elements; transversely aligning the transducer element with a fuel element to be examined; energizing the transducer element to transmit an ultrasonic pulse transversely into the wall of the fuel element to be examined; and measuring the ultrasonic echos reflected from the inner wall surface of the fuel element remote from the location of the transducer element to detect the presence of ingressed water within the fuel element.

4,313,792

MINIATURE GAMMA THERMOMETER SLIDEABLE THROUGH BORE FOR MEASURING LINEAR HEAT GENERATION RATE

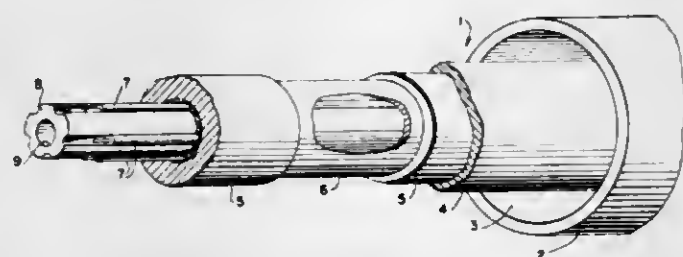
Robert D. Smith, Bethesda, Md., assignor to Scandpower, Inc., Bethesda, Md.

Filed Jun. 13, 1979, Ser. No. 48,032

Int. Cl.³ G21C 17/00

U.S. Cl. 376-247

6 Claims



1. In combination with a radioactive environment having a plurality of radiation measuring zones within which sensor devices are mounted for monitoring radiation activity, a traveling probe, means mounted in each of the sensor devices for guiding said probe along paths of movement through each of the zones, and means connected to the probe for calibrating the sensor devices in response to travel of the probe through said zones, the improvement residing in said sensor devices being of the gamma radiation measuring type and said probe including heat sink means for establishing a reference temperature region to which heat flows, elongated heat generating means extending from the heat sink means along each of the paths of movement for establishing a heat flow path to the heat sink means, means for thermally isolating the heat generating means from the sensor device, thermocouple junction means for sensing differential temperatures between the heat sink means and the heat generating means, signal conducting means connected to the junction means for transmitting signals therefrom to the calibrating means externally of the radioactive environment to adjust calculation of power from signal outputs of the sensor devices, and an elongated flexible sheath thermally connected to the heat sink means and protectively enclosing the signal conducting means.

4,313,793

MACHINE FOR REMOVING IN-CORE INSTRUMENT ASSEMBLIES FROM A NUCLEAR REACTOR

Ralph H. Klumb, Simsbury; Kenneth V. Margotta, Rockville, and Divakar S. Shendy, Windsor, all of Conn., assignors to Combustion Engineering, Inc., Windsor, Conn.

Filed Oct. 22, 1979, Ser. No. 87,197

Int. Cl.³ G21C 17/00

U.S. Cl. 376-260

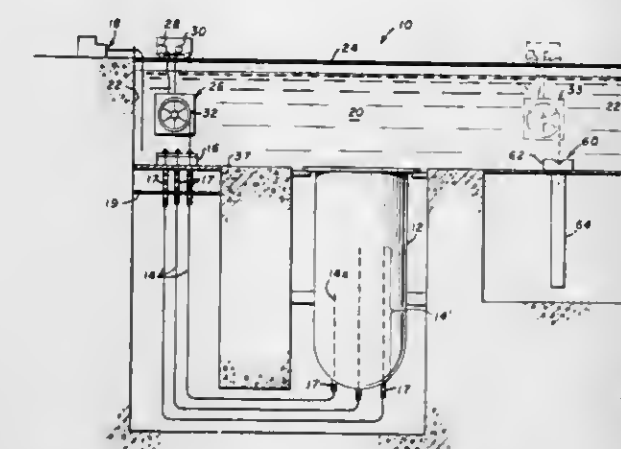
9 Claims

1. A machine for permanently removing stiff instrument guide tubing from a nuclear reactor, comprising:

- a frame;
- a reel carried on said frame, the reel including a circular cartridge detachably connected to the outer rim of the reel, the cartridge having a substantially continuous helical groove extending around the circumference of the cartridge, the groove having an effective diameter approximately equal to that of the outer diameter of the tube;
- means for capturing one end of the tube on the reel;

(d) means for selectively driving the reel relative to the frame in either circumferential direction;

(e) a plurality of cam rollers carried by said frame and closely spaced around the circumference of said reel, said rollers being mounted in fixed relationship to the reel,



whereby the cam rollers provide sufficient friction between the groove and the tube so that the tube can be tightly wound onto or wound off from the reel;

(f) means carried by the frame adjacent to the reel for straightening the tube as it winds onto or off of the reel.

4,313,794

SELF-ACTUATING AND LOCKING CONTROL FOR NUCLEAR REACTOR

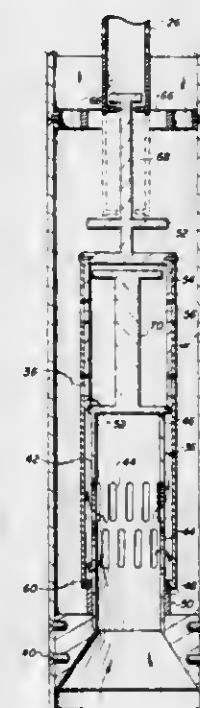
Dong K. Chung, Chatsworth, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Feb. 15, 1979, Ser. No. 12,275

Int. Cl.³ G21C 7/06

U.S. Cl. 376-352

10 Claims



4. In a nuclear reactor of the type which includes a plurality of laterally displaced vertical neutron absorber column assemblies located in and extending out of the reactor core, each of the column assemblies containing a plurality of neutron absorbing elements which, during normal operation of the reactor, are hydraulically supported outside of the core of the reactor, the improvement comprising:

- a self-actuating, self-locking flow cutoff valve, said valve including:
- a substantially vertical elongated housing having opposite ends for the flow of said fluid therethrough;
- an apertured plate located in said housing, the apertures

providing fluid flow from one end of said housing to the other end;

a substantially vertical elongated nozzle member having top and bottom ends located in said housing and fixed to said housing, an opening in the bottom end of said nozzle member for receiving said fluid, apertures adjacent the top end for discharging said fluid, and two sealing means comprising radially outwardly and downwardly extending sealing surfaces, one located above and the other below said apertures;

an elongated flow cutoff sleeve located in said housing having walls surrounding said nozzle, a fluid flow opening adjacent an upper end of said sleeve, two sealing means comprising radially inwardly and upwardly extending sealing surfaces affixed to said sleeve, one below said flow opening and one adjacent a lower end of said sleeve, said sleeve being moveable between an upper open position wherein the apertures in said nozzle member are substantially unobstructed for the flow of fluid therethrough and a closed position wherein said sleeve and nozzle sealing surfaces are mated, the mated sealing surfaces and the wall of said sleeve obstruct the flow of said fluid through said apertures, and said nozzle and sleeve sealing means cooperatively acting together to further provide for the exposure of a greater area for fluid pressure to exert force in a downward direction than is exposed for fluid pressure to exert force in an upward direction whereby once said valve is in a closed position, an increase in fluid pressure will act to maintain said valve in a closed position; and a balance member located above and attached to said flow cutoff sleeve, said balance member contacting said apertured plate when said sleeve is in an open position and obstructing the flow of fluid through a predetermined flow area of the apertures in said apertured plate for producing a pressure drop across the apertured plate and said balance member, said pressure drop being just sufficient to support said balance member and flow cutoff sleeve at a predetermined minimum fluid flow whereby, when said fluid flow drops below the predetermined flow, the pressure drop across the balance member will be insufficient to maintain said flow cutoff sleeve in the open position and it will move under the influence of gravity to a closed position.

4,313,795

NUCLEAR POWER PLANT WITH ON-SITE STORAGE CAPABILITIES

Hector A. Dauvergne, P.O. Box 884, San Leandro, Calif. 94577

Filed Mar. 10, 1980, Ser. No. 129,029

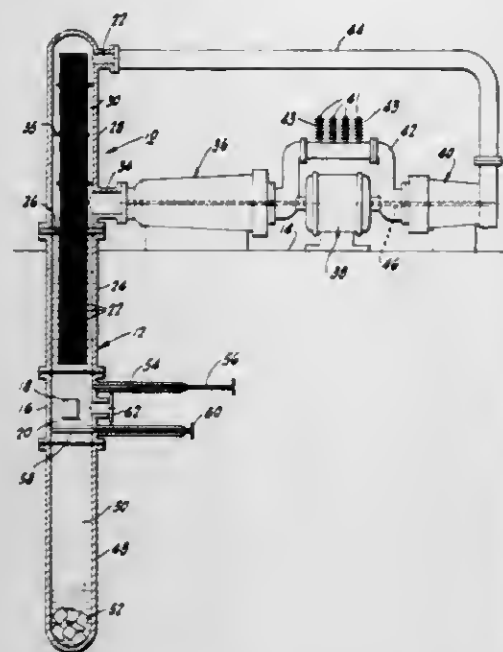
Int. Cl.³ G21C 19/20

U.S. Cl. 376-280

11 Claims

- A nuclear power plant comprising:
- a containment vessel having:
- a first portion containing a nuclear reactor core and a molten core-coolant, heat transfer medium, said reactor core and heat transfer medium being radioactively contaminating,
- a second portion containing a power generating drive medium
- means for separating said first portion of said containment vessel from said second portion,
- wherein said second portion is isolated from radioactive contamination from said reactor core and said heat transfer medium in said first portion; and
- solid state, heat transfer conductors having a first conductor portion in contact with said heat transfer medium of said first portion of said containment vessel and a second conductor portion in contact with said drive medium in said second portion of said containment vessel, wherein said heat transfer conductors remain in a solid state during transfer of heat by thermal conduction

from said first portion of said containment vessel to said second portion of said containment vessel; and



b. power generating means connected to said containment vessel for generating electric power by use of said drive medium.

4,313,796 GUIDE POST MODIFICATION FOR NUCLEAR FUEL ASSEMBLY

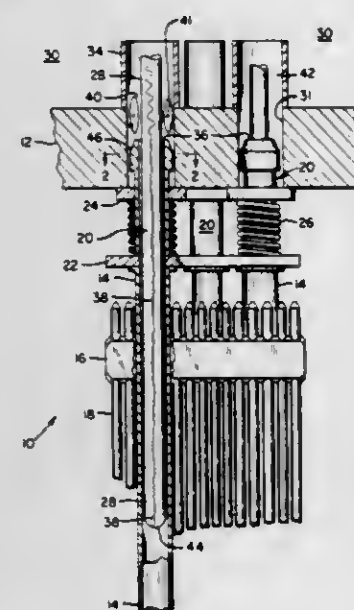
Paul Buettiker, Bloomfield, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Jul. 30, 1979, Ser. No. 61,583

Int. Cl.³ G21C 3/32, 15/00

U.S. Cl. 376—353

6 Claims



1. A nuclear fuel assembly for a water-cooled nuclear reactor having a reciprocating cylindrical nuclear control rod, comprising:

- a plurality of vertically oriented fuel elements;
- a cylindrical guide tube fixedly supported parallel to and coextensive with said fuel elements, for telescopically receiving the control rod from above and for carrying an upward flow of coolant from below wherein the ratio of the minimum inner diameter of the guide tube to the control rod outer diameter is no greater than about 1.5, said guide tube having a cylindrical inner wall; and
- a hollow control rod guide post extending from the upper end of the guide tube and in axial alignment therewith, the post having an inner wall forming a convex polygon.

4,313,797 GUIDE TUBE SLEEVE

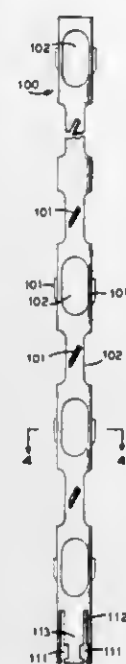
Douglas J. Attix, Forest, Va., assignor to The Babcock & Wilcox Company, New Orleans, La.

Filed Sep. 19, 1979, Ser. No. 77,257

Int. Cl.³ G21C 3/30

U.S. Cl. 376—441

5 Claims



1. A fuel assembly for a nuclear reactor comprising:
 - a. a plurality of longitudinally extending parallel members including fuel bearing parallel members and non-fuel bearing parallel members;
 - b. at least one spacer grid disposed transversely across the parallel members, said grid having a plurality of cellular voids for accommodating the extension of members therethrough, said grid keeping adjacent members apart so as to create longitudinal flow channels between members;
 - c. a coolant passing through the channels;
 - d. a plurality of thin-walled tubular sleeves attached to the walls of cellular voids having non-fuel bearing members extending therethrough, the sleeves being disposed in surrounding relationship to the non-fuel bearing members; and
 - e. tabs projecting outwardly from the sleeves into adjacent flow channels to increase the flow of coolant therethrough and cause a mixing action in the coolant.

4,313,798 MICRO-WAVE POWERED DISTILLATION UNIT

Bert R. Myers, Jr., Oklahoma City, Okla., assignor to Lakehurst Galleries, Ltd., Oklahoma City, Okla.

Filed Jun. 17, 1980, Ser. No. 160,378

Int. Cl.³ B01D 3/02

U.S. Cl. 202—234

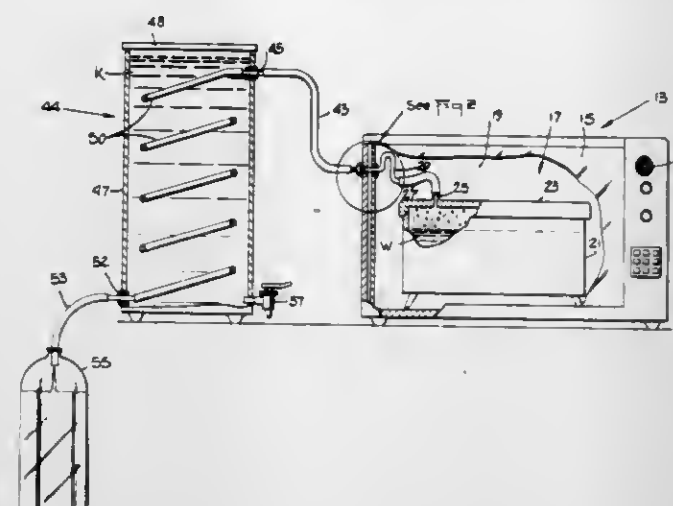
7 Claims

1. A distillation system utilizing a conventional, kitchen-type micro-wave oven to supply energy for distillation of fluids comprising:

- (a) a conventional, kitchen-type micro-wave oven;
- (b) a boiler means dimensioned and designed to fit within the micro-wave oven;
- (c) tubular prevention means adapted and dimensioned to pass through a wall of the micro-wave oven, and adapted for quick connection to and disconnection from a connection means to the boiler means and a connection means to the condensing means and dimensioned and designed for preventing the passage of micro-wave energy to the exterior of the micro-wave unit while conducting vapors from the boiler means to the condensing means;

(d) condensing means having a connection means adapted for quick connection to and disconnection from the pre-

the adapting is done by the platinum foil being in the form of a skirt.



vention means, a heat exchange relationship with a cooling means, and a condensed fluid outlet.

4,313,799 OXYGEN SENSOR AND METHOD FOR DETERMINING THE OXYGEN ACTIVITY IN MOLTEN GLASS

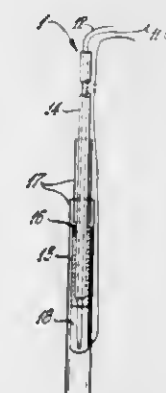
Richard A. Perkins, Newark, Ohio, assignor to Owens-Corning Fiberglass Corporation, Toledo, Ohio

Filed Apr. 4, 1980, Ser. No. 137,163

Int. Cl.³ G01N 27/58

U.S. Cl. 204—1 T

8 Claims



1. An oxygen sensor for determining the oxygen in molten glass comprising:

- a solid electrolyte;
- a solid, first electrode on the inside of the electrolyte adapted to be exposed to a reference gas or solid;
- a solid, second electrode on the outside of the electrolyte adapted to be exposed to molten glass; and
- electrical conducting means connected to the electrodes for conducting an electrical signal generated by movement of oxygen ions through the solid electrolyte, wherein the second electrode is platinum foil in the form of a skirt.

7. A method for determining the oxygen activity in molten glass comprising the steps of:

- (a) adapting an oxygen sensor to be exposed to molten glass;
- (b) inserting the oxygen sensor in molten glass wherein the oxygen sensor comprises,
 - a solid electrolyte,
 - a solid, first electrode on the inside of the electrolyte adapted to be exposed to a reference gas or solid,
 - a solid, second electrode of platinum foil on the outside of the electrolyte, and
 - electrical conducting means connected to the electrodes for conducting an electrical signal generated by movement of oxygen ions through the solid electrolyte; and
- (c) monitoring the oxygen activity in the molten glass, wherein

4,313,800 METHOD OF RECONDITIONING RADIOACTIVE FILTRATE

Thomas Sondermann, Kahl, Fed. Rep. of Germany, assignor to Reaktor-Brennelement Union GmbH, Hanau, Fed. Rep. of Germany

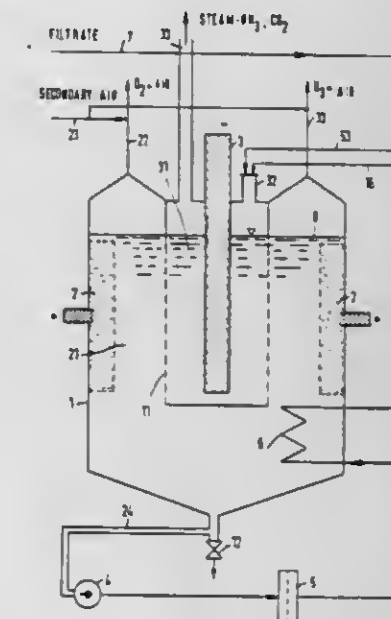
Filed Dec. 31, 1979, Ser. No. 108,408

Claims priority, application Fed. Rep. of Germany, Jan. 12, 1979, 2901067

Int. Cl.³ C25B 1/00; C01G 43/00

U.S. Cl. 204—1.5

8 Claims



1. Method for reconditioning ammonium nitrate-containing radioactive filtrates which are aqueous solutions containing NH_4 , NO_3 , CO_3 and U and may also contain Pu, which comprises maintaining an electrolysis cell having an anode chamber and a cathode chamber and ammonium nitrate solution as electrolyte, decomposing water to oxygen and hydrogen in the electrolysis cell and also reducing nitrogen oxide in the cell with the hydrogen to produce NH_3 , maintaining a boiling ammonium nitrate solution in the cathode chamber of the electrolysis cell, feeding said radioactive filtrate into the cathode chamber wherein this filtrate is brought to the boiling temperature with the assistance of the joulean heat of the electrolysis current, releasing gaseous CO_2 and NH_3 together with steam from the boiling ammonium nitrate solution in the cathode chamber, separately releasing oxygen from the anode chamber, converting soluble uranium compounds and plutonium if present in the ammonium nitrate solution to a precipitate containing uranium and plutonium if present suspended in the ammonium nitrate solution, recirculating said ammonium nitrate solution containing suspended precipitate through filter means to separate the precipitate, and also electrically precipitating dissolved uranium at the cathode.

4,313,801 PROCESS FOR FABRICATING COMPUTER PRINTER CHARACTER BANDS BY ELECTRODEPOSITION

Robert J. Walter, 418 Kevin St., Thousand Oaks, Calif. 91360, and Kam C. Wong, 6540 Franrivers Ave., Canoga Park, Calif. 91307

Filed Oct. 6, 1980, Ser. No. 194,549

Int. Cl.³ C25D 1/02

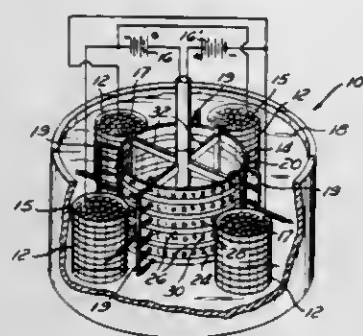
U.S. Cl. 204—9

10 Claims

1. A process for fabricating character bands used in computer printers, comprises the steps of:

- electrodepositing a metal alloy selected from the group consisting of nickel cobalt, nickel iron, nickel manganese, nickel cobalt iron, nickel cobalt manganese, and nickel

iron manganese onto a mandrel which comprises at least one mirror image band and wherein composition control of said electrodeposited nickel alloy is effected by preparing an electrolyte solution containing a predetermined amount of the preselected metal ions; inserting into said electrolyte solution an anode comprising at least one titanium basket for each metal in said nickel alloy;



controlling composition of said electrolyte solution through use of a separate rectifier for each metal; and electrically connecting said anode to a cathodic mandrel through a power source; maintaining character band uniformity by flowing electrolyte across the surface of said mirror image band; and separating said electrodeposited character band from said mandrel.

4,313,802

METHOD OF PLATING STEEL STRIP WITH NICKEL-ZINC ALLOY

Atsuyoshi Shibuya, Kyoto, and Tatsuo Kurimoto, Osaka, both of Japan, assignors to Sumitomo Metal Industries, Ltd., Osaka, Japan

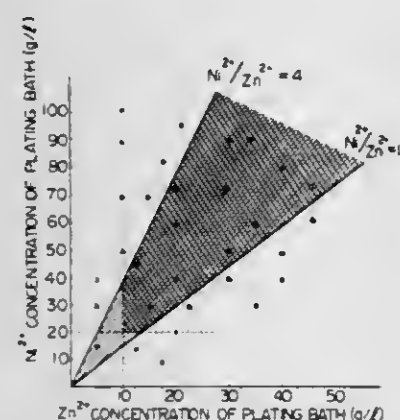
Filed Feb. 5, 1980, Ser. No. 118,962

Claims priority, application Japan, Feb. 15, 1979, 54-16927; Feb. 15, 1979, 54-16928; Dec. 18, 1979, 54-165343

Int. Cl.³ C25D 3/56, 5/04

U.S. Cl. 204—28

17 Claims



1. A method of plating steel strip at a current density higher than 5 A/dm² with a zinc-nickel alloy which comprises continuously passing the steel strip at a predetermined feeding rate through an electrolyte plating bath at a pH of 1.0-4.5 and a temperature of 40°-70° C. in which the concentration of Ni²⁺ is maintained at a level of 20 g/l or more and the concentration of Zn²⁺ at a level of 10 g/l or more and simultaneously the molar ratio of Ni²⁺/Zn²⁺ is restricted to a range from 1.5 to 4.0, with the relative speed of passage of the steel strip with respect to the electrolyte being maintained at 10-200 m/min. by flowing the electrolyte counter-current to the direction of travel of the steel strip.

4,313,803 ELECTROCHEMICAL MAINTENANCE OF OPTIMUM CATALYTIC ACTIVITY IN COPPER-CATALYZED NITRILE HYDROLYSIS PROCESSES

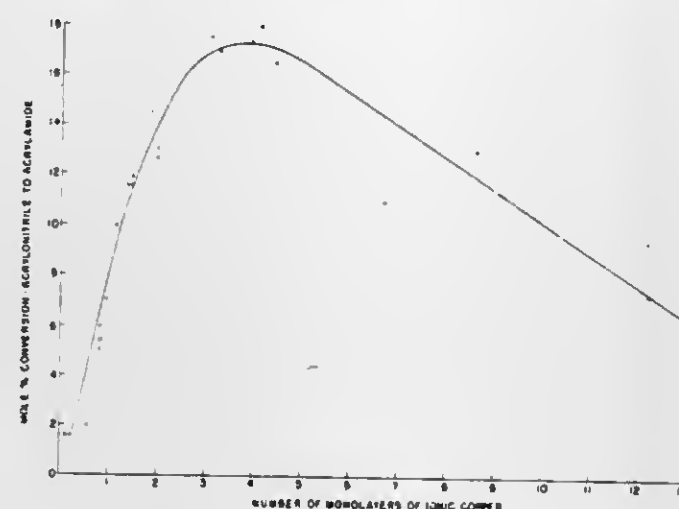
V. Frances Gaylor, Parma; Janice L. Greene, Chagrin Falls; Arthur F. Miller, Lyndhurst, and Marty A. Picbler, Parma, all of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Filed Apr. 1, 1980, Ser. No. 136,191

Int. Cl.³ C25B 1/00, 3/00; C07C 103/12

U.S. Cl. 204—74

45 Claims



1. A process for maintaining the activity of a copper-containing catalyst useful in producing amides from nitriles by hydrolysis comprising: utilizing said copper-containing catalyst as at least one electrode of an electrochemical reactor containing a solution comprising nitrile and water, applying a direct current to the reactor at least intermittently, and controlling the direct current to maintain at least a partial surface coverage of at least an average thickness of about 0.75 monolayers of ionic copper on the catalyst.

4,313,804

PROCESS FOR PREPARING CERIC SULPHATE

Klaus H. Oehr, Surrey, Canada, assignor to B.C. Research Council, Vancouver, Canada

Filed Oct. 21, 1980, Ser. No. 199,351

Int. Cl.³ C25B 1/22

U.S. Cl. 204—93

8 Claims

1. A process for preparing ceric sulphate in solution that comprises electrolyzing an at least saturated solution of cerous sulphate at an anodic current density in the range 100 to 200 mamp/cm², high cathode current density and with vigorous agitation in the presence of dilute sulphuric acid.

4,313,805

CHLORINE CELL CATHOLYTE SERIES FLOW

Harry S. Burney, Clute, and Bobby R. Ezzell, Lake Jackson, both of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Mar. 3, 1980, Ser. No. 126,278

Int. Cl.³ C25B 1/16, 9/00, 13/08

U.S. Cl. 204—98

11 Claims

1. A method for improving the electrical potential of a plurality of electrolytic chlor-alkali cells wherein the cells contain catholyte portions separated from anolyte portions by the use of fluoropolymer membranes, and wherein catholyte liquor flows from catholyte portion to catholyte portion in series, gaining an caustic strength as it flows from cell-to-cell, the strength of the caustic leaving the last cell of the series being greater than about 18%, the improvement comprising, employing as fluoropolymer membranes thin sheets of fluoropolymers containing functional pendant groups substituted in a manner so as to render the fluoropolymer more hydrophilic than polytetrafluoroethylene and less hydro-

philic than fluoropolymers containing sulfonic acid groups attached to pendant perfluorocarbon groups.

tion in the band 1080-1095 cm⁻¹, residual CF₂Cl₂ enriched with ³⁵Cl and ¹³C.

4,313,806

CATHODIC PROTECTION OF CATALYSTS IN A CORROSIVE ENVIRONMENT

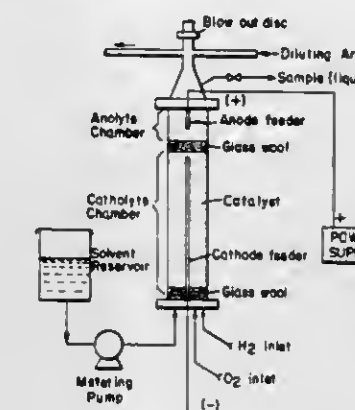
Augustine I. Dalton, Jr., and Ronald W. Skinner, both of Allentown, Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Oct. 10, 1980, Ser. No. 195,815

Int. Cl.³ C23F 13/00

U.S. Cl. 204—147

8 Claims



1. A process for preventing dissolution of a Group VIII noble metal catalyst from a conductive or semiconductive carrier in a corrosive or oxidatively active liquid environment, comprising polarizing the Group VIII noble metal surface on the conductive or semiconductive carrier so as to render the polarized Group VIII noble metal surface cathodic with respect to an anode placed in a reactor containing the corrosive or oxidatively active liquid environment.

4,313,807

METHOD FOR ENRICHING A GASEOUS ISOTOPIC MIXTURE WITH AT LEAST ONE ISOTOPE

Marcel N. de Mevergnies, and Paul Fettweis, both of Mol, Belgium, assignors to "Studiecentrum voor Kernenergie," "S.C.K.," Schaerbeek, Belgium

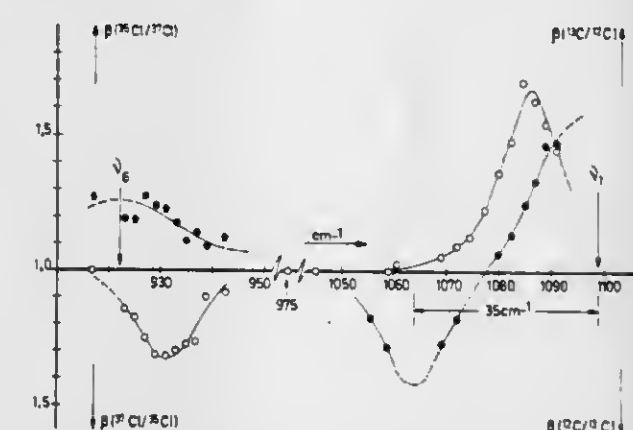
Filed Apr. 3, 1979, Ser. No. 26,507

Claims priority, application Belgium, Apr. 3, 1978, 186519; Feb. 6, 1979, 193306

Int. Cl.³ B01D 59/00

U.S. Cl. 204—157.1 R

5 Claims



1. Method for enriching a gas-like isotopic mixture with at least one isotope, which comprises irradiating a mixture of CF₂Cl₂ and O₂ by means of a pulsed and focalised laser beam at an optical frequency corresponding to a wave number lying in one of the following bands: 920-945 cm⁻¹ and/or 1080-1095 cm⁻¹, so as to form COF₂ and Cl₂ as reaction products, separating the residual CF₂Cl₂ from these reaction products, so as to obtain, for an irradiation in the band 920-945 cm⁻¹, residual CF₂Cl₂ enriched with ³⁷Cl and, for an irradiation in the band 1080-1095 cm⁻¹, residual CF₂Cl₂ enriched with ¹³C.

4,313,808 ELECTRODIALYZER AND METHOD OF REGENERATING WASTE PHOTOGRAPHIC PROCESSING SOLUTION

Noboru Idemoto, Tokuyama; Minoru Yamada, Minami-ashigara; Mamoru Tashiro, Minami-ashigara, and Sachio Matsushita, Minami-ashigara, all of Japan, assignors to Fujii Photo Film Co., Ltd., Minami-ashigara, Japan

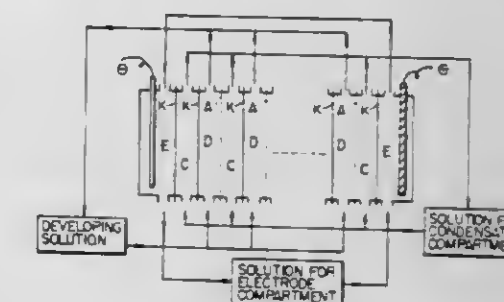
Filed Jun. 16, 1980, Ser. No. 159,567

Claims priority, application Japan, Jun. 15, 1979, 54-76158

Int. Cl.³ B01D 13/02

U.S. Cl. 204—180 P

7 Claims



1. A method for regenerating a waste photographic processing solution by electrodialysis utilizing ion exchange membranes comprising the steps of:

- positioning in an electrodialyzer, a cathode and an anode;
- partitioning the space between said cathode and anode by a plurality of cation exchange membranes and anion exchange membranes alternately arranged in such a way that a farthest membrane from the anode is a cation exchange membrane and a farthest membrane from the cathode is an anion exchange membrane, thus forming a plurality of desalting compartments and an equal number of concentrating compartments alternately arranged in such a way that a farthest compartment from the anode is a desalting compartment and a farthest compartment from the cathode is a concentrating compartment, each of said desalting compartments being partitioned by one of said cation exchange membranes on the cathode side and by one of said anion exchange membranes on the anode side thereof, and each of said concentrating compartments being partitioned by one of said anion exchange membranes on the cathode side and by one of said cation exchange membranes on the anode side thereof;
- positioning a cation exchange membrane between the cathode and the farthest cation exchange membrane from the anode to form a concentrating compartment partitioned by cation exchange membranes on both sides thereof and a cathode compartment;
- positioning a cation exchange membrane between the farthest anion exchange membrane from the cathode and the anode to form a concentrating compartment partitioned by one of said anion exchange membrane and said cation exchange membrane and an anode compartment;
- providing a waste solution to be regenerated by each desalting compartment and circulating said waste solution therethrough;
- providing an electrolyte solution to each of said concentrating compartments and circulating said electrolyte solution therethrough;
- providing a common electrolyte solution to said cathode compartment and anode compartment and circulating said electrolyte solution therethrough; and
- passing a direct electric current across the alternating membranes and compartments.

4,313,809

METHOD OF REDUCING EDGE CURRENT LEAKAGE IN N CHANNEL SILICON-ON-SAPPHIRE DEVICES

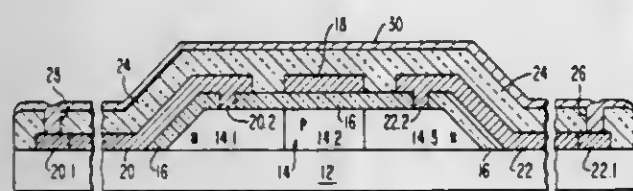
Carl W. Benyon, Jr., Trenton, and John J. O'Neill, Jr., Belle Mead, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Oct. 15, 1980, Ser. No. 197,286

Int. Cl.³ C23C 15/00

U.S. Cl. 204—192 C

6 Claims



1. In a process for reducing the zero gate voltage leakage of an MOS device, wherein a plurality of devices are initially formed on a wafer of insulating material, each device having source and drain regions, first and second interconnecting leads in ohmic contact with respective source and drain regions, third interconnecting leads capacitively coupled to respective channel regions, and a passivating layer covering each of the devices on the wafer, the improved process comprising the steps of:

sputtering a layer of metal on the passivating layer completely covering each device on the wafer; and removing the sputtered layer.

4,313,810

OXYGEN CONCENTRATION SENSING APPARATUS

Hitoshi Niwa, Anjo; Naoto Miwa, Tsushima; Masatoshi Suzuki, Kariya, and Masami Ouki, Nagoya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

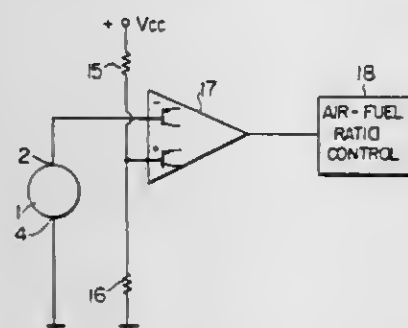
Filed Jun. 27, 1979, Ser. No. 53,181

Claims priority, application Japan, Jul. 7, 1978, 53/83343

Int. Cl.³ G01N 27/58

U.S. Cl. 204—195 S

5 Claims



1. An oxygen concentration sensing apparatus comprising: a block of an oxygen-ion conductive solid electrolyte for exposure wholly to a stream of gases containing oxygen whose concentration is to be measured;

a first electrode and a second electrode disposed opposite to each other with said solid electrolyte block interposed therebetween;

said first electrode being made of a catalytic metal capable of exerting a catalytic action on gases containing oxygen, at least a portion of said first electrode being exposed on one of the faces of said solid electrolyte block;

said second electrode being porous and made of a catalytic metal capable of exerting a catalytic action on gases containing oxygen;

cover means covering the exposed portion of said first electrode and being a layer of an electrical insulating heatresistive material having a plurality of communication pores; and

an electric circuit supplying continuously an electric current in a direction from said first electrode toward said second

electrode during the period of measurement of the oxygen concentration, wherein said electric circuit comprises means for generating a reference voltage, and comparator means having first and second input terminals connected respectively to said first electrode and said generating means being constructed to cause a constant current to flow into said solid electrolyte block from said first terminal of said comparator means via said first electrode.

4,313,811

ARRANGEMENT OF BUSBARS FOR ELECTROLYTIC CELLS

Jean M. Blanc, Sierre, Switzerland, assignor to Swiss Aluminium Ltd., Chippis, Switzerland

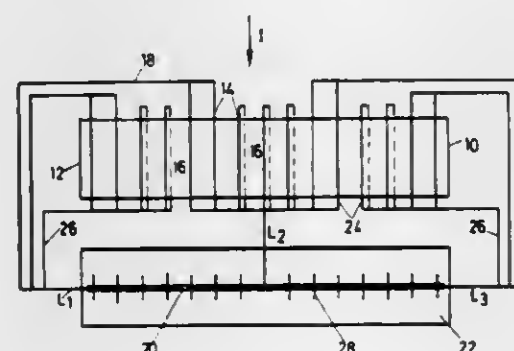
Filed Nov. 10, 1980, Ser. No. 205,735

Claims priority, application Switzerland, Jun. 23, 1980, 4786/80

Int. Cl.³ C25C 3/16

U.S. Cl. 204—243 M

13 Claims



1. In a series of electrolytic cells provided with a plurality of cathode bars an arrangement of a plurality of busbars for conducting the direct current from the cathode bar ends of a transversely disposed cell to the anode bar of the next cell in the series wherein a portion of said plurality of busbars pass under the cell the improvement which comprises connecting the cathode bar ends which lie upstream of the current flow in the cell to said plurality of busbars and alternately passing said plurality of busbars under the cell and around the cell.

4,313,812

MEMBRANE ELECTRODE PACK CELLS DESIGNED FOR MEDIUM PRESSURE OPERATION

Morton S. Kircher, Clearwater, Fla., assignor to Olin Corporation, New Haven, Conn.

Continuation-in-part of Ser. No. 128,684, Mar. 10, 1980, and a continuation-in-part of Ser. No. 143,969, Apr. 25, 1980. This application Jun. 6, 1980, Ser. No. 157,918

Int. Cl.³ C25B 9/00, 13/00, 11/04

U.S. Cl. 204—253

10 Claims

1. A filter-press type of electrolytic cell assembly, said assembly comprising:

(a) a plurality of adjacently positioned electrode frames, each frame having a first side and an opposing second side interconnected by an outside face;

(b) a separator formed to fit between each pair of adjacently positioned frames when in an assembled position;

(c) at least a first and an opposing second vertical planar layer of electrode material attached to each frame conforming in shape to said frames positioned parallel but spaced apart and having smaller external dimensions than said frames, each of said first and second layers being affixed to and overlapping on a portion of said first side and said second side respectively of each of said frames so as to form an outwardly facing shoulder on at least one of each side of each of said frames;

(d) a gasket retainer member affixed to said outside face of at least one of said plurality of frames and projecting beyond

4,313,814

ELECTRODE FOR ELECTROLYSIS AND MANUFACTURE THEREOF

Shunjiro Saito; Akio Nakamura, and Makoto Kobayashi, all of Tokyo, Japan, assignors to TDK Electronics Co., Ltd., Tokyo, Japan

Filed Dec. 22, 1977, Ser. No. 863,425

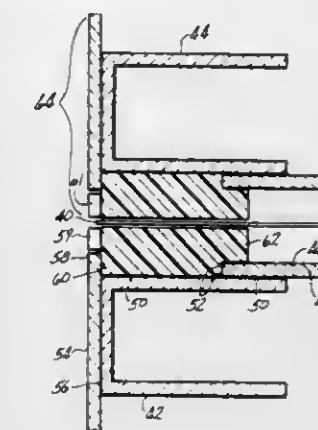
Claims priority, application Japan, Jan. 27, 1977, 52-8086

Int. Cl.³ C25B 11/08

U.S. Cl. 204—290 F

14 Claims

1. An electrode for electrolysis, which comprises: a conductive metal substrate of titanium, zirconium or tantalum having coated thereon a layer consisting of a combination of palladium oxide and platinum metal or a combination of palladium oxide and Pt-Pd alloy wherein on a basis of 100 mole percent palladium and platinum metal in said coating, palladium constitutes 99 to 5 mole percent of the total noble metal content and platinum metal constitutes 1 to 95 mole percent of the total noble metal content and wherein at least 25 weight percent of the palladium component of said coating exists in the form of palladium oxide.



(e) a gasket adapted to fit against at least one side of one of said frames and between said inwardly facing shoulder and said outwardly facing shoulder so as to seal the space between said separator and said side.

4,313,815

SPUTTER-COATING SYSTEM, AND VACUUM VALVE, TRANSPORT, AND SPUTTER SOURCE ARRAY ARRANGEMENTS THEREFOR

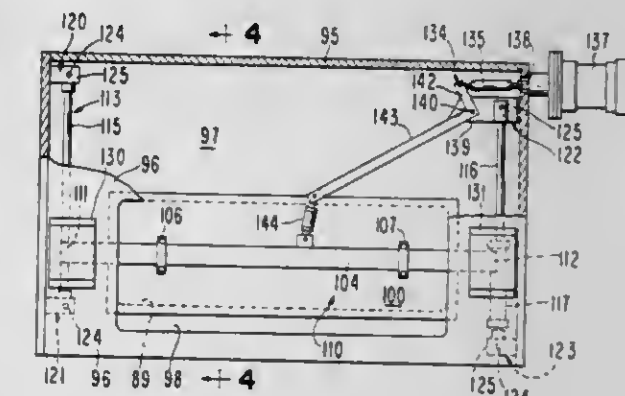
Walter E. Graves, Jr., San Jose; Donald Boys, Cupertino, and Frederick T. Turner, Sunnyvale, all of Calif., assignors to Varian Associates, Inc., Palo Alto, Calif.

Filed Apr. 7, 1978, Ser. No. 894,287

Int. Cl.³ C23C 15/00

U.S. Cl. 204—298

9 Claims



1. High throughput sputter coating system for coating workpieces carried by an internal chamber conveyor which has a width several times the diameter of an individual sputtering source, and capable of interfacing with input and output conveyor means and air locks, comprising:

a vacuum processing chamber having an entrance opening and an exit opening at opposite ends thereof;

internal chamber conveyor means for carrying workpieces, said conveyor means extending between said entrance and exit openings;

a first plurality of sputtering sources mounted within said vacuum processing chamber above said internal conveyor means and extending in a side-by-side array transversely to the direction of said internal conveyor means;

first and second isolation valve means sealing said entrance and exit openings of said processing chamber, each of said isolation valves including

a wide plate-like gate of width at least that of said internal conveyor means, and sealingly overlappable with the corresponding chamber opening,

an elongated member affixed transversely across said gate and extending beyond the edges of said gate, means for supporting said gate at the ends of said elongated member, said means adapted to permit upward and downward movement in a first direction parallel to said chamber

4,313,816

FIXED BED OXYGEN DEPOLARIZED CATHODE CHLOR-ALKALI CELL

Harlan B. Johnson, Rittman, and Ronald D. Chamberlin, Wadsworth, both of Ohio, assignors to PPG Industries, Inc., Pittsburgh, Pa.

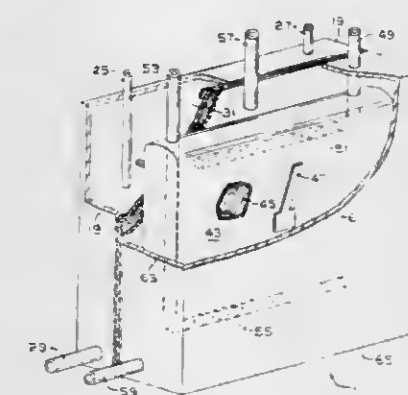
Division of Ser. No. 82,841, Oct. 9, 1979, Pat. No. 4,244,793.

This application Jun. 26, 1980, Ser. No. 163,120

Int. Cl.³ C25B 9/00, 11/03, 11/06, 11/12

U.S. Cl. 204—263

5 Claims



1. In an electrolytic cell having
(a) an anolyte compartment fabricated of a material resistant to concentrated, chlorinated, alkali metal chloride brines;
(b) an anode in said anolyte compartment;
(c) a catholyte compartment fabricated of a material resistant to concentrated, alkali metal hydroxide solutions;
(d) cathode means comprising porous particles having areas of HO_2^- -disproportionation catalyst;
(e) means for feeding an oxidant to said catholyte compartment; and
(f) an ion permeable barrier interposed between said anode and said cathode means;
the improvement wherein said HO_2^- -disproportionation catalyst is LaCoO_3 .

opening and limited inward and outward movement in a second direction normal to said chamber opening, means acting at the ends of said elongated member for applying closure force to said gate inwardly in said second direction toward said chamber opening, means connected to said elongated member for moving said gate up and down along said means supporting said gate; whereby said system may interface with input and output conveyors and air locks to accept workpieces which are advanced at high throughput rates through said valve means and into said chamber.

4,313,816

STAGED TEMPERATURE COAL CONVERSION PROCESS

Lavanga R. Veluswamy, Houston, and Peter S. Maa, Baytown, both of Tex., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Aug. 25, 1980, Ser. No. 180,543
Int. Cl.³ C10G 1/00, 1/06

U.S. Cl. 208—10

15 Claims

1. A process for converting coal or similar liquefiable carbonaceous solids into lower molecular weight liquid hydrocarbons which comprises:

- contacting said carbonaceous solids with molecular hydrogen in the absence of externally added hydrocarbon liquids under liquefaction conditions during sequential residence in two or more liquefaction zones arranged in series and operated such that (i) the temperature in each zone increases from the first to the final zone of the series and (ii) the total of the solids residence times in all except the final zone of the series is greater than about 40 minutes, wherein said carbonaceous solids are partially converted into lower molecular weight liquid hydrocarbons in each of said liquefaction zones and the only hydrocarbon liquids added to each liquefaction zone subsequent to said first liquefaction zone are the liquids in the effluent from the preceding liquefaction zone; and
- recovering liquid hydrocarbonaceous product from the effluent of said final liquefaction zone.

4,313,817

HYDROCARBON CONVERSION CATALYST AND PROCESS USING SAID CATALYST

Jerome F. Mayer, San Anselmo, and Stephen J. Miller, San Francisco, both of Calif., assignors to Chevron Research Company, San Francisco, Calif.

Continuation-in-part of Ser. No. 21,751, Mar. 19, 1979. This application Jun. 16, 1980, Ser. No. 160,033
Int. Cl.³ C10G 45/08, 47/20, 65/12

U.S. Cl. 208—89

22 Claims

14. A hydrocracking process comprising contacting a hydrocarbon feed containing substantial amounts of materials boiling above 95° C., said feed having a content of nitrogen-containing impurities, calculated as nitrogen, which is below about 10 ppmw, in a reaction zone with hydrogen and a catalyst under hydrocracking conditions wherein said catalyst comprises a composite containing:

- A porous amorphous matrix selected from the group consisting of alumina-silica, alumina-silica-titania and alumina-silica-zirconia polygels, said polygels having an alumina-silica weight ratio in the range of from about 0.2-20 to 1 respectively;
- A hydrogenation component of (1) nickel in an amount, calculated as metal, in the range of from about 1 to 10 weight percent of said matrix, and (2) tungsten, in an amount calculated as metal, in the range of from about 5 to 25 weight percent of said matrix, said hydrogenation component being in the form of metal or oxide or sulfide or any combination thereof and (3) dispersed through said matrix; and
- A finely divided crystalline aluminosilicate zeolite component of the ZSM-5-type substantially in the ammonium

or hydrogen form, said zeolite being (1) substantially free of hydrogenation component and (2) dispersed through said matrix.

4,313,818

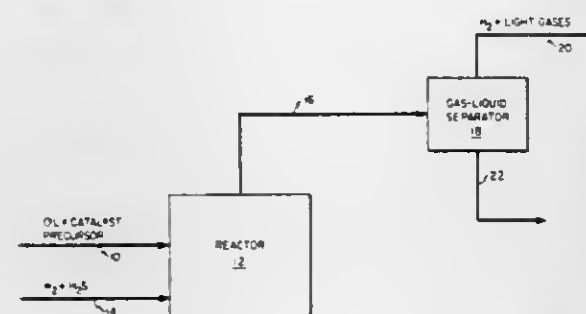
HYDROCRACKING PROCESS UTILIZING HIGH SURFACE AREA CATALYSTS

Clyde L. Aldridge, and Roby Bearden, Jr., both of Baton Rouge, La., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Division of Ser. No. 955,526, Oct. 30, 1978, Pat. No. 4,244,839, which is a continuation-in-part of Ser. No. 847,898, Nov. 2, 1977, Pat. No. 4,134,825, which is a continuation-in-part of Ser. No. 702,227, Jul. 2, 1976, abandoned. This application Dec. 19, 1979, Ser. No. 105,249
Int. Cl.³ C10G 47/06

U.S. Cl. 208—108

9 Claims



1. A hydrocracking process which comprises contacting a hydrocarbonaceous oil feed in the presence of added hydrogen at hydrocracking conditions with a high surface area catalyst prepared by the steps which comprise:

- adding to a hydrocarbon oil charge stock having a Conradson carbon content up to about 50 weight percent, a thermally decomposable metal compound in an amount sufficient to provide a ratio of atoms of oil charge stock Conradson carbon to atoms of metal constituent of said thermally decomposable metal compound of less than about 750 to 1, said metal constituent being selected from the group consisting of Group II, Group III, Group IV, Group V, Group VIB, Group VIIB and Group VIII of the Periodic Table of Elements and mixtures thereof;
- heating said thermally decomposable metal compound within said charge stock at an elevated temperature in the presence of a gas selected from the group consisting of a hydrogen-containing gas, a hydrogen sulfide-containing gas, and a gas comprising hydrogen and hydrogen sulfide, to produce a solid high surface area catalyst within said charge stock; and
- recovering said high surface area catalyst.

4,313,819

PROCESS FOR RECOVERING DEASHING SOLVENT FROM INSOLUBLE COAL PRODUCTS

Theodore A. Rado, Oklahoma City, Okla., assignor to Kerr-McGee Corporation, Oklahoma City, Okla.

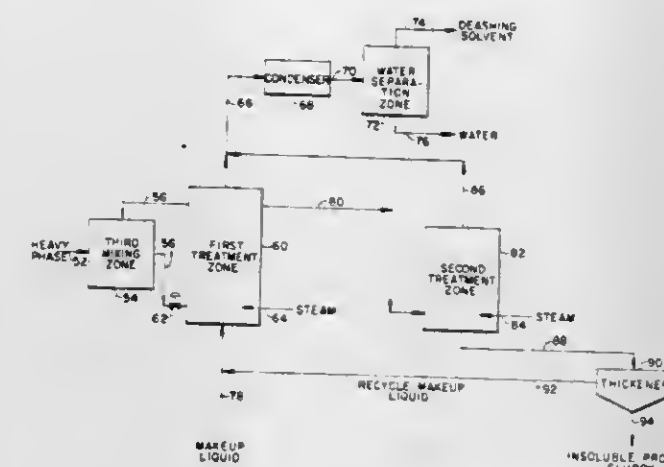
Filed May 22, 1980, Ser. No. 152,422
Int. Cl.³ C10G 1/00

U.S. Cl. 208—177

10 Claims

1. A process comprising:
- providing coal liquefaction products comprising soluble coal products and insoluble coal products;
 - contacting said coal liquefaction products with a deashing solvent to provide a feed mixture;
 - introducing said feed mixture into a separation zone maintained at an elevated temperature and pressure level to effect a separation of said feed mixture into a light phase and a heavy phase comprising insoluble coal products and deashing solvent;
 - contacting said heavy phase with a recycled cool slurry comprising insoluble coal products and water in a suffi-

cient quantity to reduce the vapor pressure of said heavy phase and to provide a diluted heavy phase; reducing the elevated pressure level of said diluted heavy phase; introducing the reduced pressure diluted heavy phase into a first treatment zone maintained under conditions such that at least a portion of the deashing solvent contained in said diluted heavy phase is vaporized, said vaporization resulting in cooling of said diluted heavy phase to form a cooled slurry; introducing makeup water into said first treatment zone to admix with the heavy phase to effect formation of the slurry present therein; withdrawing a portion of said cooled slurry to provide said



recycle cool slurry which is contacted with said heavy phase; withdrawing another portion of said cooled slurry and introducing said withdrawn portion into a second treatment zone, said second treatment zone maintained under conditions such that at least a portion of any deashing solvent infused in the insoluble coal products is caused to diffuse therefrom as vaporized deashing solvent; withdrawing vaporized deashing solvent from said first and second treatment zones; condensing said vaporized deashing solvent for recycle to provide at least a portion of said deashing solvent present in said feed mixture; and withdrawing said remaining slurry from said second treatment zone.

4,313,820

HYDRODESULFURIZATION OF ORGANIC SULFUR COMPOUNDS AND HYDROGEN SULFIDE REMOVAL WITH INCOMPLETELY SULFIDED ZINC TITANATE MATERIALS

Floyd E. Farha, Jr., and Lloyd E. Gardner, both of Bartlesville, Okla., assignors to Phillips Petroleum Co., Bartlesville, Okla. Continuation-in-part of Ser. No. 125,438, Feb. 28, 1980, abandoned. This application Sep. 23, 1980, Ser. No. 190,004
Int. Cl.³ C10G 45/04, 45/60

U.S. Cl. 208—213

38 Claims

1. A process for hydrodesulfurizing an organic sulfur compound contained in a fluid stream to convert the sulfur in the organic sulfur compound to hydrogen sulfide and for removing hydrogen sulfide from the fluid stream comprising the step of contacting said fluid stream under suitable hydrodesulfurization conditions with an incompletely sulfided catalyst/absorbing composition comprising zinc titanate, and at least one promoter selected from the group consisting of vanadium, chromium, manganese, iron, cobalt, nickel, molybdenum, rhodium, and compounds thereof, wherein the concentration by weight of said at least one promoter in said catalyst/absorbing composition is less than the total concentration by weight of said zinc titanate in said catalyst/absorbing composition.

26. A process for hydrodesulfurizing an organic sulfur compound contained in a fluid stream, which does not contain

4,313,821

PROCESSING OF COAL LIQUEFACTION PRODUCTS

William E. Garwood, Haddonfield, N.J.; Sterling E. Voltz, Media, Pa., and Ellen L. Wu, Glassboro, N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Continuation of Ser. No. 941,437, Sep. 11, 1978, abandoned. This application Mar. 10, 1980, Ser. No. 128,658

Int. Cl.³ C10G 25/05

U.S. Cl. 208—245

11 Claims

1. A process for removing undesirable components from the light organic liquid by-products of Solvent Refined Coal liquefaction processes containing the same, said by-products boiling in the gasoline range and having a specified octane number which comprises the steps of (1) subjecting said light organic liquid by-products to an ion-exchange resin treatment allowing adsorption of at least a portion of said undesirable components by said ion-exchange resin, and (2) contacting the resulting partially undesirable component-depleted light organic liquid with a zeolite acting as an adsorbent for the remaining undesirable components in said depleted light organic liquid, thereby further reducing the concentration of same under controlled conditions of space velocity, temperature, and pressure, while simultaneously preserving or enhancing the octane number of said light organic liquid by-products.

4,313,822

METHOD FOR RECOVERING THE LEAD AND ZINC VALUES IN SECONDARY SCRUBBER MUDS FROM BLAST FURNACE GASES

Jean M. Cases; Georges Valence, both of Vandoeuvre, and Olivier Lietard, Precy sur Oise, all of France, assignors to Agence Nationale de Valorisation de la Recherche (ANVAR), Neuilly sur Seine, France

Continuation of Ser. No. 7,182, Jan. 29, 1979, Pat. No.

4,250,027. This application Jul. 24, 1980, Ser. No. 171,813

Claims priority, application France, Jan. 31, 1978, 78 02676

The portion of the term of this patent subsequent to Feb. 10,

1998, has been disclaimed.

Int. Cl.³ B07B 1/00

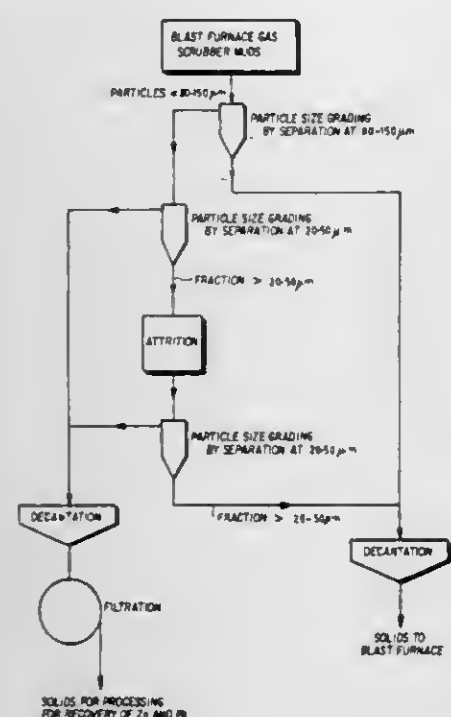
U.S. Cl. 209—233

6 Claims

1. A process for recovering lead and zinc values from blast furnace scrubber mud which comprises:

- separating from said mud a first fraction having particle sizes less than about 80-150 μ m;
- separating from said first fraction a second fraction having a particle size greater than about 10 to 50 μ m;
- scouring by attrition said second fraction having a particle size greater than about 10 to 50 μ m to separate lead and zinc values from said fraction;
- separating the particles from steps (b) and (c) having a

size less than about 10 to 50 μm for recovery of the lead and zinc values contained therein; and



(e) recycling to the feed of the blast furnace the fractions from steps (a) and (c) having a particle size greater than about 10 to 50 μm .

4,313,823

SIEVE DEVICE FOR SEPARATING A MIXTURE OF PARTICULATE MATERIAL IN COMPONENTS OF DIFFERENT SIZES

Jan A. K. Locker, Steenwijk, Netherlands, assignor to Machinefabriek A. Wijnveen B.V., Ede and Cooperative Landbouw aan- en verkoopcombinatie, B.A. "C.L.C.", Steenwijk, both of, Netherlands

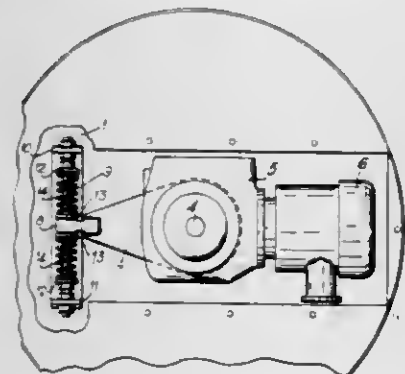
Filed Oct. 10, 1980, Ser. No. 196,090

Claims priority, application Netherlands, Oct. 12, 1979, 7907587

Int. Cl.³ B07B 1/08

U.S. Cl. 209—369

2 Claims

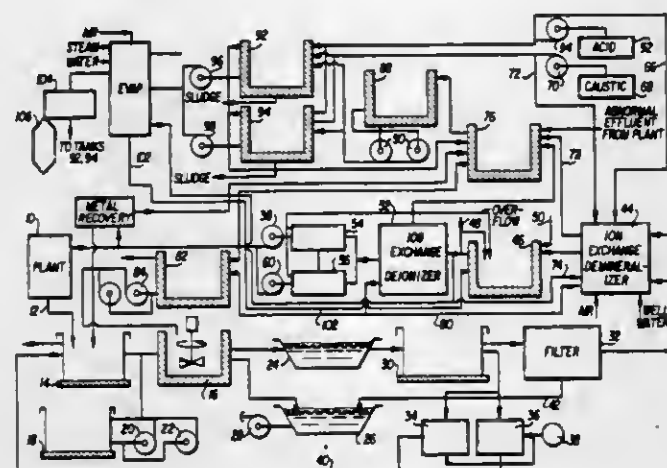


1. In a sieve device for separating a mixture of particulate material into components of different sizes, said sieve device having a perforated sieve surface rotated by a central vertical shaft in a housing, improved means for compensating for torsional shock loads applied to the sieve surface and shaft wherein said shaft is mounted on said housing and rigidly coupled to a drive means for positioning the latter adjacent the housing, and wherein a spring device extends normal to said shaft and is interposed between said drive means and housing for resiliently absorbing said torsional shock loads.

4,313,824
WASTE WATER TREATMENT SYSTEM AND PROCESS
Christina L. Huss, and Jon K. West, both of Gainesville, Fla., assignors to General Electric Company, Gainesville, Fla.
Filed Nov. 24, 1980, Ser. No. 200,349
Int. Cl.³ C02C 5/00

U.S. Cl. 210—86

4 Claims



1. In an industrial plant of the type having first waste liquid effluents with impurities in anticipated relatively low ranges of concentration; second waste liquid effluents, caused at least in part by leakage or spillage in the plant, with impurities in significantly higher ranges of concentration; and a network of drainage trenches for removing said effluents from the plant, the improvement comprising:

at least one liquid dam in said network for blocking flow of liquid through at least one of said trenches and thereby stopping the flow of said second liquid effluents from the plant;

means for detecting intermediate and low levels of said second liquid effluents behind said at least one liquid dam; means responsive to said detecting means for pumping said second liquid effluents from behind said dam when the liquid level is between said intermediate and low liquid levels;

means connected to said pumping means for concentrating the impurities in said second liquid effluents, for disposal; at least one conduit for receiving the flow of said first liquid effluents and directing it past said at least one liquid dam; means connected to said at least one conduit for removing the impurities in said first liquid effluents, whereby acceptably clean water is produced; and means for passing said acceptably clean water back to the plant for reuse.

4,313,825

CONTROL SYSTEM FOR METER ACTUATED REGENERATION IN A WATER TREATMENT SYSTEM

Andrew J. Fleckenstein, Brookfield, and Michael C. Mortl, Glendale, both of Wis., assignors to L. W. Fleckenstein, Inc., Brookfield, Wis.

Filed Feb. 23, 1981, Ser. No. 236,993

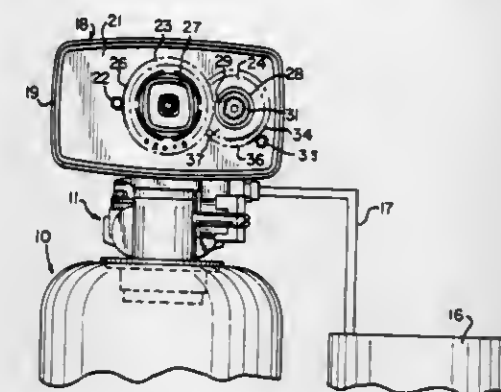
Int. Cl.³ C02F 5/00; G05G 17/00

U.S. Cl. 210—89

7 Claims

1. A control for regeneration of a water treatment system having an inlet for receiving water to be treated and an outlet for dispensing treated water, said control system including a regeneration cycle mechanism, a timer wheel driven by a motor settable for a given time of day, a water meter disposed in constant communication with either said inlet or said outlet and continuously driven by the passage of water through said meter, and a water volume wheel mechanically driven constantly by said water meter such that said water volume wheel is rotatable to an operative position upon the passage of a predetermined volume of water through said water meter during its continued operation so as to coact with said timer

wheel at a predetermined time such that regeneration will automatically take place after the treatment of a predetermined boundary surface area varying, and giving adjustment instructions to the automatically actuated valve.

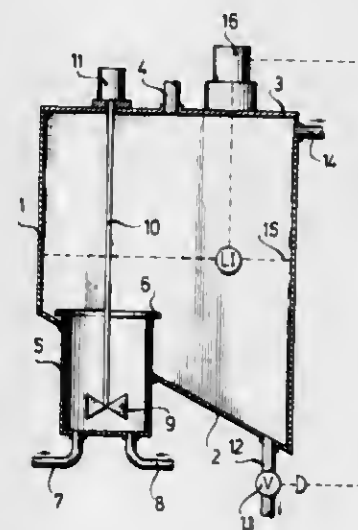


4,313,826
LIQUID-LIQUID EXTRACTION APPARATUS
Reinhard Gradl, Hürth; Klaus Schrödter, Cologne, and Klaus-Peter Ehlers, Erfstadt, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany
Filed Jun. 30, 1980, Ser. No. 164,035
Claims priority, application Fed. Rep. of Germany, Jul. 4, 1979, 2926959

Int. Cl.³ B01D 17/02

U.S. Cl. 210—114

3 Claims

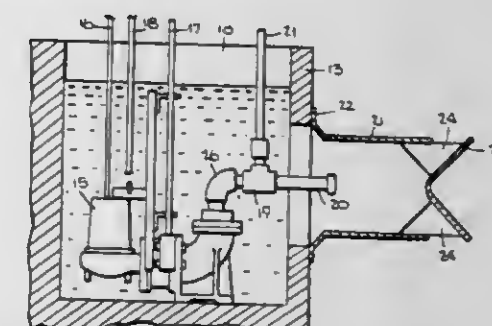


1. A mixer/settler-type apparatus for continuous liquid-liquid extraction which comprises: a mixing vessel being provided, near its upper end, with a turned down overflow edge and a separating vessel being provided with an inclined bottom portion and a cover; said mixing vessel being tightly mounted in the inclined bottom portion of the separating vessel so as to partially open thereinto; a cover-supported motor driving a shaft terminating inside the mixing vessel and being provided with an agitator fastened thereon; said mixing vessel being formed with an inlet for admitting dense phase and an inlet for admitting light phase, at least one of said inlets being arranged so as to open into the mixing vessel through the bottom portion thereof; said separating vessel being formed with an upper outlet for light phase passed through its sidewall, near the cover and being further formed with a lower outlet for dense phase passed through the inclined bottom, near the lowermost level thereof; a cover-supported regulator connected to a level indicator LI for investigating the phase boundary surface area inside the separating vessel, said level indicator LI being disposed at a level necessary for the phase boundary surface area to lie distinctly above the overflow edge of the mixing vessel; the lower outlet of the separating vessel being provided with an automatically actuated valve; and said regulator receiving signals from the level indicator LI in the event of the phase

4,313,827
ENHANCED DISINFECTANT SYSTEM
Brian J. Ratigan, Philadelphia, and Robert N. Roop, Buckingham, both of Pa., assignors to Fischer & Porter Co., Warminster, Pa.
Filed Sep. 4, 1980, Ser. No. 184,031
Int. Cl.³ C02F 1/50, 1/76

U.S. Cl. 210—136

8 Claims



1. An enhanced disinfectant system for intermingling a disinfectant with an effluent stream, said system comprising:
A. a mixing duct through which said effluent stream is conducted from a sump chamber into a contact chamber;
B. an ejector coupled to said disinfectant source and terminating in a cylindrical diffuser section having a closed end, said diffuser section being coaxially disposed at the inlet to said duct and having at least one circumferential series of orifices;
C. pump means drawing a minor portion of said effluent from said sump chamber and feeding it under pressure into said ejector as the motive fluid therefor to create a vacuum educting said disinfectant from the source to produce a disinfectant fluid which is emitted from the circumferential series of orifices of the diffuser section in the form of radial jets projecting at right angles to the direction of effluent flow and at a velocity substantially greater than the velocity of said effluent stream to create a disinfectant curtain that is intercepted and detected by said stream, whereby said disinfectant fluid is dispersed in said stream to intermix therewith in a relatively short time before the stream is discharged into said contact chamber; and
D. a baffle secured to the outlet of the duct and spaced therefrom to define a lateral discharge opening therebetween from which the disinfected effluent is discharged radially into said contact tank, said baffle impeding the discharge of the effluent to further promote rapid mixing of the disinfectant fluid and the effluent stream in said duct.

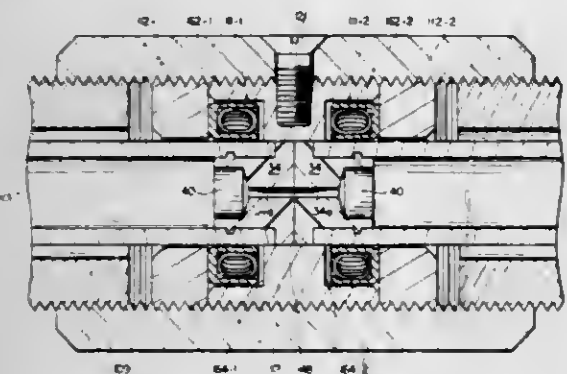
4,313,828
HIGH PRESSURE TUBING COUPLER
Robert Brownlee, Santa Clara, Calif., assignor to Brownlee Labs, Inc., Santa Clara, Calif.
Filed Mar. 26, 1979, Ser. No. 23,954
Int. Cl.³ B01D 15/08

U.S. Cl. 210—198.2

10 Claims

1. Apparatus forming a high pressure coupler for coupling and decoupling a tube to another part to provide a zero dead volume connection therebetween, a fitting connected or associated with said part for high pressure liquid delivery or reception, said fitting including means forming an opening for receiving said tube, said means including a first recess forming a chamber for receiving the end of said tube, means forming a zero dead volume seal between said fitting and said tube, said fitting further including an annular recess spaced away from said chamber in the direction of said tube and surrounding the same, a spring loaded balanced hydraulic seal disposed in said annular recess, means for keeping the balanced liquid pressure

actuated seal in said annular recess, said balanced seal being dimensioned to lie in close fitting contact between said tube and the wall defining said annular recess, means within said hydraulic seal for yieldably urging the same between the annular recess and the outer wall of said tube and providing a low pressure seal thereby, said balanced seal being U-shaped in radial cross section and open towards said first seal and cham-



ber so that in operation leakage from the first seal fills the balanced seal to the pressure passing between the tube and coupler to cause radial forces of equal magnitude to be applied between said tube and the wall of said annular recess in said fitting thereby effecting automatic sealing to a pressure equal to the high pressure of the fluid passing therethrough and means for urging the tube and coupler together to establish said first zero dead volume seal.

4,313,829

APPARATUS FOR SEPARATING THE COMPONENTS OF A NON-NEWTONIAN FLUID

Joram Agar, Grand Cayman, British West Indies, assignor to Agar Corporation N.V., Netherlands Antilles

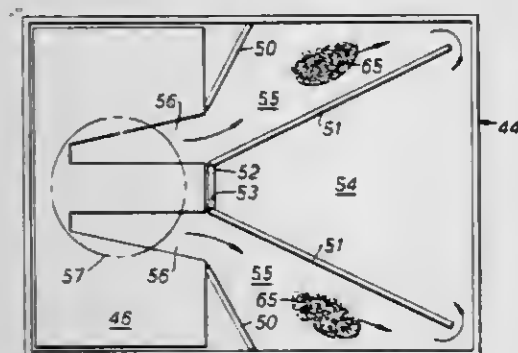
Filed Feb. 27, 1980, Ser. No. 125,075

Claims priority, application United Kingdom, Feb. 1, 1980, 03552/80

Int. Cl.³ C02F 1/40; E02B 15/04

U.S. Cl. 210—242.3

10 Claims



1. Apparatus for separating the components of a non-Newtonian fluid comprising a reciprocable member adapted to be in contact with the fluid; a slotted member having at least one slot therein, the slotted member being disposed adjacent to but spaced from the reciprocable member to cause reciprocation of the reciprocable member away from the slotted member to draw the fluid into the space between said reciprocable member and said slotted member and reciprocation of the reciprocable member towards the slotted member to expel the fluid from said space; means for reciprocating the reciprocable member relatively fast in one direction of reciprocation and relatively slowly in the opposite direction thereof; and means defining at least one collection space which communicates with said at least one slot, reciprocation of the reciprocable member moving one of the components of the fluid to said at least one collection space.

4,313,830 METHOD FOR INCREASING THE CROSS-FLOW MICROFILTRATION FLUXES OF WASTE WATERS CONTAINING SUSPENDED SOLIDS AND/OR EMULSIFIED OIL

Marshall P. Tulin, Chevy Chase, and John E. Santo, Columbia, both of Md., assignors to Hydronautics, Incorporated, Laurel, Md.

Filed May 23, 1980, Ser. No. 152,639

Int. Cl.³ B01D 13/00

U.S. Cl. 210—639

10 Claims



1. A method for increasing the cross-flow microfiltration fluxes of waste waters containing suspended solids and/or emulsified oil comprising the steps of:

- adding sulfuric acid to waste waters in an amount sufficient to lower the pH of said waste waters to an acidic value;
- adding calcium hydroxide to said acidified waste waters in an amount sufficient to form calcium sulfate in situ in the waste water in an amount ranging from above the solubility limit of said calcium sulfate to about forty (40) percent by weight of said waste waters and;
- filtering said waste waters containing said calcium sulfate by cross-flow microfiltration through microporous thermoplastic tubes, wherein said microporous tubes; (i) are made of an extrudable thermoplastic composition selected from the group consisting of nylon and polyethylene; (ii) have walls about one (1) millimeter in thickness; (iii) have a dominant pore size ranging from one (1) to ten (10) microns; and (iv) having a porosity of about 65 percent.

4,313,831

PROCESS AND DEVICE FOR THE REMOVAL OF WASTE METABOLITES FROM A SOLUTION CONTAINING SUCH METABOLITES

Hans-Dieter Lehmann, Hechingen, Fed. Rep. of Germany, and Lars-Ake Larsson, Lodekoping, Sweden, assignors to Gambro Dialysatoren KG, Fed. Rep. of Germany and Gambro AB, Sweden

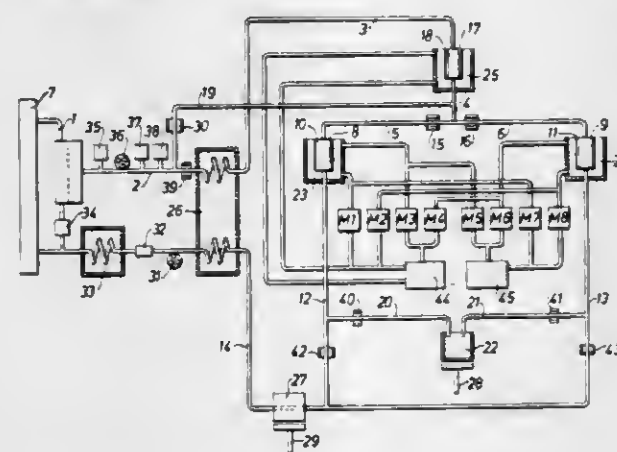
Filed Dec. 17, 1979, Ser. No. 104,446

Claims priority, application Sweden, Jan. 4, 1979, 7900063

Int. Cl.³ B01D 13/00

U.S. Cl. 210—646

12 Claims



1. A process for the removal of waste metabolites from a metabolite-containing solution by alternately adsorbing and desorbing said metabolites on an adsorbent contained in a plurality of columns, said process comprising alternately delivering said metabolite-containing solution to said first and second adsorbent-containing columns so as to alternately adsorb and

desorb said metabolites on said adsorbent in said first and second columns, respectively, said metabolites being adsorbed on said adsorbent during said delivery of said metabolite-containing solution to said columns, and said metabolite-containing solution remaining in contact with said adsorbent during said desorption of said columns, maintaining said first and second columns, respectively, at a first predetermined temperature during said adsorption of said metabolites on said adsorbent, maintaining said first and second columns, respectively, at a second predetermined temperature during said desorption of said metabolite from said adsorbent, said first predetermined temperature being lower than said second predetermined temperature so as to increase the effectiveness of said adsorbent for adsorption of said metabolites therein at said first predetermined temperature, flushing said first and second columns, respectively, with a flushing solution subsequent to desorption of said columns, and terminating the flow of said metabolite-containing solution to said first and second columns, respectively, prior to flushing said columns so that desorption of said columns is carried out substantially without the flow of liquid therein.

4,313,832

METHOD FOR TREATMENT OF AQUEOUS SOLUTIONS WITH ION EXCHANGE FIBERS

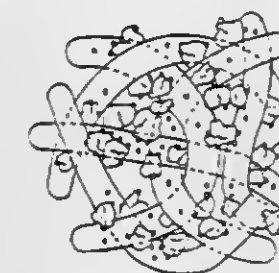
Hiroshi Shimizu, Tokyo; Toshiyuki Daigo, Kashiwa, and Hideo Azuma, Kasukabe, all of Japan, assignors to Rohm and Haas Company, Philadelphia, Pa.

Filed Jun. 12, 1980, Ser. No. 158,971

Int. Cl.³ B01D 37/02, 15/04

U.S. Cl. 210—663

17 Claims



9. A process for simultaneously removing ionic impurities and suspended particulate impurities from an aqueous solution containing said impurities which comprises the consecutive steps of:

- mixing ion exchange fibers having a thickness from about 2 to about 200 micrometers and a length of more than twice their thickness, to intertwine the fibers into a compact mass;
- converting the compact mass of fibers into a slurry with water and applying the slurry to a filter support, to form a precoat layer thereon, and
- passing the aqueous solution containing the impurities through the precoat layer to remove the impurities.

4,313,833

WASTE WATER TREATMENT SYSTEM AND PROCESS

Jon K. West, Gainesville, Fla., assignor to General Electric Company, Gainesville, Fla.

Filed Oct. 24, 1980, Ser. No. 200,350

Int. Cl.³ C02C 5/00

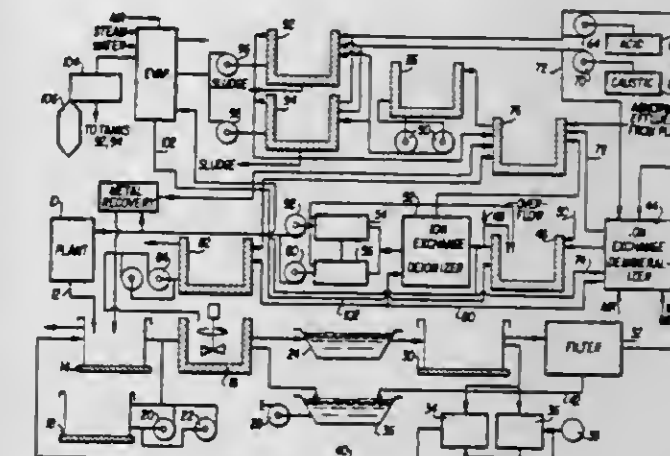
U.S. Cl. 210—663

5 Claims

1. In an industrial plant of the type having first waste liquid effluents with impurities in anticipated relatively low ranges of concentration; second waste liquid effluents, caused at least in part by leakage or spillage in the plant, with impurities in significantly higher ranges of concentration; and a network of drainage trenches for removing said effluents from the plant, the improvement comprising:

at least one liquid dam in said network for blocking flow of liquid through at least one of said trenches and thereby

stopping the flow of said second liquid effluents from the plant; at least one conduit for receiving the flow of said first liquid effluents and directing said flow past said at least one liquid dam; means for pumping said second liquid effluents from behind said at least one dam;



means connected to said at least one conduit for removing said impurities, whereby acceptably clean water is produced; means for passing said acceptably clean water back to said plant for reuse; and means connected to said pumping means for concentrating the impurities in said second liquid effluents, for disposal.

4,313,834

HIGH VISCOSITY ACIDIC TREATING FLUIDS AND METHODS OF FORMING AND USING THE SAME

Lawrence E. Harris, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.

Division of Ser. No. 947,327, Oct. 2, 1978. This application Oct. 29, 1979, Ser. No. 89,080

Int. Cl.³ E21B 43/27

U.S. Cl. 252—8.55 C

14 Claims

1. A method of forming a high viscosity acidic treating fluid which is stable at high temperatures comprising:

- combining a hydratable gelling agent having a molecular weight greater than 100,000 and selected from the group consisting of carboxymethylhydroxyethyl cellulose having a DS in the range of about 0.1 to 1.0 and a MS in the range of about 0.5 to 5.0, carboxymethylhydroxypropyl guar having a DS in the range of about 0.05 to 0.5 and a MS in the range of about 0.01 to 1.0, carboxyethylhydroxypropyl guar having a DS in the range of from about 0.01 to 0.5 and a MS in the range of from about 0.01 to 1.0 and mixtures thereof with an aqueous fluid to form an aqueous gel;
- combining an at least partially water or acid soluble zirconium salt with said aqueous gel; and
- combining at least one acid selected from the group consisting of hydrochloric acid, acetic acid, formic acid and mixtures thereof with said aqueous gel-zirconium salt mixture to lower the pH of said mixture to below about 3 thereby causing said aqueous gel to be rapidly cross-linked by said zirconium salt.

4,313,835

EMULSIFIER SYSTEM FOR TERTIARY OIL RECOVERY

Harvey E. Alford, Amherst, and David Frazier, Lakewood, both of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Filed Nov. 21, 1979, Ser. No. 97,029

Int. Cl.³ E21B 43/22

U.S. Cl. 252—8.55 D

6 Claims

1. In a process for the tertiary recovery of oil wherein brine

or water, an emulsifier system and a polymer are injected into an injection well and oil recovered from a producing well, the improvement comprising using as said emulsifier system a mixture of 0.5 to 12 parts by weight of a surfactant and 1 part by weight of an alcohol having no more than 12 carbon atoms, said surfactant comprising a neutralized air-oxidized solvent extracted oil wherein the solvent extracted oil has a viscosity between 50 SUS at 100° F. and 250 SUS at 210° F. before oxidation, wherein the oxidation reaction is conducted at a temperature from about 200° to about 250° F. and wherein the oxidized solvent extracted oil has an acid number of 10-40 before neutralization.

4,313,836

WATER-BASED HYDRAULIC FLUID AND METALWORKING LUBRICANT

Assadullah Nassry, Riverview; Jerrold F. Maxwell, Woodhaven, and John W. Compton, Taylor, all of Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed Dec. 1, 1980, Ser. No. 211,606

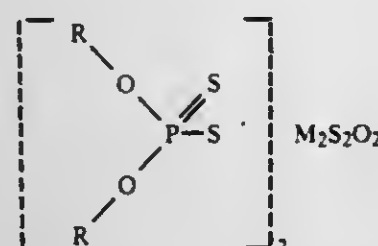
Int. Cl.³ C10M 3/42

U.S. Cl. 252—32.7 E

12 Claims

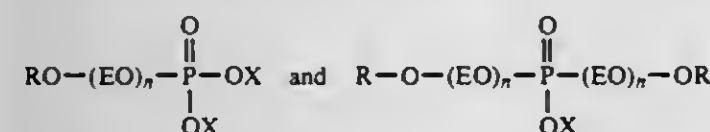
1. A hydraulic fluid or metalworking fluid concentrate consisting essentially of:

A. a sulfurized metallic compound of the formula:



wherein M is molybdenum or antimony and wherein R is selected from the group consisting of alkyl, aryl, alkylaryl radicals and mixtures thereof having 3 to 20 carbon atoms in the alkyl group,

B. a phosphate ester selected from the group consisting of



and mixtures thereof, wherein EO represents ethylene oxide groups; R is selected from the group consisting of linear or branched chain alkyl groups having about 6 to 30 carbon atoms or alkylaryl groups wherein the alkyl groups have 6 to 30 carbon atoms; X is selected from the group consisting of hydrogen, alkali or alkaline earth metal, the residual of ammonia or an amine and mixtures thereof and n is a number from 1 to 50 and optionally

C. a supplemental additive selected from the group consisting of corrosion inhibitor, thickener, and metal deactivator and mixtures thereof

wherein the ratio of said phosphate ester to said sulfurized metallic compound is from about 0.1:1 to 2.5:1 by weight based upon the weight of the sulphur in said metallic compound.

4. A hydraulic fluid or metalworking lubricant fluid consisting essentially of the composition of claim 1 and from about 40 to 99 percent by weight water at a pH above 7.

12. In a process for transmitting force hydraulically by applying a force to a confined fluid and said fluid transmits said force to an actuating means which is actuated by the force of said confined fluid, the improvement wherein said confined fluid is the hydraulic fluid of claim 4.

4,313,837

USING MOLYBDATES TO INHIBIT CORROSION IN WATER-BASED METALWORKING FLUIDS

Mark S. Vukosovich, Ann Arbor, and Dennis R. Robitaille, Canton, both of Mich., assignors to AMAX, Inc., Greenwich, Conn.

Filed May 2, 1980, Ser. No. 145,951

Int. Cl.³ C10M 1/06

U.S. Cl. 252—49.5

3 Claims

1. A metalworking fluid comprising an aqueous solution or an oil-water emulsion, which inhibits corrosion of metal surfaces which the fluid contacts during a metalworking operation, the fluid having a pH value between about 8 and about 10 and containing dissolved in water a corrosion inhibitor consisting essentially of about 0.5% by weight monoethanolamine borate and about 0.3% by weight MoO_4^{2-} anion.

2. A metalworking fluid comprising an aqueous solution or an oil-water emulsion, which inhibits corrosion of metal surfaces which the fluid contacts during a metalworking operation, the fluid having a pH value between about 8 and about 10 and containing dissolved in water a corrosion inhibitor consisting essentially of about 1% by weight triethanolamine oleate and about 0.6% by weight MoO_4^{2-} anion.

3. A metalworking fluid comprising an aqueous solution or oil-water emulsion, which inhibits corrosion of metal surfaces which the fluid contacts during a metalworking operation, the fluid having a pH value between about 8 and about 10 and containing dissolved in water a corrosion inhibitor consisting essentially of about 0.5% triethanolamine phosphate and about 0.3% by weight MoO_4^{2-} anion.

4,313,838

PREPARATION AND USE OF XANTHOGEN CHLOROPROPYL FORMATE FLOTATION REAGENTS

Arthur H. Fischer, 1115 Fifth Ave., New York, N.Y. 10028; Lawrence E. Strow, 6507 Lawyers Hill Rd., Baltimore, Md. 21227, and Franklin A. Bolth, 516 Dunkirk Rd., Baltimore, Md. 21212

Division of Ser. No. 872,562, Jan. 26, 1978. This application

Apr. 19, 1979, Ser. No. 31,317

Int. Cl.³ C07C 154/02, 69/003

U.S. Cl. 252—60

5 Claims

1. A process for preparing a xanthogen-formate bearing flotation agent, which comprises:

reacting 2-chloro isopropyl chloroformate with an alkali-metal alkyl xanthate having 2 to 6 carbons in the alkyl group in a solvent mixture of water and alcohol which is sufficient to dissolve said chloroformate and xanthate,

wherein said alcohol has the same number of carbons as said alkyl group, and

wherein said chloroformate is the reaction product of phosphine and isopropyl epoxide carried out in the presence of activated carbon as catalyst and preformed chloroformate as diluent and heat absorber.

4,313,839

PIEZOCERAMIC MATERIAL

Evgeny G. Fesenko, Dolomanovsky pereulok, 2, kv. 2; Alla Y. Dantsiger, ulitsa V. Nalnaya, 14/90, kv. 91; Viktor S. Filipiev, ulitsa Engelsa, 34, kv. 35; Olga N. Razumovskaya, ulitsa Lenina, 70, kv. 25; Alexandr N. Klevtsov, prospekt Stachki, 223/3, kv. 20; Vladimir N. Lebedev, 1 Pereulok, 41; Ljudmila D. Grineva, ulitsa Gerasimenko 12, kv. 8; Tatyana V. Rogach, ulitsa Arefieva, 43; Anatoly D. Feronov, ulitsa Mechnicova, 36, kv. 9; Galina M. Akbaeva, ulitsa Kazakhskaya, 88, kv. 34; Evgeny I. Cheptsov, ulitsa Zhuravleva, 111, kv. 1; Anatoly E. Panich, ulitsa Suvarova, 40, kv. 21; Ljudmila G. Lisitsina, Budenovskiy pereulok, 4, kv. 53; Svetlana A. Lavrikova, 2 Krasnodarskaya ulitsa, 163/12, kv. 1, all of Rostov-na-Donu; Vasily A. Ochirov, Mikroraiion 1, 28, kv. 24, Elista, Kalmytskaya ASSR; Svetlana I. Dudkina, ulitsa Sedova, 105, kv. 4, Rostov-na-Donu; Alexandr N. Nevsky, ulitsa Sokolova, 6, kv. 11, Rostov-na-Donu; Vladimir A. Aleshin, ulitsa Gerasimenko, 13a, kv. 20, Rostov-na-Donu; Mikhail F. Kupriyanov, ulitsa Stachki, 217/3, kv. 62, Rostov-na-Donu; Evgeny S. Baljuois, 2 Krasnodarskaya ulitsa, 163/3, kv. 20, Rostov-na-Donu; Boris P. Mordanov, ulitsa Stanislavskogo, 170, kv. 7, Rostov-na-Donu; Grigory A. Zhitomirsky, Khaturskiy pereulok, 56, kv. 6, Rostov-na-Donu; Naum B. Feldman, ulitsa 11 Parkovaya, 44, korpus 4, kv. 25, Moscow; Ekaterina G. Smazhevskaya, ulitsa Parkovaya, 42, korpus 2, kv. 56, Moscow, and Ravilya U. Devlikanova, ulitsa Metallurgicheskaya, 91, Rostov-na-Donu, all of U.S.S.R.

Continuation of Ser. No. 653,886, Jan. 30, 1976, abandoned, which is a continuation of Ser. No. 341,953, Mar. 16, 1973, abandoned. This application Feb. 1, 1977, Ser. No. 764,643

Int. Cl.³ C04B 35/49

U.S. Cl. 252—62.9

5 Claims

1. A piezoceramic material consisting essentially of, in molar percent:

PbTiO_3 —40
 PbZrO_3 —35.40
 $\text{PbW}_3\text{Ni}_3\text{O}_3$ —9.84
 $\text{PbNb}_1\text{Mg}_1\text{O}_3$ —14.76.

4,313,840

HEAT TRANSFER OIL AND METHOD FOR DRIVING A FREON TURBINE

Shigeki Komatsuzaki, Mito, and Morichi Sato, Hitachi, both of Japan, assignors to Agency of Industrial Science and Technology, Tokyo, Japan

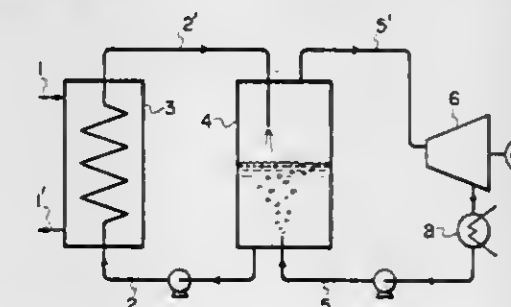
Filed Mar. 7, 1980, Ser. No. 128,168

Claims priority, application Japan, Mar. 7, 1979, 54-25500

Int. Cl.³ C09K 5/04; C10M 3/20, 3/38

U.S. Cl. 252—78.5

6 Claims



1. A heat transfer method for driving a Freon turbine comprising the steps of:

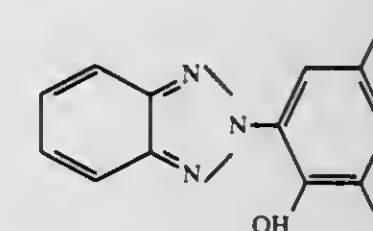
(a) transferring heat of a heat source through a heat exchanger of the indirect contact type to an intermediate heat transfer oil, consisting essentially of:

(1) a major amount of a polyolester of a reaction product of a polyhydric alcohol selected from the group consisting of neopentylglycol, trimethylolmethane, trimethylolpropane and pentaerythritol with a saturated monocarboxylic acid having 7-16 carbon atoms per molecule;

(2) at least one member selected from the groups consist-

ing of tris-(alkylphenyl)phosphite and tris-(phenyl)-phosphite, and

(3) at least one member selected from the group consisting of benzotriazole and benzotriazole derivatives having the formula



wherein R_1 and R_2 each represent a hydrogen atom or an alkyl group having 1 to 8 carbon atoms;

whereby said heated intermediate transfer oil gasifies said Freon by contact therewith, said components (2) and (3) being present in an amount sufficient to reduce the generation of chlorine ion; and

(b) driving said turbine with said gasified Freon.

4,313,841

PROCESS OF CLEANING UNWANTED FILMS

Alan B. Spiegel, 1700 Harmon St., Apt. 102, Norfolk, Va. 23518, and Robert P. Zurich, 18 Wister Pl., Matawan, N.J. 07747

Continuation-in-part of Ser. No. 877,567, Feb. 13, 1978, abandoned, which is a continuation of Ser. No. 687,159, May 17, 1976, abandoned, which is a continuation of Ser. No. 375,675, Jul. 2, 1973, abandoned. This application Aug. 17, 1979, Ser. No. 67,191

Int. Cl.³ C23G 5/02; C11D 7/50; C09D 9/04

U.S. Cl. 252—170

5 Claims

1. A method for cleaning an unwanted phthalates containing film from the interior surface of a glass automotive windshield which comprises applying a cleaning composition containing a mixture of a phthalates solvent and nonsolvent wherein said solvent is a mixture of isopropanol and a compound selected from the group consisting of acetone, ethylacetate, and methylethylketone; said nonsolvent is water and said water is present in said mixture in an amount of less than 50%; to the phthalates containing film, allowing sufficient time for said cleaning composition to dissolve said film and for said solvent to preferentially evaporate to cause precipitation in said water of said phthalates in a form which does not redeposit on the glass surface and then wiping away any remaining composition from said surface.

4,313,842

PROCESS FOR HYDROGENATION OF 2,6,6-TRIMETHYL CYCLOHEXENE DERIVATIVES, PRODUCTS PRODUCED THEREBY AND ORGANOLEPTIC USES OF SAID PRODUCTS

Robert W. Trenkle, Bricktown; Braja D. Mookherjee; Frederick L. Schmitt, both of Holmdel; Manfred H. Vock, Locust; Joaquin F. Vinals, Red Bank, all of N.J., and Jacob Klwala, Brooklyn, N.Y., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 969,852, Dec. 15, 1978. This application

Feb. 27, 1981, Ser. No. 239,049

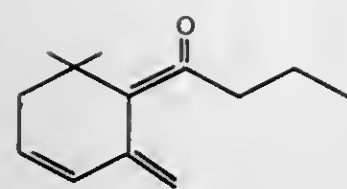
Int. Cl.³ C11D 3/50, 9/44

U.S. Cl. 252—174.11

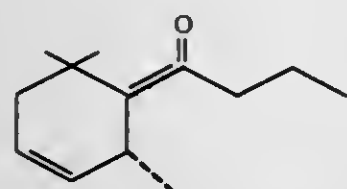
2 Claims

1. A process for augmenting or enhancing the aroma of a solid or liquid anionic, cationic or nonionic detergent comprising the steps of intimately admixing with an anionic cationic or nonionic detergent base an aroma augmenting or enhancing quantity of at least one material selected from the group consisting of:

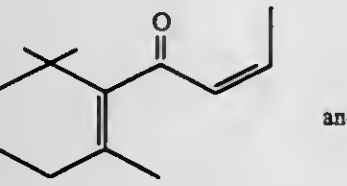
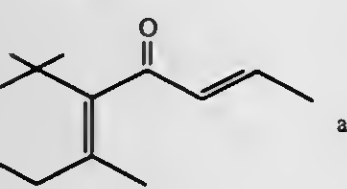
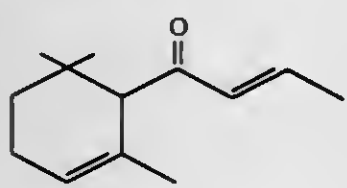
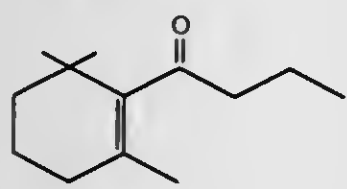
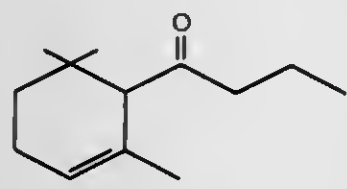
(i) the compound having the structure:



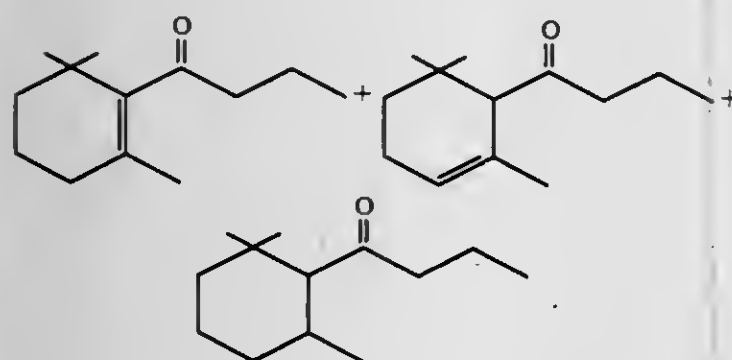
(ii) the compound having the structure:



(iii) a mixture of compounds having the structures:



(iv) a mixture of compounds having the structures:



4,313,843 SUPERIOR OXALATE ESTER CHEMICAL LIGHTING SYSTEM

Laszlo J. Bollyky, Stamford, and Michael M. Rauhut, Norwalk, both of Conn., assignors to American Cyanamid Company, Stamford, Conn.

Division of Ser. No. 464,285, Apr. 26, 1974, abandoned, which is a continuation-in-part of Ser. No. 205,747, Dec. 7, 1971, abandoned, which is a continuation-in-part of Ser. No. 813,973, Apr. 7, 1969, abandoned. This application Sep. 9, 1976, Ser. No. 721,920

Int. Cl.³ C09K 11/06, 11/08

U.S. Cl. 252—188.3 CL

6 Claims

1. A composition, useful as a component for a chemical light device, said composition comprising at least 0.01 M hydrogen peroxide in a tertiary alcohol solvent and a catalyst in the concentration range from 10^{-4} to 10^{-2} M selected from the group consisting of sodium salicylate and tetrabutylammonium salicylate.

4,313,844 INORGANIC ION EXCHANGER

Hiroshi Sato, Hiroshima; Sadaaki Shigeta, and Hiroyuki Uchida, both of Ootake, all of Japan, assignors to Mitsubishi Rayon Company, Ltd., Tokyo, Japan

Filed Oct. 9, 1979, Ser. No. 82,658

Int. Cl.³ C09K 3/00; C02F 1/42; B01J 39/10, 41/10

U.S. Cl. 252—193

8 Claims

1. An inorganic ion exchanger prepared by the process consisting of: mixing and kneading at least one titanate acid, selected from the group consisting of anatase type titanate acid and amorphous titanate acid, with water and at least one inorganic acid, selected from the group consisting of sulfuric acid, hydrochloric acid and phosphoric acid, extrusion molding the mixture, and, thereafter, heat treating the extruded product at a temperature of 50° to 500° C. for 3 to 19 hours.

4,313,845 SYSTEM FOR CHEMICALLY DIGESTING LOW LEVEL RADIOACTIVE, SOLID WASTE MATERIAL

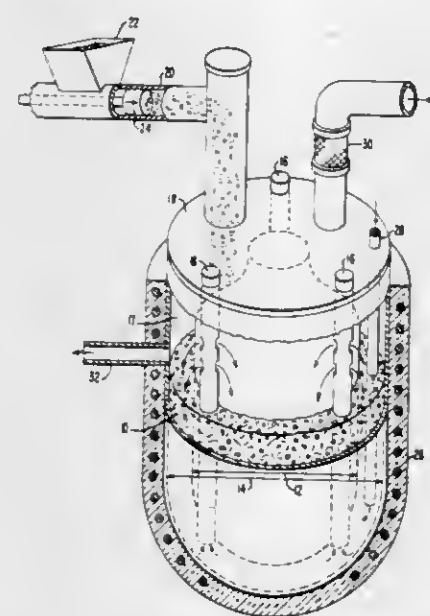
Richard G. Cowan, Kennewick, and Albert G. Blasewitz, Richland, both of Wash., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Nov. 28, 1979, Ser. No. 98,109

Int. Cl.³ G21F 9/28, 7/06

U.S. Cl. 252—630

8 Claims



1. An improved system for chemically digesting low level, radioactive, solid waste material comprising: an annular vessel constructed to be substantially filled with concentrated sulfuric acid;

means for delivering the solid undigested waste into the annular vessel;
means for adding concentrated nitric acid or nitrogen dioxide to the sulfuric acid within the annular vessel while the sulfuric acid is reacting with the solid waste;
means for mixing the solid waste within the sulfuric acid so that the solid waste remains substantially fully immersed and fully dispersed;
means for removing off gas from the annular vessel; and
means for removing product slurry residue.

from about 5% to about 15% by weight based upon the total weight of the composition.

4,313,848 METHOD FOR REMOVING COKE FROM PARTICULATE CATALYST

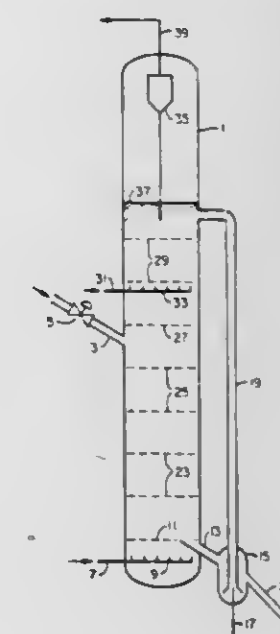
John W. Scott, Ross, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Jun. 27, 1980, Ser. No. 163,538

Int. Cl.³ B01J 29/38, 21/20; C10G 11/05, 11/04

U.S. Cl. 252—418

7 Claims



1. A method for removing nitrogen-containing coke from coke-containing particulate catalyst, which comprises:

- introducing said coke-containing catalyst into an intermediate vertical level of a vertically extending regeneration zone, passing said catalyst downwardly through said zone, and restricting backmixing of catalyst in said zone;
- introducing a regeneration gas comprising free oxygen into a lower end of said zone, passing said regeneration gas upwardly through said catalyst, burning substantially all said coke off said catalyst and substantially all carbon monoxide formed in a lower section of said regeneration zone, sufficient free oxygen being included in said regeneration gas to provide at least 1 volume percent free oxygen in contact with catalyst in said lower section, whereby nitrogen oxides are generated in said regeneration gas in said lower section;
- forming carbon monoxide and carbon dioxide and generating a substantially oxygen-free atmosphere in contact with said catalyst in an intermediate section of said regeneration zone by substantially completely reacting free oxygen in said regeneration gas with coke and carbon monoxide in said intermediate section, and decreasing the amount of nitrogen oxides in said regeneration gas in said intermediate section by reacting at least a portion of said nitrogen oxides in said oxygen-free atmosphere to form free nitrogen;
- introducing substantially coke-free catalyst into an upper section of said zone, and passing said coke-free catalyst downwardly through said zone;
- burning substantially all carbon monoxide contained in said regeneration gas with additional free oxygen in contact with said substantially coke-free catalyst in said upper section, and withdrawing said regeneration gas from said upper section.

2. A method according to claim 1 wherein coke in said coke-containing catalyst includes a sulfur component, sulfur oxides are formed by burning said coke, and said sulfur oxides are reacted with a solid reactant included with said catalyst particles to form sulfur-containing solids in said zone.

4,313,846

N-ACYL-O-PHENYLENEDIAMINES

Hans R. Meyer, Binningen, and Max Siegrist, Lausen, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Nov. 8, 1979, Ser. No. 92,592

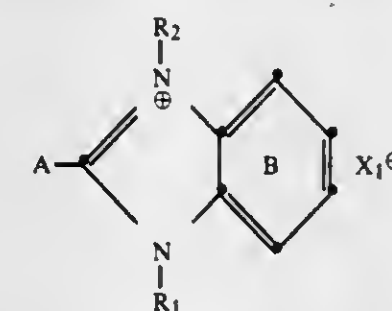
Claims priority, application Switzerland, Nov. 20, 1978, 11883/78

Int. Cl.³ C09K 11/06

U.S. Cl. 252—301.32

5 Claims

1. A stable, concentrated aqueous solution of a benzimidazolium fluorescent whitening agent, which contains
(a) 5 to 40% by weight of at least one water-soluble benzimidazolium fluorescent whitening agent of the formula



wherein A a colourless, carbocyclic or heterocyclic aromatic radical, each of R₁ and R₂ independently is an alkyl, alkenyl or phenyl radical which is unsubstituted or substituted by non-chromophoric groups, but only one of R₁ and R₂ can be phenyl, and X₁⁺ is the formate, acetate, propionate, glycolate, lactate, acrylate, methanephosphonate or dimethyl or diethyl phosphite anion, or mixtures thereof, and the ring B can also be substituted by non-chromophoric groups,

- 0 to 40% by weight of the acid corresponding to the anion X⁺ and
- water to bulk the formulation to 100%.

4,313,847

SURFACTANT COMPOSITIONS

David G. Chasio, and Thomas J. Zaucha, both of Wilmington, Del., assignors to ICI Americas Inc., Wilmington, Del.

Continuation-in-part of Ser. No. 915,700, Jun. 15, 1978, abandoned. This application May 25, 1979, Ser. No. 42,626

Int. Cl.³ B01F 17/14, 17/16, 17/34, 17/42

U.S. Cl. 252—356

4 Claims

1. A surfactant composition comprising
(a) a polyoxyethylene nonyl phenol phosphate ester,
(b) a polyoxyethylene N,N-bis(2-hydroxyethyl) alkyl amine, wherein the alkyl contains from 12 to 18 carbon atoms, and
(c) a polyoxyethylene castor oil,
wherein the amount of the polyoxyethylene nonyl phenol phosphate ester component is equal to from about 60% to about 80% by weight based upon the total weight of the composition, the amount of the polyoxyethylene N,N-bis(2-hydroxyethyl)alkyl amine is equal to from about 14% to about 30% by weight based upon the total weight of the composition and the amount of the polyoxyethylene castor oil is equal to

3. A method according to claim 2 wherein said solid reactant comprises alumina.

4,313,849

PROCESS FOR THE PRODUCTION OF ACTIVATED CARBON FROM A MOIST ORGANIC SUBSTANCE

Frans H. Tuovinen, Ulvila; Risto J. Honkala, and Maija-Leena Metsäranta, both of Vanha-Ulvila, all of Finland, assignors to Outokumpu Oy, Helsinki, Finland

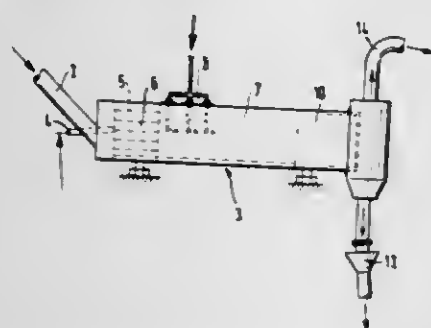
Filed Nov. 27, 1979, Ser. No. 97,641

Claims priority, application Finland, Nov. 28, 1978, 783641

Int. Cl.³ C01B 31/10; C10B 49/02

U.S. Cl. 252—421

3 Claims



1. A process for the production of activated carbon from a moist organic substance, having a moisture content of 30-70% by weight which comprises

conducting the moist organic substance into a drying zone of a chamber;

mixing the organic substance in the drying zone with hot flue gases according to the co-current principle;

directing the dried organic substances into a coking zone of the same gas chamber;

introducing an oxygen-bearing gas into the coking zone, for the controlled burning of the volatile constituents of the organic substance at an elevated temperature and according to the co-current principle;

directing the material and hot moist gases emerging from the coking zone into an activation zone of the same gas chamber;

activating the coked material in the activation zone by mixing with the hot, moist gases according to the co-current principle and without separate addition of water vapor; and

separating the activated carbon from gases.

4,313,850

CATALYST FOR THE POLYMERIZATION OF ALPHA-OLEFINS

Nicolas K. Kildahl, Shrewsbury, Mass., and Peter Fotis, Highland, Ind., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Filed Oct. 15, 1979, Ser. No. 84,981

Int. Cl.³ C08F 4/64, 4/68

U.S. Cl. 252—429 B

50 Claims

1. A catalyst component comprising the reaction product of components comprising:

(1) at least one divalent Group IIA, IIB, IVA, VIB, VIIB or VIII metal bis(halocarboxylate) prepared by reaction of at least one divalent metal or divalent metal oxide, hydroxide or carbonate with at least one halocarboxylic acid and drying the resulting divalent metal bis(halocarboxylate);

(2) at least one oxygenated organic compound of a Group IVB or VB metal corresponding to the formula $M(OR^1)_m$ or $O=M(OR^1)_{m-2}$ wherein M^1 is a Group IVB or VB metal, each R^1 is independently an organic radical and m corresponds to the valence of M^1 ;

(3) at least one organoaluminum component of the formula $AlR^2_nX_{3-n}$ wherein each R^2 is independently a hydrocarbyl radical, X is halogen, and $0 < n \leq 3$

said components being reacted in amounts such that the atomic ratio of metal in (2) to metal in (1) ranges from about 0.05:1 to

about 20:1 and the atomic ratio of aluminum in (3) to metal in (2) ranges from about 5:1 to about 50:1, with the proviso that when (3), contains less than an amount of halogen which is effective to halide the metal in (1) and (2), said components comprise, in addition to (1), (2) and (3), a component (4) which is at least one halogenating agent other than a Group IVB-VIB metal halide in an amount such that (3) and (4) contain at least an effective amount of halogen; said reaction being conducted at about 0° to about 200° C. in the substantial absence of extraneous catalyst poisons and comprising contacting components (2) and (3) in the presence of component (1).

4,313,851

LIQUID, COLD-STABLE TITANIUM CATALYST PREPARATION

Dieter Barfurth, Lohmar, and Heinz Nestler, Troisdorf-Eschmar, both of Fed. Rep. of Germany, assignors to Dynamit Nobel AG, Troisdorf, Fed. Rep. of Germany

Filed Mar. 2, 1981, Ser. No. 239,915

Int. Cl.³ B01J 31/12

U.S. Cl. 252—431 R

5 Claims

1. A cold-stable catalytically active solution of diisopropoxy-bis (2,4-pentanedionato)-titanium (IV) in isopropanol, said solution containing 0.05 to 0.15 mol of water per mol of said titanium compound.

4,313,852

CATALYSTS

Derek G. Gavin, Longhope, and Michael A. Jones, Quedgeley, both of England, assignors to Coal Industry (Patents) Limited, London, England

Filed Jul. 1, 1980, Ser. No. 165,014

Claims priority, application United Kingdom, Aug. 10, 1979, 27995/79

Int. Cl.³ B01J 27/02, 21/02

U.S. Cl. 252—439

13 Claims

1. A hydrotreatment catalyst comprising molybdenum or tungsten disulphide in an amount of 0.1 to 10% by weight, on an active carbon support having a surface area in excess of 800 m²/g and in which the molybdenum or tungsten disulphide is substantially completely on the outer surface of the particles of active carbon, said catalyst prepared by absorbing molybdenum or tungsten trisulphide onto an active carbon support having a surface area in excess of 800 m²/g and having its internal pores filled with a fluid, and reducing the trisulphide to the disulphide.

4,313,853

PROCESS FOR FORMING HIGHLY DISPERSED METAL ON GRAPHITE

Rexford D. Sherwood, Suffern, N.Y.; Rees T. K. Baker, Murray Hill, N.J.; Eric G. Derouane, Namur, Belgium, and Wim J. M. Pieters, Morristown, N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Dec. 11, 1980, Ser. No. 215,514

Int. Cl.³ B01J 21/18

U.S. Cl. 252—445

14 Claims

1. A process for dispersing metal agglomerated on graphite wherein said metal is selected from the group consisting essentially of Ni, Co, Mo and mixtures thereof said process comprising the sequential steps of:

(a) contacting said metal-agglomerated/graphite composite with net-reducing, hydrogen-containing atmosphere at a temperature ranging between about 800°-975° C. for a time sufficient for the metal to form a plurality of metal-containing channels in the graphite;

(b) contacting said channeled composite formed in (a) with a net-reducing, hydrogen-containing atmosphere at a temperature of at least about 975° C. for a time sufficient for said metal in said channels to spread out and chemically wet at least a portion of the surface of said channels; and

(c) contacting said metal-wetted, channeled composite formed in (b) with an oxidizing atmosphere at a temperature of at least about 800° C. to form a dispersion of discrete particles of said metal on the surface of said so-formed channels on said graphite.

4,313,854

OXIDE-COATED CATHODE FOR ELECTRON TUBE

Kazuo Sunahara, and Akira Misumi, both of Mobara, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

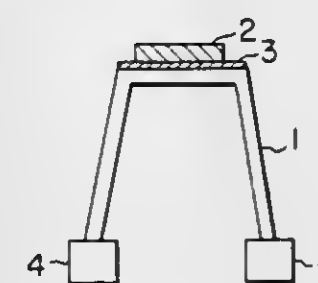
Filed Nov. 6, 1979, Ser. No. 91,840

Claims priority, application Japan, Nov. 15, 1978, 53-139903

Int. Cl.³ A01B 1/04

U.S. Cl. 252—516

8 Claims



1. In an oxide-coated cathode for electron tubes comprising a base metal plate made of an alloy containing nickel as a major component and at least one high-melting point metal in an amount of 2% by weight or more, and an electron emissive alkaline earth metal oxide layer adhered to the base metal plate, the improvement which comprises having a carbide layer made of at least one carbide of Si, B, Ti, Zr, Hf, V, Nb, Ta, Mo or W between the base metal plate and the electron emissive alkaline earth metal oxide layer, said carbide layer having a thickness sufficient for repressing an interfacial reaction between the base metal plate and the alkaline earth oxide layer and being not more than 5000 Å.

4,313,855

FIXATIVE FOR PERFUME COMPOSITIONS

Erich Klein, and Willi Rojahn, both of Holzminden, Fed. Rep. of Germany, assignors to Dragoco Gerberding & Co. GmbH, Holzminden, Fed. Rep. of Germany

Division of Ser. No. 11,889, Feb. 13, 1979, Pat. No. 4,252,986, and a continuation-in-part of Ser. No. 11,889. This application

Mar. 18, 1980, Ser. No. 131,545

Claims priority, application Fed. Rep. of Germany, Feb. 22, 1978, 2807584

Int. Cl.³ C11B 9/00

U.S. Cl. 252—522 R

8 Claims

1. The method of use of the compound 1-(2,6,6-trimethylcyclohexyl)-hexane-3-ol comprising adding said compound to a composition as a fixative.

4,313,856

PERFUME COMPOSITIONS CONTAINING OXYGENATED IONONE DERIVATIVES

Roman Kaiser, Uster, and Dietmar Lamparsky, Wangen-Düben-dorf, both of Switzerland, assignors to Givaudan Corporation, Clifton, N.J.

Continuation of Ser. No. 68,921, Aug. 23, 1979, abandoned, which is a division of Ser. No. 889,070, Mar. 22, 1978. This

application Oct. 6, 1980, Ser. No. 194,651

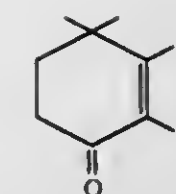
Claims priority, application Austria, Mar. 28, 1977, 2158/77

Int. Cl.³ C11B 9/00

U.S. Cl. 252—522 R

9 Claims

1. A perfume composition comprising an effective amount of a compound having the formula



wherein R represents a butyl, but-2-en-1-yl or 1,3-butadienyl, and at least one other olfactory substance excepting those compositions wherein compound I is present as part of a mixture which was derived from, or is identical to a mixture derived from, natural sources.

4,313,857

BROKEN-DOWN ORGANIC LIGNIN-CELLULOSE SILICATE POLYMERS

David H. Blount, 5450 Lea St., San Diego, Calif. 92105

Continuation-in-part of Ser. No. 203,730, Nov. 3, 1980, Pat. No. 4,281,110, which is a continuation-in-part of Ser. No. 112,290,

Jan. 15, 1980, Pat. No. 4,243,757, which is a continuation-in-part of Ser. No. 29,202, Apr. 12, 1979, Pat. No. 4,220,757. This

application Apr. 24, 1981, Ser. No. 257,126

Int. Cl.³ C08B 31/00

U.S. Cl. 260—13

9 Claims

1. The process for the production of broken-down organic lignin-cellulose silicate polymer by mixing and reacting the following components:

Component (a): Broken-down alkali metal lignin-cellulose silicate polymer;

Component (b): A substituted organic compound having a substituent which will split off during the reaction, to said broken-down alkali metal lignin-cellulose polymer in the amount wherein the mols of the substituted radicals are about equal to the mols of the alkali radicals in the mixture.

4,313,858

POLYURETHANE ENCAPSULATING RESINS

Mason H. Earing, Williamsville, N.Y.; Paul F. Martin, Fairfield, Ohio, and Glenn H. Petschke, Tonawanda, N.Y., assignors to Textron, Inc., Providence, R.I.

Filed Jun. 9, 1980, Ser. No. 157,868

Int. Cl.³ C08G 18/04, 18/69

U.S. Cl. 260—18 TN

20 Claims

1. A polyurethane resin system which comprises an isocyanate-terminated polyurethane prepolymer of polyisocyanate and first polyol component, and a second polyol component for reacting with said prepolymer to form a polyurethane resin

polymer having pendant vinyl groups provided by the presence of a hydroxy-terminated diene polymer polyol in one or both of said first and second polyol components, said system

further comprising drying oil having an iodine number of up to about 200 in a minor amount sufficient to reduce substantially the viscosity of said diene polymer polyol; and a peroxide catalyst in an amount sufficient to promote reaction of said

pendant vinyl groups to provide a relatively thermally-stable, polyurethane resin product when cured.

4,313,859

COMPOSITION CONTAINING A HALF ESTER OF AN ORGANIC POLYOL, AN UNSATURATED MONOMER, AN EPOXIDE, AND A BASIC COMPOUND

Hugh C. Gardner, Somerville, N.J., assignor to Union Carbide Corporation, New York, N.Y.

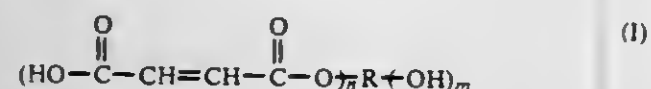
Continuation-in-part of Ser. No. 147,098, May 7, 1980, abandoned, which is a continuation of Ser. No. 70,007, Aug. 27, 1979, abandoned. This application Jul. 28, 1980, Ser. No. 171,081

Int. Cl.³ C08G 59/42, 63/42

U.S. Cl. 260—18 PF

18 Claims

1. A curable polymerizable liquid mixture comprising (a) a half ester characterized by the following



wherein n is a number having an average value of about 1.5 to less than about 4, m is equal to the free valence of R less the average value of n, R is the hydroxyl-free residue of an organic polyol which contained from 2 to 4 inclusive, hydroxyl groups, OH, in formula (I), (b) maleic anhydride, (c) an epoxide containing two or more 1,2-epoxide radicals, (d) an ethylenically unsaturated monomer which forms a liquid homogeneous mixture with the half ester, maleic anhydride and the epoxide, and (e) a basic compound.

4,313,860

NON-PHOTOCHEMICALLY REACTIVE ANTIFOULING PAINT

Jesse R. Neal, Jr., Concord, and Henry R. Bleile, Vallejo, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 28, 1980, Ser. No. 144,082

Int. Cl.³ C08L 93/04; C09D 5/16

U.S. Cl. 260—27 R

2 Claims

1. A marine vinyl-type antifouling coating comprising:
(a) a vinyl chloride-vinyl acetate copolymer component containing approximately 85 to 88 percent vinyl chloride, approximately 12 to 15 percent vinyl acetate and constituting about 55 parts by weight of said coating;
(b) rosin constituting about 215 parts by weight of said coating;
(c) a cuprous oxide pigment component constituting about 1440 parts by weight of said coating;
(d) a tricresyl phosphate component constituting about 50 parts by weight of said coating;
(e) an antisepting component constituting about 7 parts by weight of said coating; and
(f) a solvent component constituting less than fifteen percent by weight of said coating and having subcomponents constituting about 14 parts by weight 2-ethoxyethanol, about 56 parts by weight n-butyl alcohol and about 210 parts by weight n-butyl acetate of said coating.

4,313,861

LATEX AUTODEPOSITION COATINGS
David R. Bassett, Charleston, and Alan E. Wang, South Charleston, both of W. Va., assignors to Union Carbide Corporation, New York, N.Y.

Filed Feb. 28, 1980, Ser. No. 125,692

Int. Cl.³ C08L 33/02

U.S. Cl. 260—29.6 H

16 Claims

1. In an aqueous autodeposition coating composition have a pH of less than 7 comprising:

- (I) water;
(II) a source of hydrogen ion; and
(III) from 6 weight percent to 50 weight percent of a latex, the improvement wherein said latex is an acrylic polymer latex comprising the polymer of:
(A) from 1 weight percent to 20 weight percent of meth-

acrylic acid or from 1 weight percent to 12 weight percent of acrylic acid;

(B) from 75 weight percent to 99 weight percent of at least one other polymerizable ethylenically monounsaturated monomer;

(C) from 0 weight percent to 20 weight percent of a different hydroxy group containing polymerizable vinylenically monounsaturated monomer; and

(D) from 0 weight percent to 1.5 weight percent of a polymerizable vinylenically polyunsaturated monomer;

wherein the concentrations of components A-D are based on the total combined weight of components A-D, and wherein said acrylic polymer latex has a particle size of less than 0.3 micron and a glass transition temperature of from 2° C. to 50° C.

4,313,862

PROCESS FOR GELATION OF POLYMERIC SOLUTION (C-1042)

Robert D. Lundberg, Bridgewater, N.J.; Henry S. Makowski, late of Scotch Plains, N.J. (by Patricia Helen Makowski, executrix); Deonis O'Brien, Houston, Tex., and Robert R. Klein, Berkeley Heights, N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Continuation-in-part of Ser. No. 930,044, Aug. 1, 1978, abandoned, and Ser. No. 106,027, Dec. 21, 1979, Pat. No. 4,282,130. This application Apr. 3, 1980, Ser. No. 136,835

Int. Cl.³ C08F 8/36

U.S. Cl. 260—29.6 SQ

25 Claims

1. A process for forming a polymeric solution or water insoluble gel having a viscosity of at least about 50,000 cps which includes the steps of:

- (a) dissolving an unneutralized or neutralized sulfonated polymer in a solvent to form a solution, a concentration of said unneutralized or neutralized sulfonated polymer in said solution being about 0.1 to about 20 wt. %, a viscosity of said solution being less than about 20,000 cps; and
(b) adding about 5 to about 500 volume % water to said solution, said water being immiscible with said solvent and said solution, the viscosity of said solution or suspension increasing upon the addition of said water from less than 20,000 cps to greater than 50,000 cps.

4,313,863

MODIFICATION OF ACRYLAMIDE POLYMERS

Ryoji Handa, Yokosuka; Norimasa Yoshida, Yokohama; Jun Hosoda, Yokohama, and Akihisa Furuno, Yokohama, all of Japan, assignors to Nitto Chemical Industry Co. Ltd.; Mitsubishi Rayon Co., Ltd. and Diafloc Co., Ltd., all of Tokyo, Japan

Filed Nov. 28, 1980, Ser. No. 211,294

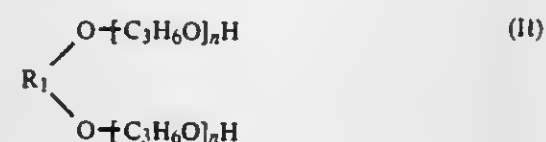
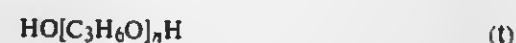
Claims priority, application Japan, Nov. 30, 1979, 54/154459

Int. Cl.³ C08L 33/26

U.S. Cl. 260—29.6 E

8 Claims

1. A method for modifying an acrylamide polymer with an inorganic alkaline substance by adding the inorganic alkaline substance to the hydrogel aggregates of the acrylamide polymer in a mixing tank to hydrolyze the polymer, characterized in that the mixing tank has a chromium-plated internal surface with which the hydrogel aggregates of the acrylamide polymer contact, and that at least one compound selected from the group consisting of the compounds represented by the following general formulae (I), (II) and (III):



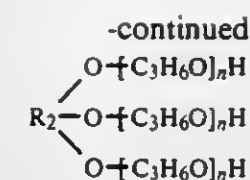
4,313,866

PLASTICIZERS FOR VINYL CHLORIDE POLYMERS
James T. Renshaw, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.Continuation-in-part of Ser. No. 972,762, Dec. 26, 1978, abandoned. This application May 19, 1980, Ser. No. 150,877
Int. Cl.³ C08K 5/11; C08L 27/06

U.S. Cl. 260—31.8 H

21 Claims

wherein R₁ is a residue obtained by removing two OH groups from a saturated dihydric alcohol having 2 to 4 carbon atoms, and R₂ is a residue obtained by removing three OH groups from a trihydric alcohol having 3 to 6 carbon atoms, and n's are such numerical values that any of the compounds represented by the general formulae (I), (II) and (III) has an average molecular weight within the range of 500 to 5,000, is added to said hydrogel aggregates as an anti-tack agent.



1. A plasticizer composition consisting essentially of, by weight, from about 50% to about 90% prime ester at least about 40 parts per hundred parts by weight of which is aromatic diester selected from alkyl benzyl succinates, glutarates and mixtures thereof in which said alkyl contains from about 3 to about 6 carbon atoms, up to about 20% essentially non-olefinic hydrocarbon boiling between about 200° and about 325° C. and from about 10% to about 50% non-aromatic diester having a molecular weight from about 230 to about 300.

4,313,864

POLYPHENYLENE
OXIDE/PLASTICIZER/HYDROGENATED RADIAL
TELEBLOCK COPOLYMER BLENDS

William R. Haaf, Voorheesville, and Gim F. Lee, Jr., Albany, both of N.Y., assignors to General Electric Company, Pittsfield, Mass.

Filed Jan. 21, 1980, Ser. No. 113,459

Int. Cl.³ C08L 53/02, 71/04; C08K 5/10, 5/52

U.S. Cl. 260—30.6 R

13 Claims

1. A thermoplastic molding composition having improved melt-flow characteristics and enhanced impact resistance characteristics, consisting essentially of an intimate admixture
(a) a polyphenylene ether resin present in an amount to provide no less than about 65% by weight of the total weight of the composition;
(b) a plasticizer composition selected from aromatic phosphates, alkyl adipates, alkyl phthalates or paraffinic oils; and
(c) a minor amount of a hydrogenated radial teleblock copolymer of a vinyl aromatic monomer and a saturated rubber.

4,313,865

INSTANT-SETTING ADHESIVE COMPOSITION

Toshio Teramoto, Yokohama; Noriaki Ijuin, Kawasaki, and Teizo Kotani, Yokohama, all of Japan, assignors to Japan Synthetic Rubber Co., Ltd., Tokyo, Japan

Filed Sep. 23, 1980, Ser. No. 189,909

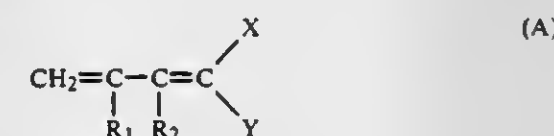
Claims priority, application Japan, Sep. 28, 1979, 54-125070

Int. Cl.³ C08K 5/10

U.S. Cl. 260—31.4 R

19 Claims

1. An instant-setting adhesive composition comprising a 2-cyanoacrylate and at least one 1,1-disubstituted diene represented by the following general formula (A), the amount of said 1,1-disubstituted diene being more than 50% by weight but not more than 90% by weight based on the total amount of both components:



wherein R₁ is a hydrogen atom, an alkyl group having 1 to 5 carbon atoms, an aryl group, an aralkyl group or a halogen atom, R₂ is a hydrogen atom or an alkyl group having 1 to 5 carbon atoms, and X and Y, which may be the same or different, are selected from the group consisting of cyano group, carboxylate group, ethylsulfone group, phenylsulfone group, formyl group, acetyl group, benzoyl group, diethylphosphonyl group, amido group and phenyl group.

4,313,867

LOW PRESSURE INJECTION MOLDABLE
COMPOSITIONS

Ilan Duvdevani, Leonia, N.J., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Jan. 5, 1981, Ser. No. 222,615

Int. Cl.³ C08L 91/00

U.S. Cl. 260—33.6 AQ

12 Claims

1. An elastomeric composition which comprises
(a) a styrene-ethylene/butylene-styrene block copolymer;
(b) about 10 to about 400 parts by weight of a neutralized sulfonated EPDM terpolymer per 100 parts by weight of the styrene-ethylene/butylene-styrene block copolymer, said sulfonated EPDM terpolymer being derived from an EPDM terpolymer having an Mn of about 10,000 to about 200,000, a Mooney viscosity [ML₁₊₈] 212° F./and about 40 to about 75 wt. % of ethylene, of about 10 to about 53 wt. % of propylene and about 1 to about 10 wt. % of a conjugated diene;
(c) about 5 to about 180 parts by weight of an isotactic polypropylene homopolymer per 100 parts by weight of the styrene-ethylene/butylene-styrene block copolymer; and
(d) about 5 to about 300 parts by weight of a non-polar backbone process oil per 100 parts by weight of the styrene-ethylene/butylene-styrene block copolymer.

4,313,868

GLASS FILLED POLYAMIDE-IMIDE PHTHALAMIDE
COPOLYMER

Robert B. Hanson, Oswego, Ill., assignor to Standard Oil Company (Indiana), Chicago, Ill.

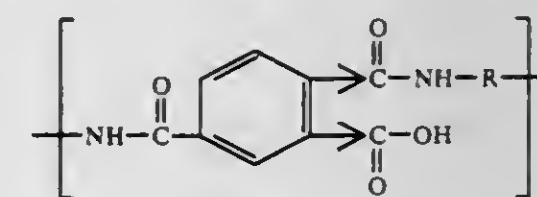
Filed Apr. 30, 1980, Ser. No. 145,334

Int. Cl.³ C08L 77/10; C08G 69/32, 73/14

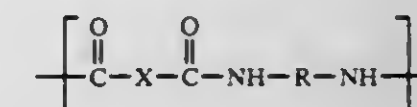
U.S. Cl. 260—37 N

9 Claims

1. A polyamide molding composition suitable for injection molding comprising recurring polyamide A units of



capable of undergoing imidization wherein—denotes isomerization and polyamide B units of



wherein the molar ratio of A units to B units is about 80 to 20 to 80 and the molding composition contains from about 30 to 50 weight percent of glass fibers, glass beads or a mixture thereof and R is a divalent aromatic hydrocarbon radical of from 6 to about 20 carbon atoms or 2 divalent hydrocarbon radicals of from about 6 to about 20 carbon atoms joined directly or by stable linkages selected from the group consisting of —O—, methylene, —CO—, —SO₂— and —S— radicals and X is a divalent aromatic radical.

4,313,869

COMPOSITION FRICTION ELEMENT FOR A RAILROAD BRAKE SHOE

John B. Littlefield, Wheaton, Ill., assignor to AMSTED Industries Incorporated, Chicago, Ill.

Filed May 19, 1980, Ser. No. 151,398

Int. Cl.³ C08K 3/22; C08L 61/10

U.S. Cl. 260—38

3 Claims

1. A composite friction element for a railroad brake shoe and the like, said element having a bond of synthetic rubber selected from the group consisting of a butyl rubber, a styrene butadiene copolymer rubber, an acrylonitrile rubber, and a chlorinated butyl rubber, said rubber blended with a phenolic thermosetting resin, organic and carbon base fillers, reinforcing materials, and inorganic fillers, an improvement in said element comprising said inorganic fillers being present in said element in a percentage range by weight of about 25.0% to 65.0% and consisting in part of alumina trihydrate being present in said element in a percentage range by weight of about 5.0% to 25.0%.

4,313,870

PROCESS FOR PRODUCING POLYCONDENSATES

Shozaburo Imai, Akashi; Haruo Suzuki, Ibaraki; Kunlaki Asai, Tondabayashi, and Katsuji Ueno, Hirakata, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Sep. 5, 1978, Ser. No. 939,794

Claims priority, application Japan, Sep. 21, 1977, 52-114042; Sep. 21, 1977, 52-114043

Int. Cl.³ C08G 85/00, 63/06, 69/06

U.S. Cl. 260—40 R

10 Claims

1. In a method for producing a polycondensate by a bulk polycondensation of a monomer (or a reactant mixture) which is a fluid at the polycondensation temperature, an improvement which comprises carrying out the polycondensation until substantially the whole polycondensate becomes a solid polydispersion while continually applying a shearing force sufficient for maintaining the polycondensation system in polydispersed state at a temperature below the sintering temperature of the produced polycondensate but sufficiently high for allowing the polycondensation to proceed substantially.

4,313,871

ANTIGEN FOR EARLY PREGNANCY TEST AND CONTRACEPTIVE VACCINE

Om P. Bahl, Williamsville, N.Y., assignor to Research Corporation, New York, N.Y.

Division of Ser. No. 875,497, Feb. 6, 1978, Pat. No. 4,234,561.

This application Apr. 17, 1979, Ser. No. 30,773

Int. Cl.³ C07G 7/00

U.S. Cl. 260—112 B

30 Claims

1. An antigen which is capable of being administered to a host animal to induce an antibody response which is generally selective to human chorionic gonadotropin to a distinguishing degree from luteinizing hormone, which comprises a β -subunit of human chorionic gonadotropin which has been reduced such that four of intrachain disulfide bonds are cleaved, and wherein said cleaved disulfide bonds have been alkylated, and wherein said subunit is further conjugated with a protein or a hapten which functions to enhance the antibody response to

said antigen when the said antigen is administered to said host animal.

9. An antiserum which is generally selective in reactivity to human chorionic gonadotropin to a distinguishing degree from luteinizing hormone, which is produced by the process comprising:

isolating the β -subunit of human chorionic gonadotropin, reducing and cleaving three of the intrachain disulfide bonds of said β -subunit, alkylating the thus reduced intrachain disulfide groups, and conjugating said β -subunit with a protein or hapten selected from the group consisting of albumin, hemocyanin, thyroglobulin, and muramyl alanyl isoglutamine, either of said reducing, cleaving, and alkylating, and said conjugating being performed first, isolating said antigen,

administering said antigen to a host animal whereby said animal generates an antibody response to said antigen, and extracting said antiserum from said animal.

4,313,872

AZO COUPLING IN TWO-PHASE WATER-ALCOHOL MIXTURES

Ernst Heiorich, Neu-Iseburg, and Joachim Ribka, Offenbach am Main-Bürgel, both of Fed. Rep. of Germany, assignors to Cassella Aktiengesellschaft, Frankfurt am Main Fechnheim, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 762,931, Jan. 26, 1977, abandoned. This application May 8, 1978, Ser. No. 904,107

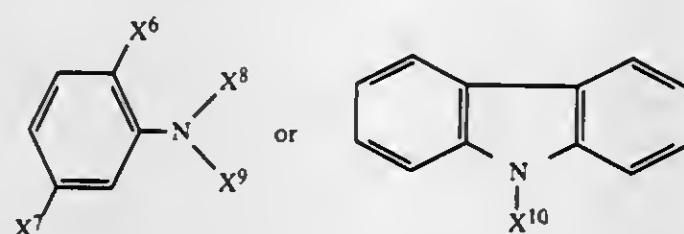
Claims priority, application Fed. Rep. of Germany, Feb. 2, 1976, 2603836; May 20, 1977, 2722768

Int. Cl.³ C09B 29/01, 29/06, 29/24, 29/36

U.S. Cl. 260—152

12 Claims

1. In the process of preparing an azo dye by coupling a diazonium compound in aqueous solution with a coupling compound having the formula



where

X₆ is selected from the class consisting of hydrogen, halogen, alkyl of up to four carbons, and alkoxy of up to four carbons;

X₇ is selected from the class consisting of X₆ and alkylcarbonylamino of up to 8 carbons in the alkyl moiety;

X₈ and X₉ are independently unsubstituted or monosubstituted alkyl, the substitution being selected from the class consisting of halogen, hydroxy, cyano, alkyl-carbonyloxy, alkoxy, alkoxy-carbonyl, alkoxy-carbonyloxy, phenoxycarbonyl, phenoxy-carbonyloxy, cyclohexyl, phenyl, halophenyl, alkylphenyl, phenoxy, halophenoxy and alkylphenoxy, each alkyl and alkoxy having up to four carbons; or

X₈ and X₉ together with the N to which they are both bonded form a heterocyclic ring in which the N is linked through methylene groups to oxygen, another N, or an additional carbon; and

X₁₀ is selected from the class consisting of hydrogen and X₈ at a temperature between about 0° and 80° in the presence of an acid, the improvement which comprises effecting the coupling essentially in a two-phase mixture of water and a simple alcohol having four to six carbons in the molecule and soluble in water to the extent of not over about 15% by weight at 15° C., the mixture containing from about 15 to about 90% alcohol by weight, and then directly separating the dye in over 85% purity from the reaction mixture.

4,313,873

NOVEL METHOD FOR REDUCING THE PROCESSING TEMPERATURE OF THERMOPLASTIC POLYMERS

In C. Lim, Pittsburgh, Pa., assignor to Mobay Chemical Corporation, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 921,529, Jul. 3, 1978. This application Jun. 18, 1979, Ser. No. 49,834

Int. Cl.³ C08L 91/00

U.S. Cl. 260—18 TN

6 Claims

1. A method for reducing the processing temperature of a thermoplastic polycarbonate comprising blending the thermoplastic polycarbonate in powder form having a maximum particle size diameter of less than about 1000 microns with an effective amount of a compound having a softening temperature of about 20° to 200° C. lower than the softening temperature of the thermoplastic polycarbonate.

4,313,874

DISPERSE MONOAZO DYESTUFFS

Violet Boyd; Brian R. Fishwick, both of Manchester, England, and Brian Glover, Charlotte, N.C., assignors to Imperial Chemical Industries Limited, London, England

Continuation of Ser. No. 666,248, Mar. 12, 1976, abandoned.

This application Apr. 4, 1977, Ser. No. 784,330

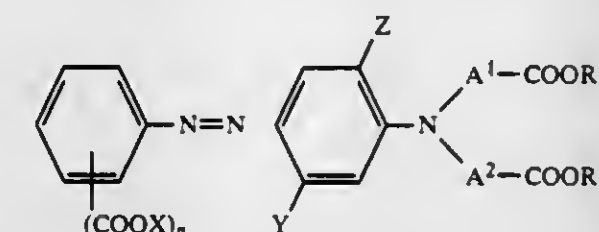
Claims priority, application United Kingdom, Mar. 25, 1975, 12417/75

Int. Cl.³ C07C 107/06; C09B 29/05, 29/26

U.S. Cl. 260—207

3 Claims

1. A disperse monazo dyestuff of the formula:



wherein X is lower alkyl, n is 1, 2 or 3, Z is hydrogen, lower alkyl or lower alkoxy, Y is lower alkylcarbonylamino, A¹ and A² are each independently lower alkylene, and R¹ and R² are each independently lower alkyl or hydroxyalkyl containing from 2 to 4 carbon atoms.

4,313,875

PURIFICATION OF PENICILLIN DERIVATIVE

Etsumi Nakamura, Toyonaka; Takashi Suzuki, Kawanishi; Tadasu Yanagida, Toyonaka, and Minehiko Yamamura, Itami, all of Japan, assignors to Tanabe Seiyaku Co., Ltd., Osaka, Japan

Filed Aug. 27, 1980, Ser. No. 181,750

Claims priority, application Japan, Sep. 11, 1979, 54-117030

Int. Cl.³ C07D 499/68

U.S. Cl. 260—239.1

17 Claims

1. A method for purification of crude 6-[D-2-(D-2-amino-3-N-methylcarbamoyl-propionamido)-2-p-hydroxyphenylacetamido]penicillanic acid which comprises the steps of:

(A) contacting an aqueous solution of 6-[D-2-(D-2-amino-3-N-methylcarbamoyl-propionamido)-2-p-hydroxyphenylacetamido]penicillanic acid with a nonpolar, macroporous styrenedivinylbenzyl copolymer adsorption resin to absorb 6-[D-2-(D-2-amino-3-N-methylcarbamoyl-propionamido)-2-p-hydroxyphenylacetamido]penicillanic acid on the resin,

(B) eluting the absorbed 6-[D-2-(D-2-amino-3-N-methylcarbamoylpropionamido)-2-p-hydroxyphenylacetamido]penicillanic acid with water or a mixture of water and a water-miscible organic solvent,

and then

(C) isolating pure 6-[D-2-(D-2-amino-3-N-methylcar-

bamoylpropionamido)-2-p-hydroxyphenylacetamido]penicillanic acid from the eluates.

4,313,876

PRODUCTION OF ISOPHORONEDIISOCYANATE ADDUCTS CONTAINING FREE NCO-GROUPS AND NCO-GROUPS END BLOCKED WITH ϵ -CAPROLACTAM

Rainer Gras, and Elmar Wolf, both of Herne, Fed. Rep. of Germany, assignors to Chemische Werke Huls Aktiengesellschaft, Marl, Fed. Rep. of Germany

Filed Jul. 1, 1980, Ser. No. 165,206

Claims priority, application Fed. Rep. of Germany, Jul. 19, 1979, 2929224

Int. Cl.³ C07D 223/10

U.S. Cl. 260—239.3 R

5 Claims

1. A method for producing isophoronediiisocyanate adducts containing free NCO- and NCO-groups end blocked with ϵ -caprolactam, wherein the isophoronediiisocyanate adducts and ϵ -caprolactam are mixed in such a proportion that 0.1-1 mole of NCO-groups remain free per mole of isophoronediiisocyanate adduct wherein said adducts are selected from the group consisting of:

trimerized isophoronediiisocyanate alone or in a mixture with monomer isophoronediiisocyanate and having an NCO-content of 17-35% by weight, isophoronediiisocyanate containing urea groups and having an NCO-content of 22-35% by weight, isophoronediiisocyanate containing biuret groups and having an NCO-content of 20-35% by weight, isophoronediiisocyanate containing carbodiimide groups and having an NCO-content of 22-35% by weight, and an isophoronediiisocyanate adduct exhibiting urea and urethane groups of 1-hydroxy-3-aminomethyl-3,5,5-trimethylcyclohexane and isophoronediiisocyanate.

4,313,877

11A-METHANO TXA₂ AMIDES

Gordon L. Bundy, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 35,143, May 1, 1979, Pat. No. 4,218,378.

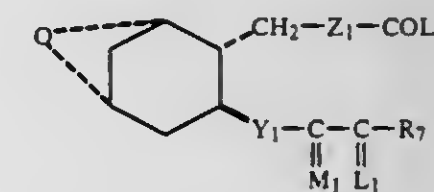
This application Jan. 28, 1980, Ser. No. 116,115

Int. Cl.³ C07D 305/14, 405/02, 407/02

U.S. Cl. 260—333

3 Claims

1. A thromboxane analog of formula IV



wherein Y₁ is

- (1) trans—CH=CH—,
- (2) cis—CH=CH—,
- (3) —CH₂CH₂—, or
- (4) —C=C—,

wherein M₁ is α -R₅: β -OH, α -OH: β -R₅, or α -H: β -H, wherein R₅ is hydrogen or methyl, and wherein L₁ is α -R₃: β -R₄, α -R₄: β -R₃, or a mixture of α -R₃: β -R₄ and β -R₃: α -R₄, wherein R₃ and R₄ are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R₃ and R₄ is fluoro only when the other is hydrogen or fluoro, or wherein —C(M₁)—C(L₁)— is trans—CH=CH—;

wherein Z₁ is

- (1) cis—CH=CH—CH₂—(CH₂)_g—CH₂—,
- (2) cis—CH=CH—CH₂—(CH₂)_g—CF₂—,
- (3) cis—CH₂—CH=CH—(CH₂)_g—CH₂—,
- (4) —(CH₂)₃—(CH₂)_g—CH₂—,
- (5) —(CH₂)₃—(CH₂)_g—CF₂—,
- (6) —CH₂—O—CH₂—(CH₂)_g—CH₂—,
- (7) —(CH₂)₂—O—(CH₂)_g—CH₂—,

- (8) $\text{trans-CH}_2\text{-(CH}_2\text{)}_g\text{-CH}_2\text{-CH=CH-}$,
 (9) $\text{-(m-Ph)-O-(CH}_2\text{)}_g\text{-}$, or
 (10) $\text{-(m-Ph)-CH}_2\text{-(CH}_2\text{)}_g\text{-}$,
 wherein g is one, 2, or 3 and -(m-Ph)- is meta-phenylene;
 wherein R_7 is

- (1) $\text{-(CH}_2\text{)}_m\text{-CH}_3$, wherein m is an integer from one to 5, inclusive;
 (2) phenoxy;
 (3) phenoxy substituted by one, two or three chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive, with the proviso that not more than two substituents are other than alkyl;
 (4) phenyl;
 (5) phenyl substituted by one, two or three chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive, with the proviso that not more than two substituents are other than alkyl;
 (6) phenylmethyl, phenylethyl, or phenylpropyl; or
 (7) phenylmethyl, phenylethyl, or phenylpropyl substituted by one, two or three chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive, with the proviso that not more than two substituents are other than alkyl; with the proviso that R_7 is phenoxy or substituted phenoxy, only when R_3 and R_4 are hydrogen or methyl, being the same or different; and

wherein L_4 is

- (a) amino of the formula $\text{—NR}_{21}\text{R}_{22}$, wherein R_{21} and R_{22} are
 (i) hydrogen;
 (ii) alkyl of one to 12 carbon atoms, inclusive;
 (iii) cycloalkyl of 3 to 10 carbon atoms, inclusive;
 (iv) aralkyl of 7 to 12 carbon atoms, inclusive;
 (v) phenyl;
 (vi) phenyl substituted with one, 2, or 3 chloro, alkyl of one to three carbon atoms, inclusive, hydroxy, carboxy, alkoxy, carbonyl of one to 4 carbon atoms, inclusive, or nitro;
 (vii) carboxyalkyl of 2 to 4 carbon atoms, inclusive;
 (viii) carbamoylalkyl of 2 to 5 carbon atoms, inclusive;
 (ix) cyanoalkyl of 2 to 5 carbon atoms, inclusive;
 (x) acetylalkyl of 3 to 6 carbon atoms, inclusive;
 (xi) benzoylalkyl of 7 to 11 carbon atoms, inclusive;
 (xii) benzoylalkyl substituted by one, 2, or 3 chloro, alkyl of one to 3 carbon atoms, inclusive, hydroxy, alkoxy of one to 3 carbon atoms, inclusive, carboxy, alkoxy, carbonyl of one to 4 carbon atoms, inclusive, or nitro;
 (xiii) pyridyl;
 (xiv) pyridyl substituted by one, 2, or 3 chloro, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive;
 (xv) pyridylalkyl of 6 to 9 carbon atoms, inclusive;
 (xvi) pyridylalkyl substituted by one, 2, or 3 chloro, alkyl of one to 3 carbon atoms, inclusive, hydroxy or alkoxy of one to 3 carbon atoms, inclusive;
 (xvii) hydroxyalkyl of one to 4 carbon atoms, inclusive;
 (xviii) dihydroxyalkyl of one to 4 carbon atoms, or
 (xix) trihydroxyalkyl of one to 4 carbon atoms; with the further proviso that not more than one of R_{21} and R_{22} is other than hydrogen or alkyl;
 (b) cycloamino selected from the group consisting of
 (i) pyrrolidino,
 (ii) piperidino,
 (iii) morpholino,
 (iv) piperazino,
 (v) hexamethyleneimino,
 (vi) pyrrolino,
 (vii) 3,4-dihydropiperidinyl, or
 (viii) pyrrolidino, piperidino, morpholino, piperazino, hexamethyleneimino, pyrrolino, or 3,4-dihydropiperidinyl substituted by one or two alkyl of one to 12 carbon atoms, inclusive;
 (c) carbonylamino of the formula $\text{—NR}_{23}\text{COR}_{24}$, wherein

R_{23} is hydrogen or alkyl of one to 4 carbon atoms and R_{24} is other than hydrogen, but otherwise as defined above; or
 (d) sulfonylamino of the formula $\text{—NR}_{23}\text{SO}_2\text{R}_{24}$, wherein R_{21} and R_{23} are as defined in (c).

4,313,878

4-SUBSTITUTED PHENYL

4'-(5-N-ALKYL-1,3-DIOXAN-2-YL)BENZOATES

Ying Y. Hsu, Los Altos, Calif., assignor to Timex Corporation, Waterbury, Conn.

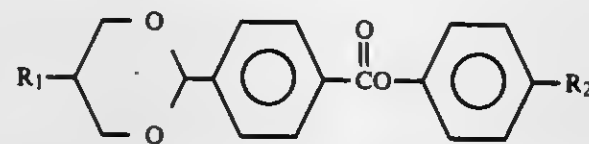
Filed Dec. 3, 1980, Ser. No. 212,303

Int. Cl.³ C07D 319/04

U.S. Cl. 260—340.7

6 Claims

1. A compound of the formula:



where R_1 is an alkyl group and R_2 is an alkyl, alkoxy, acyloxy, alkyl carbonato group having 1 to 10 carbon atoms, CN or NO₂.

4,313,879

PROCESS FOR THE MANUFACTURE OF VERY PURE ε-CAPROLACTONE

Herbert Klenk; Rolf Wirthwein, both of Hanau; Gerd Siekmann, Cologne, and Wulf Schwerdtel, Leverkusen, all of Fed. Rep. of Germany, assignors to Degusa AG, Frankfurt am Main and Bayer Aktiengesellschaft, Leverkusen, both of, Fed. Rep. of Germany

Filed Aug. 20, 1980, Ser. No. 179,622

Claims priority, application Fed. Rep. of Germany, Aug. 28, 1979, 2934659

Int. Cl.³ C07D 313/04

U.S. Cl. 260—343

9 Claims

1. Process for the production of ε-caprolactone having a purity of 99.9% which comprises feeding ε-caprolactone, which has been made by reacting cyclohexanone with a solution of a percarboxylic acid, into a first distillation unit, which is operated at a pressure of 0.1 to 500 mbars and at the top of which unit the temperature is set in the range from 10° C. (when the pressure is 0.1 mbar) to 190° C. (when the pressure is 500 mbar), drawing off as the top product a mixture consisting of ε-caprolactone and lower-boiling impurities, feeding the bottom product of said first distillation unit into a second distillation unit, which is operated at a pressure of 0.1 to 500 mbars and at the top of which unit the temperature is set in the range from 15° C. (when the pressure is 0.1 mbar) to 210° C. (when the pressure is 500 mbar), then drawing off the pure ε-caprolactone as the top product, the double distillation being carried out so that the reflux ratio in said first distillation unit being set at 0.5 to 200 and the reflux ratio in said second distillation unit being lower than that set for the first distillation unit and set at 0.1 to 5:1.

4,313,880

EXTRACTIVE PROCESS FOR PREPARING APIGENIN

Claudio Redaelli, Missaglia, Italy, assignor to Benomelli S.p.A., Dolzago, Italy

Filed Nov. 27, 1979, Ser. No. 87,932

Claims priority, application Italy, Oct. 25, 1978, 29099 A/78

Int. Cl.³ C07D 311/30

U.S. Cl. 260—345.2

2 Claims

1. A process for preparing very pure apigenin for therapeutic use, wherein the ligules of Matricaria Chamomilla L. are extracted continuously for 7–8 hours with a water/ethanol mixture containing at least 30% by volume of ethanol; the extract is evaporated to dryness and taken up in a volume of

ether in the ratio of about 10 parts by volume to 1 part by weight of the initial ligules, and is kept under strong agitation for about 24 hours at ambient temperature; the precipitated solid is hydrolysed with 10% HCl by heating under reflux for about 10 hours.

4,313,881

5-HYDROXYFUROCHROMONES

Ronald B. Gammill, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

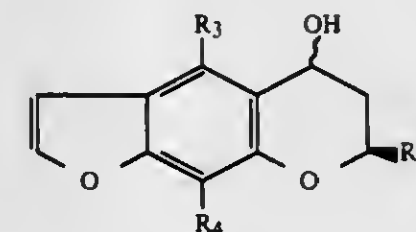
Division of Ser. No. 116,322, Jan. 28, 1980, Pat. No. 4,284,569, which is a continuation-in-part of Ser. No. 11,816, Feb. 13, 1979, abandoned. This application Oct. 29, 1980, Ser. No. 201,845

Int. Cl.³ C07D 311/78

U.S. Cl. 260—345.2

5 Claims

1. A furochromone of formula X



wherein R_{14} is:

- (a) hydrogen;
 (b) alkyl of one to 8 carbon atoms, inclusive;
 (c) alkoxyethyl of 2 to 8 carbon atoms, inclusive;
 (d) alkylthioalkyl of 2 to 8 carbon atoms, inclusive;
 (e) trifluoromethyl;
 (f) phenoxyethyl;
 (g) phenylthiomethyl;
 (h) phenoxyethyl or phenylthiomethyl substituted by chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms or alkoxy of one to 3 carbon atoms; or
 (i) cycloalkyl of 3 to 10 carbon atoms, inclusive; and
 wherein one of R_3 and R_4 is methoxy and the other is methoxy or hydrogen.

4,313,882

7-METHYL-6-METHYLTHIO-, METHYLSULFINYL-, AND METHYLSULFONYL-METHYL-FUROCHROMONES

Ronald B. Gammill, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

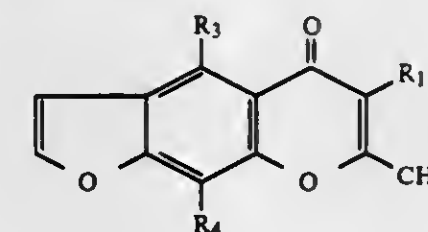
Division of Ser. No. 116,322, Jan. 28, 1980, Pat. No. 4,284,569, which is a continuation-in-part of Ser. No. 11,816, Feb. 13, 1979, abandoned. This application Oct. 29, 1980, Ser. No. 201,852

Int. Cl.³ C07D 311/78

U.S. Cl. 260—345.2

7 Claims

1. A furochromone of formula LIV



wherein R_{11} is $\text{—CH}_2\text{SR}_{10}$, or $\text{—CH}_2\text{SOR}_{10}$, or $\text{—CH}_2\text{(SO}_2\text{)R}_{10}$, wherein R_{10} is alkyl of one to 5 carbon atoms, inclusive; and

wherein one of R_3 and R_4 is methoxy and the other is methoxy or hydrogen.

4,313,883

HALOFUROCHROMONES

Ronald B. Gammill, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

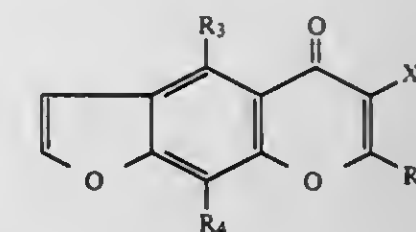
Division of Ser. No. 116,322, Jan. 28, 1980, Pat. No. 4,284,569, which is a continuation-in-part of Ser. No. 11,816, Feb. 13, 1979, abandoned. This application Oct. 29, 1980, Ser. No. 201,933

Int. Cl.³ C07D 311/78

U.S. Cl. 260—345.2

9 Claims

1. A furochromone of formula VI



wherein R_{14} is:

- (a) hydrogen;
 (b) alkyl of one to 8 carbon atoms, inclusive;
 (c) alkoxyethyl of 2 to 8 carbon atoms, inclusive;
 (d) alkylthioalkyl of 2 to 8 carbon atoms, inclusive;
 (e) trifluoromethyl;
 (f) phenoxyethyl;
 (g) phenylthiomethyl;
 (h) phenoxyethyl or phenylthiomethyl substituted by chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms or alkoxy of one to 3 carbon atoms; or
 (i) cycloalkyl of 3 to 10 carbon atoms, inclusive;
 wherein one of R_3 and R_4 is methoxy and the other is methoxy or hydrogen; and
 wherein X is chloro, iodo, or bromo.

4,313,884

USE OF METAL IONS IN PREPARATION OF ANHYDROPOLYOLS

Blaise J. Arena, Des Plaines, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Jan. 21, 1980, Ser. No. 113,882

Int. Cl.³ C07D 309/06, 307/12, 305/04

U.S. Cl. 260—345.9 R

10 Claims

1. A method of preparing anhydropolyols from polyols selected from the group consisting of hexitols, pentitols and tetritols which comprises contacting said polyol with a source of metal ions selected from the group consisting essentially of magnesium, manganese, iron, cobalt, nickel, copper, actinium, thorium, protactinium, uranium, cerium, praseodymium, neodymium, promethium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium and lutetium at a temperature of from about 100° C. to about 300° C., and recovering said anhydropolyols.

5. A method of preparing anhydrohexitols from a hexose comprising hydrogenating the hexose in the presence of metal ions whose charge to ionic radius ratio is from about 2.0 to about 3.2 at a temperature from about 80° to about 250° C., and recovering the anhydrohexitols formed thereby.

4,313,885

FURFURYL THIOUREA COMPOUNDS

Pamela K. Baker, Hopewell; Goro Asato, Titusville, both of N.J., and John Dusz, Nanuet, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Filed May 21, 1980, Ser. No. 152,269

Int. Cl.³ C07D 307/52

U.S. Cl. 260—347.2

9 Claims

1. The compound 1-furfuryl-2-thio-3-(2,6-xylyl)urea.

4,313,886

PROCESS FOR PREPARING LIQUID EPOXY RESINS

John L. Massingill, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Filed Sep. 25, 1980, Ser. No. 190,700

Int. Cl.³ C07D 301/28

U.S. Cl. 260—348.15

4 Claims

1. A process for preparing liquid diglycidyl ethers of dihydric phenols which process comprises:

(A) reacting in a first reactor in the presence of a suitable quantity of a suitable catalyst selected from quaternary ammonium compounds, quaternary phosphonium compounds, sulfonium compounds, basic ion exchange resins and mixtures thereof, an epihalohydrin or mixture of epihalohydrins with a dihydric phenol or mixture of dihydric phenols in a molar ratio of epihalohydrin to dihydric phenol of from about 5:1 to about 20:1 for a time amounting to from about 90% to about 110% of the time required for the reaction mixture to reach equilibrium;

(B) subjecting the reaction mixture produced in said first reactor to flash distillation so as to remove epihalohydrin and glycerin dihalohydrin therefrom;

(C) contacting the distillate from step (B) in a subsequent reactor in the presence of a suitable catalyst as aforementioned with an epihalohydrin in a weight ratio of epihalohydrin to distillate of from about 1:1 to about 20:1 for a time amounting to from about 90% to about 110% of the time required for the reaction mixture to reach equilibrium;

(D) repeating steps (B) and (C) until the distillate contains less than about 1000 ppm, hydrolyzable halide; and

(E) thereafter removing any residual quantities of catalyst therefrom.

4,313,887

BIS-QUINIZARIN COMPOUNDS

Clarence D. Bertino; Robert W. Hill, both of Houston, Tex., and J. Gustav Schulz, Pittsburgh, Pa., assignors to Gulf Oil Corporation, Pittsburgh, Pa.

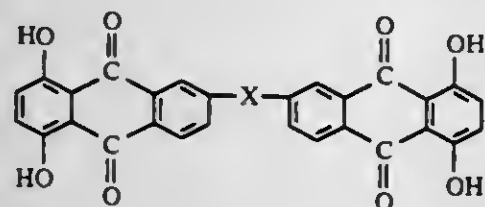
Continuation-in-part of Ser. No. 121,547, Feb. 14, 1980, abandoned. This application Oct. 29, 1980, Ser. No. 201,874

Int. Cl.³ C07C 49/74

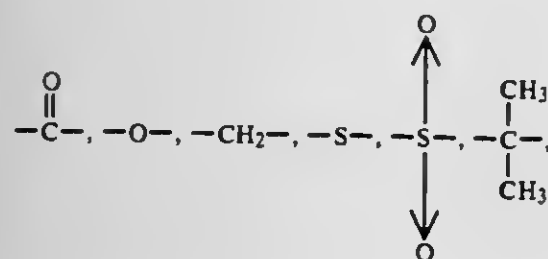
U.S. Cl. 260—367

4 Claims

1. A bis-quinizarin compound having the structure:



where X is



—CF₂—, or a direct bond.

4,313,888

N-3-(CIS-9-OCTADECENOYLOXY)-2-HYDROXY- PROPYLAMINE DERIVATIVE

Keiichi Honda, Odawara, and Yasushi Nishijima, Kamakura, both of Japan, assignors to Kanebo Ltd., Tokyo, Japan

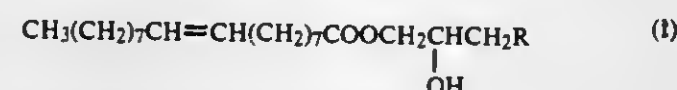
Filed Sep. 15, 1980, Ser. No. 187,045

Int. Cl.³ C09F 5/00; B01F 17/30

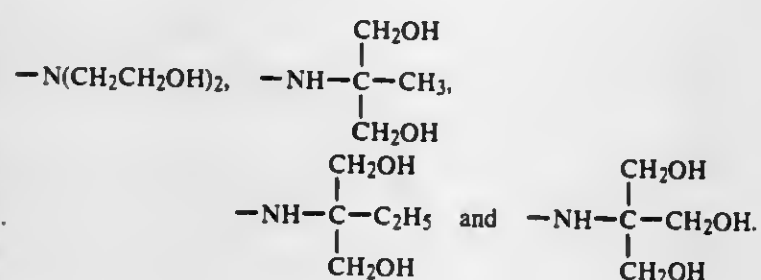
U.S. Cl. 260—404

7 Claims

1. A N-3-(cis-9-octadecenoyloxy)-2-hydroxypropylamine derivative of the general formula (I):



wherein R represents a member selected from the group consisting of



4,313,889

SOFT QUATERNARY SURFACE ACTIVE AGENTS

Nicolae S. Bodor, Lawrence, Kans., assignor to Merck & Co., Inc., Rahway, N.J.

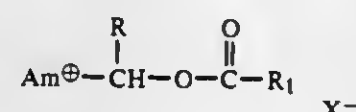
Continuation of Ser. No. 969,260, Dec. 13, 1978, abandoned, which is a division of Ser. No. 726,841, Sep. 27, 1976, which is a continuation-in-part of Ser. No. 615,519, Sep. 22, 1975, Pat. No. 3,989,711. This application Jun. 10, 1980, Ser. No. 158,316

Int. Cl.³ C09F 5/00

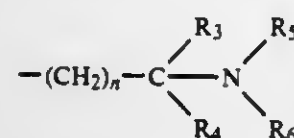
U.S. Cl. 260—404

50 Claims

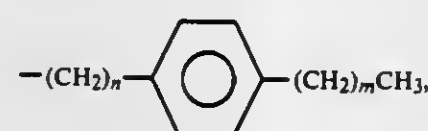
1. A quaternary ammonium compound of the formula:



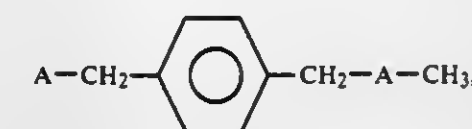
wherein Am is a tertiary aliphatic amine; wherein R represents a member selected from the group consisting of hydrogen, C₁–C₂₀ alkyl, cycloalkyl having up to 7 carbon atoms, alkoxy-alkyl having up to 20 carbon atoms, C₁–C₂₀ haloalkyl, carboxy-alkyl having up to 20 carbon atoms, phenyl, naphthyl, substituted phenyl and substituted naphthyl whose substituents are selected from the group consisting of halogen, O–C₁–C₄ alkyl, O–C₁–C₈ acyl wherein said acyl group is derived from a carboxylic acid, nitro, carboxyl, and carboethoxy; wherein R₁ represents C₉–C₂₂ straight or branched alkyl,



wherein R₃, R₄, R₅ and R₆ are each selected from the group consisting of hydrogen, methyl, and ethyl, C₀–C₂₂ straight or branched alkyl



wherein n in each occurrence and m represents an integer of from 0 to 22,



wherein A is selected from the group consisting of C₀–C₂₂ straight or branched alkyl and —(CH₂CH₂O)_p, wherein the p represents an integer of from 0 to 22, and the radical which results from decarboxylation of a naturally occurring bile acid; and wherein x is a nontoxic, pharmaceutically acceptable anion.

4,313,890

POLYOL ESTER FUNCTIONAL FLUIDS

Nan S. Chu, Hartsdale; Nye A. Clinton, Brewster, both of N.Y.; Robert A. Cupper, Ridgefield, Conn.; Philip F. Wolf, and Priscilla B. Stanley, both of Pleasantville, N.Y., assignors to Union Carbide Corporation, New York, N.Y.

Continuation of Ser. No. 920,832, Jun. 30, 1978, abandoned, which is a continuation-in-part of Ser. No. 782,598, Mar. 30, 1977, abandoned. This application Jan. 29, 1980, Ser. No. 116,618

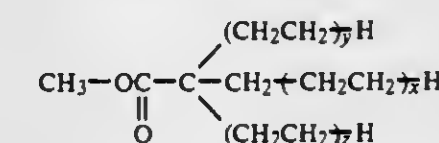
Int. Cl.³ C09F 5/08

U.S. Cl. 260—410.6

10 Claims

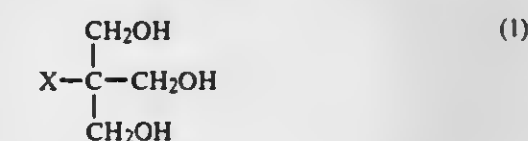
1. A process for the preparation of a highly substituted polyol ester containing essentially no unreacted formate bonds wherein said process comprises:

(a) reacting ethylene with methyl formate in the presence of a free radical initiator to produce a mixture of linear methyl esters (I), linear α-alkyl methyl esters (II) and linear α,α-dialkyl methyl esters (III) wherein (I) and (II) and (III) are represented by the general formula:



wherein X is an integer having values of 1 to about 60; y and z are each integers having values ≥ 0 with the proviso that the sum (x + y + z) ≤ 60;

(b) transesterifying the mixture of esters I, II and III with at least one polyol selected from the group consisting of:



wherein X is —CH₂OH, alkyl having 1 to about 12 carbon atoms or aryl or aralkyl groups having 6 to about 10 carbon atoms;



wherein n is an integer having values of 0 to 6 and each of R and R' is H or alkyl having 1 to about 12 carbon atoms; or

(3) anhydro products of (1) or (2) containing 1 to about 5 ether linkages formed by the condensation of two or more —CH₂OH groups with the elimination of H₂O from at least one pair of —CH₂OH groups, such that the resultant polyol

ester consists essentially of polyol esters derived from esters (I) and (II) and transesterified ester (III);

(c) removing excess ethylene and methyl formate from the mixture of step (b);

(d) collecting a highly substituted polyol ester wherein said polyol ester is essentially free of unreacted formate bonds.

4,313,891

PROCESS FOR SYNTHESIZING MIXED ALKOXY HYDRIDE DERIVATIVES OF ALUMINIUM AND ALKALINE EARTH METALS

Giovanni Dozzi, Milan, and Salvatore Cucinella, San Donato Milanese, both of Italy, assignors to Anic S.p.A., Palermo, Italy

Filed Oct. 26, 1979, Ser. No. 88,581

Claims priority, application Italy, Nov. 10, 1978, 29699 A 78; Apr. 4, 1979, 21564 A 79

Int. Cl.³ C07F 5/06

U.S. Cl. 260—448 AD

7 Claims

1. A process for synthesizing compounds of aluminium and alkaline earth metals containing hydride hydrogens and alkoxy radicals, of composition



in which 0.5 ≤ n ≤ 3.5; OR is an alkoxy radical derived from a primary, secondary or tertiary alcohol; R is an aliphatic, cycloaliphatic or aromatic hydrocarbon radical; M is an alkaline earth metal; B is a Lewis base; x can vary between 0 and 4; and R can also contain functional groups OR', SR', NR', consisting of reacting together:

(a) a halide of an alkaline earth metal;

(b) an alanate of an alkaline earth metal of formula M'AlH₄ (M' = alkaline metal);

(c) an alcohol chosen from primary, secondary or tertiary aliphatic, cycloaliphatic or aromatic alcohols containing 1 to 20 carbon atoms.

4,313,892

N-(SULFENYL) PHTHALAMIDES

Alfred B. Sullivan, Wadsworth, and Raleigh W. Wise, Akron, both of Ohio, assignors to Monsanto Company, St. Louis, Mo.

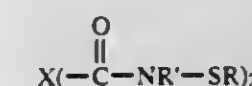
Division of Ser. No. 33,653, Apr. 26, 1979. This application Mar. 31, 1980, Ser. No. 135,593

Int. Cl.³ C07C 83/10

U.S. Cl. 260—453 RW

13 Claims

1. A compound of the formula



in which X is phenylene and R and R' are the same or different radicals selected from the group consisting of alkyl of 1–20 carbon atoms, cycloalkyl of 5–12 carbon atoms, phenyl or mono- or di-substituted phenyl wherein the substituents are lower alkyl, lower alkoxy or halo, or R' is hydrogen, when X is 1,2-phenylene R' is one of the above defined radicals and when X is 1,3-phenylene or 1,4-phenylene R' is one of the above defined radicals or hydrogen.

4,313,893

CARBONYLATION OF OLEFINICALLY UNSATURATED COMPOUNDS

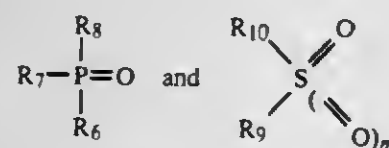
Frederick A. Pesa, Aurora, and Thomas A. Haase, Twinsburg, both of Ohio, assignors to Standard Oil Company, Cleveland, Ohio

Division of Ser. No. 973,069, Dec. 26, 1978, abandoned. This application Oct. 31, 1979, Ser. No. 89,822

Int. Cl.³ C07C 120/00, 121/417, 121/34
U.S. Cl. 260—465.4

12 Claims

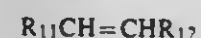
1. A process for the production of esters, acetals, ethers, amides and mixtures thereof, wherein the branched ester or amide product predominates comprising contacting an olefinically unsaturated compound in the liquid phase at a temperature in the range of about 50° C. to about 150° C. and a pressure in the range of about 100 psi to about 2500 psi with carbon monoxide and a compound containing a replaceable hydrogen atom in the presence of a catalyst comprising at least one of cobalt carbonyl and ruthenium carbonyl and a promoter ligand having one of the following structures:



wherein R₆, R₇, R₈, R₉ and R₁₀ are each independently selected from:

- (1) C₁₋₁₀ alkyl;
- (2) polynuclear aryls containing up to 10 carbon atoms, optionally substituted with C₁₋₁₀ alkyls; and
- (3) O(CH₂)_tCH₃, wherein t is 0-10; and wherein n is 0 or 1;

wherein the olefinically unsaturated compound has the following structure:



wherein R₁₁ and R₁₂ are each independently selected from:

- (1) hydrogen (either R₁₁ or R₁₂ but not both);
- (2) C₁₋₃₀ alkyl;
- (3) —(CH₂)_p—CN, wherein p is 0-3; and
- (4) —(CH₂)_q—OR₃, wherein q is 1-30 and R₃ is hydrogen or methyl;

with the proviso that at least one of R₁₁ and R₁₂ contains a nitrile moiety;

wherein the compound containing a replaceable hydrogen atom is represented by the following formula:



wherein Y is selected from the group consisting of:

- (1) OR₁₄ wherein R₁₄ is a C₁₋₃₀ alkyl;
- (2)



wherein R₁₅ and R₁₆ are each independently selected from C₁₋₁₀ alkyls; and

- (3) H;

wherein the molar ratio of the compound containing a replaceable hydrogen atom to the olefinically unsaturated compound is about 0.5:1 to about 100:1 and the molar ratio of the promoter ligand to the cobalt carbonyl and ruthenium carbonyl is about 0:11 to about 50:1.

4,313,894

PROCESS FOR THE PRODUCTION OF 3-CYANOPROPIONAMIDE

Axel Kleemann, Hanau; Wolfgang Leuchteberger, Bruchkobel; Jürgen Martens, Alzenau, and Horst Weigel, Rodenbach, all of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Filed Nov. 14, 1980, Ser. No. 206,897
Claims priority, application Fed. Rep. of Germany, Nov. 24, 1979, 2947475

Int. Cl.³ C07C 120/02

U.S. Cl. 260—465.4

11 Claims

1. A process for the production of 3-cyanopropionamide comprising reacting hydrocyanic acid with acrylamide at a temperature between 20° and 150° C. in the presence of an aprotic organic solvent and an alkali metal cyanide.

4,313,895

ALKOXYLATED DIQUATERNARY AMMONIUM COMPOUNDS

James M. Richmond, Naperville; Richard A. Reck, Hinsdale, and Gary A. Bernard, Bolingbrook, all of Ill., assignors to Akzona Incorporated, Asheville, N.C.

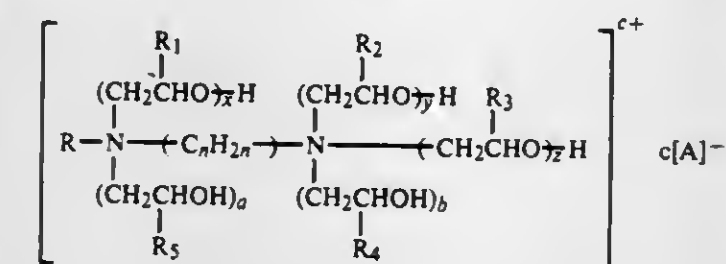
Filed Jun. 24, 1980, Ser. No. 162,570

Int. Cl.³ C07C 91/26; C08L 95/00

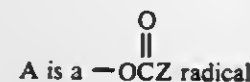
U.S. Cl. 260—501.15

7 Claims

1. A compound of the formula



wherein R is selected from the group of aliphatic radicals containing from about 6 to about 22 carbon atoms; n is an integer of from 2 to 6; R₁, R₂, R₃, R₄ and R₅ are independently selected from the group consisting of hydrogen, methyl and ethyl; x, y and z are independently integers of from 1 to 50; a and b are independently 0 or 1, provided that the sum of a + b is greater than zero; c is the sum of a + b; and



wherein Z is a lower alkyl, lower hydroxy alkyl or lower chloroalkyl.

4,313,896

ARYLOXYPHENYLPROPYLAMINES

Bryan B. Molloy, North Salem, and Klaus K. Schmieg, Indianapolis, both of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Continuation-in-part of Ser. No. 872,148, Jan. 25, 1978, which is a division of Ser. No. 432,379, Jan. 10, 1974. This application

Mar. 9, 1981, Ser. No. 241,913

Int. Cl.³ C07C 93/06

U.S. Cl. 260—501.18

4 Claims

1. 3-Phenyl-3-(p-trifluorophenoxy)propylamine, and its acid addition salts formed with pharmaceutically acceptable acids.

4,313,897

GAS AND LIQUID ADMIXING SYSTEM

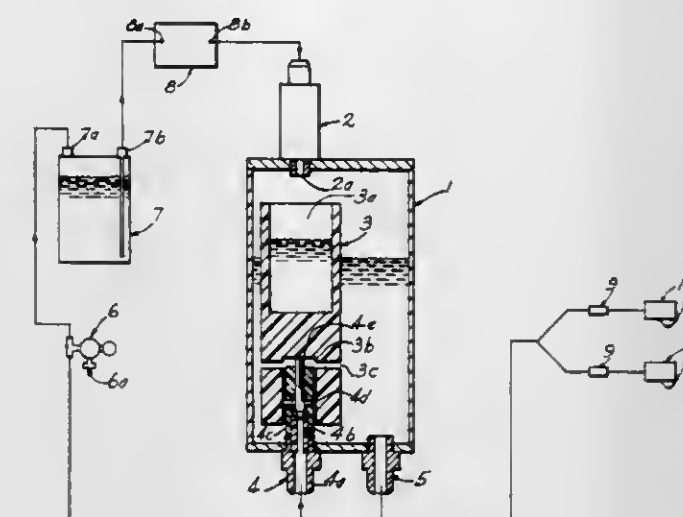
Bruce Garrard, 126 Montgomery Ferry Dr. NE., Atlanta, Ga. 30309

Filed Jan. 30, 1980, Ser. No. 116,832

Int. Cl.³ B01F 3/04

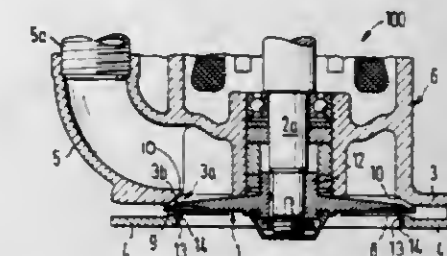
U.S. Cl. 261—64 D

7 Claims



1. A system for carbonating water concurrently with carbonated water being drawn from the system, comprising a carbonating tank, a water supply source connected to said tank, a gas supply source connected to said tank, and drawing means connected to said tank for dispensing carbonated water, a float member within said tank responsive to the level of liquid in the tank, a gas inlet valve connected to said gas source and mounted in a wall of said tank, mechanical connection means within said tank connecting said float member with said gas inlet valve, said valve including a needle member and an orifice member, a decrease in said liquid level providing a gravitational force on said float member, said connection means conveying said force from said float member to said needle member to bias said needle member against said orifice member increasingly with a falling level of said liquid, thereby reducing the flow rate of gas into the tank as the liquid level falls and increasing it as the liquid level rises, a flow of water being induced into the tank during a draw of liquid from the tank which increases with a reduction of liquid level in the tank and decreased gas flow into the tank, said water flow decreasing with a rising liquid level and increased gas flow rate into the tank, an equilibrium point being reached at an intermediate level of liquid in the tank, with the liquid at an intermediate point on the float member, wherein the inlet flow rates of gas and water are continuously controlled to substantially equal the outlet flow rates of gas and water contained in the departing mixture of carbonated water, thus maintaining the liquid level at a constant point in the tank and at a constant level on the float member during a draw of carbonated water at a constant rate, and maintaining a constant and even mixing of gas and water as they enter the tank with constant flow rates and under constant conditions of gas pressure in the tank, during said draw.

bottom side in the radially outer region with a plurality of radially extending recesses which form a plurality of radially extending teeth therebetween; and a flange portion projecting



outwardly from the motor housing and being integral therewith and cooperating with the rotating means for providing a ring slot.

4,313,899

PROCESS FOR FORMING LAMINATED PAPERBOARD CONTAINERS

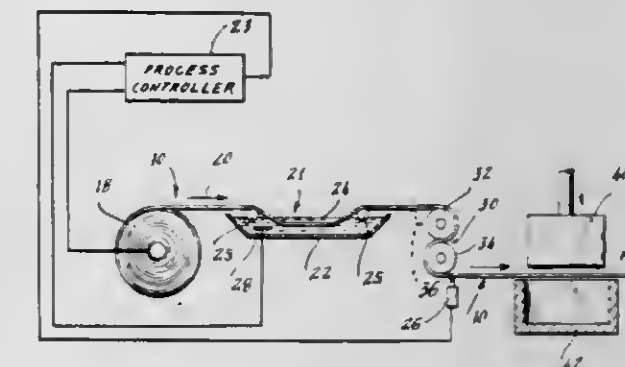
Paul Hain, Hamilton, Ohio, assignor to Champion International Corporation, Stamford, Conn.

Filed Feb. 7, 1980, Ser. No. 119,486

Int. Cl.³ B29C 17/03; B31D 5/02; B31F 1/36

U.S. Cl. 264—40.1

26 Claims



1. In a process for continuously deep drawing laminated material into a predetermined three-dimensional shape, said laminate comprising paperboard having a layer of plastic bonded to one side thereof, the improvement comprising the steps of:

- heating a liquid to a specified temperature;
- applying the heated liquid to said paperboard to impart moisture to said paperboard prior to deep drawing of said laminate;
- measuring the amount of moisture in a portion of said paperboard after the heated liquid is applied thereto; and
- controlling the amount of moisture imparted to a subsequent portion of said paperboard in response to said measurement, by altering said temperature.

4,313,900

METHOD OF FORMING A CERAMIC ARTICLE WITH A GLASSY SURFACE

Frank Gonzales, Jr., Poughkeepsie, and Joseph Sobon, New Paltz, both of N.Y., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Jun. 26, 1980, Ser. No. 163,034

Int. Cl.³ C04B 33/34, 41/06

U.S. Cl. 264—61

4 Claims

1. A method of forming a defect-free glassy surface layer on a planar surface of a ceramic substrate comprising forming an intimate ceramic mixture of a particulate ceramic material having particles with an average diameter in the range of 0.2 to 35 microns, a particulate glass material that does not react with the ceramic material when heated to temperatures sufficient to sinter the ceramic material, said

4,313,898

RADIAL INJECTOR FOR ASPIRATION OF GASES

Ernst Schürch, Obergrundstr. 3, CH-6000 Luzern, Switzerland

Filed Mar. 31, 1980, Ser. No. 135,618

Claims priority, application Switzerland, Apr. 7, 1979, 3297/79

Int. Cl.³ B01F 3/04

U.S. Cl. 261—93

28 Claims

1. A radial injector for aspirating gases to be mixed with a fluid, comprising a motor housing having a motor therein; rotating means connected to the motor and having a bottom side to be contacted by a fluid and a top side to be contacted by a gas, the rotating means being formed as a rotating disc having the bottom side and a radially outer region and provided at the

glass material having a softening point in the range of 500° to 1,000° C., said glass material being present in an amount wherein the volume of the glass, when molten, equals or exceeds the void space in the ceramic material, after sintering, forming the ceramic mixture into the desired shape, placing the resultant green ceramic object on a setter tile of a material that is not wettable by the molten glass material, heating the tile and object in an ambient that is non-reactive to the molten glassy material to cause the glass material to become molten and flow downwardly through the ceramic particles to the setter tile, and subsequently sintering of the ceramic material.

4,313,901

ISOTHERMAL TRANSFER MOLDING

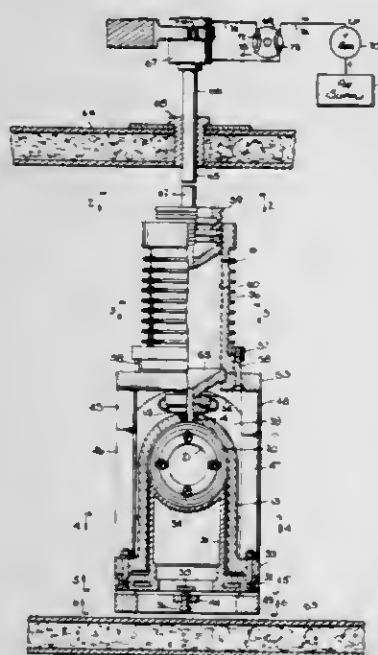
Edward J. Chu, Parsippany, N.J., assignor to Resistoflex Corporation, Roseland, N.J.

Filed Jan. 10, 1976, Ser. No. 694,779

Int. Cl.³ B29G 1/10

U.S. Cl. 264—127

2 Claims



1. The process of producing an article by transfer molding a thermoplastic material selected from the group consisting of fluoroethylene propylene (FEP), perfluoroalkoxy (PFA), polyvinylidene fluoride, and polypropylene resins, wherein said material in a heated condition is transferred by the application of pressure thereto from a charge holding chamber to an interconnected mold, characterized in that heat is applied to said chamber and said mold so as to maintain both at the same substantially constant temperature above the melting point of said material while said material in a melt state is transferred from said chamber to said mold under a transfer pressure on the material within the range of 190 to 230 psi (13.359 to 16.171 Kg/cm²).

4,313,902

PRESTRESSED CONCRETE PRESSURE VESSELS

Tung-Yen Lin, El Cerrito; Yue-Chyou Yang, San Francisco, and Philip Y. Chow, Orinda, all of Calif., assignors to T. Y. Lin International, San Francisco, Calif.

Division of Ser. No. 4,742, Jan. 19, 1979, Pat. No. 4,265,066, which is a continuation-in-part of Ser. No. 789,634, Apr. 21, 1977, abandoned. This application Aug. 11, 1980, Ser. No. 177,180

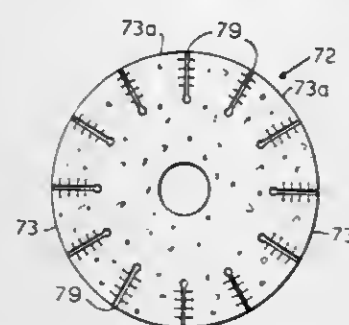
Int. Cl.³ B28B 23/08

U.S. Cl. 264—228

4 Claims

1. A method of forming a prestressed concrete pressure vessel having a generally cylindrical exterior wall, comprising: establishing preliminary form work, placing a rigid liner for each internal pressure-containing cavity which is to be included in the vessel,

installing appropriate connecting lines between internal cavities and to the exterior of the vessel space, installing tendon ducts for prestressing tendons, including series of generally annular horizontal tendon ducts placed to be spaced inwardly from the exterior wall of the vessel, said ducts being spaced apart vertically and included at various levels throughout the height of the vessel, and including a series of vertical tendon ducts positioned around each internal cavity liner and spaced apart from one another, and including supporting the tendon ducts appropriately for pouring, positioning a series of crack-inducing separator forms in



angularly-spaced relationship around the vessel, with each form positioned to extend generally from the exterior surface of the vessel radially inwardly part way into the vessel wall, spaced from the internal cavities, extending substantially through the height of the vessel wall, emplacing forms for the exterior wall of the vessel, including forms for tendon anchors at appropriate locations, pouring the concrete, placing tendons through tendon ducts, with anchor means connected to the tendon ends at the anchors on the exterior wall, and post-tensioning the tendons, via the anchor means, after the concrete has set up.

4,313,903

PROCESS FOR INJECTION MOLDING OF POLYETHYLENE TEREPHTHALATE COMPOSITIONS AT REDUCED MOLD TEMPERATURE

Peter Bier, New Martinsville, W. Va., assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Nov. 19, 1979, Ser. No. 95,275

Int. Cl.³ B29F 1/00; B28B 1/24

U.S. Cl. 264—328.1

1 Claim

1. A process for injection molding a thermoplastic composition comprising:

- intimately blending (i) from 80 to 97% by weight of a polyethylene terephthalate having an intrinsic viscosity of at least 0.3 dl/g measured as a 0.5% by solution in a 1:1 mixture of phenol and tetrachloroethane at 25° C.; and (ii) from 3 to 20% by weight of an organic compound containing at least one imide group and having a melting point greater than 240° C., and
- injecting molding said blend into a mold held at a temperature of no more than 110° C. and of no less than 80° C.

4,313,904

METHOD OF MANUFACTURING A FLEXIBLE CONTAINER WITH INTEGRAL PORTS AND DIAPHRAGM

Mark E. Larkin, Lindenburt, and Leonard J. Meyer, Antioch, both of Ill., assignors to Abbott Laboratories, North Chicago, Ill.

Filed Dec. 26, 1979, Ser. No. 106,954

Int. Cl.³ B29C 17/07; B29D 3/00; B65B 3/02

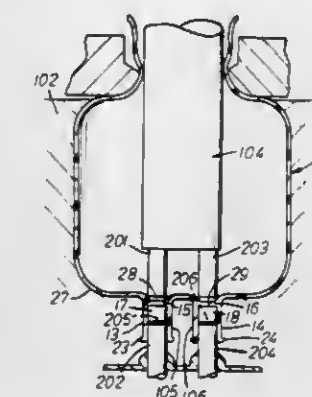
U.S. Cl. 264—515

4 Claims

1. An improved method of manufacturing a flexible plastic container for sterile solutions having a plurality of tubular

ports integrally formed and extending therefrom, comprising the steps of:

- extruding a parison of heated plastic material into a mold having portions shaped as a hollow cavity and as tubular ports, and blowing said parison into the shape of said mold, the improvement comprising the steps of:
- inserting a plurality of pairs of diaphragm pins against lower portions of said container within portions of the mold shaped as tubular ports; each of said pins being coaxially



aligned to a corresponding pin, one inside and one outside of said container; squeezing said portions of said container between said pairs of pins so as to form said tubular port and diaphragms across the openings to said portions of said mold shaped as tubular ports; cooling said plastic material sufficiently to retain the shape of said mold of said diaphragm and of each of said ports; removing said diaphragm pins; and removing said container from said mold.

4,313,905

BLOW MOLDING METHOD

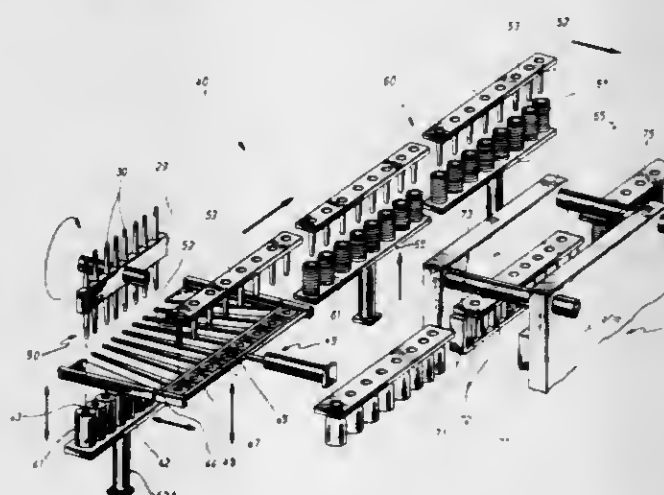
Robert X. Hafele, 5836 Vicksburg Dr., Baton Rouge, La. 70816

Filed Nov. 26, 1979, Ser. No. 97,229

Int. Cl.³ B29C 17/07

U.S. Cl. 264—532

13 Claims



1. In a method of forming a plurality of thermoplastic articles, the steps of:

- injection molding a plurality of essentially tubular, thermoplastic preforms at a first position interiorly of a plurality of mold cavities around a plurality of substantially cylindrical core pins mounted on a rotatable turret, thereby forming preforms having at least one open end;
- indexing the turret to displace the core pins from the first position to a second position;
- retaining the preforms on the core pins during the indexing step to cool the preforms;
- maintaining the inner surfaces of the preforms in contact with the core pins while engaging the outer surface of the preforms with a set of molds having inner dimensions substantially equivalent to the outer dimensions of the

- preforms, and thereby cooling the preforms to an essentially self-sustaining condition by transferring heat from both the inner and outer surfaces of the preforms respectively to the associated core pins and the set of the molds;
- removing the preforms from the core pins;
- positioning the preforms in carrier blocks substantially aligned with the core pins and displacing the carrier blocks to space the preforms further apart preparatory to blow molding;
- telescopically inserting a plurality of respective carrier sleeves into the preforms as spaced apart by the performance of step (f);
- thermally conditioning the preforms while on the carrier sleeves to a temperature conducive to blow molding; and
- blow molding the preforms within a plurality of blow mold cavities.

4,313,906

TWO DIMENSIONAL TWO PHASE THIN LAYER CHROMATOGRAPHY PLATE AND METHOD

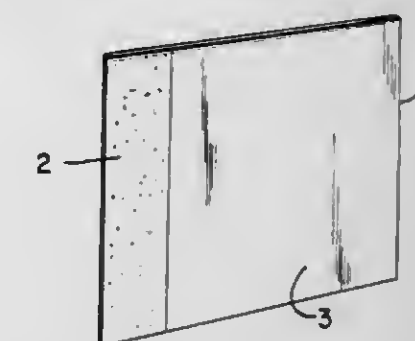
Thomas J. Filipi, Parsippany, and Michael E. Mazzel, Butler, both of N.J., assignors to Whatman, Inc., Clifton, N.J.

Filed Aug. 17, 1979, Ser. No. 67,424

Int. Cl.³ G01N 31/08

U.S. Cl. 422—69

2 Claims



1. A thin layer chromatography plate for two-dimensional chromatography of a sample, said plate comprising a first surface portion consisting essentially of silica gel having octadecyl groups attached thereto, said first composition being suitable to perform reverse phase thin layer partition chromatography in a first direction on said plate, and a second surface portion including a second composition, different from said first composition, comprising silica gel, said second composition being suitable to perform adsorptive chromatography in a second direction on said plate.

4,313,907

APPARATUS FOR THE DETECTION OF A COMBUSTIBLE GAS

Frank X. McNally, Venetia, Pa., assignor to National Mine Corporation, Pittsburgh, Pa.

Filed Apr. 21, 1980, Ser. No. 142,025

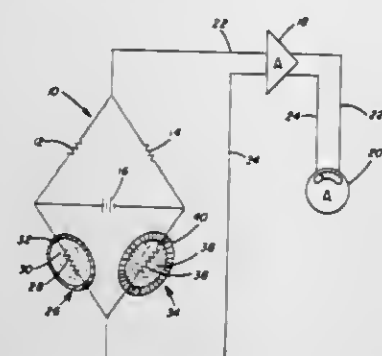
Int. Cl.³ G01N 27/16

U.S. Cl. 422—97

6 Claims

1. In an apparatus for detecting a combustible gas which comprises a Wheatstone bridge circuit having (a) a detector element comprising an electrically conducting member coated with a refractory and having on the surface of said refractory a catalyst for the oxidation of said gas, said detector element constituting one leg of said bridge, and (b) a reference element comprising an electrically conducting member coated with a refractory, said reference element constituting a second leg of said bridge, whereby upon catalytic oxidation of said gas an electrical signal approximately proportional to the amount of

said gas present at the detector element is produced, the improvement which comprises,



a detector element having as said catalyst a composition containing palladium, palladium oxide and nickel oxide.

4,313,908

CATALYTIC REACTOR HAVING BED BYPASS

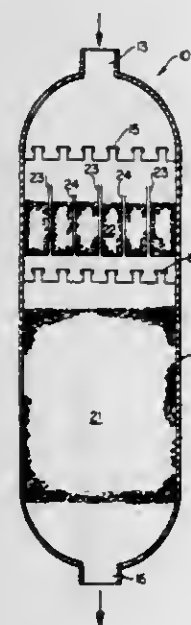
Ramesh Gupta, Chatham Township, Morris County, N.J., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Oct. 20, 1980, Ser. No. 198,793

Int. Cl.³ B01J 3/02, 4/00, 8/04, 19/24

U.S. Cl. 422-111

13 Claims



1. A reactor for reacting a two phase, gas and liquid mixture in a fixed bed of solids, comprising:

- a vessel;
- means to introduce both liquid and gas into said vessel;
- means to remove both liquid and gas from said vessel;
- at least one main bed disposed in said vessel;

and

at least one auxiliary bed disposed above said main bed having separate liquid and gas bypasses, said liquid and gas bypasses comprising relatively different lengths of hollow, invariably open tubing extending through said auxiliary bed, said gas bypass tubing projecting to a greater height above said auxiliary bed than said liquid bypass tubing in order to provide a low pressure drop bypass for both said liquid and gas to said main bed, when said auxiliary bed becomes fouled.

METHOD AND AN APPARATUS FOR PRODUCING A REACTION MIXTURE FOR FORMING SOLID OR CELLULAR SUBSTANCES FROM FLOWABLE REACTANTS AND OPTIONALLY FILLERS

Heinrich Boden; Heinz Müller, both of Leverkusen, and Bernd Sowade, Berg-Gladbach, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

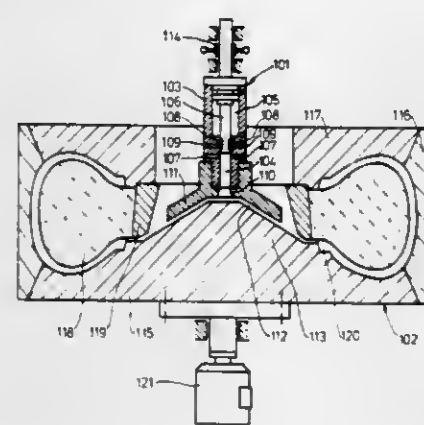
Filed Mar. 14, 1980, Ser. No. 130,293

Claims priority, application Fed. Rep. of Germany, Mar. 23, 1979, 2911547

Int. Cl.³ B28B 1/24; B29F 1/14; B29H 7/20

U.S. Cl. 422-133

7 Claims



1. An apparatus for producing a reaction mixture for forming solid or cellular materials from flowable reactants, and optionally, fillers, comprising:

- (a) storage containers for the reactants,
- (b) a mixhead housing,
- (c) feed pipes leading from each of said storage containers via metering pumps to the inlet openings of a mixing chamber located in said mixhead housing, said mixing chamber having at least one outlet opening,
- (d) an after mixing chamber,
- (e) said outlet opening leading to the inlet opening of said aftermixing chamber,
- (f) said aftermixing chamber being in the form of a slit, said slit formed by a first baffle plate attached to said mixhead housing and a second baffle plate spaced from said first baffle plate,
- (g) a mold housing, said slit opening into a mold cavity of said mold housing,
- (h) at least one of said baffle plates being provided with a rotary drive,
- (i) said baffle plates being located within said mold housing.

4,313,910

SEPARATION OF GASES FROM PARTICLE STREAMS

Hubertus W. A. A. Dries, and Ferdinand Dane, both of Amsterdam, Netherlands, assignors to Shell Oil Company, Houston, Tex.

Filed Jul. 1, 1980, Ser. No. 164,974

Claims priority, application United Kingdom, Jul. 2, 1979, 22994/79

Int. Cl.³ B01J 8/24; F27B 15/02; B07B 7/04

U.S. Cl. 422-147

6 Claims

1. A catalytic cracking reactor comprising an upright enclosed vessel defining a lower zone for fluidized catalyst and an upper zone for separation of catalyst particles from hydrocarbon vapors, an upright riser conduit extending into said lower portion of said reactor forming an upwardly directed cracking path and communicating at the upper outlet with the interior of said reactor, a curved hood disposed substantially horizontally above said riser conduit and communicating with the interior of said riser conduit and the interior of said reactor for changing the direction of flow of catalyst particles in an upflowing carrier gaseous stream within said riser conduit from more than 90° up to about 180° with respect to said

upflowing carrier gaseous stream, at least one conduit disposed on said curved hood, said at least one conduit communicating



with the lower surface of said curved hood, and adapted for connection to a source of substitute fluid, for displacing carrier gas from said particulate stream.

4,313,911

LOW PRESSURE TRITIATION OF MOLECULES

Thomas F. Moran; James C. Powers, and Mark O. Lively, III, all of Atlanta, Ga., assignors to Georgia Tech Research Institute, Atlanta, Ga.

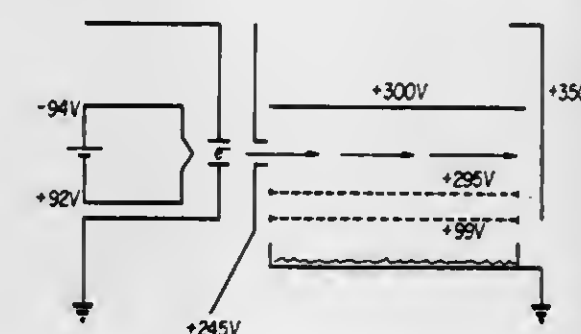
Division of Ser. No. 24,192, Mar. 27, 1979, Pat. No. 4,242,186.

This application Nov. 13, 1979, Ser. No. 93,304

Int. Cl.³ G21 00/00

U.S. Cl. 422-159

7 Claims



1. An apparatus for tritiating molecules by reaction of said molecules with tritium gas, comprising:

- a vacuum chamber provided with a means for supporting an electron beam generator;
- means for evacuating said chamber to a reduced pressure less than 0.1 torr;
- means to accelerate electrons attached to said electron beam generator for accelerating and directing said electron beam to an electron target of said accelerator; and repeller plate and target plate means spaced apart between said electron beam generator and said electron target and positioned such that the surfaces of said plates and the electron beam which traverses said accelerator are parallel, the difference in potential between said plates being such that the tritium gas molecule ions produced by electron beam impact on tritium gas molecules are accelerated in a direction normal to said beam toward said target plate.

APPARATUS FOR THE CONTINUOUS EXTRACTION OF OILS AND SOLUBLE SUBSTANCES FROM SOLID MATERIALS

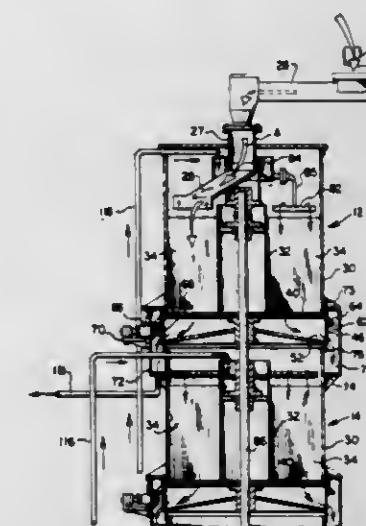
William M. Barger, Piqua, Ohio, assignor to The French Oil Mill Machinery Company, Piqua, Ohio

Filed Oct. 8, 1980, Ser. No. 195,577

Int. Cl.³ B01D 11/02

U.S. Cl. 422-267

7 Claims



1. In a continuous solvent extracting apparatus, having a cylindrical housing, material distribution means in an upper portion of said housing, a plurality of vertically stacked extractor sections each including a plurality of vertically disposed radially extending walls for receiving material therebetween from said material distribution means, screening means beneath said walls for retaining processed material in a section and passing miscella therethrough, a collecting pan associated with and beneath each screening means for collecting miscella passed therethrough, miscella distribution means for removing miscella from said pans and supplying miscella to an upper portion of each section and material removal means for removing material from a lowermost extractor section, wherein the improvement comprises:

said plurality of walls are stationary and abut said housing with each adjacent pair of walls and said housing forming a basket with said baskets in each section being in registry with said baskets in all other sections; each said screening means being horizontally disposed, disc-shaped, mounted for rotation and having an opening defined therein generally co-extensive with a basket when in registry therewith; each said pan having an opening defined therein in alignment with said opening defined in said associated screening means for passing material from a basket of one section to a basket of a subsequent section and mounted for rotation with said associated screening means; and means for rotating each said associated screening means and said pan simultaneously.

4,313,913

PRODUCTION OF HYDROLYZABLE TITANYL SULPHATE SOLUTION

Peter Panek; Walter Gutsche, and Peter Woditsch, all of Krefeld, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Dec. 5, 1980, Ser. No. 213,539

Claims priority, application Fed. Rep. of Germany, Dec. 21, 1979, 2951799

Int. Cl.³ C01G 23/00

U.S. Cl. 423-82

9 Claims

1. A process for the production of a hydrolyzable titanyl sulphate solution comprising contacting sulphuric acid of about 86% concentration with a mixture of slag and ilmenite, the ratio of H₂SO₄ to TiO₂ in the mixture ranging from about

1.7:1 to 2.2:1 and the mol ratio of Ti(III) to Fe(III) in the mixture ranging from about 25:1 to 1.4:1, the slag having a TiO₂ content of 80% and a Ti(III) content of about 22 to 40% calculated as TiO₂ and the ilmenite having a Fe(III) to Fe(II) ratio from about 1:1 to 10:1, and adding water if necessary to bring the concentration of sulphuric acid to from about 86 to 96%.

4,313,914

AUTOCLAVE TUNGSTATE UPGRADING OF SCHEELITE CONCENTRATES

Dale K. Huggins; Paul B. Queneau, both of Golden, and Leo W. Beckstead, Arvada, all of Colo., assignors to Amax Inc., Greenwich, Conn.

Filed Jan. 19, 1981, Ser. No. 225,909

Int. Cl.³ C01G 41/00

U.S. Cl. 423—58

19 Claims

1. A process for producing a calcium tungstate concentrate, comprising

- forming a slurry of calcium carbonate in an aqueous sodium tungstate liquor,
- reacting sodium tungstate in the liquor with calcium carbonate at a temperature of at least about 130° C. to form sodium carbonate and solid calcium tungstate, while providing sufficient carbon dioxide overpressure to the slurry to convert sodium carbonate in the slurry to sodium bicarbonate and thereby promote the conversion of sodium tungstate to calcium tungstate, thereby forming a product slurry containing a sodium bicarbonate liquor and a solid calcium tungstate concentrate which can be recovered from said product slurry and,
- stripping carbon dioxide from the sodium bicarbonate liquor to convert sodium bicarbonate to sodium carbonate in solution and evolved carbon dioxide.

4,313,915

METHOD FOR THE MANUFACTURE OF PHOSPHORIC ACID BY THE WET PROCESS

Michel Dabeaux, Paris, and Nikita Tyrtoff, La Celle St Cloud, both of France, assignors to Produits Chimiques de la Montagne Noire, Paris, France

Continuation of Ser. No. 853,423, Nov. 21, 1977, abandoned.

This application May 17, 1979, Ser. No. 40,149

Claims priority, application France, Nov. 30, 1976, 76 36114

Int. Cl.³ C01B 25/225

U.S. Cl. 423—167

3 Claims

1. A method for the preparation of phosphoric acids by the wet process by reacting at least one natural phosphate with sulphuric acid and subsequently obtaining a calcium sulfate dihydrate which is separated, wherein said reaction is effected in the presence of 50 to 500 g/t of phosphate consumed, of at least one non-ionic surface active agent, obtained by condensation of 2 to 30 molecules of ethylene oxide per molecule of at least one branched fatty alcohol of which the aliphatic chain comprises 6 to 22 carbon atoms.

4,313,916

PROCESS FOR THE PURIFICATION OF NON-REACTING GASES

Robert A. Jones, Jr., South Charleston; Arthur E. Marcinkowsky, Charleston, and George E. Keller, II, South Charleston, all of W. Va., assignors to Union Carbide Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 89,316, Oct. 31, 1979, abandoned, which is a continuation-in-part of Ser. No. 38,736, May 14, 1979, abandoned. This application Apr. 17, 1980, Ser. No. 141,141

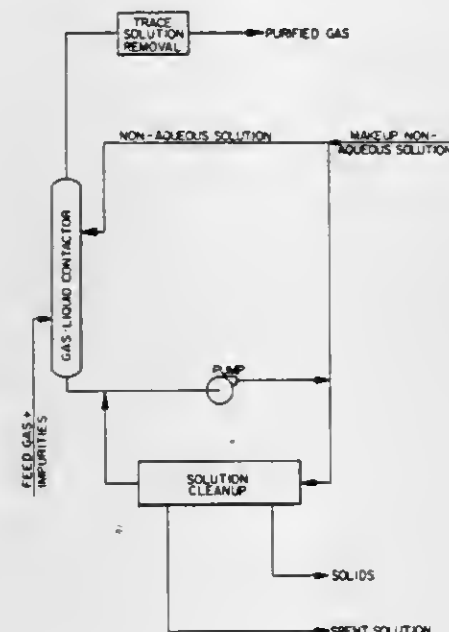
Int. Cl.³ G01D 53/34

U.S. Cl. 423—226

12 Claims

1. The process for the purification of an industrial gas stream of one or more of hydrogen, carbon monoxide, air, nitrogen, oxygen, helium, argon, mono-olefins having from two to five carbon atoms per molecule, diolefins having four or five carbon atoms per molecule, paraffins and acetylenes, by the removal of trace amounts of impurities therein, of one or more of water, hydrogen sulfide, carbon dioxide, carbonyl sulfide, sulfur dioxide, hydrogen chloride, hydrogen cyanide, nitric acid, and mercaptans which process comprises the steps of: providing a liquid essentially non-aqueous solution comprising from about 0.5 to about 15 weight percent of at least one member selected from the group consisting of alkali and alkaline earth metal, present as a hydroxide or a carbonate, in a liquid aliphatic polyhydric alcohol having a carbon to oxygen ratio of one to about five, and at least two oxygens thereof being separated by not more than two sequential carbon atoms; heat treating said solution to remove water originally in the solution as well as water formed by natural hygroscopic reaction with said alcohols and by the reaction:

bon atoms per molecule, paraffins and acetylenes, by the removal of trace amounts of impurities therein, of one or more of water, hydrogen sulfide, carbon dioxide, carbonyl sulfide, sulfur dioxide, hydrogen chloride, hydrogen cyanide, nitric acid, and mercaptans which process comprises the steps of: providing a liquid essentially non-aqueous solution comprising from about 0.5 to about 15 weight percent of at least one member selected from the group consisting of alkali and alkaline earth metal, present as a hydroxide or a carbonate, in a liquid aliphatic polyhydric alcohol having a carbon to oxygen ratio of one to about five, and at least two oxygens thereof being separated by not more than two sequential carbon atoms; heat treating said solution to remove water originally in the solution as well as water formed by natural hygroscopic reaction with said alcohols and by the reaction:



selected group metal hydroxide + polyhydric alcohol = H₂O + metal alcoholate,

as well as the following reaction to activate said solution (if a carbonate is selected):

selected group metal carbonate + H₂O = metal hydroxide + CO₂;

stripping the resultant solution to remove the water, effecting purification by contacting said industrial gas, at a temperature between about 15° and 100° C., with the stripped solution; and separating the purified industrial gas from the reaction products of said contacting step.

4,313,917

METHOD OF DEFOAMING AMINE SOLUTIONS

Kazuro Ohta, Yokohama, Japan, assignor to Nippon Petroleum Refining Company Limited, Tokyo, Japan

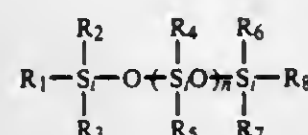
Filed Jun. 10, 1980, Ser. No. 158,231

Int. Cl.³ B01D 53/34

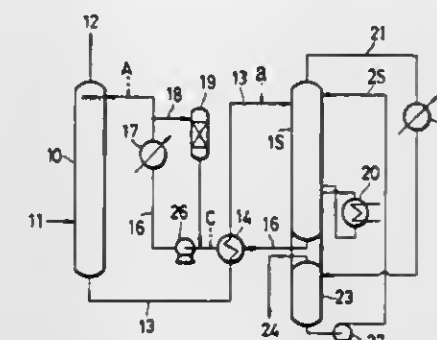
U.S. Cl. 423—228

7 Claims

1. In the process of continuously contacting acidic gases containing principally hydrogen sulfide or carbon dioxide with an aqueous amine solution, resulting in the development of foams or bubbles in the system, the improvement which comprises adding to the system a foam inhibitor having the general silicone formula:



where R₁—R₈ are organic residues of 1–10 carbons, and n is an integer, and characterized by part of R₁—R₈ being substituted by a group of the general formula:



where R₉ is a hydrocarbon or organic residue of 1–10 carbons; or characterized by part of R₁—R₈ being substituted by a group of the general formula:



where R₁₀ and R₁₁ are either hydrogen or hydrocarbon or organic residue of 1–10 carbons.

4,313,918

PROCESS AND DEVICE FOR THE PREPARATION OF A PRODUCT CONTAINING AMMONIUM ORTHOPHOSPHATE, AND PRODUCT OBTAINED BY THIS PROCESS

Petrus F. A. M. Hendriks, Geleen; Arie Jansen, Ridderkerk; Willem B. van den Berg, Prinsbeek, and Cornelis Hoek, Nieuwstadt, all of Netherlands, assignors to Unie Van Kunststoffabrieken, B.V., Utrecht, Netherlands

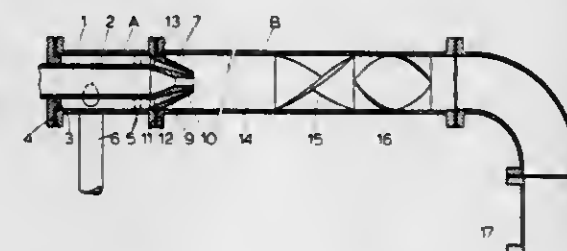
Filed May 29, 1979, Ser. No. 43,423

Claims priority, application Netherlands, Jun. 1, 1978, 7805957

Int. Cl.³ C01B 25/28

U.S. Cl. 423—310

8 Claims



1. In a process for preparing an ammonium orthophosphate product substantially free of ammonium polyphosphate from ammonia and phosphoric acid, including reacting the phosphoric acid and gaseous ammonia together by spraying through a two-phase spraying means having two coaxial ducts, contacting and thoroughly mixing the ammonia and phosphoric acid flows discharged from said ducts in a cylindrical reaction zone adjacent and surrounding said spraying means and coaxial therewith and phosphoric acid being sprayed through the inner duct,

the improvement comprising: spraying said phosphoric acid at an axial outflow rate of from 1 to 10 m/sec., in conjunction with spraying said ammonia at an axial outflow rate of from 200 to 1,000 m/sec. (N.T.P.), combining the two flows in said cylindrical reaction zone, by causing the outgoing ammonia flow to intersect at an acute angle the central phosphoric acid flow on all sides in the reaction zone at the discharge of the phosphoric acid flow, said reaction zone having a diameter D of from about 2 to about

4 times the outer diameter of the ammonia flow discharged from said spray means, and said reaction zone having a length of about 10 to about 25 times said diameter D,

passing the mixture in said reaction zone over and in contact with at least two oppositely twisted successive baffle plates, the baffle plates having a dimension normal to the direction of flow equal to the diameter of the reaction zone, and

discharging and collecting the thus-prepared ammonia orthophosphate containing product.

4,313,919

PROCESS FOR REMOVING FINE SOLIDS FROM PHOSPHORIC ACID BY VACUUM FILTRATION

Thomas E. Richards, Jennings; James P. Harvey, and Michael A. Daigle, both of Lake City, all of Fla., assignors to Occidental Chemical Company, Houston, Tex.

Filed Jul. 15, 1980, Ser. No. 169,078

Int. Cl.³ C01B 25/16

U.S. Cl. 423—321 R

10 Claims

1. A process for removing solid impurities contained in aqueous phosphoric acid comprising:

- passing said aqueous phosphoric acid containing solid impurities at an elevated temperature through a filter cake of a phosphoric acid-resistant filter aid supported on a porous medium, thereby to cause at least a portion of said solid impurities in said aqueous phosphoric acid to be removed therefrom and to be retained by said filter cake and wherein a portion of said aqueous phosphoric acid is retained in said filter cake;
- contacting at least a portion of said filter cake with finely divided droplets of a liquid, in an amount sufficient to cause at least a portion of said aqueous phosphoric acid which is retained in said filter cake to pass through to produce a filtrate comprising filtered, aqueous phosphoric acid, said liquid being maintained at a temperature such as to minimize fracturing of said filter cake;
- collecting said filtrate; and
- removing an impurity-containing first portion of said filter cake after contact with said aqueous phosphoric acid containing solid impurities and said liquid, and leaving a second portion of said filter cake containing a lesser amount of impurities than said first portion for subsequent use in the removal of solid impurities from phosphoric acid containing solid impurities.

4,313,920

CARBON BLACK AGGLOMERATE PRODUCTION

William T. Cooper, Bartlesville, Okla., assignor to Phillips Petroleum Co., Bartlesville, Okla.

Filed Feb. 26, 1980, Ser. No. 124,890

Int. Cl.³ C01B 31/02; C09C 1/48

U.S. Cl. 423—449

4 Claims

- A process for producing carbon black comprising
- generating a stream of hot smoke comprising essentially non-agglomerated carbon black particles suspended in a combustion gas by subjecting a carbon containing feed stock to carbon black formation conditions,
- precooling said hot smoke to a temperature in the range of about 1500° to 2100° F.,
- introducing the precooled smoke into a sonic agglomerator wherein said precooled smoke is subjected to sound waves, thereby agglomerating said non-agglomerated carbon black particles to form a two-phase system of a continuous gas phase containing a solid phase of carbon black agglomerates,
- letting said two-phase system at least partially separate into a carbon black agglomerate mass and a gas mass of reduced carbon black content,
- passing said gas mass of reduced carbon black content from said sonic agglomerator into a cyclone separator

- causing the separation of further carbon black agglomerates from said gas mass,
- (f) withdrawing a gas stream with low carbon black content from said cyclone separator,
- (g) passing said gas stream with low carbon black content through an indirect heat exchanger for cooling said gas stream and heating a fluid,
- (h) passing said gas stream with low carbon black content from the heat exchanger through a filter unit,
- (i) collecting the carbon black separated from the precooled smoke in the sonic agglomerator, from the gas mass in the cyclone and from the cooled gas stream with low carbon black content in the filter as a carbon black product of the process.

4,313,921

CARBON BLACK PROCESS

Paul J. Cheng, Bartlesville, Okla., assignor to Phillips Petroleum Co., Bartlesville, Okla.

Division of Ser. No. 895,430, Apr. 12, 1978, Pat. No. 4,224,284, which is a continuation-in-part of Ser. No. 498,776, Aug. 19, 1974, abandoned. This application Mar. 31, 1980, Ser. No. 135,607

Int. Cl.³ C01B 31/02; C09C 1/48

U.S. Cl. 423—456

9 Claims

1. In a process for the production of carbon black by the pyrolytical decomposition of hydrocarbons comprising the steps of:

- introducing hydrocarbons along the axis of a tubularly shaped longitudinal reactor having an upstream confining wall arranged essentially orthogonally to the longitudinal axis of the reactor,
 - introducing combustion gases tangentially into said reactor at a location close to said upstream confining wall to form a vortex of hot combustion gases spinning around the hydrocarbon,
 - withdrawing carbon black containing smoke from the downward end of said reactor,
- the improvement comprising
- introducing a gas parallel to said upstream confining wall and essentially in radially outward direction into said reactor in a boundary zone extending about one-half to one inch axially from said upstream confining wall, such as to counteract a radially inwardly directed boundary layer flow caused by the tangentially introduced hot combustion gases close to said upstream confining wall and to thereby reduce the pressure drop through the carbon black reactor that exists without said gas being radially outwardly introduced.

4,313,922

REDUCING ASH CONTENT OF MOLTEN SULFUR

Thomas H. Ledford, Baton Rouge, La., and Raul E. Perez, Madison, N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Aug. 1, 1980, Ser. No. 174,432

Int. Cl.³ C01B 17/02

U.S. Cl. 423—578 R

12 Claims

1. A method for reducing the concentration of ash-forming compounds in molten sulfur comprising the steps of:

- adding an effective amount of an ash-flotation agent selected from the class consisting of:
 - dithionates, dithionites, bisulfides, bisulfites, and sulfites;
 - phosphines, phosphine oxides, phosphine sulfides, and hypophosphates;
 - ammonium compounds, mono, di, tri- and tetraureas, thiourea, and cyclic urea;

to the molten sulfur to thereby cause at least a portion of the ash-forming compounds having a specific gravity less than that of the molten sulfur to float to and collect at the surface of the molten sulfur; and

- removing at least a portion of the ash-forming compounds that collect at the surface of the molten sulfur.

4,313,923

METHOD OF PRODUCING PSEUDOBÖEHMITES

Thomas E. Block, Long Beach, and Julius Scherzer, Anaheim, both of Calif., assignors to Filtrol Corporation, Los Angeles, Calif.

Filed Dec. 29, 1980, Ser. No. 220,904

Int. Cl.³ C01F 7/34

U.S. Cl. 423—628

6 Claims

1. The method of producing pseudoböehmite having a Peptization Index of less than about 60 and a Type No. of less than about 0.32, which comprises mixing a source of anionic aluminum with a source of cationic aluminum at a ratio to produce a pH in the range of about 9 to about 10.5 and at a temperature in the range of about 65° C. to about 80° C. to produce a mother liquor slurry containing alumina hydrate of more than about 2% to about 7% by weight of the reactant solution (calculated as the equivalent anhydrous alumina), aging the mother liquor at a temperature in the range of about 60° C. to about 80° C. for a time ranging from about twenty (20) hours at 80° C. to about sixty (60) hours at 60° C., separating the alumina hydrate from the mother liquor.

4,313,924

PROCESS FOR REMOVAL OF SULFUR DIOXIDE FROM GAS STREAMS

Daniel E. Pike, Harrington Park, N.J., assignor to Neptune AirPol, Inc., Englewood, N.J.

Filed May 10, 1979, Ser. No. 37,844

Int. Cl.³ C01B 17/00

U.S. Cl. 423—242

8 Claims

1. A process for the removal of sulfur dioxide from a gas stream containing said sulfur dioxide comprising establishing a circulating aqueous absorption solution of sodium sulfite and sodium bisulfite; contacting said gas stream with said circulating solution to absorb said sulfur dioxide in said solution and produce a second aqueous solution having a lower pH relative to that of said circulating solution and containing sodium sulfite and a higher amount of sodium bisulfite relative to the amount in said circulating solution; regenerating at least a portion of the sodium bisulfite in said second aqueous solution to sodium sulfite; and recycling the regenerated sodium sulfite to said circulating aqueous solution; wherein said sodium bisulfite is regenerated to sodium sulfite by:

- reacting a portion of said second aqueous solution with a slurry of coarse lime particles at a pH of less than 8 to produce a second slurry of calcium sulfite and calcium sulfate containing dissolved sodium sulfite and sodium bisulfite, and thickening said second slurry by separating and removing an overhead solution therefrom containing such dissolved sodium bisulfite to thereby produce a thickened slurry underflow;
- reacting only the thickened slurry underflow with an aqueous lime solution containing suspended fine lime particles at a high pH to regenerate sodium hydroxide from sodium bisulfite and form a third slurry having a higher content of calcium sulfate than said second slurry;
- filtering the resulting third slurry before substantial amounts of calcium sulfate are dissolved in solution to produce a substantially solid filter cake and a liquid filtrate containing sodium sulfite and sodium hydroxide; and
- recycling said liquid filtrate and said solution separated from the thickened slurry to said circulating aqueous absorption solution.

4,313,925

THERMOCHEMICAL CYCLIC SYSTEM FOR DECOMPOSING H₂O AND/OR CO₂ BY MEANS OF CERIUM-TITANIUM-SODIUM-OXYGEN COMPOUNDS

Carlos E. Bamberger, Oak Ridge, Tenn., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Apr. 24, 1980, Ser. No. 143,253

Int. Cl.³ C01B 3/04; C01G 23/00

U.S. Cl. 423—263

8 Claims

1. A method for producing sodium cerous titanate comprising reacting ceric oxide, titanium dioxide and sodium titanate at a temperature above 900° C. to cause the formation of sodium cerous titanate and oxygen.

4. A cyclic process for the production of hydrogen from water comprising the steps of:

- reacting ceric oxide, titanium dioxide and sodium titanate at a temperature above 900° C. to cause formation of sodium cerous titanate and oxygen;
- reacting thus-produced sodium cerous titanate with steam and one of sodium carbonate and sodium bicarbonate at a temperature above 500° C. to produce ceric oxide, sodium titanate, carbon dioxide and hydrogen, which is removed from the reaction environment;
- reacting sodium titanate produced in step (b) with water and carbon dioxide to produce titanium dioxide and sodium bicarbonate and removing the thus-produced sodium bicarbonate; and
- recycling ceric oxide produced in step (b), titanium dioxide produced in step (c) and sodium titanate remaining from step (c) to step (a).

4,313,926

METHOD FOR THE PREPARATION OF A SCINTILLOGRAPHIC AGENT

Krystyna Samochocka, Warsaw, Poland, assignor to Uniwersytet Warszawski, Warsaw, Poland

Filed Apr. 9, 1979, Ser. No. 28,299

Claims priority, application Poland, Apr. 10, 1978, 205961

Int. Cl.³ A61K 49/00; 43/00; C07F 13/00

U.S. Cl. 424—1

4 Claims

1. A method for the preparation of a scintillographic agent which comprises dissolving 2,4-dimethylaniline in acetic acid at room temperature, mixing the resulting solution with chloroacetyl chloride, crystallizing the sediment from ethanol and regaining a further quantity of acetanilide from postcrystallization bases, dissolving the resulting ω -chlor-2,4-dimethylacetanilide derivative together with the sodium salt of iminodiacetic acid in aqueous ethanol, the proportion by volume of water to ethanol being 1:1.2, heating the solution for several hours, evaporating the solvent, dissolving the dry residue, separating the non-reacted component and adjusting the pH of the remaining solution to a value of about 2.5 with hydrochloric acid, dissolving the precipitated sediment, evaporating the solvent and crystallizing the said derivative from water or from a 25% aqueous solution of sodium acetate, dissolving the derivative once more in an aqueous solution of sodium hydroxide or in water, again adjusting the pH to a value of 4 to 6, passing the solution through a sterile filter, freeze-drying and keeping it in sterile ampoules, and finally, prior to administration, chelating the obtained derivative of iminodiacetic acid with a radiometal.

4,313,927

IMMUNOASSAY METHOD FOR DETECTING VIRAL ANTIBODIES IN WHOLE BLOOD SAMPLES

Bertold R. Fridlender, Jerusalem, Israel, assignor to Ames-Vissum Ltd., Jerusalem, Israel

Filed Oct. 19, 1979, Ser. No. 86,399

Int. Cl.³ G01N 33/56, 33/58

U.S. Cl. 424—1

11 Claims

1. In an immunoassay method for the detection of an antibody (Ab₁) to a viral antigen (Ag) in human blood wherein

- a test sample is incubated with a solid-phase form of Ag whereby any Ab₁ present in the test sample becomes bound to said solid phase Ag,
 - the resulting solid-phase Ag-Ab₁ complexes are separated from the test sample,
 - a label-incorporated form of an antibody to Ab₁ (Ab₂*) is contacted with the separated, solid-phase Ag-Ab₁ complexes;
 - the resulting solid-phase Ag-Ab₁-Ab₂* complexes are separated from excess Ab₂*, and
 - the amount of said label in the separated, solid-phase Ag-Ab₁-Ab₂* complexes is measured as a function of the presence of Ab₁ in said test sample,
- the improvement which comprises employing as said test sample a whole human blood sample diluted at least 1:20 by volume with an isotonic aqueous solution, such dilution being less than that at which analytically significant concentrations of said antibody (Ab₁) in the undiluted test sample cannot be detected reproducibly.

4,313,928

COMPOSITION FOR LABELING OF RED BLOOD CELLS WITH RADIOACTIVE TECHNETIUM

Makoto Kato, Kobe, and Masaaki Hazue, Amagasaki, both of Japan, assignors to Nihon Medi-Physics Co., Ltd., Hyogo, Japan

Filed Nov. 19, 1979, Ser. No. 95,789

Claims priority, application Japan, Nov. 20, 1978, 53-143956

Int. Cl.³ A61K 43/00, 49/00

U.S. Cl. 424—1.5

4 Claims

1. A method for the intracorporeal labeling of red blood cells in a living body with radioactive technetium, which comprises:

- administering into a blood vessel of the living body an aqueous solution of a non-radioactive composition comprising as the essential components (a) at least one of pyridoxal and its salts, (b) at least one stannous salt and (c) at least one α -amino acid and
- subsequently administering into a blood vessel of the living body an aqueous solution of radioactive technetium, whereby the red blood cells are specifically labeled with radioactive technetium.

4,313,929

METHOD OF MEASUREMENT OF ANTIGENS AND ANTIBODIES

Shiro Morita, Tokyo; Masanobu Sawai, Yamato; Shin-ichiro Matsumoto, Tokyo, and Tadamitsu Sudo, Sagami, all of Japan, assignors to Mitsubishi Chemical Industries Limited, Tokyo, Japan

Filed Jan. 16, 1979, Ser. No. 3,797

Claims priority, application Japan, Feb. 16, 1978, 53/16757

Int. Cl.³ G01N 33/54

U.S. Cl. 424—12

21 Claims

1. A method for determining antigens and antibodies which comprises reacting an antigen or antibody or a mixture thereof with a corresponding antibody, antigen or mixtures thereof which has been supported on insoluble carrier particles having an average diameter of not greater than 1.6 microns, said reaction being carried out in a liquid medium, irradiating the resulting reaction mixture with light of a wavelength in the range of 0.8 to 2.4 microns at one or more points of time after

the reaction has been started, and measuring the intensity of total light scattered by the reaction mixture in the directions other than that of the incident beam.

4,313,930

STABLE VALEPOTRIATE COMPOUNDS AND PROCESS FOR THEIR PREPARATION

Martin Wischniewski; Lutz Felcho, both of Neustadt, and Werner Althaus, Burgdorf, all of Fed. Rep. of Germany, assignors to Kali-Chemie Pharma GmbH, Hanover, Fed. Rep. of Germany

Filed Oct. 31, 1979, Ser. No. 89,718

Claims priority, application Fed. Rep. of Germany, Nov. 11, 1978, 2849029

Int. Cl.³ A61K 9/32, 9/34, 9/36, 31/35

U.S. Cl. 424—32

10 Claims

1. A process for the preparation of a stable valepotriate composition comprising removing non-specific impurities from a pharmaceutically active valerianacea extract to produce a purified valepotriate fraction, mixing said purified valepotriate fraction with an aqueous solution containing at least one pharmaceutically acceptable sheathing compound, and forming microspheres from said mixture of sheathing compound and purified valepotriate fraction.

8. A valepotriate preparation comprising a purified valerianacea extract and a pharmaceutically acceptable sheathing material in the form of microcapsules.

4,313,931

FUSED DIBENZO IMIDAZOLO COMPOUNDS, COMPOSITIONS AND USE

Gerhard Walther, Bingen; Claus S. Schneider, Ingelheim; Karl-Helz Weber, and Armin Fügner, both of Gau-Algesheim, all of Fed. Rep. of Germany, assignors to Boehringer Ingelheim KG, Ingelheim am Rhein, Fed. Rep. of Germany

Filed Feb. 23, 1981, Ser. No. 236,818

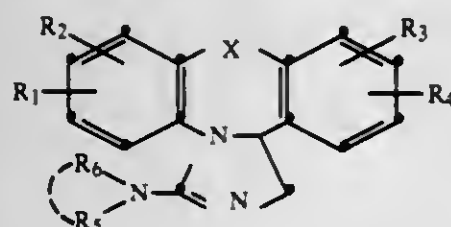
Claims priority, application Fed. Rep. of Germany, Mar. 8, 1980, 3008944

Int. Cl.³ A61K 31/535, 31/415; C07D 487/04, 498/04

U.S. Cl. 424—45

6 Claims

1. A compound of the formula



wherein

R₁, R₂, R₃, and R₄, which may be the same or different, each represent a hydrogen or halogen atom or an alkyl or alkoxy group of from 1 to 6 carbon atoms;

R₅ and R₆, which may be the same or different, each represent a hydrogen atom, an alkyl group of from 1 to 6 carbon atoms, or an alkenyl group of from 3 to 6 carbon atoms, or R₅ and R₆ together with the nitrogen atom to which they are attached represent a pyrrolidino, piperidino, or morpholino group; and

X represents oxygen, sulfur, or a methylene group, or a non-toxic, pharmacologically acceptable acid addition salt thereof, or a racemate, enantiomer, or mixture of enantiomers thereof.

4. A method of treating reactions provoked by liberation of histamine or serotonin; bronchial asthma; allergic bronchitis; allergic rhinitis; allergic conjunctivitis; or allergic diathesis in a warm-blooded host, which comprises administering to said host an effective amount of a compound of claim 1.

4,313,932

DRY SOLIDS MIXED FOR HAIR BLEACHING COMPOSITIONS

Ronald E. Watts, Harlow, England, assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jul. 8, 1976, Ser. No. 703,369

Claims priority, application United Kingdom, Jul. 14, 1975, 29489/75; Oct. 8, 1975, 41298/75

Int. Cl.³ A61K 7/135

U.S. Cl. 424—62

1 Claim

1. A dry, solids powder composition for mixing with water to give a hair bleaching composition comprising:

(a) a hydrogen peroxide producer compound comprising 13 to 43% by weight of said powder composition which produces hydrogen peroxide when dissolved in water and which is a stable solid when dry,

(b) an ammonium compound comprising 1.4 to 12.5% by weight of said powder composition which will produce ammonium ions when dissolved in water,

(c) a thickener comprising 14 to 32% by weight of said powder composition which readily disperses in alkaline solution,

(d) an alkaline compound which will give the composition an alkaline pH when it is dissolved in water, the alkaline compound being optionally constituted in part or in total by one or more of the previous components, and

(e) bleach accelerator comprising 13 to 43% by weight of said powder composition selected from the group consisting of (1) alkali metal and ammonium peroxydisulfates and (2) alkali metal and ammonium peroxydiphosphates,

wherein said ammonium compound is ammonium sulfate and in which the thickener is finely divided silica and a synergistic additive selected from the group consisting of (1) a dried acrylic polymer latex which is capable of readily dissolving or dispersing in an aqueous alkaline solution to form a viscous system and (2) a homo- or copolymer of acrylamide which is capable of dissolving in water to give viscous solutions.

4,313,933

ACIDIC TWO-BATH TYPE COMPOSITION FOR PERMANENT WAVING OF HAIR AND FOR TREATMENT OF HAIR AND SCALP

Ikue Yamazaki, 32-10, Hakusan-1-chome, Bunkyo-ku, Tokyo, Japan

Continuation of Ser. No. 656,207, Feb. 9, 1976, Pat. No. 4,134,411. This application Mar. 4, 1977, Ser. No. 774,457

Claims priority, application Japan, May 9, 1975, 50/107911

The portion of the term of this patent subsequent to Jun. 16, 1996, has been disclaimed.

Int. Cl.³ A61K 7/09

U.S. Cl. 424—72

23 Claims

1. An acidic, two-bath type composition for the permanent-waving of hair and for the treatment of hair and scalp, which consists of an aqueous reducing agent solution (the first bath) containing 3 to 10% by weight of at least one mercaptan acid and an aqueous oxidizing agent solution (the second bath) containing 1 to 10% by weight of sodium bromate, potassium bromate, or hydrogen peroxide, said reducing agent solution having a pH adjusted with a base to a value 0.1 to 0.5 lower than the isoelectric point of the hair or scalp and said oxidizing agent solution having a pH adjusted with an acid to a value 0.1 to 2.0 lower than the pH of said reducing agent solution but not more than 3.0 lower than the said isoelectric point.

3. An acidic, two-bath type composition according to claim 1, wherein the mercaptan acid is thioglycolic acid.

4,313,934

PHYSIOLOGICALLY ACTIVE POLYSACCHARIDES, PRODUCTION AND USES THEREOF

Kumpei Kitamura; Shigeru Matsuki, and Kozo Tanabe, all of Takasaki, Japan, assignors to Kirin Beer Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 17, 1980, Ser. No. 141,232

Claims priority, application Japan, May 8, 1979, 54-55873; May 8, 1979, 54-55874

Int. Cl.³ A61K 39/00, 37/00; C07G 7/00

U.S. Cl. 424—85

16 Claims

1. A physiologically active polysaccharide which is derived from brewer's yeast cell walls and possesses:

(1) an elemental analysis as follows by weight

C	40.9% ± 1.2%
H	6.0% ± 0.2%
N	1.9% ± 0.1%
O	50.7% ± 1.5%
Ash	0.5% ± 0.05%

(2) an average molecular weight determined by an ultrafiltration method of 140,000 to 220,000;

(3) no melting point since no melting point is generally observed in polysaccharides, the active polysaccharide turning brown at about 265° C. and black at about 270° C.;

(4) a specific rotation expressed by $[\alpha]_D^{25} = +75.0$ to $+55.0$ (C=1.0);

(5) an ultraviolet absorption spectrum as shown in FIG. 1, in which no specific absorption is observed;

(6) an infrared absorption spectrum as shown in FIG. 2;

(7) solubility in water and insolubility in methanol, ethanol, ether and acetone;

(8) a positive color reaction in anthrone reaction, Molisch's reaction, ninhydrin reaction, biuret reaction and xanthoproteic reaction;

(9) a pH of a 1% aqueous solution thereof of 5.5 to 6.5; (10) a white color;

(11) 75 to 86% of mannose and 14 to 25% of glucose, a small quantity of glucosamine being detected;

(12) a bond structure of the sugar in which mannose is linked by α -bond since a sugar is liberated therefrom by an α -mannanase; and

(13) constituent amino acids comprising 26 to 32% of serine, 16 to 20% of threonine, 13 to 17% of alanine, 7 to 9% of proline, 5 to 7% of glutamic acid, 5 to 7% of aspartic acid, 4 to 6% of valine, 3 to 5% of lysine, 3 to 4% of glycine, 2.5 to 3.5% of isoleucine, 1.5 to 2.5% of leucine, 0.5 to 1.5% of tyrosine, and 0.3 to 0.7% of phenylalanine.

4,313,935

ANTIBIOTIC FR-900129 SUBSTANCE, A PROCESS FOR THE PREPARATION THEREOF AND PHARMACEUTICAL COMPOSITIONS CONTAINING THE SAME

Tadaaki Komori, Takatsuki; Michio Yamashita, Takarazuka; Eiko Iguchi, Osaka; Masanobu Kohsaka, Sakai; Hatsuo Aoki, Ikeda, and Hiroshi Imanaka, Osaka, all of Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan

Filed Feb. 28, 1980, Ser. No. 125,486

Claims priority, application United Kingdom, Mar. 5, 1979, 07608/79

Int. Cl.³ A61K 35/00; C12P 13/00

U.S. Cl. 424—115

9 Claims

1. FR-900129 substance, its ester and pharmaceutically acceptable salt thereof, wherein the FR-900129 substance has the following physical and chemical properties;

(1) Nature of substance:

Amphoteric

(2) Color reaction:

Positive; iodine reaction, potassium permanganate reaction, ninhydrin reaction and Elson-Morgan reaction
Negative; sulfuric acid reaction, Molisch reaction, ferric chloride reaction, Dragendorff reaction, ammoniac silver nitrate reaction, diacetyl reaction

(3) Solubility:

Soluble; water, methanol, ethanol

Insoluble; isopropanol, acetone, ethyl acetate, chloroform

(4) m.p.: 178°-179° C. (dec.)

(5) Specific rotation

$[\alpha]_D^{20} = -69.7^\circ$ (C=0.4 in water)

(6) Ultraviolet absorption spectrum:

$\lambda_{max}^{H_2O} = 228$ nm ($E_{1cm}^{1\%} = 300$)

$\lambda_{max}^{0.01\ N\ HCl} = 228$ nm ($E_{1cm}^{1\%} = 300$)

$\lambda_{max}^{0.01\ N\ NaOH} = 228$ (sh) nm

(7) Infrared absorption spectrum (KBr): (FIG. 1) As shown in the Figure of accompanying drawing.

(8) Elementary analysis:

Qualitative analysis revealed four elements: carbon, hydrogen, nitrogen and oxygen

(9) Thin layer chromatography:

Stationary phase	Developing solvent	Rf Value
EASTMAN CHROMA-GRAM SHEET ¹	butanol	0.15
Silica gel Sheet	aqueous	
Merck ²	75% aqueous isopropanol	0.35

¹Trade name, made by Eastman Kodak Co., a kind of cellulose sheet.

²Trade name, made by Merck & Co.

(10) Molecular weight:

From the result of the determination of molecular weight by titration method, it is presumably noted that the molecular weight of FR-900129 substance is between 600 and 700

(11) Nuclear magnetic resonance spectrum: (¹³C N.M.R.) (Proton decoupling method)

(D₂O) (ppm from TMS): 13.469, 15.410, 17.533, 17.959, 19.172, 20.506, 21.052, 27.969, 49.204, 51.145, 54.058, 58.304, 63.583, 64.675, 65.585, 122.861, 149.314, 149.736, 167.937, 171.092, 172.859, 175.402, 176.616, 177.043

(12) Nuclear magnetic resonance spectrum (H N.M.R.)

As shown in the Figure of accompanying drawing

(D₂O) (ppm from TMS) (FIG. 2)

4,313,936

BIOLOGICALLY ACTIVE SUBSTANCE, ITS PREPARATION AND COMPOSITIONS CONTAINING IT

Jean Florent, Boulogne; Jean Lunel, Paris; Denise Mancy, Charenton, and Bernard Vuillemin, Yerres, all of France, assignors to Rhone-Poulenc Industries, Paris, France

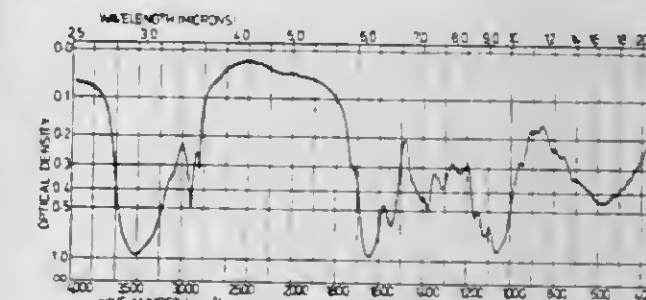
Filed Apr. 16, 1980, Ser. No. 140,818

Claims priority, application France, Apr. 18, 1979, 79 09743

Int. Cl.³ A61K 35/00, 35/74

U.S. Cl. 424—117

19 Claims



1. The substance designated 41,200 RP which, when isolated from the cells of *Micrococcus sedogenes* M78 (NRRL B-3505), is an amorphous, white, water-soluble powder, containing carbon, hydrogen, oxygen, nitrogen, phosphorus, sulphur, chlorine, sodium and calcium; its elementary composition (calcu-

lated for the dry material) is approximately C=45-47%, H=7.1-7.6%, O=35-38% (by difference), N=4.0-5.7%, P=0.9-1.2%, Cl=0.1-0.4%, S is less than 0.5%, Na=2.0-3.0%, and Ca=0.9-1.9%; it comprises (in the anhydrous state) 11 to 18% of aminoacids (of which 5.5 to 7.5% is alanine), 10 to 17% of glucose, 10 to 17% of amino-sugars and less than 5% of nucleic acids; its infra-red spectrum (determined on tablets of a mixture with KBr) shows principal absorption bands as follows: 3,420 (very strong; including water), 3,280 (shoulder), 3,090 (shoulder), 2,970 (shoulder), 2,950 (shoulder), 2,920 (strong), 2,845 (medium), 2,680 (shoulder), 2,100 (very weak), 1,730 (shoulder), 1,645 (very strong), 1,545 (strong), 1,460 (shoulder), 1,440 (shoulder), 1,405 (shoulder), 1,375 (strong), 1,335 (shoulder), 1,310 (medium), 1,230 (medium), 1,210 (shoulder), 1,160 (strong), 1,115 (strong), 1,060 (very strong), 1,025 (shoulder), 945 (medium), 900 (weak), 875 (weak), 800 (medium), 775 (weak), 720 (shoulder), 630 (shoulder), 560 (strong; including water), 520 (shoulder), 480 (shoulder), 450 (shoulder), 400 (shoulder) and 365 (shoulder) cm^{-1} ; and it possesses immunostimulant properties; and alkali metal and alkaline earth metal salts thereof.

18. A pharmaceutical composition for the immunological treatment of cancer or for increasing resistance to viral, bacterial, fungal or parasitic infections which comprises 41, 200 RP as defined in claim 1 or an alkali metal or alkaline earth metal salt thereof in association with a significant quantity of one or more compatible and pharmaceutically acceptable carriers or diluents.

4,313,937

METHOD FOR PRODUCING LONG-LASTING ANALGESIC EFFECTS OF β -ENDORPHIN

Tsutomu Oyama, 31, Zaifu-cho, Hirotsuki, Aomori, Japan
Filed Aug. 12, 1980, Ser. No. 178,571

Int. Cl.³ A61K 37/00

U.S. Cl. 424-177

5 Claims

1. A method for producing analgesia in man which comprises infusing β -endorphin or a physiologically-acceptable salt thereof into the subarachnoid space of the spinal cord or the epidural space of the spinal cord.

4,313,938

INTERFERON INDUCER AND METHOD OF PREPARING SAME

Hirofumi Arimura, Toyonaka; Masanori Nagai, Kyoto; Takeshi Yamauchi, Osaka; Tsutomu Kitagawa, Neyagawa, and Tadakazu Suyama, Kyoto, all of Japan, assignors to The Green Cross Corporation, Osaka, Japan

Filed Jul. 18, 1979, Ser. No. 58,361

Claims priority, application Japan, Jul. 28, 1978, 53/92212

Int. Cl.³ A01N 9/00; C12P 19/34

U.S. Cl. 424-180

4 Claims

1. A double-stranded RNA enzymatically synthesized using native human DNA of human placenta as template, of which the double-stranded moiety is in an amount of at least about 4% between their molecules, the molecular weight is mainly 11-13s in terms of sedimentation coefficient as measured by means of sucrose density gradient centrifugation, the base composition is 27.0 to 37.5% of adenylic acid, 20.6 to 24.7% of guanylic acid, 16.8 to 24.3% of cytidylic acid and 27.8 to 32.7% of uridylic acid, the buoyant density in Cs_2SO_4 is 1.653-1.640, the thermal denaturation (T_m) in 0.1 fold the concentration of SSC is 71° C., having the ultraviolet absorption spectrum substantially as shown in FIG. 2, thermal denaturation substantially as shown in FIG. 3 and the absorbance ratio at 25°-90° C. substantially as shown in FIG. 4.

2. A process for enzymatically synthesizing a double-stranded RNA of claim 1 using native human DNA as template, which comprises:

(1) reacting ATP, GTP, CTP and UTP with with one another in the presence of native human DNA of human placenta as template by catalytic action of an active RNA polymerase of *Micrococcus lysodeiticus* or of *Escherichia*

coli for 2 to 4 hours at 20° to 40° C. in a tris-HCl buffer solution at pH of 7.0 to 8.0 to form RNA and then terminating the reaction,

- (2) subjecting the formed RNA to treatment to free it from protein,
- (3) concentrating the RNA from step (2),
- (4) centrifuging the resulting RNA on a CsCl cushion followed by ethanol-precipitation,
- (5) dissolving the centrifuged RNA from step (4) in a compatible saline solution at a pH of from 6.5 to 7.5; and
- (6) heating the resulting RNA at a temperature of 70° to 100° C. then rapidly cooling to room temperature or below to anneal the resulting RNA.

4,313,939

PHARMACEUTICAL COMPOSITION CONTAINING PARA-AMINOBENZOIC ACID-N-L-RHAMNOSIDE AS AN ACTIVE INGREDIENT

Chikao Yoshikumi, Kunitachi; Yoshio Ohmura, Funabashi; Fumio Hirose, Tokyo; Masanori Ikuzawa, Tachikawa; Kenichi Matsunaga, Tokyo; Takayoshi Fujii, Tokyo; Minoru Ohhara, Tokyo, and Takao Ando, Tokyo, all of Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

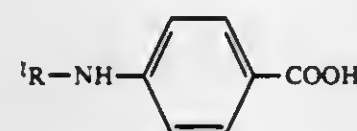
Continuation-in-part of Ser. No. 39,218, May 15, 1979, abandoned. This application Dec. 11, 1979, Ser. No. 102,535

Int. Cl.³ A61K 31/70

U.S. Cl. 424-180

5 Claims

1. A method for the treatment of hypertension, which comprises administering to a mammal suffering from hypertension, an effective amount of a compound of the formula:



(1)

wherein R denotes the residual group formed by removing OH at 1 position from rhamnose, or a pharmaceutically acceptable salt thereof.

4,313,940

GRANULAR PESTICIDAL COMPOSITIONS OF DECREASED DERMAL TOXICITY AND METHODS FOR PREPARING THE SAME

Nunzio R. Pasarela, Bridgewater, N.J., assignor to American Cyanamid Company, Stamford, Conn.

Filed May 19, 1980, Ser. No. 151,022

Int. Cl.³ A01N 57/00

U.S. Cl. 424-215

7 Claims

1. A particulated, pesticidal composition comprising: 2% by weight to 10% by weight of O,O-diethyl-S-(t-butylthio)methyl phosphorodithioate, 1% by weight to 20% by weight of tall oil or a vegetable oil selected from the group consisting of soybean oil and corn oil, or tall oil fatty acids, and sufficient amount of corncob grits to total said composition to 100%.

4,313,941

STABILIZED GRANULAR NEMATOCIDAL AND INSECTICIDAL COMPOSITION HAVING O-ETHYL-S,S-DIPROPYL DITHIOPHOSPHATE AS AN ACTIVE SUBSTANCE

Hendrik Duinker, and Willem de Lange, both of Weesp, Netherlands, assignors to Duphar International Research B.V., Netherlands

Continuation of Ser. No. 10,272, Feb. 7, 1979, abandoned. This application Apr. 7, 1980, Ser. No. 137,350

Claims priority, application Netherlands, Feb. 9, 1978, 7801475

Int. Cl.³ A01N 57/40; C07F 9/165

U.S. Cl. 424-225

8 Claims

1. A stabilized granular nematocidal and insecticidal composition comprising O-ethyl-S,S-dipropyl dithiophosphate, in an nematocidally and/or insecticidally effective amount and, as a carrier and as essentially the sole stabilizer, pumice granules in an amount sufficient to stabilize said composition.

4,313,942

ACTIVATED VITAMIN D RODENTICIDES

Hector F. DeLuca; Heinrich K. Schnoes, both of Madison; Herbert E. Paaren, Verona, and Helen Frank, Madison, all of Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed Oct. 9, 1979, Ser. No. 83,023

Int. Cl.³ A61K 31/59

U.S. Cl. 424-236

11 Claims

1. A process for improving the rodenticidal efficacy of vitamin D compounds which comprises:

- (1) treating vitamin D compounds with an alkyl- or phenyl-sulfonyl halide whereby a product comprising the 3-sulfonyl derivatives of the vitamin D- compound is obtained;
- (2) subjecting the product from step (1) to alcoholysis under buffered conditions in a low molecular weight alcohol whereby a product comprising the corresponding cyclovitamin D is obtained;
- (3) allylically oxidizing the product obtained in step (2), utilizing SeO_2 as the oxidizing agent, whereby a product comprising the 1 α -hydroxylated cyclo-vitamin D is obtained;
- (4) treating the product obtained in step (3) with a low molecular weight organic carboxylic acid to obtain a product comprising the corresponding 1 α -hydroxy-3-O-acyl vitamin D compound;
- (5) treating the product obtained in step (4) with a dilute alcoholic base whereby a product comprising the corresponding 1 α -hydroxy vitamin D compounds is obtained; and
- (6) recovering the product of step (5).

4,313,943

7-CHLORO-2,3-DIHYDRO-5-PHENYL-1-PROPARGYL-1H-1,4-BENZODIAZEPINE-2-ONE, AND A PHARMACEUTICAL COMPOSITION THEREOF

Luigi Molteni, Corso Porta Romana, 69; Franco Tenconi, Via Palestrina 20, and Renato Tagliabue, Via Veneto 3, all of Milan, Italy

Continuation-in-part of Ser. No. 383,993, Jul. 30, 1973, abandoned. This application Aug. 19, 1976, Ser. No. 715,690

Claims priority, application Italy, Aug. 9, 1972, 28048 A/72

Int. Cl.³ C07D 243/24; A61K 31/55

U.S. Cl. 424-244

2 Claims

1. 7-Chloro-2,3-dihydro-5-phenyl-1-propargyl-1H-1,4-benzodiazepine-2-one and pharmaceutically acceptable acid addition salts thereof.

2. A pharmaceutical composition having high anxiolytic and relatively low myorelaxant properties comprised of an active compound selected from the group consisting of a pharmaceutically effective amount of 7-chloro-2,3-dihydro-5-phenyl-1-propargyl-1H-1,4-benzodiazepine-2-one and pharmaceutically

acceptable acid addition salts thereof and a suitable pharmaceutical carrier.

4,313,944

CYCLOHEPTINDOLES, COMPOSITIONS AND USE

Lucien Nedelec, Le Raincy; Daniel Frechet, Paris, and Claude Dumont, Nogent sur Marne, all of France, assignors to Roussel Uclaf, Paris, France

Filed Feb. 23, 1981, Ser. No. 237,062

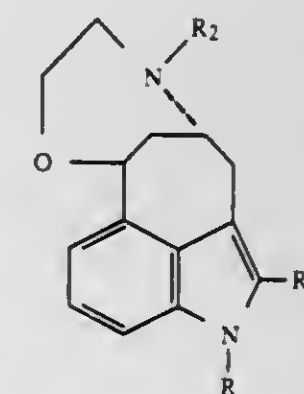
Claims priority, application France, Feb. 26, 1980, 80 04198

Int. Cl.³ A61K 31/535; C07D 498/04

U.S. Cl. 424-248.4

18 Claims

1. a compound selected from the group consisting of optically active isomers and racemic mixtures of cyclohept indoles of the formula



wherein R is selected from the group consisting of hydrogen, alkyl of 1 to 5 carbon atoms and optionally substituted aralkyl of 7 to 12 carbon atoms, R1 is selected from the group consisting of hydrogen, chlorine and bromine and R2 is selected from the group consisting of hydrogen, alkyl of 1 to 5 carbon atoms, cycloalkylalkyl of 4 to 7 carbon atoms, alkenyl and alkynyl of 3 to 7 carbon atoms and optionally substituted aralkyl of 7 to 12 carbon atoms and their non-toxic, pharmaceutically acceptable acid addition salts.

7. An antianoxic and dopaminergic agonist composition comprising an antianoxically and dopaminergic agonistically effective amount of at least one compound of claim 1 and a pharmaceutical carrier.

4,313,945

7-THIAZOLYL-ACETAMIDO-CEPHEM DERIVATIVES WITH TERMINAL AMINOCARBOXYLIC ACID GROUPING

Rcae Wiederkehr, Pfeffingen, and Riccardo Scartazzini, Basel, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Nov. 13, 1979, Ser. No. 93,645

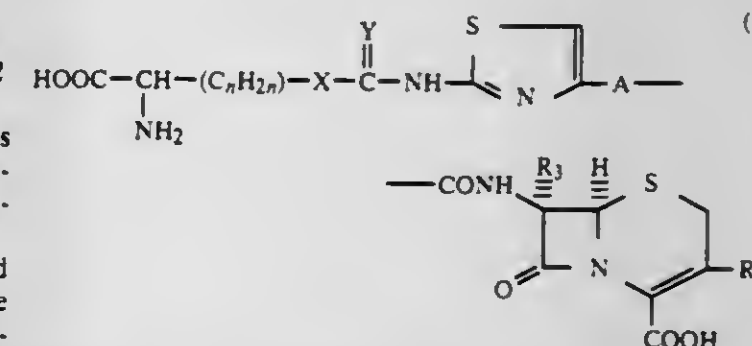
Claims priority, application Switzerland, Nov. 23, 1978, 12025/78

Int. Cl.³ A61K 31/545; C07D 501/20

U.S. Cl. 424-246

12 Claims

1. Aminothiazolacetamido-3-cephem-4-carboxylic acid compounds of the formula



wherein the index n represents an integer of 1 to 4, X repre-

sents oxygen, sulphur, an —NH— group or the direct bond, Y represents oxygen or sulphur, A represents methylene or methylene substituted by amino, hydroxy, carboxyl, sulfo, oxo, or by the group —N—O—R⁰ in which R⁰ represents hydrogen, lower alkyl, or lower alkyl substituted by lower alkoxy, halogen, hydroxy, lower alkanoyloxy, sulfo, carboxy or lower alkoxy-carbonyl, R₁ represents hydrogen, lower alkyl, lower alkoxy, halogen or a group of the formula —CH₂—R₂, in which R₂ represents lower alkanoyloxy, carbamoyloxy, N-lower alkylcarbamoyloxy, triazolylthio, tetrazolylthio, thiazolylthio, thiatriazolylthio, thiadiazolylthio, oxazolylthio, oxadiazolylthio or pyridinium, wherein the heterocyclic rings are unsubstituted or substituted by lower alkyl, N,N-di-lower alkylamino-lower alkyl, carboxy-lower alkyl, sulfo-lower alkyl, amino, carboxy-lower alkanoylamino or carbamoyl, and R₃ represents hydrogen or methoxy, and wherein the carboxyl groups are free or are esterified by lower alkanoyloxymethyl, aminolower alkanoyloxymethyl, phthalidyl or indanyl and pharmaceutically acceptable salts of such compounds.

11. A pharmaceutical preparation containing an effective amount of a compound of formula I according to claim 1, together with pharmaceutically acceptable carriers.

4,313,946

CHEMOTHERAPEUTICALLY ACTIVE

MAYTANSINOLIDS FROM *TREWIA NUDIFLORA*

Richard G. Powell, Peoria, and Cecil R. Smith, Jr., Dunlap, both of Ill., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

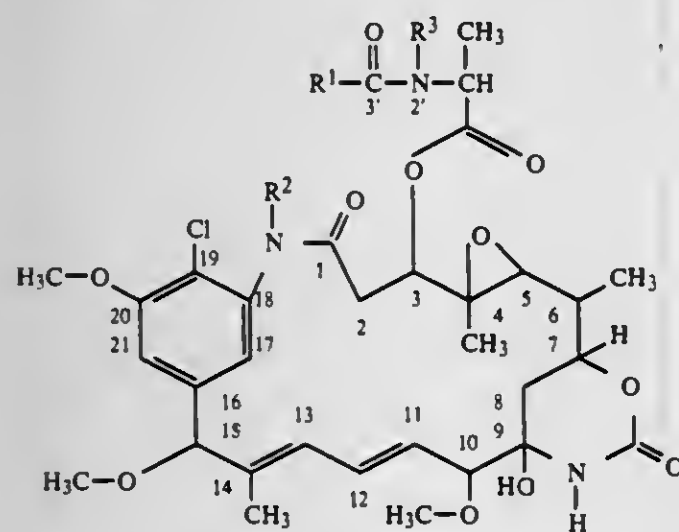
Filed Jan. 27, 1981, Ser. No. 228,853

Int. Cl.³ A61K 31/535; C07D 498/18

U.S. Cl. 424—248.54

8 Claims

1. A substantially pure compound selected from the group consisting of trewiasine, dehydrotrewiasine, and N-demethyl-trewiasine, characterized by the formula

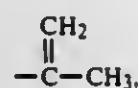


wherein for trewiasine:

R¹ = —CH(CH₃)₂, R² = —CH₃, and R³ = —CH₃;

wherein for dehydrotrewiasine:

R¹ =



R² = —CH₃, and R³ = —CH₃; and

wherein for N-demethyltrewiasine:

R¹ = —CH(CH₃)₂, R² = —CH₃, and R³ = —H.

5. A chemotherapeutic composition suitable for the remission of leukemia comprising a pharmaceutically acceptable vehicle and an amount effective to promote said remission of a substantially pure compound selected from the group consisting of trewiasine, dehydrotrewiasine, and N-demethyltrewiasine.

4,313,947 PLATELET AGGREGATION INHIBITING 2-OXYINDOLES, THEIR COMPOSITIONS AND METHOD OF USE

Kazuyuki Nakagawa, Tokushima; Minoru Uchida, Komatsu-shima, and Kimiaki Oka, Tokushima, all of Japan, assignors to Otsuka Pharmaceutical Co., Ltd., Tokyo, Japan

Division of Ser. No. 806,926, Jun. 15, 1977, Pat. No. 4,216,225, which is a division of Ser. No. 588,475, Jun. 19, 1975, Pat. No. 4,070,470. This application Jul. 18, 1979, Ser. No. 58,467

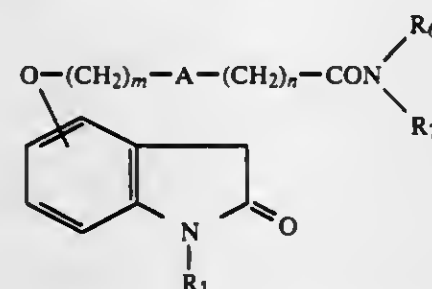
The portion of the term of this patent subsequent to Aug. 5, 1997, has been disclaimed.

Int. Cl.³ C07D 209/04

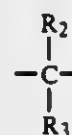
U.S. Cl. 424—248.54

4 Claims

1. A compound of the formula:



where R₁ is selected from the group consisting of hydrogen, C₁₋₄ alkyl, C₂₋₄ alkenyl, benzyl and phenethyl; A is —CH=CH— or



wherein R₂ or R₃ may be the same or different and are selected from the group consisting of hydrogen and C₁₋₄ alkyl; R₆ and R₇ may be the same or different and are selected from the group consisting of hydrogen, C₁₋₄ alkyl, benzyl, phenethyl and together with the nitrogen atom, a heterocyclic group selected from the group consisting of a piperidino, morpholino, piperazino or thiazolino group; and m and n each are zero or a positive integer with m+n being no more than 11.

4,313,948

HYPOTENSIVE IMIDAZOLE SUBSTITUTED

MERCAPTO-1-OXOPROPYL-L-PROLINES

Miguel A. Ondetti, and Denis E. Ryono, both of Princeton, N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

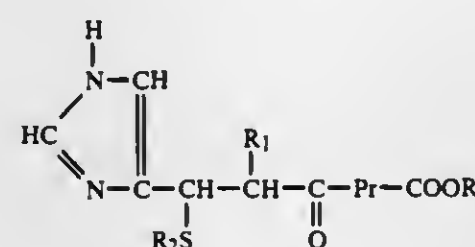
Filed Nov. 20, 1980, Ser. No. 208,739

Int. Cl.³ A61K 31/415; C07D 403/06

U.S. Cl. 424—273 R

6 Claims

4. A composition for treating hypertension comprising a pharmaceutically acceptable carrier and a pharmaceutically effective amount of a hypotensive agent or pharmaceutically acceptable salt thereof of the formula

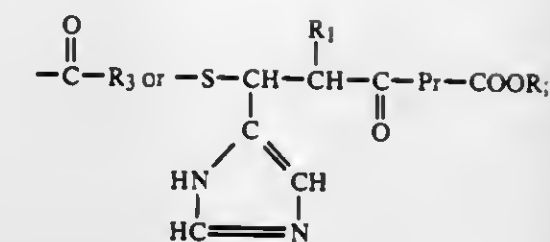


wherein

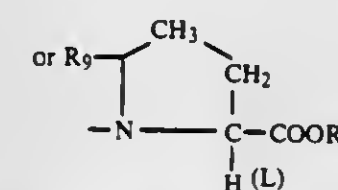
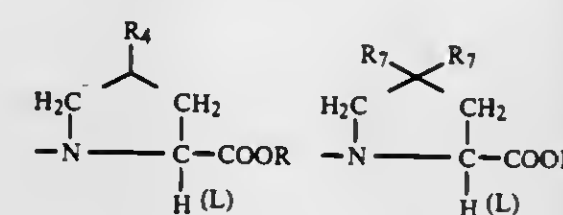
R is hydrogen or lower alkyl;

R₁ is hydrogen, lower alkyl, or halo substituted lower alkyl;

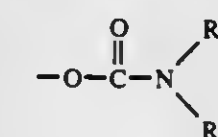
R₂ is hydrogen,



R₃ is lower alkyl, phenyl, or phenyl-lower alkyl; Pr-COOR is a substituted or unsubstituted proline of the structures



R₄ is hydrogen, lower alkyl, hydroxy, halogen, keto, azido, a saturated cycloalkyl ring of 3 to 7 carbons,

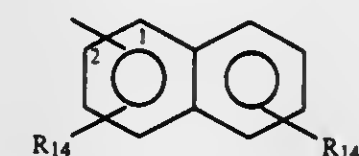


—Y-R₆, phenyl, phenyl-lower alkyl, substituted phenyl, or substituted phenyl-lower alkyl wherein said phenyl substituent is lower alkyl, lower alkoxy, lower alkylthio, Cl, Br, F, or hydroxy;

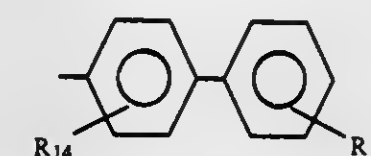
R₅ is hydrogen or lower alkyl;

Y is oxygen or sulfur;

R₆ is lower alkyl, lower alkenyl, lower alkynyl, phenyl, phenyl-lower alkyl, substituted phenyl or substituted phenyl-lower alkyl wherein said phenyl substituent is lower alkyl, lower alkoxy, lower alkylthio, Cl, Br, F, or hydroxy, substituted or unsubstituted 1- or 2-naphthyl of the formula



or substituted or unsubstituted biphenyl of the formula

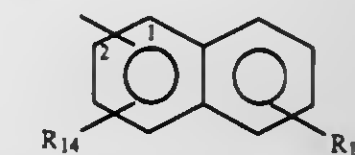


wherein R₁₄ is hydrogen, methyl, methoxy, methylthio, Cl, Br, F, or hydroxy;

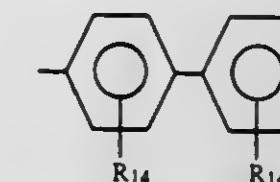
R₇ is halogen or —Y-R₈;

R₈ is lower alkyl, phenyl, phenyl-lower alkyl, substituted phenyl-lower alkyl wherein said phenyl substituent is lower alkyl, lower alkoxy, lower alkylthio, Cl, Br, F, or

hydroxy, substituted or unsubstituted 1- or 2-naphthyl of the formula



substituted or unsubstituted biphenyl of the formula



wherein R₁₄ is as defined above, or when the R₈ groups are lower alkyl they join to complete an unsubstituted 5- or 6-membered ring or such ring wherein a carbon atom is substituted by a lower alkyl or di(lower alkyl) group; and R₉ is keto, phenyl, 2- or 4-hydroxyphenyl.

6. The method of alleviating hypertension which comprises administering to a mammalian specie an effective amount of the composition of claim 4.

4,313,949

METHOD OF PRODUCING AN INHIBITORY EFFECT ON BLOOD PLATELET AGGREGATION

James R. Shanklin, Jr., Dwight A. Shamblee, and David A. Walsb, all of Richmond, Va., assignors to A. H. Robins Company, Inc., Richmond, Va.

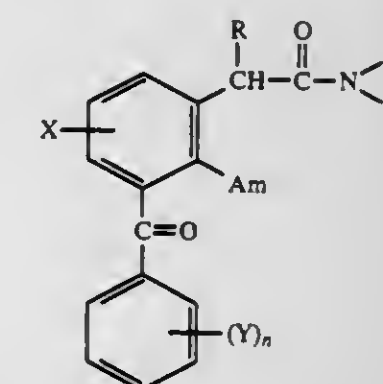
Division of Ser. No. 78,860, Sep. 26, 1979. This application Feb. 17, 1981, Ser. No. 234,532

Int. Cl.³ A61K 31/535, 31/165

U.S. Cl. 424—248.56

9 Claims

1. The method of producing an inhibitory effect on blood platelet aggregation which comprises administering to a living animal body a blood platelet inhibitory effective amount of a compound having the formula:



wherein;

R is hydrogen and lower alkyl,

R¹ and R² are selected from hydrogen, lower alkyl, cycloalkyl, phenyl and phenyl substituted by lower alkyl, lower alkoxy, halogen, nitro and trifluoromethyl, and R¹ and R² when taken together with the adjacent nitrogen form a heterocyclic residue,

X is hydrogen, lower alkyl, lower alkoxy, halogen and trifluoromethyl,

Y is hydrogen, lower alkyl, lower alkoxy, halogen, trifluoromethyl, lower alkylthio, lower alkoxythio or lower alkylidioxthio,

Am is primary amino (—NH₂), methylamino or dimethylamino, and

n is 1-3 inclusive.

4,313,950

ANTIREPRODUCTIVE TRICYCLIC ORTHO-FUSED NITROGEN CONTAINING COMPOUNDS

Umberto Guzzi, Milan; Amedeo Omodei-Sale, Voghera, and Giulio Galliani, Monza, all of Italy, assignors to Gruppo Lepetit S.p.A., Milan, Italy

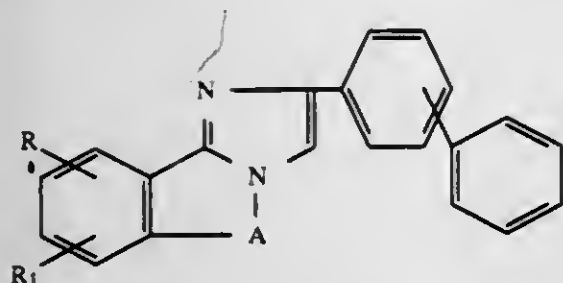
Division of Ser. No. 87,371, Oct. 23, 1979, Pat. No. 4,275,066. This application Jan. 30, 1981, Ser. No. 230,138

Int. Cl.³ A61K 31/47; C07D 471/04

U.S. Cl. 424-258

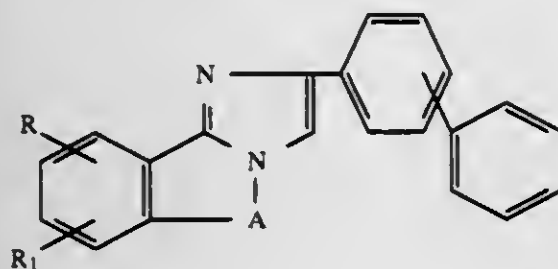
8 Claims

1. A tricyclic orthofused nitrogen containing compound of formula



wherein R and R₁ are independently selected from hydrogen, fluoro, chloro, bromo and (C₁₋₄)alkoxy; A may be —CH₂—, —CH₂—CH₂—, —CH=CH— or —(CH₂)₃—; or a salt thereof of a pharmaceutically-acceptable acid.

5. A method for preventing reproduction in warm-blooded animals, which comprises administering to the animal a dosage varying from about 0.1 to about 25 mg/kg of body weight of a compound of formula



wherein A, R, and R₁ are defined as in claim 1.

4,313,951

3-SUBSTITUTED-6-(LOWER-ALKYL)-5-(PYRIDINYL)-2(1H)-PYRIDINONES, THEIR CARDIOTONIC USE AND INTERMEDIATES THEREFOR

George Y. Leshner, and Richard E. Philion, both of Schodack, N.Y., assignors to Sterling Drug Inc., New York, N.Y.

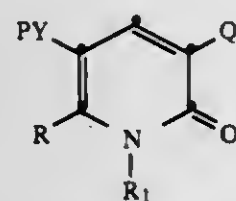
Continuation-in-part of Ser. No. 97,504, Nov. 26, 1979, abandoned. This application Oct. 20, 1980, Ser. No. 198,461

Int. Cl.³ C07D 401/04; A61K 31/44

U.S. Cl. 424-263

26 Claims

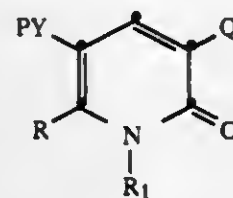
1. A 1-R₁-3-Q-5-PY-6-R-2(1H)-pyridinone having the formula



where Q is amino, cyano, carbamyl, halo, lower-alkylamino, di-(lower-alkyl)amino or lower-acylamino, R₁ is hydrogen, lower-alkyl or lower-hydroxyalkyl, R is lower-alkyl and PY is 4-, 3- or 2-pyridinyl or 4-, 3- or 2-pyridinyl having one or two lower-alkyl substituents, or pharmaceutically-acceptable acid-addition or cationic salt thereof.

24. The method for increasing cardiac contractility in a patient requiring such treatment which comprises administer-

ing orally or parenterally in a solid or liquid dosage form to such patient an effective amount of a cardiotonic 1-R₁-3-Q-5-PY-6-R-2(1H)-pyridinone having the formula



where Q is amino, cyano, carbamyl, halo, lower-alkylamino, di-(lower-alkyl)amino or lower-acylamino, R₁ is hydrogen, lower-alkyl or lower-hydroxyalkyl, R is lower-alkyl and PY is 4-, 3- or 2-pyridinyl or 4-, 3- or 2-pyridinyl having one or two lower-alkyl substituents, or pharmaceutically-acceptable acid-addition or cationic salt thereof.

4,313,952

METHOD OF TREATING ACUTE ALCOHOLIC INTOXICATION WITH PYRIDOXINE P.C.A.

Massimo Baldacci, via delle Piagge 9, Pisa, Italy

Filed Dec. 8, 1980, Ser. No. 214,033

Claims priority, application Italy, Jun. 30, 1980, 23103 A/80

Int. Cl.³ A61K 31/44

U.S. Cl. 424-263

2 Claims

1. A method for the treatment of acute alcoholic intoxication and reducing psychomotor excitation and aggression, comprising administering to a person suffering therefrom pyridoxine pyrrolidone-carboxylate, by the parenteral or oral route in an amount sufficient to treat said intoxication and reduce said psychomotor excitation and aggression.

2. The method according to claim 1, wherein said amount, expressed in unit doses, is from 150 to 300 mg of pyridoxine pyrrolidone carbonate.

4,313,953

HETEROCYCLIC DERIVATIVES OF (4-ARYLOXYMETHYL-1,3-DIOXOLAN-2-YL)METHYL-1H-IMIDAZOLES AND 1H-1,2,4-TRIAZOLES

Jan Heeres, Vosselaar, and Joseph H. Mostmans, Antwerp, both of Belgium, assignors to Janssen Pharmaceutica, N.V., Beerse, Belgium

Division of Ser. No. 20,287, Mar. 14, 1979, Pat. No. 4,218,458, which is a continuation-in-part of Ser. No. 918,257, Jun. 23, 1978, abandoned. This application Mar. 27, 1980, Ser. No.

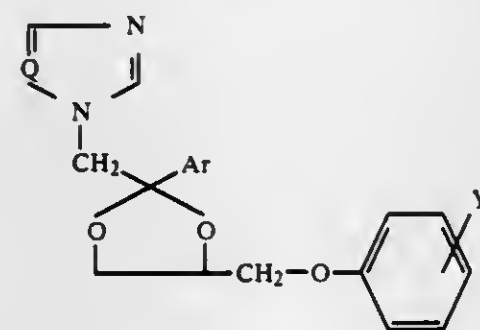
134,384

Int. Cl.³ C07D 263/30, 277/20

U.S. Cl. 424-269

5 Claims

1. A chemical compound selected from the group consisting of an azole derivative having the formula:

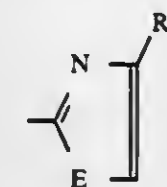


and the pharmaceutically acceptable acid addition salts and stereochemically isomeric forms thereof, wherein:

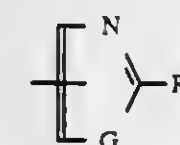
Q is a member selected from the group consisting of CH and N;

Ar is a member selected from the group consisting of thieryl, halothienyl, phenyl and substituted phenyl, said substituted phenyl having from 1 to 3 substituents each

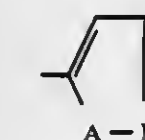
independently selected from the group consisting of halo, lower alkyl and lower alkoxy; and the radical Y is a member selected from the group consisting of a heterocyclic radical of the formula



wherein R² is selected from the group consisting of hydrogen, lower alkyl and aryllower alkyl and E is a member selected from the group consisting of NR³, O and S, wherein said R³ is selected from the group consisting of hydrogen, lower alkyl and aryllower alkyl; a heterocyclic radical of the formula



wherein R⁴ is selected from the group consisting of hydrogen, lower alkylthio, aryllower alkylthio, lower alkyl and aryllower alkyl and G is a member selected from the group consisting of NR⁵, O and S, wherein said R⁵ is selected from the group consisting of hydrogen, lower alkyl and aryllower alkyl, provided that said G is NR⁵ when said R⁴ stands for alkylthio; a heterocyclic radical of formula



wherein A is selected from the group consisting of O and NR⁶, said R⁶ being selected from the group consisting of hydrogen, lower alkyl, hydroxylower alkyl, aryl and aryllower alkyl;

wherein said aryl as used in the foregoing definitions is selected from the group consisting of phenyl and substituted phenyl, said substituted phenyl having from 1 to 3 substituents each independently selected from the group consisting of halo, lower alkyl, lower alkoxy and trifluoromethyl.

4,313,954

6,9-NITRIL-PROSTAGLANDIN ANALOGUES

Hirohisa Wakatsuki, Masaki Hayashi, and Yoshitaka Konishi, all of Takatsuki, Japan, assignors to Ono Pharmaceutical Co. Ltd., Osaka, Japan

Filed Feb. 19, 1980, Ser. No. 122,704

Claims priority, application Japan, Feb. 20, 1979, 54-17935

Int. Cl.³ A61K 31/40; C07D 209/52

U.S. Cl. 424-274

4 Claims

1. A prostaglandin analogue which is (13E)-(9α,11α,15α)-6,9-nitrilo-11,15-dihydroxy-17,20-dimethylprost-13-enoic acid and its methyl ester and non-toxic salts and acid addition salts thereof.

2. A prostaglandin analogue which is (13E)-(9α,11α,15α,17S)-6,9-nitrilo-11,15-dihydroxy-17,20-dimethylprost-13-enoic acid and non-toxic salts and acid addition salts thereof.

3. A prostaglandin analogue which is (13E)-(9α,11α,15α,17S)-6,9-nitrilo-11,15-dihydroxy-17,20-dimethylprost-13-enoic acid methyl ester and non-toxic acid addition salts thereof.

4. A pharmaceutical composition useful in the treatment of hypertension or disorders of the peripheral circulation, or in the prevention and treatment of cerebral thrombosis, myocar-

dial infarction and arteriosclerosis, or in the treatment of gastric ulceration, which comprises as active ingredient an effective amount of at least one prostaglandin analogue selected from the class consisting of (13E)-(9α,11α,15α)-6,9-nitrilo-11,15-dihydroxy-17,20-dimethylprost-13-enoic acid, (13E)-(9α,11α,15α,17S)-6,9-nitrilo-11,15-dihydroxy-17,20-dimethylprost-13-enoic acid, or a non-toxic salt or non-toxic acid addition salt of a said acid, the methyl ester of a said acid or a non-toxic acid addition salt of the methyl ester, in association with a pharmaceutical carrier or coating.

4,313,955

1,5-BIS(1,4-BENZODIOXIN-2-YL)-3-AZAPENTANE-1,5-DIOLS

Charles F. Huebner, Chatham, and Heinz W. Gschwend, New Providence, both of N.J., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Oct. 14, 1980, Ser. No. 196,503

Int. Cl.³ A61K 31/335; C07D 319/20

U.S. Cl. 424-278

8 Claims

1. The 1-(2,3-dihydro-1,4-benzodioxin-2S-yl)-5-(2,3-dihydro-1,4-benzodioxin-2R-yl)-3-azapentane-1R,5S-diol, or a pharmaceutically acceptable acid addition salt thereof.

6. An antihypertensive pharmaceutical composition comprising an antihypertensive amount of a compound as claimed in claim 1, together with a pharmaceutical excipient.

8. The method of reducing elevated blood pressure in a mammal in need thereof, which consists of administering to said mammal enterally or parenterally an effective dosage of a composition as claimed in claim 6.

4,313,956

NOVEL SYMPATHOMIMETIC AMINE PRODRUGS

(d) Nicholas S. Bodor, Gainesville, Fla.; Kenneth B. Sloan, Eudora, and Stefano A. Pogany, Lawrence, both of Kans., assignors to INTERx Research Corp., Lawrence, Kans.

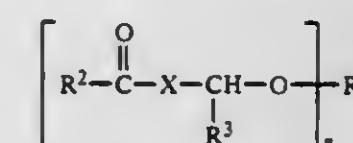
Filed Dec. 28, 1979, Ser. No. 108,055

Int. Cl.³ C07C 149/40; A61K 31/265; C07C 79/46, 101/72, 102/00, 101/44; A61K 31/165; C07C 103/20, 97/16; C09F 5/08; C07C 153/00, 69/76, 69/00, 67/02, 101/20, 69/74, 67/02; A61K 31/25, 31/235, 31/245, 31/22, 31/26, 31/255, 31/275, 31/215; C07C 101/30, 101/02, 69/66, 69/34; A61K 31/23, 31/225, 31/22, 31/16; C07C 101/00, 79/40, 101/26

U.S. Cl. 424-301

36 Claims

1. A compound selected from the group consisting of those having (i) the structural formula (1):



wherein X is O, S or NR⁵; n is 1 or 2; R¹ is the monodehydroxylated residue of a phenolic, nuclear dihydroxy natural sympathetic or sympathomimetic amine when n is 1, and the dihydroxylated residue of a phenolic, nuclear dihydroxy natural sympathetic or sympathomimetic amine when n is 2, said natural sympathetic or sympathomimetic amine comprising a basic nucleus selected from the group consisting of epinephrine, norepinephrine, isoproterenol, isotharine, protochylol, adrenaline, dihydroxyphenylaminobutanol, nordefrin, colterol, fenoterol, metaproterenol, terbutaline, carbidopa and methyl-dopa; R² is selected from the group consisting of straight or branched chain alkyl having from 1 to 20 carbon atoms; aryl having from 6 to 10 carbon atoms; cycloalkyl having from 3 to 8 carbon atoms; alkenyl having from 2 to 20 carbon atoms; cycloalkenyl having from 4 to 8 carbon atoms; alkynyl having from 2 to 20 carbon atoms; aralkyl, alkaryl, aralkenyl, aralkynyl, alkenylaryl, alkynylaryl loweracyloxyalkyl, and carboxy-alkyl, wherein alkyl, aryl, alkenyl and alkynyl are as defined above; and mono- or poly-substituted derivatives of the above,

of rotating slitting blades having a plurality of discrete acute angle cutting surfaces on each slitting blade along the periphery thereof, wherein a series of closely spaced further cut slits extend from the at least one surface into said portions, and said slits have a length between $\frac{1}{4}$ inch and 1 inch and a width of between 0.02 and 0.05 inch, wherein the further slits are close to or in part overlap the said first cut slits and the said solution penetrates from or flows from the said first slits into the said further slits during said further slitting and subsequent thereto; and then

(4) immediately packaging and fast freezing the so processed portions;

wherein the total volume of the first slits is sufficient to retain therein from 5% to 16% of the said solution, and the number of first and further slits is sufficient that solution so penetrates or flows into the said further slits from the first slits prior to the freezing step such that the solution is essentially uniformly dispersed in the portions and the portions are essentially uniformly tenderized.

4,313,964

APPARATUS AND METHOD FOR PRODUCING EDIBLE FOOD FILLABLE CONES

Stanley L. Dembecki, Phoenix, Ariz., assignor to Silver Cloud Enterprises, Inc., Phoenix, Ariz.

Continuation of Ser. No. 854,731, Nov. 25, 1977, abandoned. This application Sep. 13, 1979, Ser. No. 75,111

Int. Cl.³ A21D 5/08

U.S. Cl. 426—138

6 Claims

1. A cone shaped edible container having an apex rounded in three dimensions for containing food substances, said container being produced by a process comprising the steps of:

- (a) mixing a quantity of malleable dough;
- (b) depositing a batch of the dough in a three dimensionally rounded apex of a cone shaped cavity, which cavity is defined by a male and female mold constructed of heat transmissive and impermeable material to shield the dough from direct contact with a source of heat and still subject the dough to heat from the source of heat;
- (c) forcing the male and female molds into a mating relationship to forceably disperse the dough from the apex and into the confines of the cone shaped cavity to define the interior and exterior walls of said container;
- (d) locking the male and female molds in a mated relationship to preclude the forces present during rapid cooking and curing of the dough from displacing the male and female molds from one another along the longitudinal axis of the cone shaped cavity;
- (e) applying heat by conduction to the mated male and female molds from the source of heat to cook and cure the deposited dough rapidly and develop the container in no more than six (6) minutes by immersing the mated male and female molds in a cooking oil heated to a temperature in a range 350°–425° F.;
- (f) relieving pressure build up within the cone shaped cavity resulting from the rapidly curing dough through a port located at the apex of the cone shaped cavity and commensurate with the point of deposition of the dough;
- (g) removing the mated male and female molds from the cooking oil; and
- (h) withdrawing said container from within the male and female molds.

4,313,965

ICE CREAM CONE WITH JACKET ATTACHED AND METHOD THEREFOR

David Weinstein, Baltimore, Md., assignor to Maryland Cup Corporation, Owings Mills, Md.

Continuation-in-part of Ser. No. 885,278, Mar. 10, 1978. This application May 30, 1978, Ser. No. 910,886

Int. Cl.³ A21D 15/00; B65B 11/10

U.S. Cl. 426—139

7 Claims

1. The method of adhering a sanitary jacket to a conformally shaped ice cream cone comprising the steps of:

applying a dose of vapor consisting of a mixture of about 85% propylene glycol and about 15% water in a short duration burst to the interior of said jacket;

inserting an ice cream cone into said jacket into juxtaposition therewith while said vapor remains on the internal surface of said jacket; and

drying the combined cone and jacket.

4,313,966

COLORANTS FOR LIPID-BASED EDIBLE COMPOSITIONS AND LIPID-BASED COMPOSITIONS MADE THEREFROM

Kenneth B. Basa, Evanston, and Robert G. Agosto, Chicago, both of Ill., assignors to National Can Corporation, Chicago, Ill.

Filed Dec. 11, 1978, Ser. No. 967,972

Int. Cl.³ A23L 1/275; A23G 1/00

U.S. Cl. 426—250

5 Claims

1. An edible, pigmented, brown, essentially water-free, lipid-based confectionary food composition consisting essentially of a lipid having a melting point of from about 89° F. to about 114° F. (31° C. to 46° C.) and a color blend composition comprising a finely divided caramel powder having a Hue Index of at least 3.9±0.10 and an approved food color lake color enhancer selected from the group consisting of from about 0.5 to 4.0% Yellow No. 6 lake, and of from about 0.1 to 10% Blue No. 2 lake or mixtures thereof uniformly dispersed throughout said lipid composition, said caramel powder being present in an amount of from about 1% to about 24% by weight of said lipid and said percentages of lakes being based on total colorant blend.

4,313,967

INTERMEDIATE-MOISTURE FROZEN FOODS

Marvin L. Kahn, Williamsville, and Kuttikandathil E. Eapen, Kenmore, both of N.Y., assignors to Rich Products Corporation, Buffalo, N.Y.

Continuation-in-part of Ser. No. 24,129, Mar. 26, 1979, Pat. No. 4,220,671, and a continuation-in-part of Ser. No. 23,931, Mar. 26, 1979, Pat. No. 4,244,976, and a continuation-in-part of Ser. No. 23,974, Mar. 26, 1979, and a continuation-in-part of Ser. No. 24,130, Mar. 26, 1979, Pat. No. 4,237,146, and a continuation-in-part of Ser. No. 24,127, Mar. 26, 1979, Pat. No. 4,235,936, and a continuation-in-part of Ser. No. 24,128, Mar. 26, 1979, Pat. No. 4,234,611, and a continuation-in-part of Ser. No. 23,973, Mar. 26, 1979, Pat. No. 4,244,977, and a continuation-in-part of Ser. No. 21,937, Mar. 19, 1979, Pat. No. 4,248,902, and a continuation-in-part of Ser. No. 920,953, Jun. 30, 1978, Pat. No. 4,199,605, and a continuation-in-part of Ser. No. 917,379, Jun. 20, 1978, Pat. No. 4,199,604, said Ser. No. 24,129, and Ser. No. 23,931, and Ser. No. 23,974, and Ser. No. 24,130, and Ser. No. 24,127, and Ser. No. 24,128, and Ser. No. 23,973, and Ser. No. 21,937, each is a continuation-in-part of Ser. No. 917,379, Jun. 20, 1978, Pat. No. 4,199,604, and a continuation-in-part of Ser. No. 871,995, Jan. 24, 1978, Pat. No. 4,154,863, and a continuation-in-part of Ser. No. 763,613, Jan. 28, 1977, Pat. No. 4,146,652. This application Mar. 14, 1980, Ser. No. 125,516

Int. Cl.³ A23L 3/38, 3/00

U.S. Cl. 426—327

1. A microbiologically stable food product containing fruit,

Int. Cl.³ A23L 3/38, 3/00

26 Claims

1. A microbiologically stable food product containing fruit,

wherein the fruit is a fruit infused with solutes by a method comprising the step of bathing the fruit in a solutes containing bath, said solute replacing a portion of said fruit's water content, wherein said solute is selected from the group consisting of fructose, dextrose, propylene glycol, glycerine and polyhydric alcohols, to induce infusion of solutes from said bath into the fruit, and wherein said fruit is in a food which is a microbiologically stable food product having a water activity of from about 0.08 to about 0.93, which is substantially non-crystalline at freezer temperatures and is spoonable or flowable at freezer temperatures of about 10° F.

4,313,968

APPLICATION OF LIQUID COATING MATERIAL

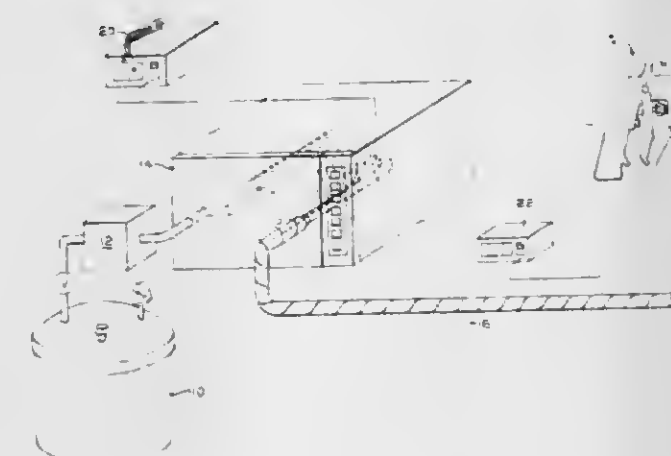
James E. Sickles, Glenshaw, and Wen-Hsuan Chang, Gibsonia, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Nov. 14, 1979, Ser. No. 94,008

Int. Cl.³ B05D 1/06

U.S. Cl. 427—27

10 Claims



1. In the method of applying a liquid coating composition to a workpiece wherein a coating composition is atomized into liquid particles, an electrical charge is imparted with an induction charging electrode means on said particles substantially simultaneously with their formation, and the charged particles are directed to an electrically-receptive workpiece, the improvement comprising heating said coating composition to adjust its conductivity and to enhance the induction charging of the particles formed from said heated coating composition.

4,313,969

METHOD AND APPARATUS FOR PROVIDING LOW GLOSS AND GLOSS CONTROLLED RADIATION-CURED COATINGS

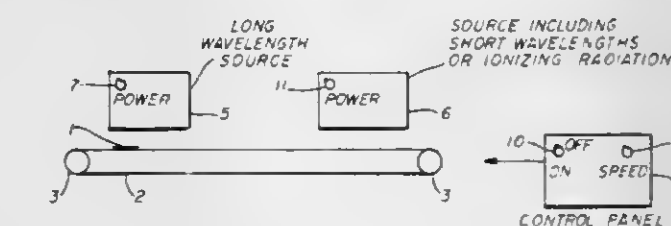
John C. Matthews, Columbia, and Robert W. Couch, Frederick, both of Md., assignors to Fusion Systems Corporation, Rockville, Md.

Filed Sep. 10, 1979, Ser. No. 73,630

Int. Cl.³ B05D 3/06

U.S. Cl. 427—44

21 Claims



1. A method of producing either a relatively low gloss or a gloss controlled radiation-cured coating, comprising the steps of,

providing a radiation curable coating of a composition which includes inert particulates,

irradiating said coating with curing radiation of wavelengths to which the coating is responsive but having substantially no distribution beneath about 300 nm, and,

subsequently irradiating said coating with curing radiation

of wavelengths to which the coating is responsive including substantial radiation at wavelengths beneath 300 nm.

4,313,970

METHOD OF MASKING A WORKPIECE FOR PAINTING

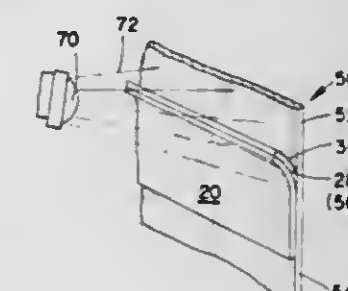
Wallace R. Jones, Waite Hill Village; John F. Haas, Chagrin Falls; Paul A. Krieger, Bay Village, and David E. Frappier, Mayfield Height, all of Ohio, assignors to The Excella Specialty Company, Cleveland, Ohio

Filed Jul. 3, 1980, Ser. No. 165,616

Int. Cl.³ B05D 3/06

U.S. Cl. 427—56.1

22 Claims



1. A method for masking and painting a workpiece along some predetermined demarcation zone to accommodate spray painting of a workpiece first area, said method comprising the steps of:

- providing a thin, flexible paint mask including a mask layer having opposed faces with one of said faces having an adhesive layer substantially covering the surface area thereof and with a thin liner removably covering said adhesive layer;
- severing at least said liner in a manner forming a sever line therealong having the same longitudinal conformation as said demarcation zone and which divides said mask into at least two sections, one of said sections being adapted for association with said workpiece first area on one side of said demarcation zone and the other of said sections being adapted for association with a second workpiece area on the other side of said demarcation zone;
- removing that portion of said liner associated with said mask other section for exposing a first portion of said adhesive layer;
- placing said mask on said workpiece with said adhesive layer first portion adhesively engaging said workpiece second area while aligning said mask so that said sever line is substantially coextensive with said demarcation zone;
- causing said mask one section to automatically lift away from said workpiece first area generally along said sever line and thereby expose said first area generally coextensive with said demarcation zone, said lifting being to such extent that said mask one section diverges outwardly of said workpiece first area from said demarcation zone at generally an acute angle;
- directing a paint spray toward said workpiece first area from a direction generally normal thereto; and,
- removing said mask from association with said workpiece.

4,313,971

METHOD OF FABRICATING A SCHOTTKY BARRIER CONTACT

Carl F. Wheatley, Jr., Somerset, N.J., assignor to RCA Corporation, New York, N.Y.

Filed May 29, 1979, Ser. No. 42,920

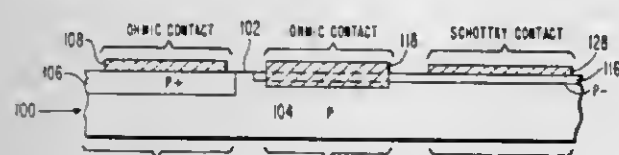
Int. Cl.³ H01L 21/225, 29/48

U.S. Cl. 427—84

6 Claims

1. A method of forming a Schottky barrier contact and an ohmic contact on a semiconductor wafer having a metal concentration of a conductivity type determining dopant which is too large to support the formation of the desired Schottky

barrier between said Schottky barrier contact and said semiconductor wafer, said method comprising the steps of: exposing that region of said wafer where said Schottky barrier contact is to be formed to leaching ambient conditions which cause a reduction in the concentration of the conductivity determining dopant in said region for a time



sufficient to reduce the dopant level at and adjacent the surface of said region to one which will support said Schottky barrier; disposing a conductor on said surface of said region to form a Schottky barrier contact and simultaneous therewith disposing a conductor on the surface of another region of said wafer to form an ohmic contact.

4,313,972

DRY METHOD FOR MAKING AN ELECTROCHEMICAL CELL ELECTRODE

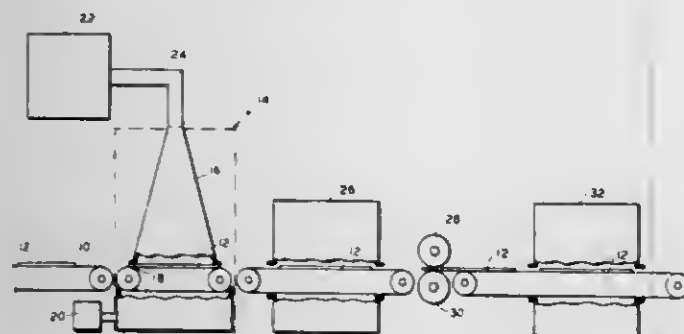
Glen J. Goller, West Springfield, Mass., and Joseph R. Salonia, Middletown, Conn., assignors to United Technologies Corporation, Hartford, Conn.

Continuation-in-part of Ser. No. 920,036, Jun. 28, 1978, Pat. No. 4,287,232. This application Nov. 6, 1980, Ser. No. 204,729. The portion of the term of this patent subsequent to Sep. 1, 1998, has been disclaimed.

Int. Cl.³ H01M 4/88, 4/04, 4/96

U.S. Cl. 427-113

14 Claims



1. A method for making an electrochemical cell electrode comprising the steps of:

applying a dry powder comprising carbon particles and hydrophobic polymer particles in a uniform layer on the surface of a porous electrode substrate with virtually no powder within the pores of the substrate by positioning the substrate within a chamber, dispersing said powder as a cloud in the chamber over said surface of said positioned substrate, and pulling the powder onto said surface by drawing a continuous vacuum under the substrate until the desired amount of powder has been deposited, wherein said substrate is graphitized carbon paper made from carbon fibers;

compacting the applied powder layer; and sintering the compacted layer.

4,313,973

METHOD FOR MANUFACTURE OF NEUTRON ABSORBING ARTICLE

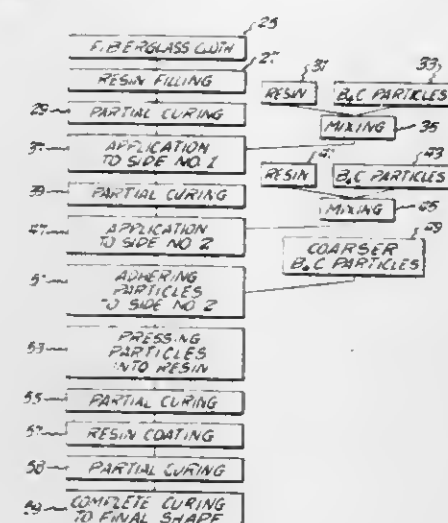
Carl H. McMurtry, Youngstown; Robert G. Naum, Lewiston, and Paul F. Forsyth, Niagara Falls, all of N.Y., assignors to Kennecott Corporation, Stamford, Conn.

Division of Ser. No. 870,237, Jan. 17, 1978, Pat. No. 4,218,622. This application Mar. 24, 1980, Ser. No. 133,157

Int. Cl.³ B05D 1/28, 5/02, 5/00

U.S. Cl. 427-205

16 Claims



1. A method of making a composite, neutron absorbing article which is of a thickness in the range of 1 to 7 mm. and of a B¹⁰ loading from 0.001 to 0.1 g./sq. cm. which comprises coating a side of a fiberglass cloth backing member with a curable liquid phenolic resin, applying boron carbide particles to the liquid resin and solidifying the resin to cross-linked permanently set form.

4,313,974

METHOD OF APPLYING ATOMIZED LIQUID PLASTICIZER TO A RUNNING TOW OF FILAMENTARY FILTER MATERIAL

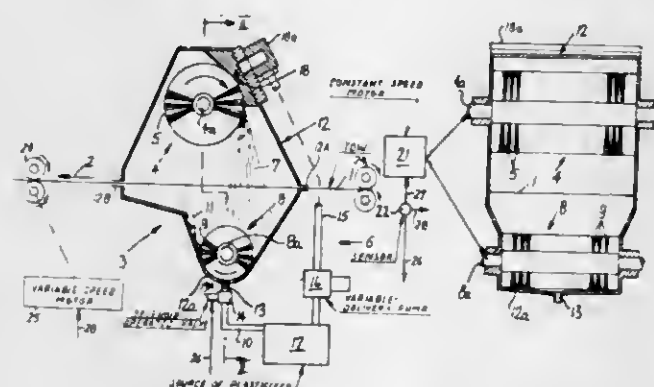
Heinz Greve, Hamburg, and Günter Wahle, Reinbek, both of Fed. Rep. of Germany, assignors to Hauni-Werke Körber & Co. KG., Hamburg, Fed. Rep. of Germany. Division of Ser. No. 25,040, Mar. 29, 1979, abandoned. This application Apr. 24, 1980, Ser. No. 143,184

Claims priority, application Fed. Rep. of Germany, Apr. 5, 1978, 2814881

Int. Cl.³ B05D 1/02

U.S. Cl. 427-209

6 Claims



1. A method of applying droplets of liquid plasticizer to successive increments of a foraminous tow of filamentary filter material, comprising the steps of transporting the tow lengthwise along a predetermined path; establishing and maintaining a source of liquid plasticizer; conveying liquid plasticizer from said source solely to one side of said path; propelling droplets of the conveyed liquid plasticizer against successive increments of the running tow at said one side of said path whereby certain droplets adhere to the filamentary material and the

remaining droplets penetrate through the foraminous tow to the other side of said path; intercepting the remaining droplets at the other side of said path; propelling, exclusively, at least some of the intercepted remaining droplets against successive increments of the running tow at said other side of said path so that all droplets which are propelled against the running tow at said other side of said path consist only of plasticizer which has penetrated through the running tow from said one side of said path; and atomizing, in the course of said last named propelling step, the droplets which are propelled against the running tow at said other side of said path.

4,313,975

METHOD OF IMPROVING OPERATION OF CONTINUOUS CASTING NOZZLE

Bernard Mairy, Sclayn-Andenne, Belgium, assignor to Centre de Recherches Metallurgiques-Centrum voor Research in de Metallurgie, Brussels, Belgium

Filed Jan. 16, 1981, Ser. No. 225,711

Claims priority, application Luxembourg, Jan. 17, 1980, 82093; Belgium, Feb. 21, 1980, 881852

Int. Cl.³ B05D 1/10, 5/08, 7/22

U.S. Cl. 427-236

11 Claims

1. A method of improving the operation of a continuous casting nozzle, comprising coating the internal surface of the nozzle with a layer of a finely divided material constituting a coating which inhibits the deposition of non-metallic inclusions on the said surface during casting.

4,313,976

COMPOSITION AND PROCESS FOR COLORING AND PRESERVING WOOD

Robert M. Leach, Grand Island, N.Y., assignor to Osmose Wood Preserving Co. of America, Inc., Buffalo, N.Y.

Continuation-in-part of Ser. No. 73,518, Sep. 7, 1979, abandoned. This application Jun. 13, 1980, Ser. No. 159,196

Int. Cl.³ B05D 1/18, 3/00; C09D 5/16, 5/18

U.S. Cl. 427-297

41 Claims

1. A method for treating wood which simultaneously preserves the wood against wood destroying organisms and selectively colors the wood which comprises contacting the wood with an aqueous solution comprising: (a) a water soluble wood preservative containing any or all of the following heavy metals: copper, chromium, and zinc, and (b) one or more water soluble naphthalene derivatives having at least one sulfonyl group, at least one hydroxyl or amino group, and up to two additional groups selected from the group consisting of sulfonyl, hydroxyl and amino, wherein said groups are attached at any position around the naphthalene ring and the total number of said groups is not greater than 4.

4. The method of claim 1 or 3 wherein the final concentration of said preservative is between about 0.1% and 10.0% by weight.

5. The method of claim 4 wherein the final concentration of said naphthalene derivative is between about 0.01% and 2.0% by weight.

6. The method of claim 5 wherein the pH of the aqueous solution is maintained between about 0.5 to 3.0 by the addition of a sufficient quantity of a suitable acid.

39. The method of claim 6 wherein the aqueous solution is applied to the wood by a vacuum/pressure process, followed by drying the wood to a moisture content of about 20% or less.

4,313,977

REDUCED VOLATILITY OF A HALOGENATED PHENOL IN WOOD

Robert L. Johnson, and Ralph M. Gooch, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Nov. 28, 1980, Ser. No. 210,952

Int. Cl.³ B05D 1/18, 3/00, 3/04, 3/10

U.S. Cl. 427-342

16 Claims

1. A method for reducing the amount of halogenated phenol

vapor released by wood treated with the halogenated phenol, said method comprising the step of contacting the halogenated phenol treated wood with an organic compound containing cationic groups capable of forming a water-insoluble organic salt of the halogenated phenol in situ, wherein the organic, salt-forming compound is of the type and employed in an amount sufficient to reduce the halogenated phenol vapor released by the wood.

4,313,978

ANTISTATIC COMPOSITIONS AND TREATMENT
John Stevens; John S. Huizinga, both of Saint Paul, Minn., and Stephen Newman, Harlow, England, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Dec. 3, 1979, Ser. No. 99,638

Claims priority, application United Kingdom, Dec. 20, 1978, 49359/78

Int. Cl.³ B05D 3/02

U.S. Cl. 427-384

30 Claims

1. An antistatic composition comprising a mixture of (1) a fluorinated anionic surfactant, which surfactant is an amine salt of an acid containing a fluorinated organic radical, with (2) an antistatic agent, which agent is an ionic salt of an amine and an acid without a fluorinated organic radical wherein the anion molar % of the fluorinated organic radical is between 1.8% and 42.9% of the mixture.

15. A method of treating a surface to reduce the static charging thereon which comprises applying to said surface a mixture of (1) a fluorinated anionic surfactant which is an amine salt of an acid containing a fluorinated organic radical and (2) an antistatic agent which is an ionic salt of an amine and an acid without a fluorinated organic radical wherein the anion molar % of the fluorinated organic radical is between 1.8% and 42.9% of the mixture.

4,313,979

METHOD FOR IMPROVING ADHESION OF SILICONE RESIN COATING COMPOSITION

Robert B. Frye, Albany, and James T. Conroy, Green Island, both of N.Y., assignors to General Electric Company, Waterford, N.Y.

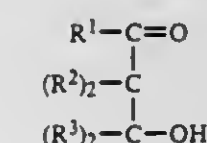
Filed Sep. 25, 1980, Ser. No. 190,812

Int. Cl.³ B05D 3/02

U.S. Cl. 427-387

17 Claims

1. A method for maintaining or rejuvenating initial adhesion to a thermoplastic acrylic-primed solid plastic substrate of an aqueous coating composition comprising a dispersion of colloidal silica in an aliphatic alcohol-water solution of the partial condensate of a silanol of the formula $\text{RSi}(\text{OH})_3$, wherein R is selected from the group consisting of alkyl having from 1 to 3 carbon atoms and aryl, at least 70 weight percent of the silanol being $\text{CH}_3\text{Si}(\text{OH})_3$, said composition containing 10 to 50 weight percent solids, said solids consisting essentially of 10 to 70 weight percent colloidal silica and 30 to 90 weight percent of the partial condensate, said composition also including a small, effective amount of a polysiloxane polyether copolymer and a small, effective amount of an ultraviolet screening agent, said method comprising adding a small effective amount of an aliphatic alcohol-water compatible liquid organic solvent for said partial condensate, said solvent also being capable of softening, but not dissolving said thermoplastic acrylic, said solvent being a β -hydroxy ketone having the structural formula:



wherein R¹ is a monovalent hydrocarbon radical of from 1 to

18 carbon atoms and R^2 and R^3 are, independently, a monovalent hydrocarbon radical of from 1 to 18 carbon atoms, or hydrogen.

4,313,980

METHOD AND DEVICE FOR SLIDE HOPPER MULTILAYER COATING

Karel S. Willemsens, Berchem, Belgium, assignor to Agfa-Gevaert N.V., Mortsel, Belgium

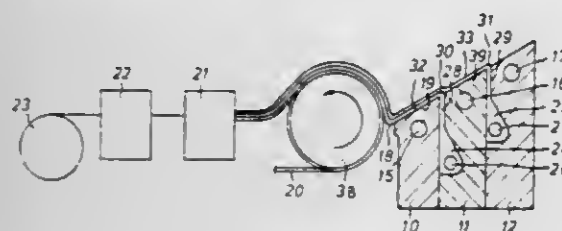
Filed Apr. 16, 1980, Ser. No. 140,732

Claims priority, application United Kingdom, Apr. 19, 1979, 13627/79

Int. Cl.³ B05D 1/30

U.S. Cl. 427—402

10 Claims



1. A slide hopper multilayer web coating method comprising feeding liquid coating composition through each of at least two mutually parallel delivery slots formed in an inclined surface on which the quantities of composition emerging from the slots form downwardly moving layers which leave such inclined surface, superimposed one on another, at a transverse terminal edge thereof which is parallel with such slots, and pass onto a web moving generally perpendicularly to the width of said slots, wherein the width of the layer issuing from the top slot is greater than the width of at least one other layer and is not exceeded by the width of any other layer and the width of the web is at least as great as the width of the widest of the slots.

4,313,981

METHOD OF FORMING A ROLL PROTECTIVE LAYER

Ryoichi Namiki, Hino, Japan, assignor to Ricoh Company, Ltd., Japan

Continuation of Ser. No. 46,621, Jun. 8, 1979, abandoned, which is a continuation of Ser. No. 844,060, Oct. 20, 1977, abandoned.

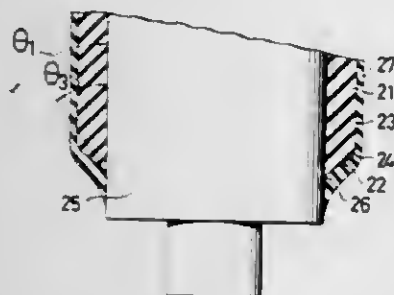
This application Aug. 25, 1980, Ser. No. 180,929

Claims priority, application Japan, Oct. 27, 1976, 51/129152

Int. Cl.³ B05D 1/02

U.S. Cl. 427—409

4 Claims



1. A method of forming a protective layer on an offset preventing roller for use in an electrophotographic copying machine, the roller being of the type having a cylindrical core metal, for protection of the surface of the roller from an offset preventing liquid, comprising the steps of providing, on the cylindrical core metal, a roll surface layer to be protected of a silicone rubber having a uniform diameter intermediate portion of a selected thickness and end portions at each end tapered in the axial direction of the roll from the intermediate portion to the core metal and terminating inwardly of the respective ends of the cylindrical core metal, rotating the cylindrical core roller and surface layer and spraying an oil-resistant fluorine-containing silicone rubber coating over the surface layer while rotating the cylindrical core-roller to form a protective layer

over the entire surface layer including said end portions and the cylindrical core metal beyond each end of said surface layer, and then applying room temperature vulcanized silicone rubber to the protective layer as an anti-offset layer.

4,313,982

ADJUSTING METHOD AND APPARATUS FOR A CYLINDRICAL ARTICLE PERIPHERAL SURFACE COATING MACHINE

Hideo Miura, Kawasaki, Japan, assignor to Toyo Seikan Kaisha, Ltd., Tokyo, Japan

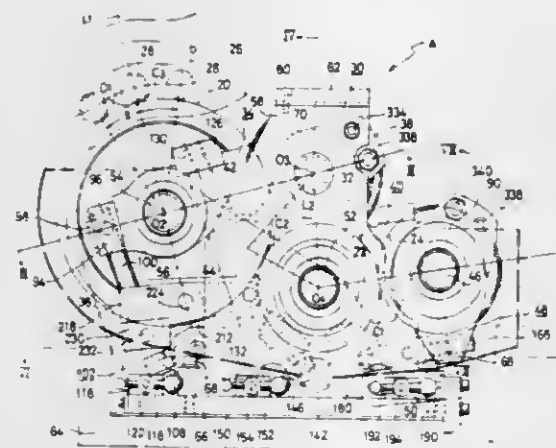
Filed Dec. 26, 1979, Ser. No. 107,233

Claims priority, application Japan, Jan. 30, 1979, 54-8673

Int. Cl.³ B05D 1/28; B05C 1/08

U.S. Cl. 427—428

4 Claims



1. An adjusting method for a cylindrical article peripheral surface coating machine of the type in which said cylindrical article peripheral surface coating machine includes a fountain means adapted to take up a coating solution, a transfer means in rolling contact with said fountain means through a receiving clearance adapted to receive the coating solution from said fountain means, and a coating means in rolling contact with said transfer means through a transfer clearance adapted to allow the coating solution to be transferred thereonto and also adapted to come into rolling contact through a coating clearance with the outer peripheral surface of a cylindrical article entering a coating zone while being conveyed on a separately travelling means to apply the coating solution to said outer peripheral surface, the adjusting method comprising adjusting and setting as desired said receiving clearance, said transfer clearance and said coating clearance each independently without affecting each other and, when a portion of said travelling means not carrying thereon the cylindrical article has approached said coating zone, subjecting said coating means, said transfer means and said fountain means to a collective displacement integrally to enlarge said coating clearance while leaving said transfer clearance and said receiving clearance intact without causing any change therein, said collective displacement of said coating means, transfer means and fountain means being a pivotal displacement on concentric arcs, and positioning and placing said transfer clearance on the opposite side to said travelling means and below a straight line which connects the center of said coating means with the center of said collective pivotal displacement for not contaminating said travelling means by the coating solution flying off from said transfer clearance, said collective pivotal displacement being effected with its pivotal center placed on a straight line meeting at right angles with a straight line which passes through the center of the coating zone of said travelling means and the center of said coating means.

2. An adjusting apparatus for a cylindrical article peripheral surface coating machine, comprising a first displacement control means connected to one end of a first bearing holder means the other end of which is pivoted idly to a pivot shaft means, said pivot shaft means extending horizontally through a stand frame and being positioned on a straight line which

4,313,984

LAMINATED IDENTITY CARD HAVING SEPARATION-RESISTANT LAMINAE AND METHOD OF MANUFACTURING SAME

Roland Moraw, and Renate Schädlich, both of Wiesbaden, Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

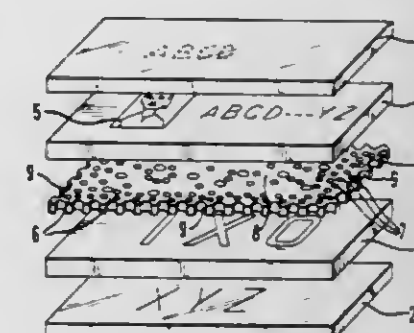
Filed Dec. 19, 1979, Ser. No. 105,258

Claims priority, application Fed. Rep. of Germany, Dec. 30, 1978, 2856833

Int. Cl.³ B32B 3/24, 27/06

U.S. Cl. 428—13

13 Claims



1. An identity card comprising at least one outer transparent thermoplastic cover layer formed of thermoplastic polymeric material laminated to a thermoplastic polymeric material core; said card carrying at suitable points information serving to identify the cardholder and security markings for protecting against forgeries; said core further comprising a perforated reinforcing support layer which is dimensionally stable under the conditions used to laminate the thermoplastic polymeric material and permeable to the thermoplastic polymer of the core, wherein marginal areas of the support layer are more heavily perforated than a central area of the support layer.

4,313,985

PLASTIC AUTO PART AND ITS MANUFACTURING PROCESS

Kozi Narita, Nagoya, Japan, assignor to Inoue Gomu Kogyo Kabushika Kaisha, Aichi, Japan

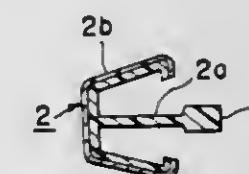
Continuation-in-part of Ser. No. 967,630, Dec. 8, 1978, abandoned. This application Nov. 14, 1980, Ser. No. 207,202

Claims priority, application Japan, Dec. 4, 1978, 53-166947

Int. Cl.³ B60R 13/00

U.S. Cl. 428—31

8 Claims



1. An automobile trim strip for attachment to a portion of an automobile formed from a rigid resin having a modulus of elasticity greater than 7,000 kg/cm² at 23° C., selected from the group consisting essentially of acrylonitrile-butadiene-styrene resin, acrylonitrile-styrene resin, polypropylene, polyphenylene oxide or polyvinyl chloride having up to 10% by weight of a plasticizer therein or a glass fiber reinforced resin thereof, said trim strip comprising a substrate having a welding portion means for ultrasonic weld attachment to said portion of an automobile, said welding portion means extending from said substrate, and a U-shaped metal foil layer covering a portion of said substrate wherein said welding portion means is positioned between the planes defined by the legs of the U of the U-shaped metal foil layer and said welding portion means does not contact said metal foil layer, and wherein said substrate and said welding portion means are formed from a rigid resin, having a modulus of elasticity greater than 7,000 kg/cm² at 23°

4,313,983

PROCESS FOR DEPOSITING LATEX FILMS ON METAL SURFACES

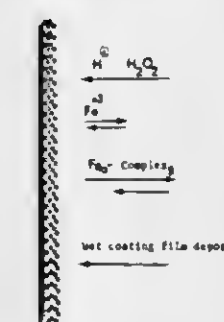
Mouhanad Chaker, 23 Moore Ct., Burlington, Vt. 05401

Continuation-in-part of Ser. No. 36,109, May 4, 1979, abandoned. This application Aug. 4, 1980, Ser. No. 175,302

Int. Cl.³ B05D 1/18

U.S. Cl. 427—435

6 Claims



1. An autodeposition process for coating a metallic surface which comprises preparing an aqueous solution substantially free of dissolved inorganic electrolyte, containing 2 to 30% by weight of cationically stabilized latex particles substantially free of hydrogen peroxide, adding to said aqueous solution about 10×10^{-3} to 300×10^{-3} mol per liter of hydrogen peroxide and about 10×10^{-3} to 300×10^{-3} mol per liter of an organic acid which is capable of forming charged metal complexes from metal ions, contacting said metallic surfaces with the said solution until a latex coating of a predetermined thickness has formed thereon.

C., selected from the group consisting essentially of acrylonitrile-butadiene-styrene resin, acrylonitrile-styrene resin, polypropylene, polyphenylene oxide, or PVC having up to 10% by weight of a plasticizer therein or a glass fiber reinforced resin thereof.

4,313,986

CHEMICALLY-RESISTANT ADHESIVES AND LABELS
Frank A. Magnotta, Framingham, Mass., assignor to Deenison Manufacturing Company, Framingham, Mass.

Continuation-in-part of Ser. No. 9,033, Feb. 5, 1979, Pat. No. 4,217,263, which is a continuation-in-part of Ser. No. 912,819, Jun. 5, 1978, Pat. No. 4,172,163. This application Dec. 7, 1979, Ser. No. 100,303

The portion of the term of this patent subsequent to Oct. 23, 1996, has been disclaimed.

Int. Cl.³ C09J 7/02

U.S. Cl. 428—40

26 Claims

1. An acid resistant member comprising a non-plasticized film of a polyvinyl chloride homopolymer secured at one side to a balanced biaxially oriented film and at the opposite side to a substrate by an adhesive, said adhesive comprising a binder selected from the class consisting of styrene isoprene copolymers and polyisobutylene elastomers having a Mooney viscosity index between about 35 and 55, a non-hydrolyzable resin tackifier, a non-hydrolyzable resin plasticizer, and a stabilizer, said binder and tackifier being present in a weight ratio in the range from about 1:1 to about 1:1.5, said tackifier and plasticizer being present in a weight ratio in the range from about 6:1 to about 15:1, and said stabilizer being present in a concentration in the range from about 0.5% to about 3% by weight of the binder and tackifier combined.

17. An adhesive composition comprising a binder selected from the class consisting of styrene isoprene copolymers and polyisobutylene elastomers, having a Mooney viscosity index in the range from about 35 to about 55, a non-hydrolyzable resin tackifier, a non-hydrolyzable resin plasticizer, and a stabilizer, said binder and tackifier being present in a weight ratio in the range from about 1:1 to about 1:1.5, said tackifier and plasticizer being present in a weight ratio in the range from about 6:1 to about 15:1, and said stabilizer being present in a concentration of about 0.5% to about 3% by weight of the binder and tackifier combined.

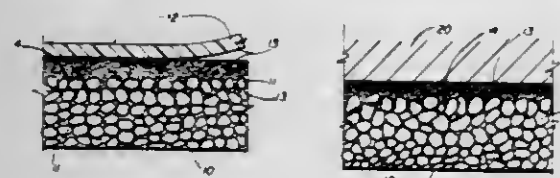
4,313,987

POLYSTYRENE VEHICLE BODY PROTECTOR SYSTEM
James L. McCormick, 467 W. Main St., Madison, Ohio 44057
Filed Feb. 28, 1980, Ser. No. 125,742

Int. Cl.³ B32B 3/12, 3/26, 31/00

U.S. Cl. 428—40

25 Claims



17. A foam panel vehicle body protector system comprising:
a. a series of polystyrene foam panels each sculptured to fit various areas of the exterior surface;
b. adhesive backing means formed on at least a portion of said interior surface for adhering each of said foam panels to preselected exposed portions of the vehicle body;
c. a protective layer secured temporarily to the adhesive means of the said polystyrene panels which can be easily removed so that the panel may be secured to the exterior surface of a vehicle.

4,313,988 **EPOXYPOLYSILOXANE RELEASE COATINGS FOR ADHESIVE MATERIALS**

Robert J. Kosbar, Mahtomedi, and Stephen W. Bany, St. Paul, both of MN, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of Ser. No. 124,634, Feb. 25, 1980. This application Dec. 15, 1980, Ser. No. 216,684

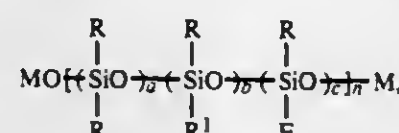
Int. Cl.³ C09J 7/04, 7/02; B32B 7/06

U.S. Cl. 428—40

24 Claims

1. A composite structure comprising a pressure-sensitive adhesive tape in which a backing is provided on one surface with a layer of normally tacky and pressure-sensitive adhesive and on the other surface with a low adhesion backsize which is the crosslinked, polymeric network reaction product of starting materials comprising

(1) a curable epoxypolysiloxane, in solution or in the form of 100% solids, which is represented by the formula,



wherein

R is a lower alkyl group or radical of one to three carbon atoms,

R¹ is a monovalent hydrocarbon radical of 4 to 20 carbon atoms,

E is a monovalent epoxy-containing hydrocarbon radical,

M is a silyl group R₃Si—, R₂R¹Si— or R₂ESi—, where R,

R¹, and E are defined above,

a is 5 to 200,

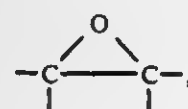
b is 0 or up to 20% of a,

a + b is 5 to 200,

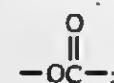
c may be 0 when M is R₂ESi— or is greater than 0 but less than 20% of the value of (a + b) when M is R₃Si—, R₂R¹Si— or R₂ESi—, and

n is 1 to 75;

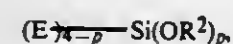
provided that the monovalent epoxy-containing hydrocarbon radical, E, contains at least one polymerizable epoxy group,



the remainder being composed of carbon and hydrogen free of acetylenic unsaturation and in addition to the oxirane oxygen can contain ether, —O—, or carbonyl oxygen,



(2) 0 to about 98% by weight of the epoxypolysiloxane described in (1) of an epoxy-terminated silane, which silane is represented by the formula,



wherein E is an epoxy-containing monovalent hydrocarbon radical defined above, p is 1 to 3 and R² can be an aliphatic hydrocarbon radical of less than 10 carbon atoms;

and said materials are cured in the presence of a catalytically effective amount of an epoxy curing catalyst.

17. A method of making a low adhesion backsize coating for a pressure sensitive adhesive tape, said coating affording accurately predictable and controllable release for a wide variety of

normally tacky and sensitive adhesives, which method includes the steps of:

a. blending together in a mutually compatible solvent system, to form a solution, components comprising

(1) a curable epoxypolysiloxane which is represented by the formula,



wherein

R is a lower alkyl group or radical of one to three carbon atoms,

R¹ is a monovalent hydrocarbon radical of 4 to 20 carbon atoms,

E is a monovalent epoxy-containing hydrocarbon radical,

M is a silyl group R₃Si—, R₂R¹Si—, or R₂ESi—, where R,

R¹, and E are defined above,

a is 5 to 200,

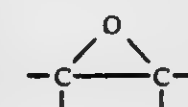
b is 0 or up to 20% of a,

a + b is 5 to 200,

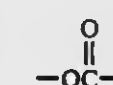
c may be 0 when M is R₂ESi— or is greater than 0 but less than 20% of the value of (a + b) when M is R₃Si—, R₂R¹Si— or R₂ESi—, and

n is 1 to 75;

provided that the monovalent epoxy-containing hydrocarbon radical, E, contains at least one polymerizable epoxy group,



the remainder being composed of carbon and hydrogen free of acetylenic unsaturation and in addition to the oxirane oxygen can contain ether, —O—, or carbonyl oxygen,



and

(2) 0 to about 98% by weight of the epoxypolysiloxane described in (1) of an epoxy-terminated silane wherein said epoxy-terminated silane is represented by the formula,



wherein E is an epoxy-containing monovalent hydrocarbon radical defined above, p is 1 to 3 and R² can be an aliphatic hydrocarbon radical of less than 10 carbon atoms,

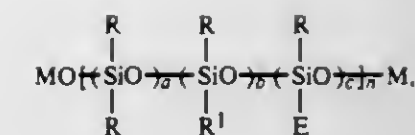
b. admixing an effective amount of an epoxy curing catalyst,

c. coating the pourable liquid to form a thin film upon a substrate, and

d. heating or irradiating to effect reacting and curing of (1) and (2).

22. A release liner in which a backing is provided on at least one surface with a thin release layer which is the crosslinked, polymeric network reaction product of starting materials comprising

(1) a curable epoxypolysiloxane, in solution or in the form of 100% solids, which is represented by the formula,



wherein

R is a lower alkyl group or radical of one to three carbon atoms,

R¹ is a monovalent hydrocarbon radical of 4 to 20 carbon atoms,

E is a monovalent epoxy-containing hydrocarbon radical,

M is a silyl group R₃Si—, R₂R¹Si—, or R₂ESi—, where R,

R¹, and E are defined above,

a is 5 to 200,

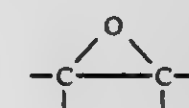
b is 0 or up to 20% of a,

a + b is 5 to 200,

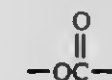
c may be 0 when M is R₂ESi— or is greater than 0 but less than 20% of the value of (a + b) when M is R₃Si—, R₂R¹Si— or R₂ESi—, and

n is 1 to 75;

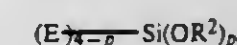
provided that the monovalent epoxy-containing hydrocarbon radical, E, contains at least one polymerizable epoxy group,



the remainder being composed of carbon and hydrogen free of acetylenic unsaturation and in addition to the oxirane oxygen can contain ether, —O—, or carbonyl oxygen,



(2) 0 to about 98% by weight of the epoxypolysiloxane described in (1) of an epoxy-terminated silane wherein said epoxy-terminated silane is represented by the formula,



wherein E is an epoxy-containing monovalent hydrocarbon radical defined above, p is 1 to 3 and R² can be an aliphatic hydrocarbon radical of less than 10 carbon atoms;

cured in the presence of a catalytically effective amount of an epoxy curing catalyst.

4,313,989

MAGNETIC RECORDING MEDIUM

Yoshihisa Suzuki; Takanoli Kaizuka; Yoshiaki Hanyu; Mituyoshi Otake, and Yoichi Hidano, all of Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 5, 1980, Ser. No. 118,742

Claims priority, application Japan, Feb. 9, 1979, 54-13349

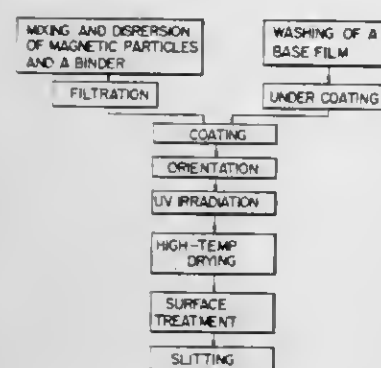
Int. Cl.³ B32B 3/02

U.S. Cl. 428—64

9 Claims

1. A magnetic recording medium comprising a support, a magnetic layer containing magnetic particles bonded by a polyurethane binder and being adhered to the support, and a metamorphosed layer, formed by irradiating the magnetic

layer with ultraviolet rays, which is derived from some of said polyurethane binder and is formed on the surface of the mag-



netic layer, whereby stickness of said medium is substantially prevented.

4,313,990

PILE WEATHERSTRIP

Timothy W. Franklin, Luton, England, and Paul G. Declercq, Kortrijk, Belgium, assignors to Schlegel (UK) Limited, Leeds, England

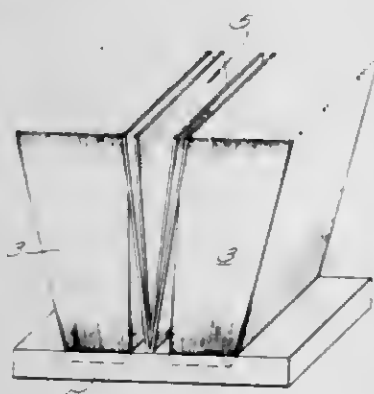
Filed Oct. 2, 1980, Ser. No. 193,121

Claims priority, application United Kingdom, Oct. 8, 1979, 34795/79; May 30, 1980, 17736/80

Int. Cl.³ D04H 11/00; E06B 7/22

U.S. Cl. 428—85

6 Claims



1. Pile weatherstripping comprising a backing strip, pile material projecting from one of the surfaces of said backing strip and including at least two V-shaped fins associated with said pile material, said at least two V-shaped fins extending away from said backing strip in the same direction as said pile material.

4,313,991

SEAM-COVERING DEVICE

Thomas R. Lamb, 3 Dennison Ave., Freeport, Me. 04032

Filed Mar. 31, 1980, Ser. No. 136,170

Int. Cl.³ B32B 3/02, 3/10

U.S. Cl. 428—131

7 Claims

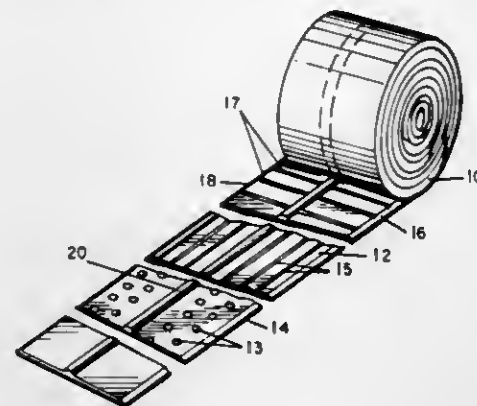
1. An improved plasterboard seam taping member for use at junctions between adjoining pieces of plasterboard where the plasterboard edges are slightly tapered comprising:

a body strip formed of planar plastic material having a front face, a rear face, and parallel side edges which have a taper toward said rear face;

adhesive means affixed to the rear of said body strip material to adhere said body strip to said plasterboard over the seams formed therebetween; and

a narrow projection approximately $\frac{1}{8}$ inch in height in the form of a bead having a top extending longitudinally parallel to said side edges upon the central portion of the front face of said strip, the top of said projection, when said body strip is adhered to the slightly tapered plasterboard edges at a junction between two sheets of plaster-

board, being higher than said body strip elevating the trowel applying plaster to the joint and causing a feather-



ing of the plaster outward from said projection to beyond the side edges of said body strip.

4,313,992

CENTRIFUGE SCREEN

Leonhard Spiewok, Wallisellen, Switzerland, assignor to Escher Wyss Limited, Zurich, Switzerland

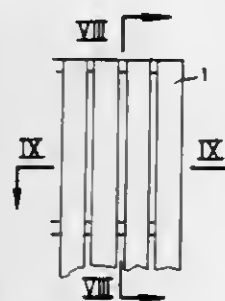
Continuation of Ser. No. 922,550, Jul. 7, 1978, abandoned. This application May 14, 1979, Ser. No. 38,866

Claims priority, application Switzerland, Jul. 22, 1977, 9104/77

Int. Cl.³ B04B 7/16; B32B 3/24

U.S. Cl. 428—136

6 Claims



1. A screen for the drum of a centrifuge comprising a supporting frame, and a plurality of transversely spaced screen bars which are oriented to extend axially of the drum for which the screen is intended, are made of a hard material, and serve to support material which is being centrifuged as the material moves axially through the drum, and characterized in that the frame is a perforated plate so constructed that it supports each bar over the entire length of the bar; and in that each bar is connected to the frame by an adhesive joint which also extends over the entire length of the bar.

3. A screen for the drum of a centrifuge comprising a supporting frame, and a plurality of transversely spaced screen bars which are oriented to extend axially of the drum for which the screen is intended, are made of a hard material, and serve to support material which is being centrifuged as the material moves axially through the drum, and characterized in that the frame is a grid having members which extend transversely of said screen bars and grating bars which extend axially of the screen bars and on which the screen bars rest, whereby the frame supports each bar over the entire length of the bar; and in that each bar is connected to the frame by an adhesive joint which also extends over the entire length of the bar.

4,313,993

LAMINATED INSULATION

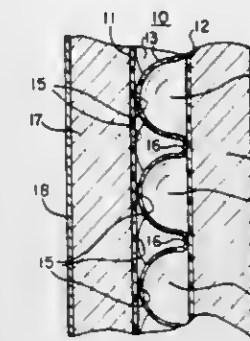
Joseph J. McGlory, 13 Kathryn Rd., Chalfont, Pa. 18914

Filed Apr. 14, 1980, Ser. No. 140,005

Int. Cl.³ B32B 3/00, 3/28, 5/32

U.S. Cl. 428—178

7 Claims



1. A laminated thermal insulation comprising a central impervious thermal insulating and reflecting layer comprising a synthetic plastic sheet formed and shaped to provide rows of air bubbles secured to at least one planar synthetic plastic sheet so as to enclose said air bubbles, panels on each side of said central layer of porous thermal insulating materials which permit air circulation there-through, said panels being selected from the group consisting of glass fibers and foamed synthetic plastic, and an outer cover in engagement with the outer faces of said panels.

4,313,994

HEAT TRANSFER LABELING

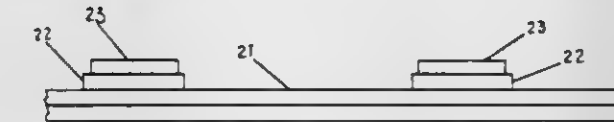
Katherine A. Kingston, Belmont, Mass., assignor to Dennison Manufacturing Company, Framingham, Mass.

Filed Oct. 24, 1979, Ser. No. 87,912

Int. Cl.³ B41M 3/12, 5/26

U.S. Cl. 428—200

11 Claims



1. A label for heat transfer labeling comprising a carrier; an imprinted, discontinuous, thermoplastic and resinous release layer on said carrier, said layer containing a repellent thermoplastic silicone material therein; and a transfer layer, including a design superimposed upon continuous portions of said release layer which is discontinuous elsewhere; said release layer having continuous portions, each with a border in conformity with the design of the transfer layer superimposed thereon; said release layer being carried with said transfer layer during the heat transfer step.

4,313,995

CIRCUIT BOARD AND METHOD FOR PRODUCING SAME

Joseph A. Delgadillo, Granada Hills, Calif., assignor to Fortin Laminating Corporation, San Fernando, Calif.

Division of Ser. No. 739,608, Nov. 8, 1976, Pat. No. 4,091,125.

This application Apr. 20, 1977, Ser. No. 789,194

Int. Cl.³ B32B 3/00

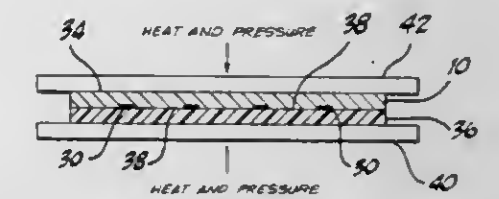
U.S. Cl. 428—201

4 Claims

1. A circuit board assembly comprising: a sheet of electrically conductive metal having a portion of the surface thereof containing a selectively roughened pattern in the configuration of a pre-determined electrically conductive circuit, said selectively roughened pat-

tern being honed such that no metal is added to and substantially no metal is taken away from said surface of said sheet; and

a resin coated substrate bonded to said sheet of electrically conductive metal by the application of heat and pressure to the assembly, said resin coated substrate being essen-



tially directly adherent to the roughened patterned portion of the surface of said sheet of electrically conductive metal and substantially nonadherent to the non-roughened portion of the surface of said sheet of electrically conductive metal whereby the non-roughened portion of the surface of said sheet of electrically conductive metal may be cut and removed from said resin coated substrate.

4,313,996

FORMABLE METAL-PLASTIC-METAL STRUCTURAL LAMINATES

Ritchey O. Newman; James K. Rieke, and Donald R. Wright, all of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed May 21, 1979, Ser. No. 41,441

Int. Cl.³ B32B 7/02, 15/08; B29C 19/00

U.S. Cl. 428—215

18 Claims

1. A metal-polymer-metal structural laminate comprising a core of polymeric resinous material having tightly adhered to each side thereof a metal skin layer wherein each metal skin layer is from about 2 to about 20 mils thick, said laminate further having a ratio of core thickness to skin thickness of less than 9:1, and a total thickness of from about 5 to about 65 mils; the materials of construction of said polymeric core and metal skins and the geometry of the laminate being such that the laminate has a flexural stiffness at least 40% that of the solid metal of the same thickness as measured by ASTM D790 on a one inch wide sample having four inch span under three point loading conditions, a density from about 25% to 90% that of the average of two solid metal skin layers, a limiting dome height of at least about 60 percent of the limiting dome height of the solid metal of the skin layer of the lower ultimate elongation having the same thickness, the capability of being subjected to a no load oven test, subsequent to forming of said laminate, at a temperature of at least 190° F. for a period of 30 minutes without delaminating, and the capability of being bent at room temperature to 90° to a critical radius without metal rupture, the critical radius defined as the distance from the pivot point to the inner skin surface of the laminate, being about equal to the total laminate thickness.

4,313,997

PERLITE BOARDS AND METHOD FOR MAKING SAME

David L. Ruff, Torrance, and Narikottile G. Nath, Carson, both of Calif., assignors to Grefco, Inc., Bala Cynwyd, Pa.

Filed Jul. 14, 1980, Ser. No. 168,483

Int. Cl.³ B32B 5/16, 11/02, 19/02

U.S. Cl. 428—220

14 Claims

1. A perlite board having a thickness greater than about 1 inch said perlite board comprising particles of expanded perlite and a binder having the property of permanent tackiness in the dry state.

4,313,998

TEXTILE ELEMENT AND WOVEN MATERIAL INTENDED IN PARTICULAR TO SERVE AS SUBSTRATE FOR A CATALYTIC MATERIAL, FOR INSTANCE A COMBUSTION CATALYTIC MATERIAL

Jean-Claude Pivot, Vourles, and Jean Aucagne, La Tour Du Pin,
both of France, assignors to Application Des Gaz, Paris,
France

Filed Oct. 3, 1979, Ser. No. 81,570

Claims priority, application France, Oct. 6, 1978, 78 29197

Int. Cl.³ D03D 13/00

U.S. Cl. 428—222

15 Claims



1. A catalyst assembly, comprising a substrate for the support of a catalytically active substance, said substrate comprising at least one complex filiform textile element comprised of fibers of an inorganic material wherein said fibers of an inorganic material extend in substantially the same direction as the complex filiform textile element, said fibers of the textile element being contained on the outside by an enveloping but open structure of metal, the total area of the openings of said open structure (So) being greater than the total area of the enveloping surface (Se) of said open structure covering the apparent peripheral surface of all of the fibers.

4,313,999

LAMINATE COMPOSITION COMPRISING POLYETHERIMIDE IMPREGNATED FABRIC

Raymond B. Hughes, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Sep. 16, 1980, Ser. No. 187,769

Int. Cl.³ B32B 7/00

U.S. Cl. 428—251

12 Claims

1. In a laminate composition comprising a ply of fabric material impregnated with a solid resin binder, the improvement wherein said resin binder comprises polyetherimide reaction product of aromatic bis(etheranhydride) with organic diamine, said reaction product being cross-linked with tri-functional isocyanate agent.

4,314,000

FIBER LUBRICANTS YIELDING LOW RESIDUES UPON OXIDATION

Basil Thir, Grosse Ile, Mich.; David D. Newkirk, Beaverton, Oreg.; Stephen E. Eisenstein, Oak Park, and William K. Langdon, Grosse Ile, both of Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed Nov. 3, 1980, Ser. No. 203,434

Int. Cl.³ C07C 43/30, 43/32; B05D 3/02; B32B 7/00

U.S. Cl. 428—265

23 Claims

15. A nylon or polyester fiber coated with a fiber lubricant comprising a condensation product of formaldehyde and an alkylene glycol, an alkylene oxide adduct thereof, and mixtures thereof, in which the alkylene radicals contain from 2 to 3 carbon atoms, said condensation product being present in an amount of from 0.05 weight percent to 5 weight percent based on the weight of lubricated fiber and such lubricant showing a volatility at a temperature of approximately 230° C. below 10 weight percent loss based on the weight of fiber lubricant and yielding a level of residue of less than two weight percent based on the weight of the fiber lubricant upon oxidation at the heater plate temperature.

4,314,001

NOVEL POLYMERIC COMPOUNDS, PROCESSES AND METHODS OF USE

Eugene P. Wesseler, Sharonville, Ohio, assignor to Sterling Drug Inc., New York, N.Y.

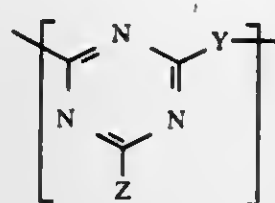
Filed Mar. 3, 1980, Ser. No. 126,995

Int. Cl.³ D06M 15/12; C08L 79/04; C08G 73/06; D21H 3/48

U.S. Cl. 428—393

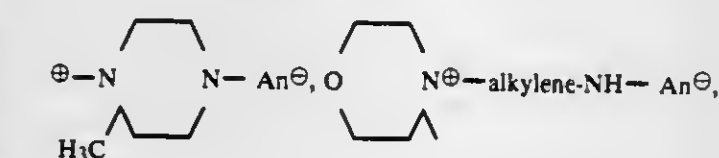
5 Claims

1. A method of softening fibers which comprises treating said fibers with a water-soluble polymeric quaternary ammonium compound consisting essentially of repeating units of the formula



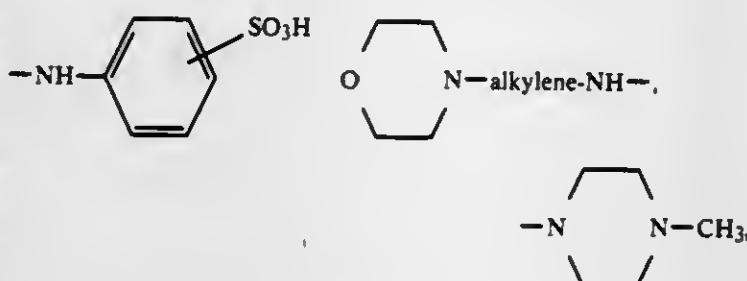
wherein:

Y represents a moiety selected from the group consisting of $\text{—N}^+(\text{CH}_3)_2\text{—alkylene—NR—An}^\ominus$,



and $\text{—N}^+(\text{CH}_3)_2\text{—alkylene—N}^+(\text{CH}_3)_2\text{—2An}^\ominus$;

Z represents a moiety selected from the group consisting of $\text{—N(R}^1\text{)—alkylene}^1\text{—N(R}^2\text{)}_2$, $\text{—N}^+(\text{CH}_3)_2\text{R}^3\text{An}^\ominus$,



$\text{—NH—alkylene}^1\text{—NR}^4\text{—alkylene}^1\text{—NH}_2$ in which alkylene and alkylene¹ are each selected from the group consisting of $\text{—CH}_2\text{CH}_2\text{—}$, $\text{—CH}_2\text{CH}_2\text{CH}_2\text{—}$ and $\text{—CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{—}$; R¹, R² and R⁴ are each selected from the group consisting of hydrogen and non-tertiary C₁ to C₄ alkyl; R³ is a non-tertiary C₁ to C₁₈ alkyl; and An[⊖] is a monovalent anion.

4,314,002

INSULATING LAMINATES COMPRISING ALTERNATING FIBER REINFORCED RESIN LAYERS AND UNREINFORCED RESIN LAYERS

Masayuki Oizumi, Kobe; Masana Goto, Miki; Minoru Ishiki, and Shoji Uozumi, both of Kobe, all of Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Jan. 29, 1980, Ser. No. 116,599

Claims priority, application Japan, Feb. 2, 1979, 54-11780

Int. Cl.³ B32B 15/08, 15/12, 15/14, 15/20, 23/08

U.S. Cl. 428—414

22 Claims

1. Insulating laminate for electric use consisting essentially of a plurality of cellulosic reinforced layers each fully impregnated with a thermoset resin, and unreinforced layers of a cured resin existing between and extending substantially over

the surface of the reinforced layers, wherein said layers of cured resin are substantially integral with the adjacent rein-



forcements, which are isolated from each other by said layers of cured resin.

4,314,003

METHOD OF INCORPORATING MULTIFILAMENT STRANDS OF CARBON FIBERS INTO CEMENT TO PRODUCE REINFORCED STRUCTURES HAVING IMPROVED FLEXURAL STRENGTHS

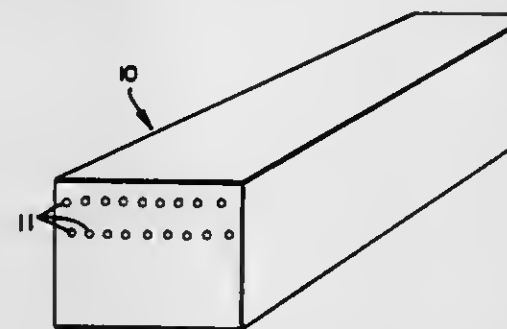
Richard D. Curnow, and Christopher G. Cowie, both of Bristol, England, assignors to Union Carbide Corporation, New York, N.Y.

Division of Ser. No. 100,456, Dec. 5, 1979, which is a continuation of Ser. No. 865,627, Dec. 29, 1977, abandoned. This application Apr. 25, 1980, Ser. No. 143,633

Int. Cl.³ D04H 3/02, 3/08; B32B 9/00, 13/02

U.S. Cl. 428—294

8 Claims



1. A reinforced cementitious structure having improved flexural strength comprising a cementitious matrix containing discrete cement particles reinforced with multifilament strands of carbon fibers characterized in that said carbon fibers are bonded to each other and to said cement particles surrounding said carbon fibers by a hydrophobic resin system which has been incorporated into said carbon fibers by impregnation and which has been cured simultaneously with said cementitious matrix.

5. A reinforced cementitious structure as in claim 1 wherein the strands of carbon fibers are arranged in parallel rows.

4,314,004

FLUOROCARBON RESIN COATED SUBSTRATES AND METHODS OF MAKING

Richard L. Stoneberg, Pittsburgh, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Jun. 26, 1980, Ser. No. 163,353

Int. Cl.³ B32B 11/04

U.S. Cl. 428—421

16 Claims

1. A method of providing a durable coated substrate, comprising the steps of:

- applying a pigmented coating composition to a substrate, said composition consisting essentially of from about 45% to about 85% of a fluorocarbon resin and from 15% to about 55% of a thermoplastic acrylic resin, on a resin solids basis, and having a PVC of from about 3% to about 55%, on a dry film basis; and
- applying a clear coating composition to the coated sub-

strate of step (a), said composition consisting essentially of from about 45% to about 85% of a fluorocarbon resin, and from about 15% to about 55% of a thermoplastic acrylic resin, on a resin solids basis; and

(c) baking the coated substrate of step (b) to cause the coatings to fuse together intimately in a bonding process to provide good intercoat adhesion and craze-resistance, thereby forming the coated substrate.

4,314,005

PROCESS FOR COATING FERROUS METAL ARTICLES AND RESULTING ARTICLES

Jose V. Arias, Apartado 51950 1050A, Caracas, Venezuela

Filed Jun. 12, 1980, Ser. No. 158,757

Int. Cl.³ B32B 15/04

U.S. Cl. 428—467

7 Claims

1. A process for thermo-chemically coating ferrous metal articles, comprising:

(1) forming a uniform composition consisting essentially of:

- 450 grams \pm 10% of magnesium oxide
 - 170 grams \pm 10% of zinc oxide
 - 80 grams \pm 10% of lead dioxide
 - 80 grams \pm 10% of lead pentoxide
 - 170 grams \pm 10% of chromium oxide
 - 200 grams \pm 10% of aluminum oxide
 - 240 grams \pm 10% of manganese oxide
 - 250 grams \pm 10% of cobalt oxide
 - 200 grams \pm 10% of vanadium oxide
 - 309 grams \pm 10% of copper oxide
 - 250 grams \pm 10% of powdered lithium
 - 185 grams \pm 10% of sodium hyposulphite
 - 3 liters \pm 10% of neatsfoot oil
 - 5 liters \pm 10% of African palm oil
 - 9.5 liters \pm 10% of heavy transmission oil of 160 to 170 density
 - 3 liters \pm 10% of creosote;
- (2) pre-heating a ferrous article to be treated to a temperature of about 678° C. in an oven with an oxidizing flame;
- (3) immersing the pre-heated ferrous article in, or otherwise contacting the surfaces of the pre-heated ferrous article with, the composition formed in step (1) for a minimum of 30 seconds; and
- (4) removing the ferrous article from contact with the composition formed in step (1) and allowing the article to cool.

4,314,006

FLEXIBLE DOCUMENT TRANSPORT BELT OF ETHYLENE PROPYLENE DIENE RUBBER

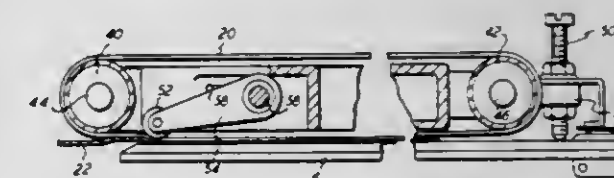
James A. Lentz, Penfield, and Joseph H. Moriconi, Rochester, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Jun. 26, 1980, Ser. No. 163,443

Int. Cl.³ B32B 25/08; C08D 9/12

U.S. Cl. 428—494

7 Claims



1. In a document handling apparatus, for moving documents into and out of copying position on the platen of a document copying machine, having a flexible document transport belt therein, the improvement which consists essentially of making said belt from an ethylene propylene diene rubber having a relatively stable coefficient of friction and having a relatively high resistance to attacks by environmental elements.

4,314,007

COMPOSITE SHAPED ARTICLES

Gernot Gessinger, Birmenstorf, Switzerland, assignor to BBC Brown, Boveri & Company Limited, Baden, Switzerland
Division of Ser. No. 826,987, Aug. 23, 1977, abandoned. This application Aug. 6, 1979, Ser. No. 63,818

Claims priority, application Switzerland, Aug. 26, 1976, 10828/76

Int. Cl.³ B32B 15/02; F01D 5/14
U.S. Cl. 428—614

22 Claims



1. A turbine blade which comprises a plurality of reinforcing cores of a heat resistant, oxide dispersion hardened alloy and a cladding of a heat resistant alloy which is compatible with said core material, said reinforcing cores each being individually wholly encapsulated and bonded to said cladding material wherein the ratio of cross-sectional area of said cores and said cladding area is from 0.05 to 2:1.

4,314,008

THERMOELECTRIC TEMPERATURE STABILIZED BATTERY SYSTEM

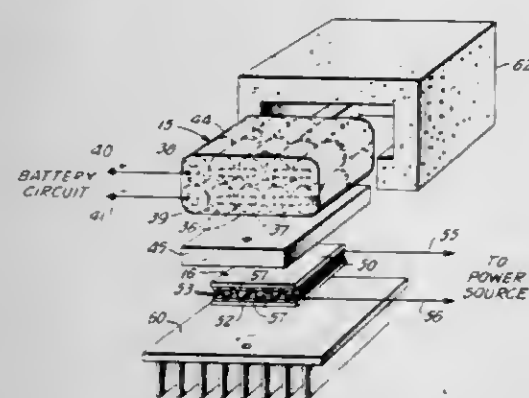
Charles R. Blake, El Segundo, Calif., assignor to General Electric Company, Gainesville, Fla.

Filed Aug. 22, 1980, Ser. No. 179,959

Int. Cl.³ H01M 14/00

U.S. Cl. 429—8

9 Claims



1. A temperature-stabilized battery system adapted for operation in an environment having a different temperature than the system, comprising:

- a battery having at least one electrochemical cell;
- a Peltier type heat pump module having a hot thermal transfer face, a cold thermal transfer face and means for transferring thermal energy therebetween, one of the thermal transfer faces being in thermal transfer relation to said battery;
- thermal insulation means surrounding at least a portion of said battery for reducing the flow of thermal energy to and from the battery; and
- a heat sink in thermal transfer relation to the other thermal transfer face of said heat pump module and exposed to the environment exterior to said battery for transferring thermal energy from said hot thermal transfer face to said cold thermal transfer face.

4,314,009
BATTERY

Hironosuke Ikeda, Hirakata, and Shigehiro Nakaido, Kobe, both of Japan, assignors to Sanyo Electric Co., Ltd., Moriguchi, Japan

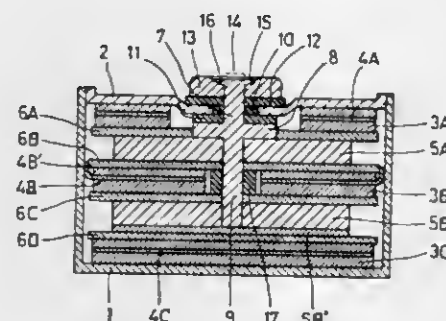
Filed Dec. 2, 1980, Ser. No. 212,204

Claims priority, application Japan, Dec. 7, 1979, 54/170028[U]; Dec. 7, 1979, 54/170029[U]; Jan. 30, 1980, 55-11062[U]

Int. Cl.³ H01M 2/26

U.S. Cl. 429—161

7 Claims



1. A battery comprising:

- an electrode assembly formed by alternately superposing each of at least two electrode plates having one polarity on at least one electrode plate having the other polarity with each of separator layers disposed therebetween;
 - a battery vessel for housing said electrode assembly and constituted by a metallic outer case and a metallic closure cover joined to said metallic outer case;
 - a collector rod having a flange located inside said closure cover, said collector rod passing through a through-bore formed in said closure cover, through an insulating member such that one end of said collector rod is projected from said closure cover; and
 - a metallic ring fitted to the projected portion of said collector rod with an insulating member disposed between said ring and said closure cover;
- the head of said projected portion of said collector rod being crushed, said crushed portion being embedded in a concave portion formed in the top surface of said ring, said at least two electrode plates having said one polarity being electrically connected to said battery vessel; said at least one electrode plate having said other polarity being electrically connected to said collector rod.

4,314,010

SOLID STATE CELL EMPLOYING AN ELECTRON DONOR-EMBEDDED ANODE

Demetrios V. Louzos, Rocky River, Ohio, assignor to Union Carbide Corporation, New York, N.Y.

Filed Sep. 29, 1980, Ser. No. 192,003

Int. Cl.³ H01M 4/60

U.S. Cl. 429—191

10 Claims

1. A solid state cell comprising an anode, a solid electrolyte and a charge transfer complex cathode in which the complex is the reaction product of a first electron donor and an electron acceptor; the improvement wherein a minor amount of a second electron donor in particulate form is at least partially embedded in the anode and said second electron donor being at least partially exposed to the electron acceptor so that it effectively provides a network extension of a complex cathode into the anode.

4,314,011

COLOR PHOTOGRAPHIC MATERIAL

Takashi Uchida; Takashi Sasaki; Sboji Kikuchi, all of Hino; Katsuo Mogaki, Odawara; Masahiko Taguchi, Odawara, and Syun Takada, Odawara, all of Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan
Division of Ser. No. 939,968, Sep. 6, 1978. This application Jun. 20, 1980, Ser. No. 161,608

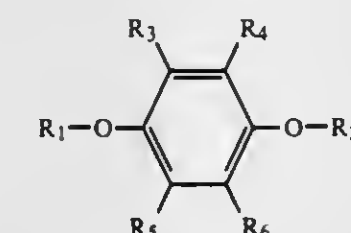
Claims priority, application Japan, Sep. 12, 1977, 52-110363

Int. Cl.³ G03C 5/24

U.S. Cl. 430—17

5 Claims

1. A color photographic material comprising a support and a hydrophilic layer containing a dye image which material contains a compound represented by the following formula (I):



Formula (I)

wherein R₁ and R₂ each represent an alkyl group, an alkenyl group, a cycloalkyl group, an aryl group or a heterocyclic ring, and when R₁ and R₂ both are an alkyl group, the sum of the carbon atoms of said alkyl group is not less than 3; two of R₃, R₄, R₅ and R₆ represent an alkyl, alkenyl or alkoxy group of up to 32 carbon atoms and the other two represent hydrogen; and each of said compound does not substantially react with the oxidized form of a developer to form a coloring dye.

4,314,012

PHOTOCONDUCTIVE REFLEX EXPOSURE MEMBER
Steven J. Grammatica, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.

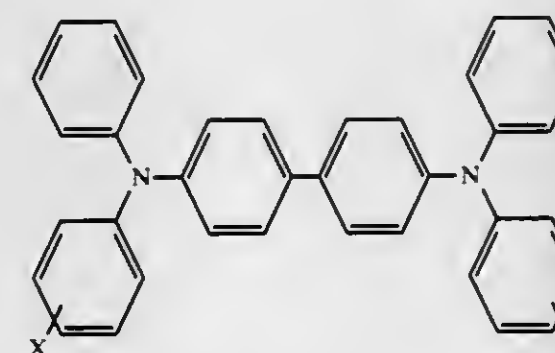
Filed Aug. 27, 1980, Ser. No. 182,173

Int. Cl.³ G03C 5/10; G03G 5/10, 5/14

U.S. Cl. 430—31

16 Claims

1. A reflex exposure imaging member comprising a transparent conductive support member, a photoconductive layer disposed on said conductive support member and an optical screen disposed between said photoconductive layer and said support member, said photoconductive layer comprising an insulating resinous binder material containing from about 0.1 to about 1 part by weight of a benzidine compound per part of insulating resinous binder material and having the formula:



where X is a member selected from the group consisting of alkyl having 1 to 4 carbon atoms, resinous binder, and about 0.001 to 10 salts percent by weight, based on the weight of the benzidine compound, of a salt selected from the group consisting of pyrylium salts, thiapyrylium salts and selenapyrylium salts, said photoconductive layer having a thickness of from about 5 to about 20 microns and an optical density of from about 0.1 to about 0.8.

4,314,013

PARTICLE FORMATION BY DOUBLE ENCAPSULATION

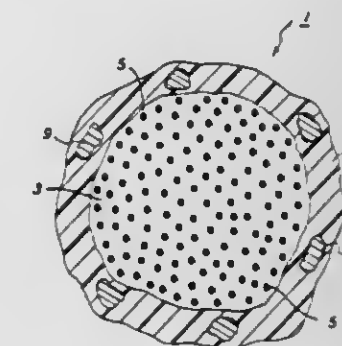
Yew C. Chang, Oakville, Canada, assignor to Xerox Corporation, Stamford, Conn.

Filed Apr. 4, 1979, Ser. No. 27,176

Int. Cl.³ G03G 17/04; 204 181:32

U.S. Cl. 430—37

11 Claims



1. In an imaging process comprising providing first and second surfaces, sandwiching between said surfaces an imaging suspension comprising electrically photosensitive particles dispersed in an electrically insulating liquid vehicle, while subjecting said suspension to an electrical field, exposing said imaging suspension to a pattern of electromagnetic radiation to which said particles are sensitive and separating the surfaces whereby the exposed particles are retained on one of said surfaces and the unexposed particles are retained on the other surface, the improvement wherein said particles comprise double encapsulated particles comprising a colorant encapsulated in a first resin and second resin encapsulating said first resin, said second resin having embedded therein electrically photosensitive material, and said first resin capable of substantially preventing dark charge injection of said photosensitive material by said colorant.

4,314,014

ELECTROPHOTOGRAPHIC PLATE AND PROCESS FOR PREPARATION THEREOF

Hideaki Yamamoto, Hachioji; Akio Taniguchi, Hino; Shinkichi Horigome, Tachikawa; Susumu Saito, Hachioji; Yoshiaki Mori, Tokyo, and Eiichi Maruyama, Kadaira, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 11, 1980, Ser. No. 158,369

Claims priority, application Japan, Jun. 15, 1979, 54-74661; Oct. 19, 1979, 54-134163

Int. Cl.³ G03G 5/08, 5/082

U.S. Cl. 430—57

20 Claims

1. An electrophotographic plate having a substrate and a laminated structure of Se layers on said substrate, at least the surface of the substrate nearer said laminated structure being electrically conductive, the laminated structure comprising, in the following sequence,

- (a) a first Se layer containing 3 to 10% by weight As and having a thickness in a range 20 nm—1 μm,
- (b) a second Se layer containing 40 to 47% by weight Te and 3 to 10% by weight As and having a thickness in a range 60 nm—300 nm,
- (c) a third Se layer which contains at least one member selected from the group consisting of As at maximum concentration of 30 to 40% by weight and Ge at maximum concentration of 10 to 30% by weight and having a thickness in a range 60 nm—200 nm, said third Se layer having a bandgap intermediate between the respective bandgaps of said second layer and a fourth layer, and
- (d) a fourth layer which is an Se layer containing up to 10% by weight of As,

wherein either the first layer or said fourth layer is nearest to the said electrically conductive surface of the substrate.

whereby said plate has a sensitivity to beams having a wavelength of 550-800 nm.

4,314,015

ELECTROPHOTOGRAPHIC SENSITIVE MATERIALS CONTAINING DISAZO COMPOUNDS

Mitsuru Hashimoto, Hino; Kiyoshi Sakai, Tokyo; Masafumi Ohta; Akio Kozima, both of Yokohama; Masaomi Sasaki, Kawasaki, and Kyoji Tsutsui, Tokyo, all of Japan, assignors to Ricoh Co., Ltd., Tokyo, Japan

Division of Ser. No. 925,157, Jul. 17, 1978. This application Dec. 19, 1980, Ser. No. 218,382

Claims priority, application Japan, Jul. 18, 1977, 52-84976; Jul. 18, 1977, 52-84977; Jul. 19, 1977, 52-86255; Jul. 22, 1977, 52-87351

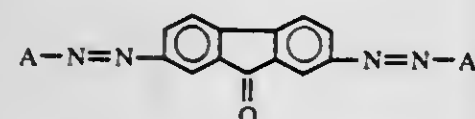
Int. Cl.³ G03G 5/06

U.S. Cl. 430-58

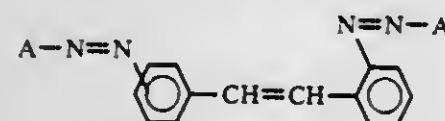
16 Claims

5. An electrophotographic material which comprises an electrically conductive support and a photosensitive layer formed thereon, said photosensitive layer consisting essentially of fine particles of disazo pigment selected from the group consisting of disazo pigments having the formulas I and III,

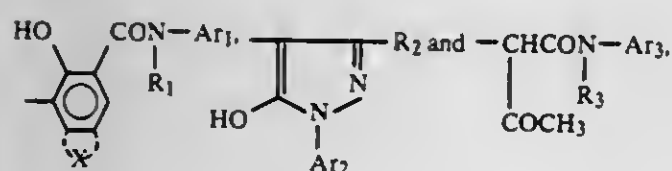
formula I:



formula III:



wherein A is selected from the group consisting of



wherein X

is a fused ring selected from the group consisting of benzene ring, halobenzene ring, naphthalene ring, indole ring, carbazole ring and benzofuran ring; Ar_1 is a member selected from the group consisting of phenyl, methylphenyl, methoxyphenyl, chlorophenyl, nitrophenyl, ethoxyphenyl, methylchlorophenyl, dimethylphenyl, methoxychlorophenyl, methoxybromophenyl, methoxymethylphenyl, dimethoxyphenyl, dimethoxychlorophenyl, dimethylaminophenyl, cyanophenyl, carboxyphenyl, benzenesulfonic acid sodium salt, tert-butoxyphenyl, naphthyl, methoxydibenzofuryl and carbazolyl; each of Ar_2 and Ar_3 is a member selected from the group consisting of phenyl, naphthyl, methoxyphenyl, methylphenyl, acetylaminophenyl, dimethylaminophenyl, cyanophenyl, nitrophenyl, dinitrophenyl, chlorophenyl, trichlorobenzenesulfonic acid, benzenesulfonic acid and benzenesulfonamide; each of R_1 and R_3 is a member selected from the group consisting of hydrogen, methyl, ethyl, phenyl and chlorophenyl; and R_2 is a member selected from the group consisting of methyl, carboxyl and $-\text{COOC}_2\text{H}_5$; a charge-transfer substance and a resinous binder.

4,314,016 ELECTROPHOTOGRAPHIC ELEMENT HAVING A BISAZO PHOTOCONDUCTOR

Masafumi Ohta; Mitsuru Hashimoto, and Kyoji Tsutsui, all of Tokyo, Japan, assignors to Ricoh Co., Ltd., Tokyo, Japan

Filed Jun. 11, 1980, Ser. No. 158,436

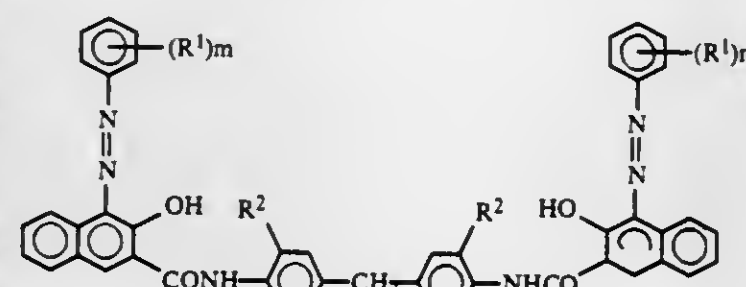
Claims priority, application Japan, Jun. 20, 1979, 54-78346

Int. Cl.³ G03G 5/06

U.S. Cl. 430-59

24 Claims

1. An electrophotographic element comprising: an electrically conductive layer; a charge generation layer on the electrically conductive layer, the charge generation layer having a thickness of from 0.01μ to 5μ and comprising particles of disazo pigment having a particle size of 5μ or less, said disazo pigment having the formula;



wherein

R^1 is hydrogen, chlorine, bromine, methyl, ethyl, methoxy, ethoxy, nitro, dimethylamino, diethylamino or phenyl; m and n are each an integer of 1 or 2 and the R^1 groups are the same or different when m and n are 2; and

R^2 is hydrogen or chlorine;

and a charge transport layer adjacent the charge generation layer, the charge transport layer having a thickness of from 3μ to 50μ and comprising a polymeric binder.

4,314,017

DEVELOPER WITHOUT CARRIER POWDER HAVING AN IMPROVED TRIBOELECTRIC CHARGING PROPERTY

Tohru Takahashi; Tsutomu Toyono; Junichiro Kanbe, all of Tokyo; Shunji Nakamura, and Yasuyuki Tamura, both of Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 19, 1979, Ser. No. 5,018

Claims priority, application Japan, Jan. 26, 1978, 53-7705

Int. Cl.³ G03G 9/08

U.S. Cl. 430-109

12 Claims

1. A developer without carrier powder and composed of colored insulating particles for developing an electrostatic image, wherein at least the external surface of each particle comprises two different areas of which one area constitutes a major portion of said external surface and comprises an element defining the polarity of the triboelectric charge of said particle to a determined polarity while the other area comprises an element capable of being easily separated from said particle, transferred to a surface of a developing device and charged in a polarity opposite to that of said particle, wherein the surface area ratio of said one area to said other area is within a range of 5:1 to 500:1.

10. A developer according to claim 1, wherein said element for defining the polarity of the triboelectric charge is a binder resin.

4,314,018 CLEANING PROCESS FOR AN ELECTROSTATIC COPYING APPARATUS

Shoji Matsumoto, Neyagawa; Toshikazu Matsui, Kishiwada; Toshimitsu Ikeda, Higashiosaka; Nobuhiko Kozuka, Suita; Hitoshi Nishihama, Uji, and Tatsuo Aizawa, Osaka, all of Japan, assignors to Mita Industrial Company, Ltd., Osaka, Japan

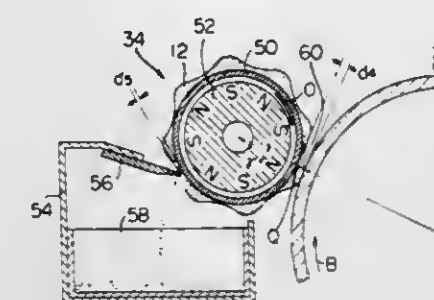
Division of Ser. No. 895,465, Apr. 11, 1978, Pat. No. 4,254,202.

This application Oct. 26, 1979, Ser. No. 88,654

Int. Cl.³ G03G 13/22, 21/00

U.S. Cl. 430-125

3 Claims



1. An electrostatic copying process which comprises (1) the step of forming an electrostatic latent image on the surface of a photosensitive member having a photoconductive layer, (2) the step of developing the electrostatic latent image by applying a monocomponent developer composed of a conductive or semiconductive fine magnetic powder to the electrostatic latent image to form a toner image on the surface of the photosensitive member, (3) the step of transferring the toner image by conveying a receptor sheet to a transfer station and successively contacting the surface of the photosensitive member closely with the surface of the receptor sheet at the transfer station to transfer the toner image to the surface of the receptor sheet, (4) the step of fixing the toner image by separating the receptor sheet from the surface of the photosensitive member and fixing the toner image transferred onto the surface of the receptor sheet, (5) the step of eliminating electrostatic charge from the photosensitive member by irradiating the surface of the photosensitive member with an electrostatic eliminating lamp after the toner image has been transferred to the receptor sheet, and (6) the step of cleaning the surface of the photosensitive member by removing the developer remaining on the surface of the photosensitive member after the electrostatic charge eliminating step, said step of removing the developer being carried out by providing a developer-holding member, magnetically holding the same kind of developer as used in the developing step on the surface of said developer-holding member by providing a stationary magnet disposed within the developer-holding member, moving the surface of the developer-holding member in a direction opposite to the moving direction of the surface of the photosensitive member while contacting the two surfaces through the layer of the developer, whereby the surface of the photosensitive member is mechanically brushed by the layer of the developer, said developer-holding member being a rotatable hollow cylindrical sleeve, said magnet being a roll-like permanent magnet having a plurality of magnetic poles, and one of the magnetic poles which is located most closely to a position at which the surface of the developer-holding member is closest to the surface of the photosensitive member being positioned, during cleaning, downstream in the rotation direction of the developer-holding member by a certain angle with respect to the position at which the two surfaces are closest to each other.

4,314,019 TRANSITION METAL PHOTOREDUCTION SYSTEMS AND PROCESSES

Anthony Adin, Rochester, and James C. Fleming, Webster, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 720,873, Sep. 7, 1976, Pat. No. 4,201,588, Division of Ser. No. 618,186, Sep. 30, 1975, abandoned, and a continuation-in-part of Ser. No. 618,186, Sep. 30, 1975, abandoned, which is a continuation-in-part of Ser. No. 461,057, Apr. 15, 1974, abandoned. This application Aug. 2, 1979, Ser. No. 63,643

The portion of the term of this patent subsequent to May 6, 1997, has been disclaimed.

Int. Cl.³ G03C 1/72

U.S. Cl. 430-202

3 Claims

1. In an integral imaging element comprising a support, a radiation-sensitive layer capable of generating amines and an image-recording layer distinct from said radiation-sensitive layer and responsive to said amines to form an image corresponding to that of the imagewise exposure of said radiation-sensitive layer, said layers being disposed on said support; the improvement wherein said radiation-sensitive layer comprises, in chemical association, (a) a reducible, inert cobalt(III) complex free of a sensitizable anion and containing amine ligands, and (b) a quinone capable of forming in the absence of a cobalt(III) complex, upon exposure to activating radiation longer than 300 nanometers in wavelength, a reducing agent that forms a redox couple when associated with said complex, said quinone incorporating one or more labile hydrogen atoms.

4,314,020

COLOR TRANSFERS ASSEMBLAGES WITH TWO TIMING LAYERS AND A NEUTRALIZING LAYER

Kenneth J. Reed; Patrick H. Saturno, both of Rochester, and Gerald L. Ducharme, Naples, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 4, 1980, Ser. No. 175,224

Int. Cl.³ G03C 7/00, 5/54, 1/40

U.S. Cl. 430-215

29 Claims

1. In a photographic assemblage comprising: (a) a support having thereon at least one photosensitive silver halide emulsion layer having associated therewith a dye image-providing material; (b) a dye image-receiving layer; (c) a neutralizing layer for neutralizing an alkaline processing composition; (d) a first timing layer located between said neutralizing layer and said photosensitive silver halide emulsion layer; and (e) a second timing layer located between said first timing layer and said neutralizing layer; said first and second timing layers being so located that said processing composition must first permeate said timing layers before contacting said neutralizing layer, said neutralizing layer being located on the side of said second timing layer which is farthest from said dye image-receiving layer, the improvement wherein: (i) said first timing layer contains photographic addenda for substantially terminating development of said silver halide emulsion layer; and (ii) said second timing layer being capable of being permeated by said alkaline processing composition only after said silver halide development has been substantially terminated.

4,314,021

PHOTOGRAPHIC ELEMENT HAVING A LAYER OF LIPID COMPOUND

David F. O'Brien; Thomas H. Whitesides, and Richard T. Klingbiel, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 11, 1980, Ser. No. 176,731
Int. Cl.³ G03C 1/68

U.S. Cl. 430—270

17 Claims

1. A photographic element comprising a support having thereon a layer comprising a monomeric lipid having at least one hydrophobic acyl chain containing at least two conjugated acetylenic linkages.

4,314,022

PHOTORESIST DEVELOPERS AND PROCESS

Richard S. Fisch, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 5, 1980, Ser. No. 146,642

Int. Cl.³ G03C 5/00

U.S. Cl. 430—326

10 Claims

1. A process for forming an image on a photosensitive element comprising (1) a substrate, (2) a metal containing layer on said substrate, and (3) a photoresist layer on said aluminum containing layer, which photoresist layer becomes differentially soluble in aqueous alkaline solution in light struck versus non-light struck areas, said process comprising exposing said element to light of sufficient intensity to cause light struck and non-light struck areas of said photoresist to become differentially soluble in aqueous alkaline solution and then developing said element by agitating the element in contact with a developing solution comprising an aqueous alkaline solution having a pH of from 12.5 to 13.7 containing an alkali metal hydroxide and a chelating agent for aluminum ion having a stability constant of greater than 6.7.

4,314,023

PHOTOGRAPHIC SILVER HALIDE MATERIALS CONTAINING YELLOW COUPLER

Tamotsu Kojima, Kokubunji; Hiroyuki Imamura, Hachioji; Mitsuto Fujiwara, Hachioji; Wataru Fujimatsu, Hachioji, and Takaya Edo, Hino, all of Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 410,361, Oct. 29, 1973, abandoned, which is a continuation-in-part of Ser. No. 315,667, Dec. 15, 1972. This application Nov. 24, 1980, Ser. No. 210,135

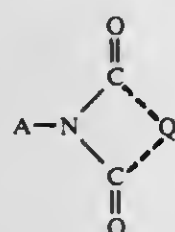
Claims priority, application Japan, Dec. 17, 1971, 46-101848; Dec. 17, 1971, 46-101850; Mar. 15, 1972, 47-25754

Int. Cl.³ G03C 7/00, 1/40

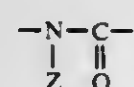
U.S. Cl. 430—389

3 Claims

1. A process for forming a yellow dye image, which comprises bringing a yellow coupler having the formula



wherein A is a yellow coupler residue defined by removing one hydrogen atom of an active methylene group from a yellow coupler having the active methylene group; Q is a group having a formula



wherein Z is a hydrogen atom or an alkyl, aryl or aralkyl

group; into contact with exposed silver halide crystals in the presence of a color developer for said silver halide crystals.

4,314,024

STABILIZED PHOTOGRAPHIC EMULSION, A PROCESS FOR ITS PREPARATION AND STABILIZED PHOTOGRAPHIC MATERIALS

Herbert Gernert, Munich, Fed. Rep. of Germany, assignor to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jul. 30, 1980, Ser. No. 173,709

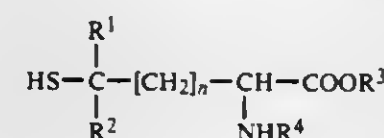
Claims priority, application Fed. Rep. of Germany, Aug. 4, 1979, 2931690

Int. Cl.³ G03C 1/34

U.S. Cl. 430—564

8 Claims

1. Photographic silver halide emulsions wherein at the most 9 mg per mol of silver halide of at least one compound corresponding to the general formula I are contained:



in which

R¹ represents hydrogen or an alkyl, aryl, aralkyl or acyl group;

R² represents an alkyl, aryl, aralkyl or acyl group;

R³ represents hydrogen or a cation;

R⁴ represents hydrogen or an alkyl group and

n represents 0 or a whole number, and/or

R¹ and R² together represent the atoms required to complete a ring,

and/or the corresponding disulphide.

4,314,025

BLOOD PRESERVATION ANTICOAGULANT SOLUTION

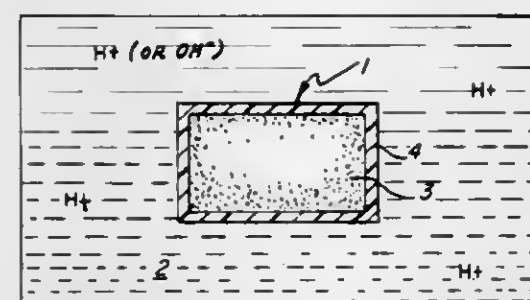
John P. McCue, San Diego, Calif., assignor to SBR Lab, Inc., Elgin, Ill.

Division of Ser. No. 892,371, Apr. 4, 1978. This application Jun. 25, 1979, Ser. No. 51,697

Int. Cl.³ A01N 1/02

U.S. Cl. 435—2

1 Claim



1. An anticoagulant solution for preservation of whole blood under blood banking conditions comprising an admixture of an anticoagulant solution selected from ACD and CPD solutions with sufficient MgCl₂ to provide from 0.01 to 5 millimoles Mg⁺² ion in the resultant mixture of collected blood and anticoagulant.

4,314,026

PROCESS FOR DETERMINING THE COMPLEMENT-DEPENDENT CYTOTOXICITY MEDIATED BY ANTI-HLA ANTIBODIES BY MEANS OF ATP DETERMINATION AND DEVICE FOR ATP DETERMINATION

Beatrice Descamps-Latscha, Paris, France, assignor to Institut National de La Sante et de La Recherche Medicale, Paris, France

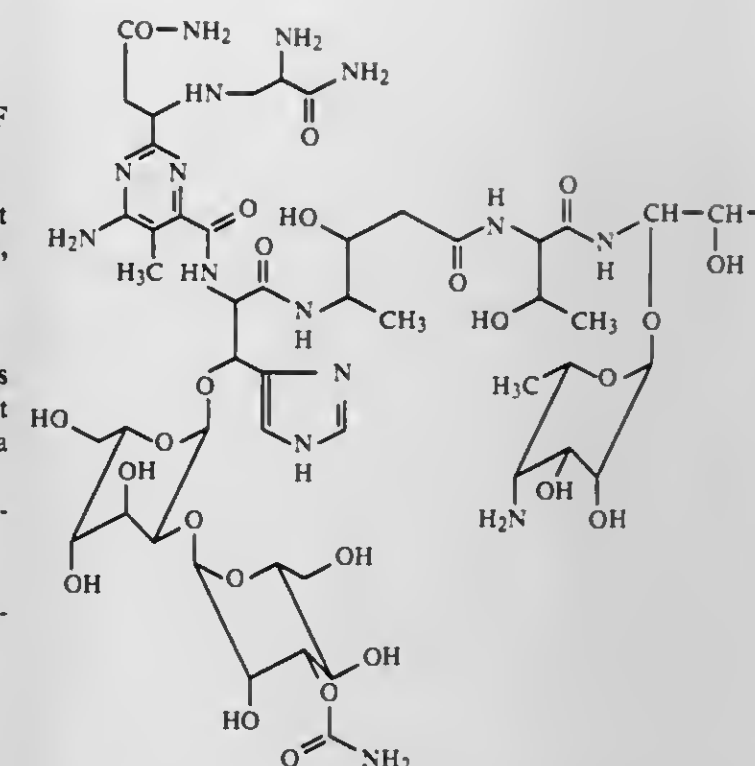
Filed Mar. 31, 1980, Ser. No. 136,056

Int. Cl.³ C12Q 1/66; G01N 33/54

U.S. Cl. 435—7

7 Claims

1. A process for determining the complement-dependent cytotoxicity mediated by anti-HLA antibodies contained in a test serum comprising: combining target cells and test serum under conditions resulting in anti-HLA-coated target cells, adding complement to the combined cells and serum, incubating under conditions suitable for demonstrating cytotoxicity, measuring the ATP loss from the target cells, and comparing the measured value with a standard.



4,314,027

METHOD OF DETECTING MOLD TOXIN INFECTED GRAINS

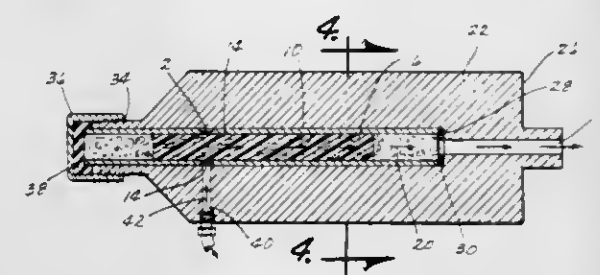
Henry M. Stahr, Ames, Iowa, assignor to Iowa State University Research Foundation, Inc., Ames, Iowa

Filed Jul. 21, 1980, Ser. No. 170,726

Int. Cl.³ B01D 15/08

U.S. Cl. 435—34

4 Claims



1. A pattern recognition method of detecting mold and fungal infected grains, comprising: stripping a gaseous sample from the grain which is representative of volatiles which are produced within the grain, collecting said gaseous sample volatiles on a gas absorbing substance, determining by gas chromatographic analysis if said gaseous samples contain C₇ to C₉ aldehyde, alcohol or ketone volatiles known to be produced by fungal and mold species, in infected grains.

4,314,028

FERMENTATION PROCESS FOR PRODUCING TALLYSOMYCIN COMPOUNDS

Takeo Miyaki; Osamu Tenmyo; Masataka Konishi, all of Yokohama, and Hiroshi Kawaguchi, Tokyo, all of Japan, assignors to Bristol-Myers Company, New York, N.Y.

Division of Ser. No. 57,528, Jul. 13, 1979, Pat. No. 4,246,400.

This application Jan. 3, 1980, Ser. No. 109,427

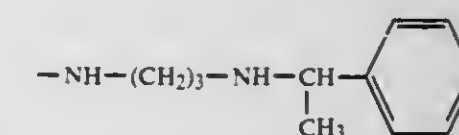
Int. Cl.³ C12P 19/58

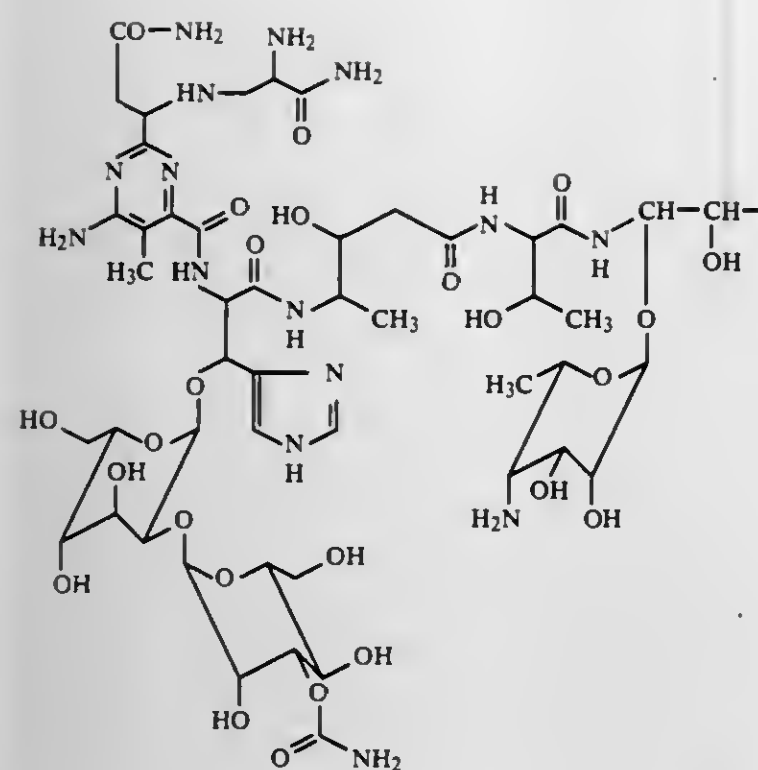
U.S. Cl. 435—77

3 Claims

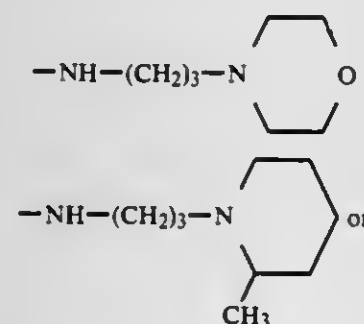
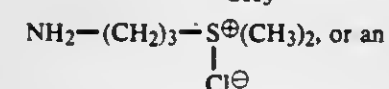
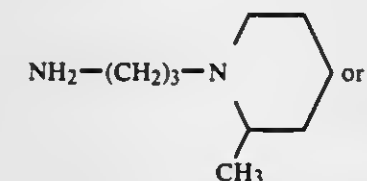
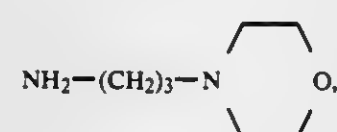
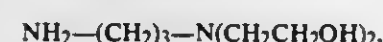
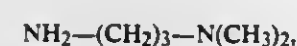
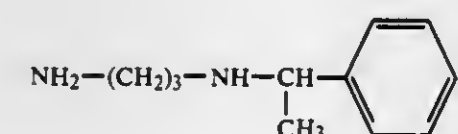
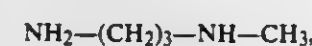
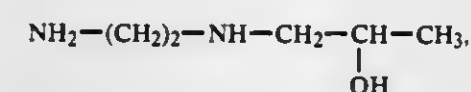
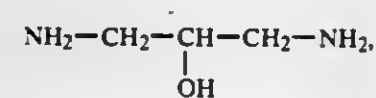
1. A process for producing a tallysomyacin derivative selected from the group consisting of (1) a tallysomyacin A derivative of the formula

or a pharmaceutically acceptable acid addition salt thereof, and (2) a tallysomyacin B derivative of the formula



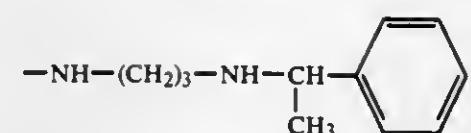


or a pharmaceutically acceptable acid addition salt thereof, which comprises cultivating a tetracycline-producing strain of *Streptotolactone hindustanus* in an aqueous nutrient medium in the presence of an amine-precursor compound having the formula



inorganic acid addition salt thereof, said amine-precursor compound corresponding to the terminal amine R group of the desired derivative, until a substantial amount of the desired tetracycline derivative is produced by said organism in said culture medium and recovering the desired tetracycline derivative from the culture medium substantially free of co-produced substances.

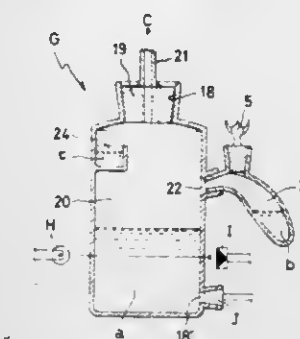
-continued



4,314,029
APPARATUS FOR AUTOMATICALLY MEASURING CHANGES IN AMOUNT OF GAS
 Yukio Ohtake, and Masahiro Nakamura, both of Tokyo, Japan, assignors to Ohtake Works Company, Ltd., Tokyo, Japan
 Filed Feb. 1, 1980, Ser. No. 117,736
 Claims priority, application Japan, Feb. 7, 1979, 54-12283
 Int. Cl.³ C12M 1/34

U.S. Cl. 435-291

10 Claims



1. Apparatus for automatically measuring changes in oxygen absorption during material activity such as changes in enzyme activity, photosynthesis of plants, and biochemical oxygen demand, comprising a closed vessel means having a main chamber in which an activity material whose activity is to be measured is contained, said vessel also having a subchamber in which a liquid substrate is contained, a shelf provided on the upper inner surface of said vessel means for housing an absorbent, a pressure sensing means attached to said closed vessel means for converting a change in oxygen partial pressure within said vessel means into an electric signal and outputting a measured oxygen partial pressure value signal, and an arithmetic circuit means for effecting calculation according to a predetermined numerical expression stored in advance after inputting said measured oxygen partial pressure value signal and for outputting a calculation data signal.

4,314,030
TEST TUBE FOR THE EXAMINATION OF URINE SAMPLES

Hans-Joachim Habich, Hildrithausen, Fed. Rep. of Germany, assignor to C. A. Greiner & Söhne GmbH, Nürtingen, Fed. Rep. of Germany

Filed Feb. 25, 1980, Ser. No. 123,930

Int. Cl.³ C12M 1/24

U.S. Cl. 435-296

10 Claims

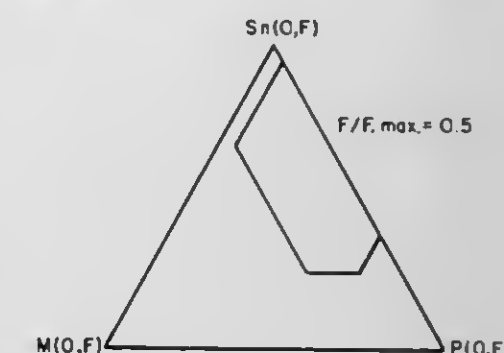


1. A test tube for the examination of samples, especially of urine samples, for the amount of a given ingredient in the sample, comprising catalase and oxidase contained in at least one layer on at least a part of the inner surface of the test tube, and a solid peroxide substance received in the interior of the test tube, introduction of the sample into the test tube entailing dissolution of said layer and said substance which are present in sufficient amounts whereby the peroxide thus releases sufficient oxygen under the influence of the catalase in the interior

of the test tube, the oxidase acting to cause oxidation by the released oxygen of any other ingredient of the sample which would otherwise deleteriously influence subsequent examination of the sample for the given ingredient.

4,314,031
TIN-PHOSPHORUS OXYFLUORIDE GLASSES
 Leon M. Sanford, Painted Post, and Paul A. Tick, Corning, both of N.Y., assignors to Corning Glass Works, Corning, N.Y.
 Filed Jun. 17, 1980, Ser. No. 160,387
 Int. Cl.³ C03C 3/04, 3/10, 3/12, 3/00
 U.S. Cl. 501-44

5 Claims



1. A glass comprising, in weight percent on an elemental basis as calculated from the batch, about 20-85% Sn, 2-20% P, 3-20% O, 10-36% F, and at least 75% total of Sn + P + O + F.

4,314,032
CROSSLINKED POLYVINYL ALCOHOL GEL
 Naohiro Murayama, and Teruo Sakagami, both of Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 17, 1979, Ser. No. 85,682

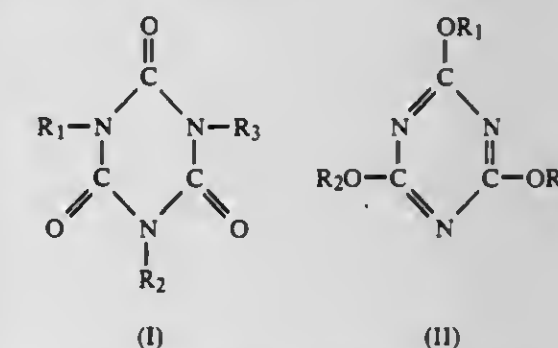
Claims priority, application Japan, Oct. 26, 1978, 53/131785; Feb. 2, 1979, 54/011246

Int. Cl.³ C08F 8/12

U.S. Cl. 521-52

9 Claims

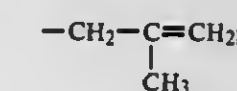
1. A crosslinked non-ionic polyvinyl alcohol gel useful as a packing for gel chromatography which is obtained by a process, comprising: copolymerizing 100 parts by weight of a vinylacetate and 0.1 to 50 parts by weight of a crosslinking agent having the formula (I) or (II):



(I)

(II)

wherein R₁, R₂ and R₃ are the same or different and each is selected from the group consisting of $-\text{CH}_2-\text{CH}=\text{CH}_2$, $-\text{CH}_2-\text{C}\equiv\text{CH}$ and



and hydrolyzing the product.

4,314,033

CROSS LINKED POLYESTER

John Gillan, Langwarrin, and Colin M. Richards, Black Rock, both of Australia, assignors to Dulux Australia Ltd., Melbourne, Australia

Division of Ser. No. 68,391, Aug. 21, 1979, Pat. No. 4,273,830.

This application Nov. 19, 1980, Ser. No. 208,414

Claims priority, application Australia, Sep. 12, 1978, PD5907 Int. Cl.³ C08J 9/28

U.S. Cl. 521—65

4 Claims

1. A process of preparing fibrils of vesiculated crosslinked polyester resin wherein the diameter is from 1 μ m to 2 mm, the length from 50 μ m–5 cm and the aspect ratio from 10 to 50, characterised in that the fibres are prepared by a suspension polymerisation process comprising the stages of

- pouring with stirring, a resin solution formed carboxylated unsaturated polyester resin dissolved in an ethylenically unsaturated monomer copolymerisable therewith, into water containing a colloidal dispersion stabiliser and a base, and
- initiating polymerisation by free radical means to cross-link the polyester solution and form vesiculated, cross-linked polyester resin fibrils;

the process being further characterised in that

- the polyester resin has an acid value of from 10–90 mg KOH per g of resin, comprises at least 40% by weight of the said resin solution and is selected according to a buoyancy test in which a drop of the resin solution used in the preparation of fibrils is added to the surface of water whose pH has been adjusted with ammonia to at least 10, the drop remains at or near the surface for an appreciable time, and
- the base has a dissociation exponent (pK_b value) of less than 8, and is present such that there are 1–3 equivalents of base for each carboxyl group present in the polyester resin.

4,314,034

POLYUREA POLYURETHANE FOAMED SPONGE WITH HIGH WET STRENGTH

Glenn E. Fulmer, Clarksville, and Conrad Vollmerhausen, Fulton, both of Md., assignors to W. R. Grace & Co., New York, N.Y.

Filed Dec. 29, 1980, Ser. No. 220,563

Int. Cl.³ C08G 18/14

U.S. Cl. 521—65

16 Claims

- In a foamed sponge made by mixing together
- a resin phase comprising a prepolymer of a hydrophilic oxyalkylene polyol which is capped with isocyanate groups, and

- an aqueous suspension containing fibers and at least one surfactant, the improvement comprising adding to the mixture prior to foam formation

- from about 1–40% by weight of the prepolymer of part

- of a polymeric polyisocyanate selected from the group consisting of 4,4'-diphenylmethane diisocyanate, and a mixture of 4,4'-diphenylmethane diisocyanate and polymethylene polyphenylisocyanates, said mixture having an average functionality of about 2.0 to 3.0, and

- from about 0–40% by weight of the aqueous suspension of part (b) of diatomaceous earth,

whereby an open cell foamed sponge is obtained having a reduced volume swell, rapid wet out and improved wet strength.

4,314,035

METHOD FOR THE PREPARATION OF POLYMER FOAMS

John-Victor Hobes, Dinslaken, and Wolfgang Payer, Wesel, both of Fed. Rep. of Germany, assignors to Ruhrchemie Aktiengesellschaft, Oberhausen, Fed. Rep. of Germany

Continuation of Ser. No. 55,880, Jul. 9, 1979, Pat. No. 4,246,357, and a continuation of Ser. No. 115,782, Jan. 28, 1980, abandoned. This application Aug. 20, 1980, Ser. No. 179,864

Claims priority, application Fed. Rep. of Germany, Jul. 10, 1978, 2830328; Feb. 3, 1979, 2904082

The portion of the term of this patent subsequent to Jan. 20, 1998, has been disclaimed.

Int. Cl.³ C08J 9/02

U.S. Cl. 521—77

25 Claims

- A foamable copolymer or a mixture of copolymers comprising

- 35% to 98% by weight ethylene;
- 1% to 30% by weight vinyl alcohol;
- 1% to 30% by weight acrylic acid esters of secondary or tertiary alcohols; and
- 0% to 5% by weight vinyl ester; all percentages being based on the total weight of said copolymer or said mixture.

4,314,036

UNSATURATED POLYESTER RESIN FOAMS AND PRODUCTS CONTAINING THE SAME

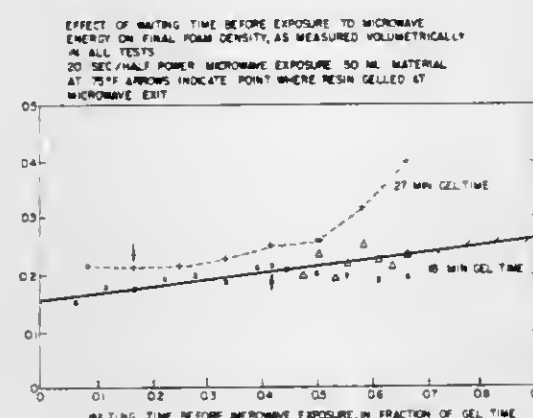
James L. Throne, Naperville, and Richard E. Graves, Jr., Elgin, both of Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Filed Sep. 24, 1979, Ser. No. 78,301

Int. Cl.³ C08J 9/00

U.S. Cl. 521—99

5 Claims



- A process for the production of foamed products from and unsaturated polyester resin composition, said composition comprising flexible or semi-rigid polyester resin, unsaturated monomer, a promoter, a peroxide initiator, physical blowing agent, and compatible surfactant whereby a known gel time "T" results, foaming said composition by exposing it to microwave radiation having a frequency of at least 640 MHz prior to 1 T, thereafter permitting said foam structure to exotherm to obtain a fully cured product, said foaming taking place at or slightly prior to 1 T.

4,314,037

HETERO NITROGEN CATALYSTS

Burton D. Beitchman, Springfield, and Rocco L. Mascioli, Media, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Dec. 15, 1980, Ser. No. 216,043

Int. Cl.³ C08G 18/14, 18/20

U.S. Cl. 521—125

14 Claims

- Compositions for the production of urethane and isocyanurate foam products by reaction of an organic polyisocyanate with a polyol in the presence of tertiary amine catalyst, characterized in that said tertiary amine catalyst is comprised

wholly or partly of an alkali metal salt of an azole compound containing at least two hetero nitrogen atoms.

4,314,038

GRAFT POLYOL RIM SYSTEM POSSESSING EXCELLENT THERMAL PROPERTIES

Robert A. Markovs, Canton, Mich., assignor to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed Mar. 30, 1981, Ser. No. 248,882

Int. Cl.³ C08G 18/14

U.S. Cl. 521—167

10 Claims

- A dimensionally stable reaction injection molded polyurethane elastomer comprising the reaction product of an organic polyisocyanate, a polyoxyalkylene polyether polyol, a blowing agent and ethylene glycol wherein said elastomer contains less than 0.10 percent free water prior to curing at 120° C. to 210° C.

4,314,039

POLYPROPYLENE COMPOSITION CONTAINING A 1,3,2,4-DI(ALKYLBENZYLIDENE) SORBITOL

Yoichi Kawai, Katsuyoshi Sasagawa, both of Yokohama; Masami Maki, Kawasaki; Hozumi Ueda, and Masayoshi Miyamoto, both of Kamakura, all of Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan

Filed Aug. 6, 1980, Ser. No. 175,726

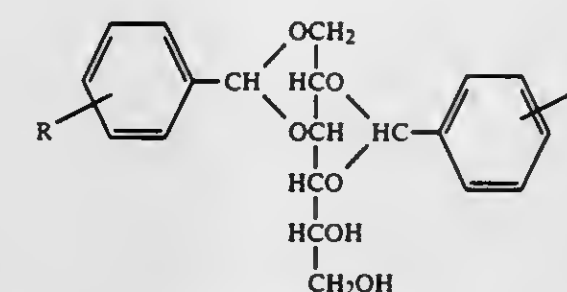
Claims priority, application Japan, Aug. 21, 1979, 54/105523

Int. Cl.³ C08K 5/06

U.S. Cl. 525—1

8 Claims

- A composition comprising 100 parts by weight of isotactic polypropylene or crystalline copolymers of propylene and ethylene or propylene and alpha-olefins or mixtures thereof and 0.005 to 8 parts by weight of a 1,3,2,4-di(alkylbenzylidene) sorbitol of the formula



wherein R represents an alkyl group having 2 to 18 carbon atoms.

4,314,040

SOLID ANTISTATIC COMPOSITIONS

Anthony J. Castro, Oak Park, and James W. Stoll, Woodridge, both of Ill., assignors to Akzona Incorporated, Asheville, N.C. Division of Ser. No. 955,561, Oct. 27, 1978, Pat. No. 4,210,556, which is a division of Ser. No. 622,643, Oct. 15, 1975, Pat. No. 4,147,742, which is a continuation-in-part of Ser. No. 436,252, Jan. 24, 1974, abandoned. This application Feb. 11, 1980, Ser. No. 120,178

Int. Cl.³ G08L 71/04; C09K 3/16

U.S. Cl. 525—6

11 Claims

- An antistatic agent adapted for incorporation into a polymer subject to the development of electrostatic charges to render said polymer antistatic comprising a normally liquid N,N-bis-(2-hydroxyethyl) aliphatic (C₆–C₁₈) amine having antistatic properties and a resin carrier selected from the group consisting of, polyphenylene oxide-polystyrene blends, said amine being present in an amount of about 10% to about 90%, based on the total weight of the amine and resin carrier and said antistatic agent being a solid with no visually discernible liquid phase.

4,314,041

CONTINUOUS MULTI-ZONE GRAFT POLYMERIZATION

Shin-ichi Shlmokawa, Yokkaichi, and Yuji Yamamoto, Suzuka, both of Japan, assignors to Japan Synthetic Rubber Co., Ltd., Tokyo, Japan

Filed Sep. 26, 1980, Ser. No. 190,950

Claims priority, application Japan, Oct. 1, 1979, 54-125351 Int. Cl.³ C08F 155/06

U.S. Cl. 525—53

15 Claims

- A process for continuously producing an impact-resistant resin having a rubber content of 5 to 30% by weight by solution-graft-polymerization of a monomer mixture of an aromatic vinyl compound and a vinyl cyanide compound in the presence of an ethylene-propylene-non-conjugated diene terpolymer rubber and at least one radical polymerization initiator in an inert solvent containing as an essential component an aromatic hydrocarbon, comprising:

feeding to the first polymerizer of a series of at least two polymerizers, said rubber in the form of a homogeneous solution containing a portion or all of said monomers and/or said inert solvent, together with the remaining monomer or monomers and/or inert solvent;

dispersing the rubber in the first polymerizer and polymerizing with stirring said monomers until the polymerization conversion reaches 40 to 80% by weight based on the monomers; and

further polymerizing the remaining monomers with stirring in the second and succeeding polymerizers to substantially complete the polymerization.

4,314,042

COMPOSITION FOR POWDER COATING

Jugo Goto, Kawanishi, and Fumihiko Doura, Sakai, both of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Filed Jul. 30, 1980, Ser. No. 173,908

Claims priority, application Japan, Jul. 30, 1979, 54-97780

Int. Cl.³ C08F 8/30

U.S. Cl. 525—59

8 Claims

- A composition for powder coating which comprises a carboxyl-containing polymer of not lower than 40° C. in softening point prepared by reacting a dicarboxylic acid anhydride with a hydroxyl-containing polymer obtained by saponifying a copolymer of a vinyl ester of a saturated monocarboxylic acid and a copolymerizable vinyl monomer, and a compound having two or more oxazoline rings in the molecule, said hydroxyl-containing polymer comprising 5 to 50 mole % of the vinyl ester of a saturated monocarboxylic acid and 50–95 mole % of the copolymerizable vinyl monomer, and wherein the proportion of the carboxyl-containing polymer to the oxazoline ring-containing compound is such that the ratio of the carboxyl groups in the polymer to the oxazoline rings is 0.5 to 3.0.

- A composition for powder coating which comprises a carboxyl-containing polymer of not lower than 40° C. in softening point prepared by reacting a dicarboxylic acid anhydride with a hydroxyl-containing polymer obtained by saponifying a copolymer of a vinyl ester of a saturated monocarboxylic acid and a copolymerizable vinyl monomer, a carboxyl-terminated polyester resin, and a compound having two or more oxazoline rings in the molecule, said hydroxyl-containing polymer comprising 5 to 50 mole % of the vinyl ester of a saturated monocarboxylic acid and 50–95 mole % of the copolymerizable vinyl monomer; the proportion of the carboxyl-containing polymer to the oxazoline ring-containing compound is such that the ratio of the carboxyl groups in the polymer to the oxazoline rings is 0.5 to 3.0; and in which the carboxyl-terminated polyester resin is present in such amounts that the ratio of the total carboxyl groups to the oxazoline rings is in a ratio of 0.5 to 3.0.

4,314,043

FLUORINE-CONTAINING ELASTOMERS

Gen Kojima, Machida; Masayuki Tamura, and Michio Hisasue, both of Yokohama, all of Japan, assignors to Asahi Glass Company, Ltd., Tokyo, Japan

Filed Aug. 1, 1980, Ser. No. 174,438

Claims priority, application Japan, Aug. 17, 1979, 54-104054

Int. Cl.³ C08G 81/02; C08L 53/00

U.S. Cl. 525—102

14 Claims

1. Fluorine-containing elastomers comprising a grafted copolymer having rubber-like elasticity and having chemical linkages at the reactive sites of fluorine-containing polymeric segments and organopolysiloxane segments, wherein the fluorine-containing polymeric segments consist of two or more chemically different monomeric units at least one of which being a fluorine-containing olefinic unit, said siloxane segments containing amino groups reactive sites.

4,314,044

PROCESS FOR PREPARING LOW MOLECULAR WEIGHT WATER-SOLUBLE POLYMERS

Kathleen A. Hughes, Plymouth Meeting; Benjamin B. Kine, Elkins Park, and Graham Swift, Blue Bell, all of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Continuation-in-part of Ser. No. 4,974, Jan. 22, 1979, abandoned. This application May 21, 1980, Ser. No. 152,011

Int. Cl.³ C08F 4/40, 2/16

U.S. Cl. 260—29.6 M

16 Claims

1. A process for preparing a water-soluble polymer having a weight average molecular weight of from about 2,500 to 50,000 comprising reacting, under an ambient atmosphere and in an aqueous solution system wherein there is present from about 0.1 to about 1.5 parts by weight of water for each part, by weight, of monomer, said reaction conducted at a temperature up to the boiling point of said system, from about 40% to about 60%, by weight, based on the total weight of the reaction solution, of a water-soluble monomer selected from the class consisting of (a) acrylic acid, methacrylic acid, acrylamide, methacrylamide and mixtures thereof, and (b) water-soluble comonomers of one or more of the monomers of (a) with from about 5 to 50% by weight of the total monomers present of a comonomer selected from the class consisting of itaconic acid, maleic acid, fumaric acid, hydroxyethylmethacrylate, hydroxypropylmethacrylate, hydroxyethylacrylate, hydroxypropylacrylate, acrylonitrile, methacrylonitrile, dimethylaminoethyl acrylate, dimethylaminoethyl methacrylate, t-butylaminoethyl acrylate, 4-vinyl pyridine, beta-hydroxyethyl-dimethylaminoethyl methacrylate salt, t-butylaminoethyl methacrylate, and mixtures thereof in the presence of a catalyst system consisting essentially of a water-soluble initiator, a tertiary amine in a molar ratio of up to about 1 of amine to 10 of catalyst initiator, and at least one metal salt selected from the class consisting of water-soluble salts of (1) copper, iron, manganese, cobalt, chromium, silver, gold, titanium, lead and cerium and (2) one or more metal salts of (1) with metal salts of zinc or calcium, and wherein the molar ratio of said initiator to metal ion is from 10 to 1 to 150 to 1 and said initiator is present in an amount of from about 0.5 weight percent to about 35 weight percent based on the weight of monomer present.

4,314,045

POLYMERIZATION PROCESS FOR CIS-1,4-POLYBUTADIENE USING ALIPHATIC SOLVENTS AND AN AROMATIC POLYMERIZATION REGULATOR

Joseph Odar, South Euclid, Ohio, assignor to The B. F. Goodrich Company, Akron, Ohio

Continuation-in-part of Ser. No. 960,388, Nov. 13, 1978, Pat. No. 4,224,426. This application Jan. 12, 1980, Ser. No. 158,969

Int. Cl.³ C08F 2/06, 36/06

U.S. Cl. 526—93

11 Claims

1. An improved process of polymerizing butadiene-1,3 to produce primarily linear, gel-free cis-1,4-polybutadiene which

is carried out in the presence of a catalyst comprising a cobalt compound, at least one organoaluminum compound and water, the improvement which comprises carrying out the polymerization reaction in a cycloalkane having 5 to 8 carbon atoms and from 0.1 to 2 percent based on the weight of total charge, of tetramethyl or pentamethylbenzene.

4,314,046

PROCESS FOR THE STEREOREGULAR POLYMERIZATION OF α -OLEFINS IN THE PRESENCE OF A SUPPORTED TITANIUM CATALYST

Hiroshi Ueno, Namekawa; Masafumi Imai; Naomi Inaba, both of Ooi; Makoto Yoda, Kawagoe, and Shozo Wada, Zushi, all of Japan, assignors to Toa Nenryo Kogyo Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 29,081, Apr. 11, 1979, Pat. No. 4,242,230.

This application Jul. 28, 1980, Ser. No. 172,797

Claims priority, application Japan, Apr. 12, 1978, 53-42147

Int. Cl.³ C08F 4/64

U.S. Cl. 526—125

8 Claims

1. In a process for the stereoregular polymerization of α -olefins, wherein an α -olefin is contacted, under α -olefin (co)-polymerization conditions, with a catalyst system comprising a titanium catalyst component and an organo aluminum catalyst component prepared by mixing an organo aluminum compound and an organic acid ester, the improvement comprising: the titanium catalyst component being obtained by co-grinding, in combination, a magnesium halide, a tetravalent titanium halide, and a carboxylic acid ester to obtain a titanium-containing solid product;

treating said titanium-containing solid product by contacting at a temperature in the range of from about 40° C. to about 200° C. for about 0.5 to about 20 hours with a compound selected from one of a hydrocarbon which is present in an amount of from 5 to 50 times the weight of the titanium-containing solid and an organohalogen compound which is one of a halogen-substituted aliphatic, alicyclic and aromatic hydrocarbon having from 1 to 20 carbon atoms and is present in an amount of from about 0.5 to 50 times the weight of the titanium-containing solid.

4,314,047

PARTICULATED POLYETHERIMIDE AND METHOD FOR MAKING

Eugene G. Banucci, Scotia, and Edith M. Boldebeck, Schenectady, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

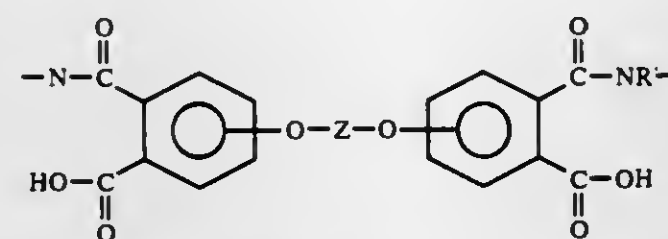
Continuation of Ser. No. 37,437, May 9, 1979, abandoned. This application Jul. 21, 1980, Ser. No. 170,763

Int. Cl.³ C08G 69/28, 69/30, 73/10

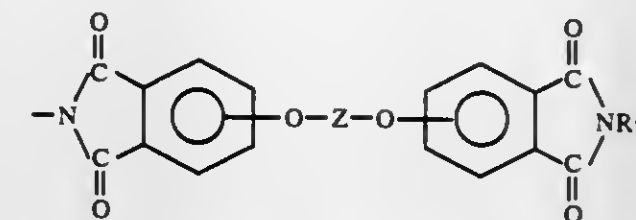
U.S. Cl. 528—26

1 Claim

1. A method for making particulated substantially organic solvent-free polyetherimide which comprises heating particulated substantially organic solvent-free polyetheramide acid consisting essentially of chemically combined units of the formula,

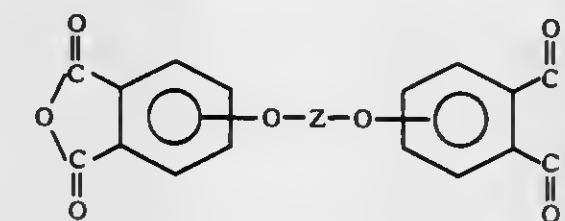


at a temperature in the range of from 135° C. to 175° C. until the resulting particulated product consists essentially of at least about 70 mole percent of chemically combined imide units of the formula,

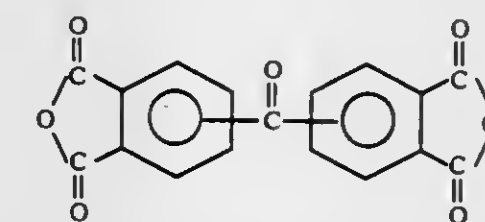


based on the total moles of chemically combined imide and amide acid units without a substantial degree of sintering occurring in the resulting particulated product, where the polyetheramide acid is the product of reaction of organic dianhydride and organic diamine utilized in a mole ratio of 1 mole of organic dianhydride, per 1 to 1.5 mole of organic diamine, where the organic dianhydride is selected from the group consisting of

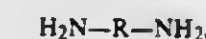
(A) aromatic bis(ether anhydride)s of the formula,



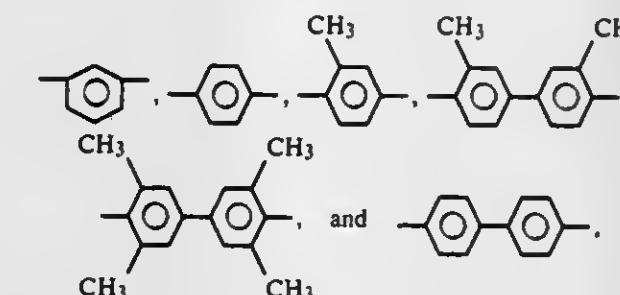
(B) mixtures of 1 or more of said bis(ether anhydride)s with up to 30 mole percent of benzophenone dianhydride of the formula,



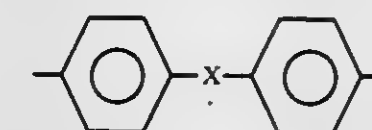
with at least one organic diamine of the formula,



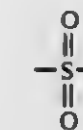
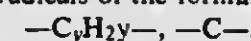
where said polyetheramide acid reaction product has a number average molecular weight of below about 5000, where Z is a member selected from



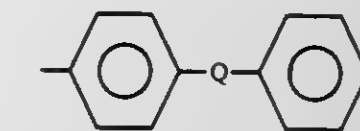
and divalent organic radicals of the general formula,



X is a member selected from the class consisting of divalent radicals of the formulas



—O—, and —S—, y is an integer from 1 to 5, and R is a divalent organic radical selected from the class consisting of aromatic hydrocarbon radicals having from 6 to about 20 carbon atoms and halogenated derivatives thereof, alkylene radicals having from 2 to about 20 carbon atoms, from C₂ to about C₈ alkylene terminated polydiorganosiloxane and divalent radicals of the general formula,



Q is a member selected from the class consisting of —O—, —S—, and —C₂H_{2x}—, where x is an integer from 1 to 5.

4,314,048

ALIPHATIC TRIISOCYANATE, A METHOD FOR PREPARING IT AND THE PREPARATION OF POLYURETHANE RESINS THEREWITH

Tsunetsuke Doi, Tama; Akira Ide, Nobeoka, and Yasushi Kishimoto, Nobeoka, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Japan

Filed Feb. 20, 1981, Ser. No. 236,544

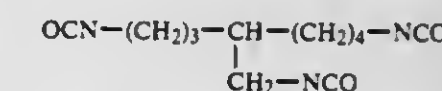
Claims priority, application Japan, Mar. 11, 1980, 55-29751

Int. Cl.³ C08G 18/00; C07C 119/042

U.S. Cl. 528—44

5 Claims

1. 4-Isocyanate methyl-1,8-octamethylene diisocyanate of the formula (I),



(I)

4. In a method of preparing a non-yellowing polyurethane resin by the reaction of an organic polyisocyanate and an organic compound having at least two reactive hydrogen-containing groups as determined by the Zerewitinoff method, the improvement which comprises employing 4-isocyanate methyl-1,8-octamethylene diisocyanate of claim 1 as the polyisocyanate.

4,314,049

POLYESTER RESIN COMPOSITION

Shinichiro Yasuda, Wakayama, Japan, assignor to Kao Soap Co., Ltd., Tokyo, Japan

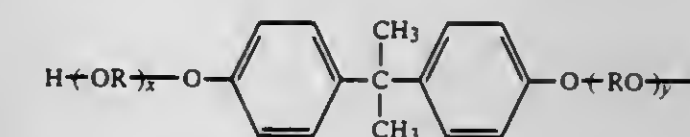
Filed Mar. 14, 1980, Ser. No. 130,302

Int. Cl.³ C08G 63/18

U.S. Cl. 528—128

6 Claims

1. A polyester resin composition produced by a reaction of: (A) a dicarboxylic acid, (B) a polyol comprising an etherified diphenol of the formula:



in which R is an alkylene having 2 or 3 carbon atoms; and x and y are each a positive integer with the proviso that the average sum of x plus y is from 2 to 7, and

(C) from about 0.05 to about 10 mol %, based on the polyol (B), of a compound having, in the molecule, one or two phenolic hydroxy groups and either (i) an alcoholic hydroxy group or (ii) a carboxy group.

4,314,050

METHOD OF PREPARING A PHENOLIC ALDEHYDE RESIN AND RESIN COMPOSITION FOR AN ADHESIVE SYSTEM TO BE APPLIED TO GLASS FIBERS

Mikhail M. Girgis, Pittsburgh, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Oct. 30, 1978, Ser. No. 956,473

Int. Cl.³ C08G 8/22

U.S. Cl. 528—140

5 Claims

1. A method for preparing a thermoplastic, water soluble, resorcinol aldehyde resin with improved flexibility and toughness and having a major amount of trimer polymer with only a minor amount of dimer and higher oligomers and having slight cross-linking, comprising:

a. reacting in the absence of methanol to less than 100 percent completion a resorcinol and an aldehyde in an amount of resorcinol to aldehyde in mole ratios in the range of 0.6 to about 2 at a pH in the range of about 3.5 to about 5.5 to limit formation of resorcinol alcohols for a period of time equivalent to the period of time in the range of about 1 hour to about 20 hours at a temperature in the range of about 30° F. (−1.1° C.) to about 122° F. (50° C.) to produce a resinous mixture containing predominantly trimer polymer with smaller amounts of dimer polymer and higher oligomer polymer along with unreacted resorcinol and unreacted aldehyde, and,

b. continuing the reaction of the resorcinol and aldehyde and reaction mixture at a pH maintained in the range of above 7 to about 7.5 at a temperature in the range of about 50° F. (10° C.) to about 140° F. (60° C.) when the residence time is in the range of about 0.75 to about 20 hours to produce the flexible but tough resin mixture having a predominant amount of trimer polymer and having slight cross-linking.

4,314,051

PROCESS FOR PREPARING POLYARYLATES

Mitchell H. Berger, Somerville; Markus Matzner, Edison, and James M. Tibbitt, Lebanon, all of N.J., assignors to Union Carbide Corporation, New York, N.Y.

Filed May 5, 1980, Ser. No. 146,210

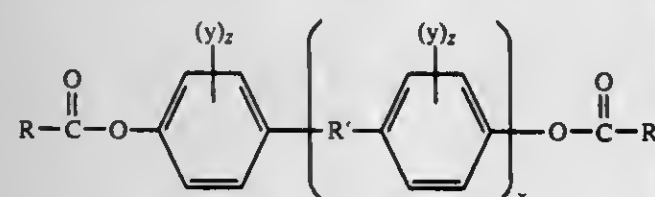
Int. Cl.³ C08G 63/00

U.S. Cl. 528—179

15 Claims

1. A process for preparing crystalline polyarylates which comprises

(a) forming a crystalline polyarylate prepolymer having a reduced viscosity of from 0.05 to about 0.4 dl/g by reacting at least one diester derivative of a dihydric phenol having the following formula:



wherein R is independently selected from an alkyl radical having from 1 to about 6 carbon atoms or cycloalkyl having from 4 to about 7 carbon atoms, y is independently selected from alkyl groups of 1 to 4 carbon atoms, chlorine, or bromine, z independently has a value of from 0 to 4 inclusive, and R' is independently selected from a divalent saturated aliphatic hydrocarbon radical having 1 to 8 carbon atoms, a cycloalkylene or cycloalkylidene radical having up to and including 9 carbon atoms, O, S, SO, SO₂, CO, x is 0 or 1; with at least one

aromatic dicarboxylic acid in the presence of a solvent at a temperature of from about 250 to about 300° C.; and

(b) heating the crystalline polyarylate prepolymer formed in step (a) below its melting point to form a crystalline polyarylate having a reduced viscosity of from about 0.45 to about 1.2 dl/g.

4,314,052

POLYESTER WHICH IS SOLUBLE OR DISPERSIBLE IN WATER, A PROCESS FOR ITS PREPARATION AND ITS USE AS A LEVELLING AUXILIARY, LEVELLING AUXILIARIES AND PROCESSES FOR UNIFORM DYEING

Friedrich Engelhardt; Karl Hintermeier, both of Frankfurt am Main; Joachim Ribka, Offenbach am Main-Bürgel; Walter Dürsch, and Walter Rupp, both of Königstein, all of Fed. Rep. of Germany, assignors to Cassella Aktiengesellschaft, Frankfurt am Main Fechenheim, Fed. Rep. of Germany

Filed Jan. 7, 1980, Ser. No. 110,343

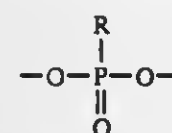
Claims priority, application Fed. Rep. of Germany, Jan. 10, 1979, 2900686

Int. Cl.³ C08G 63/68, 79/04; D06P 1/52, 1/60

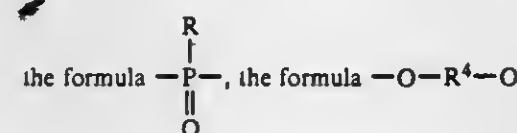
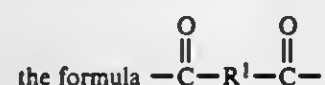
U.S. Cl. 528—287

15 Claims

1. A polyester soluble or dispersible in water, containing phosphonic acid ester moieties of the formula



with the polyester having an apparent average molecular weight of 800 to 5,000 and also comprising chain member moieties selected from the group consisting of



wherein R is hydrogen, an aliphatic moiety with 1 to 22 carbon atoms which may also be interrupted by one or more oxygen atoms, phenyl substituted aliphatic moiety having 1 to 12 carbon atoms in the aliphatic portion and which also may be interrupted by one or more oxygen atoms, a cycloaliphatic moiety with 5 to 8 carbon atoms, phenyl, phenyl substituted by 1 to 3 alkyls having 1 to 6 carbon atoms each, naphthyl, or naphthyl substituted by 1 to 3 alkyls having 1 to 6 carbon atoms each;

R¹ is a direct bond, a divalent aliphatic radical with 2 to 10 carbon atoms, a divalent cycloaliphatic radical with 6 to 8 carbon atoms, a divalent aryl radical with 6 to 12 carbon atoms, or a divalent araliphatic radical with 6 to 14 carbon atoms and each of those moieties may also be interrupted by one or more of oxygen, sulfur or SO₂;

R⁴ is a divalent aliphatic, cycloaliphatic or araliphatic moiety whose carbon skeleton may also be interrupted by oxygen, phenylene, naphthylene or -C₆H₅-SO₂-C₆H₅;

R⁵ and R⁶ are hydrogen, methyl or ethyl;

R⁷ is a divalent aliphatic radical with 1 to 10 carbon atoms, a divalent cycloaliphatic radical with 6 to 11 carbon atoms or a divalent araliphatic radical with 8 to 12 carbon atoms and each may also be interrupted by oxygen;

s and z is each a number from 1 to 20;

p is a number from 1 to 10 and

q and k are each 0, 1, 2 or 3.

4,314,053

PROCESS FOR REDUCING POLYOLEFIN DIE SMOKE

Chi-Hung Lin, Wheaton, and Linus K. Leung, Naperville, both of Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

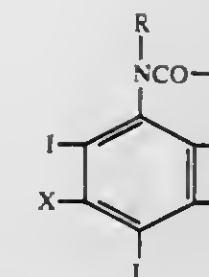
Filed May 8, 1980, Ser. No. 147,838

Int. Cl.³ C08F 6/00, 6/08

U.S. Cl. 528—483

4 Claims

1. A method of deactivating polyolefin powder containing active catalyst comprising (1) contacting said polymer with an inert gas containing about 4 to about 10 weight percent water vapor for about 10 to 90 minutes at a temperature between about 180° F. and about 10° F. below the softening point of the polymer, and (2) then contacting such powder with an inert gas containing about 4 to about 10 weight percent water vapor and about 0.05 to about 6 volume percent oxygen for about 10 to about 120 minutes at a temperature between about 180° F. and about 10° F. below the softening point of the polymer in a fluidized bed.



wherein X and Y are each non-ionizing functions compatible with water solubility and/or low toxicity in the 2,4,6-triiodophenyl configuration, R is selected from the group consisting of hydrogen, lower alkyl and hydroxy-lower alkyl and CO—Z is the acyl residue of a polyhydroxy-monobasic acid, said acyl residue containing not more than 8 carbon atoms in its chain or ring.

4,314,056

CATALYST FOR AND METHOD OF PREPARING CELLULOSE ESTERS

Richard J. Brewer, and Brice S. Wininger, both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 29, 1980, Ser. No. 182,516

Int. Cl.³ C08B 3/00

U.S. Cl. 536—63

6 Claims

1. A method of preparing lower fatty acid esters of cellulose which comprises esterifying at a temperature of between about 75° C. and about 110° C. a cellulose compound having esterifiable hydroxyl groups with an esterifying bath comprising an organic acid anhydride, a diluent, and from 0.3 to 0.8% by weight based on the weight of cellulose of a catalyst comprising (a) from about 25 to about 75% by weight of sulfuric acid and (b) from about 75% to about 25% by weight of phosphoric acid, the weight ratio of said bath to the cellulose being between about 5:1 and about 10:1.

4,314,057

ACANTHIFOLIC ACID-NEW ANTITUMOR AND ANTIBIOTIC AGENT

Francis J. Schmitz; Dick van der Helm; M. Bilayet Hossain; Yalamanchilli Gopichand, all of Norman, Okla., and Ravi S. Prasad, Riverdale, Md., assignors to Research Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 170,927, Jul. 21, 1980. This application Sep. 15, 1980, Ser. No. 187,066

The portion of the term of this patent subsequent to Nov. 24, 1998, has been disclaimed.

Int. Cl.³ C07D 407/14

U.S. Cl. 542—401

3 Claims

wherein R is selected from the group consisting of —COCH₃, —CHOHCH₃, —COCH₂OH and —CHOHCH₂OH and the pharmaceutically acceptable acid addition salts of said compounds.

4,314,055

3,5-DISUBSTITUTED-2,4,6-TRIHODOANILIDES OF POLYHYDROXY-MONOBASIC ACIDS

George B. Hoey, Ferguson; George P. Murphy, Creve Coeur, both of Mo.; Philip E. Wiegert, Glens Falls, N.Y., and James W. Woods, Creve Coeur, Mo., assignors to Mallinckrodt, Inc., St. Louis, Mo.

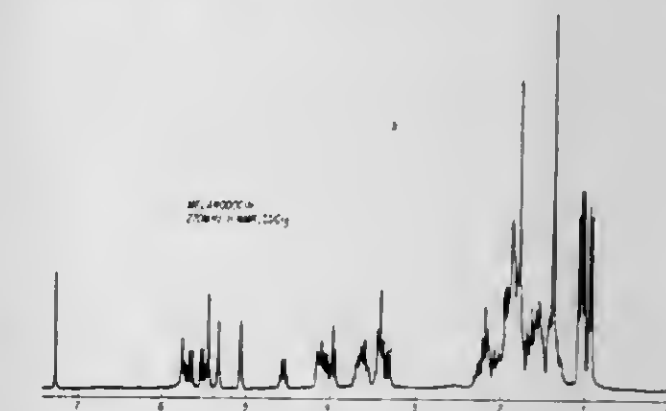
Continuation-in-part of Ser. No. 617,081, Sep. 29, 1975, abandoned, which is a continuation-in-part of Ser. No. 519,115, Oct. 30, 1974, abandoned. This application Mar. 29, 1977, Ser. No. 782,421

Int. Cl.³ A61K 49/04; C07H 3/00; C07C 103/78

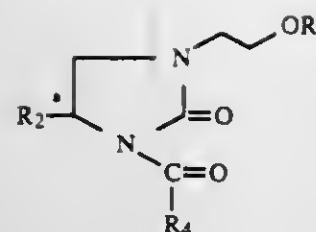
U.S. Cl. 536—53

18 Claims

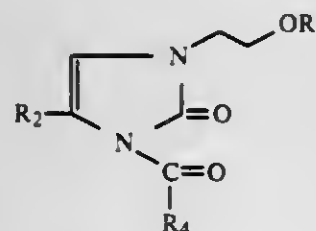
1. A compound of the formula:



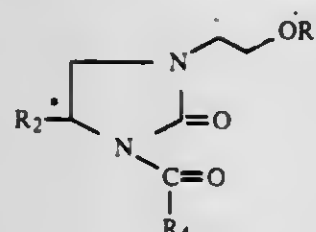
1. A purified, cytotoxic compound named melanodocin which melts with decomposition and gas evolution at 164°–166° C.; has a specific rotation $[\alpha]_D^{25}$ of 25.4 (C 0.24, CHCl₃); and exhibits the infrared spectrum and 270 MHz ¹H NMR spectrum as shown in FIGS. 4 and 5.



wherein R is selected from the group consisting of hydrogen, C₁-C₆ alkyl, halo C₁-C₆ alkyl, phenyl, phenyl substituted with up to three groups selected from the group consisting of C₁-C₆ alkyl, halo and C₁-C₆ alkoxy and a moiety of the formula COR₃, wherein R₃ is selected from the group consisting of hydrogen, C₁-C₆ alkyl C₁-C₆ alkoxy, phenoxy, halo C₁-C₆ alkyl, phenyl, and phenyl or phenoxy substituted with up to four groups selected from the group consisting of C₁-C₆ alkyl, halo, trifluoromethyl and C₁-C₆ alkoxy; R₄ is selected from the group consisting of C₁-C₆ alkyl C₁-C₆ alkoxy, phenoxy, C₅-C₁₀ cycloalkyl, phenyl, and phenyl or phenoxy substituted with up to four groups selected from the group consisting of C₁-C₆ alkyl, halo, trifluoromethyl and C₁-C₆ alkoxy; and R₂ is selected from the group consisting of phenyl and phenyl substituted with up to two groups selected from the group consisting of C₁-C₆ alkyl, C₁-C₆ alkoxy, halo and trifluoromethyl which comprises reducing an imidazolidone of formula:



wherein R, R₄ and R₃ are as previously defined, by hydrogenating in the presence of a chiral catalyst in a suitable organic solvent at a temperature from about 25° to 80° C. to obtain an optically active imidazolidone of formula:



wherein R, R₄ and R₂ are as previously defined.

4,314,067

MONOMERIC COMPOUNDS HAVING VINYL AND IMIDAZOLIDIN-2-ONE TERMINAL GROUPS

Frederick L. Herman, Allentown, and Dale D. Dixon, Kutztown, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Continuation-in-part of Ser. No. 709,677, Jul. 29, 1976, Pat. No. 4,111,877. This application Mar. 6, 1978, Ser. No. 883,554

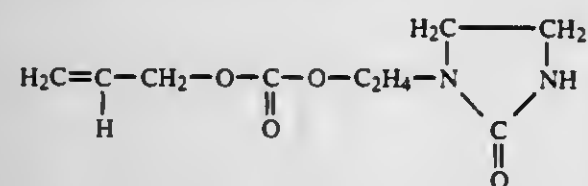
The portion of the term of this patent subsequent to Sep. 5, 1995, has been disclaimed.

Int. Cl.³ C07D 233/36, 233/34

U.S. Cl. 548-320

1. A compound having the formula

3 Claims



4,314,068 OXYGEN-PERMEABLE CONTACT LENS COMPOSITIONS, METHODS, AND ARTICLES OF MANUFACTURE

Nick N. Novicky, Wheeling, Ill., assignor to George F. Tsuetaki, Chicago, Ill.

Division of Ser. No. 6,725, Jan. 26, 1979, Pat. No. 4,216,303.

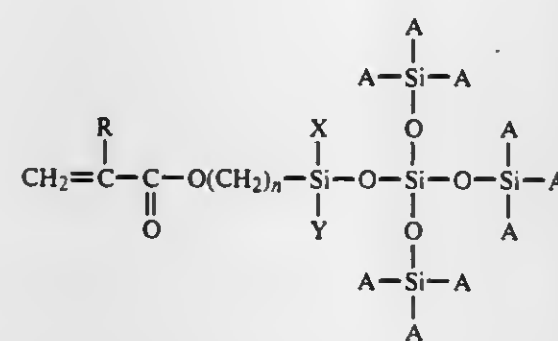
This application Jul. 28, 1980, Ser. No. 172,839

Int. Cl.³ C07F 7/08, 7/18

U.S. Cl. 556-440

7 Claims

1. A new composition especially adapted for making oxygen-permeable polymers used in the production of contact lenses, said composition having the structure:



wherein R is selected from the class consisting of lower alkyl groups and hydrogen, and n is an integer from one to three, wherein X and Y are selected from the class consisting of lower alkyl groups, cycloalkyl groups, phenyl groups (substituted and unsubstituted), polysiloxanyl groups, flourine and Z groups; Z is a group of the structure:



and wherein A is selected from the class consisting of lower alkyl groups and phenyl groups.

4,314,069

HERBICIDAL COMPOUND, HERBICIDAL COMPOSITION CONTAINING THE SAME, AND METHOD OF USE THEREOF

Ryohei Takahashi, Kusatsu; Kanichi Fujikawa, Kyoto; Isao Yokomichi, Kusatsu; Sinzo Someya, Kusatsu, and Nobuyuki Sakashita, Kusatsu, all of Japan, assignors to Ishihara Sangyo Kaisha, Ltd., Osaka, Japan

Division of Ser. No. 596,784, Jul. 17, 1975. This application Apr. 15, 1977, Ser. No. 788,043

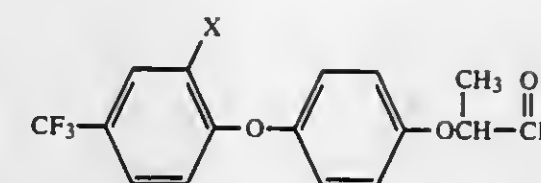
Claims priority, application Japan, Jul. 17, 1974, 49-82403; Jul. 17, 1974, 49-82404; Oct. 14, 1974, 49-117047

Int. Cl.³ C07C 69/76

U.S. Cl. 560-62

7 Claims

1. A compound having the formula:



wherein X is a hydrogen atom or a chlorine atom, and R¹ is an allyloxy group or a 2-propynyloxy group.

4,314,070

PROCESS FOR PRODUCING META-PHENOXYBENZOIC ACIDS AND ESTERS

Fred G. Schreiber, Highland Park, and Peter S. Gradeff, Potersville, both of N.J., assignors to Rhone-Poulenc Inc., Monmouth Junction, N.J.

Filed May 14, 1980, Ser. No. 149,588

Int. Cl.³ C07C 69/92

U.S. Cl. 560-64

13 Claims

1. A process for producing meta-phenoxybenzoic acids and their lower alkyl esters, which comprises reacting an alkali-metal phenate with a lower alkyl ester of meta-halobenzoic acid in the presence of a copper sulfate catalyst.

4,314,071

METHOD OF PREPARING MONOESTERS

James H. Babler, 125 Callan Ave., Evanston, Ill. 60202

Continuation-in-part of Ser. No. 954,363, Oct. 25, 1978, abandoned. This application May 12, 1980, Ser. No. 148,922

Int. Cl.³ C07C 69/75

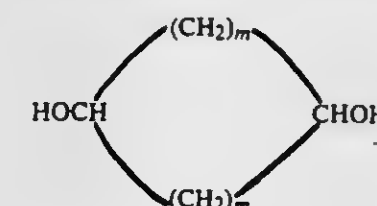
U.S. Cl. 560-127

10 Claims

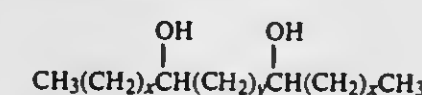
1. A method of preparing a monoester which comprises: preparing a reaction mixture selected from the group consisting of (a) an alkanolic acid selected from the group consisting of formic and acetic, an acid catalyst, water in an amount whereby the ratio of the molar concentration of water to alkanolic acid is greater than 3 to 1, and a symmetrical diol soluble in the alkanolic acid-water mixture, said diol selected from those of the formulae



wherein n has a value from 0 to 5, inclusive,

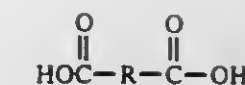


wherein m has a value of 1 or 2,



wherein x has a value of 0 or 1, y has a value of 0 to 3, and (2x+y) < 4;

(b) an alcohol selected from the group consisting of methanol and ethanol, an acid catalyst, water in an amount whereby the ratio of the molar concentration of water to alcohol is at least 3 to 1, and a symmetrical dicarboxylic acid soluble in the alcohol-water mixture, said acid selected from the group consisting of diacids of the formula



wherein R represents a chemical bond or a straight chain alkylene having up to 5 carbons; continuously extracting the reaction mixture with a nonpolar, solvent which is essentially insoluble in the reaction mixture and in which the reactants have no more than slight solubility, to form a monoester of the reactants of (a) or (b), soluble in the nonpolar solvent, separating the nonpolar solvent containing the monoester from the reaction mixture, and isolating the monoester from the nonpolar solvent.

4,314,072

2-[2-(2,2-DIHALOVINYL)-3,3-DIMETHYLCYCLO- PROPYL]ETHYLIDENE DIACETATES

Johannes L. M. Syrier, Amsterdam, Netherlands, assignor to Shell Oil Company, Houston, Tex.

Division of Ser. No. 55,854, Jul. 9, 1979, abandoned. This application Nov. 23, 1979, Ser. No. 96,868

Claims priority, application United Kingdom, Jul. 19, 1978, 30335/78; Jul. 19, 1978, 30336/78; Jul. 19, 1978, 30339/78; Jul. 19, 1978, 30373/78

Int. Cl.³ C07C 69/16

U.S. Cl. 560-231

2 Claims

1. A (1R,cis) 2-[2-(2,2-dihalovinyl)-3,3-dimethylcyclopropyl]ethylidene diacetate wherein each halo is independently chloro, fluoro or bromo.

4,314,073

PROCESS FOR THE PRODUCTION OF AN AROMATIC DICARBOXYLIC ACID

Graham R. Crooks, Guisborough, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Jun. 20, 1980, Ser. No. 161,560

Claims priority, application United Kingdom, Jul. 2, 1979, 22989/79

Int. Cl.³ C07C 51/56, 51/42

U.S. Cl. 562-416

10 Claims

1. In a process for the production of an aromatic carboxylic acid which comprises oxidizing with molecular oxygen in a primary oxidation stage an aromatic compound substituted by at least one alkyl, hydroxyalkyl or formyl group in a solvent in the presence of a heavy metal oxidation catalyst optionally in conjunction with an oxidation promoter to produce a slurry of said aromatic carboxylic acid in said solvent the improvement in which fresh solvent and molecular oxygen are added to said slurry after the primary oxidation stage but before the separation of the aromatic carboxylic acid from the slurry mother liquor.

4,314,074

PROCESS FOR PRODUCING METHACRYLIC ACID

Sargis Khoobiar, Kinnelon, N.J., assignor to Atlantic Richfield Company, Los Angeles, Calif.

Division of Ser. No. 972,743, Dec. 26, 1978, Pat. No. 4,252,681. This application Oct. 14, 1980, Ser. No. 196,805

Int. Cl.³ C07C 51/25, 57/055

U.S. Cl. 562-535

1 Claim

1. A process for the preparation of methacrylic acid which comprises oxidizing methacrolein in the vapor-phase with molecular oxygen in the presence of a catalyst composition having the formula Mo_aCu_bP_cSb_dCa_eW_fAs_gO_h where: a=12; b=0.05-3; c=0.1-5; d=0.01-3; e=0.1-6; f=0.01-3; g=0-3; and h=value determined by the valence and proportions of the other elements of the formula.

4,314,075

PROCESS FOR THE PRODUCTION OF OLEFINIC ACIDS AND ESTERS

Wilfrid G. Shaw, Lyndhurst; Philip L. Kuch, Aurora, and Christos Pappas, Willowick, all of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

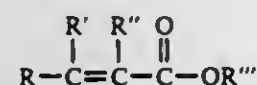
Filed Sep. 5, 1980, Ser. No. 184,592

Int. Cl.³ C07C 51/377, 57/05, 67/317, 69/54

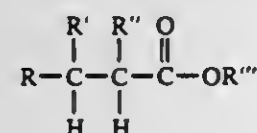
U.S. Cl. 562-599

12 Claims

1. A vapor-phase process for the production of a compound of the formula



the process comprising contacting in the presence of molecular oxygen a compound of the formula



where R-R''' are independently hydrogen or a C₁-C₄ alkyl radical, with a catalytic amount of a catalyst of the formula



where

M is at least one of K, Rb and Cs;

X is at least one of Ba, La, Ga, Al, Ag, Cd, Ti, Tl, Hg, Pb and Zn;

M' is at least one of Fe, Co, Ni, Sr, Mn, In, Ta, Ge, S and Be when a > 0;

a is a number of 0 to about 2; and

b is a number that satisfies the valence requirements of the other elements present.

4,314,076

CYSTAMINE DERIVATIVES SUITABLE FOR USE AS MEDICAMENTS

Joël Oiry, and Jean-Louis Imbach, both of Montpellier, France, assignors to Agence Nationale de Valorisation de la Recherche (ANVAR), Neuilly s., Seine, France

Filed Jun. 17, 1980, Ser. No. 160,183

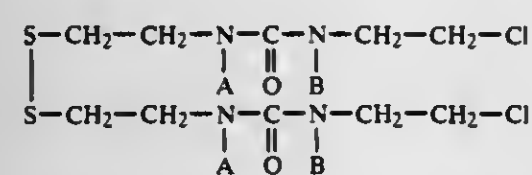
Claims priority, application France, Jun. 19, 1979, 79 15672

Int. Cl.³ C07C 127/15; A61K 31/17

U.S. Cl. 564-33

2 Claims

1. Compounds corresponding to the following formula



in which one of the substituents A and B is hydrogen and the other the radical -N=O.

4,314,077

METHOD FOR THE PRODUCTION OF UREA AND PURIFICATION OF WATER

Umberto Zardi, San Donato Milanese, and Vincenzo Lagana, Milan, both of Italy, assignors to Soamprogetti S.p.A., Milan, Italy

Continuation of Ser. No. 91,988, Nov. 7, 1979, abandoned, which is a continuation of Ser. No. 823,872, Aug. 11, 1977, abandoned.

This application Dec. 15, 1980, Ser. No. 216,303

Claims priority, application Italy, Sep. 9, 1976, 27024 A/76

Int. Cl.³ C07C 126/02

U.S. Cl. 564-70

2 Claims

1. In a method for the production of urea and purification of the waters obtained therefrom, comprising feeding to a synthesizing reactor of urea under high pressure liquid ammonia in excess over the stoichiometric amount and carbon dioxide so as to produce a urea solution containing ammonium carbamate, decomposing in a decomposer substantially under the same pressure as the synthesizing pressure (high-pressure decomposer) the carbamate contained in the solution of urea into ammonia and carbon dioxide by using an inert stripping agent which contains oxygen, condensing in a condenser substantially under the same pressure as the synthesis (high-pressure condenser) said ammonia and carbon dioxide and recycling the condensate to the synthesis, discharging from the decomposer a solution of urea which still contains carbamate and dissolved ammonia, sending such solution of urea from the high-pressure decomposer to a medium-pressure decomposer having a lower pressure than that in the high pressure decomposer, the gaseous products discharged from the latter conveyed to a medium-pressure condenser wherein said products are separated into a liquid phase formed of ammonium carbonate and a liquid phase formed of substantially pure ammonia, said liquid phase composed of ammonium carbonate being recycled to the high-pressure condenser and said liquid phase composed of substantially pure ammonia being sent to the synthesis, sending the urea solution emerging from the medium-pressure decomposer to a low-pressure decomposer having a lower pressure than that in the medium pressure decomposer from which there are obtained as head product ammonia, carbon dioxide and water which are condensed in a low-pressure condenser at a pressure no greater than the pressure in the low pressure decomposer, and as tail product a solution of urea which still contains ammonia and carbon dioxide, sending the aqueous urea solution emerging from the low-pressure decomposer to a vacuum concentrator to obtain melted urea and water vapor with ammonia and carbon dioxide which are condensed, the improvements which comprise operating said medium-pressure condenser and low-pressure condenser free of any liquid, both said condensers being fed with the vapors of the decomposers upstream thereof and ammonium carbonate solutions obtained from said low pressure condenser, and both said condensers are operated at the same pressure as that in the corresponding preceding decomposer, wherein the maximum weight ratio of said vapors to said carbonate solution does not exceed 2.5 and the coolant medium has a minimum temperature of 30° C.

4,314,078

PROCESS FOR PREPARING

5-(2-CHLORO-4-TRIFLUOROMETHYLPHENOXY)-2-NITRO-N-ALKANESULPHONYL BENZAMIDES FROM A BENZOIC ACID DERIVATIVE AND INTERMEDIATES

Walter M. Kruse, Wilmington, Del., and John F. Stephen, West Chester, Pa., assignors to ICI Americas Inc., Wilmington, Del.

Filed Apr. 2, 1981, Ser. No. 250,205

Int. Cl.³ C07C 102/04, 103/76

U.S. Cl. 564-99

8 Claims

1. A method of preparing a 5-(2-chloro-4-trifluoromethylphenoxy)-2-nitro-N-alkanesulphonyl benzamide of the following formula (I):

4,314,079

NOVEL METHOXYETHYLAMINE

Sivaraman Raghu, Norwalk, Conn., assignor to American Cyanamid Company, Stamford, Conn.

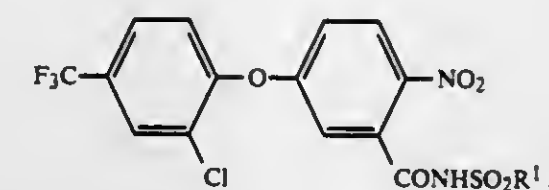
(I) Division of Ser. No. 63,289, Aug. 2, 1979, Pat. No. 4,245,103, which is a continuation of Ser. No. 958,222, Nov. 6, 1978, abandoned. This application May 21, 1980, Ser. No. 152,268

Int. Cl.³ C07C 103/44

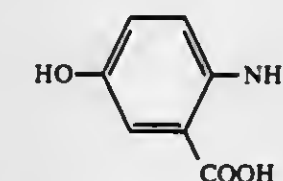
U.S. Cl. 564-220

1 Claim

1. The compound N-(2-phenyl-2-acetylamino)ethyl-2-methoxyethylamine.

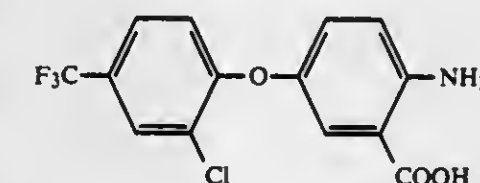


, wherein R¹ is an alkyl group of about 1 to 12 carbons, from 2-amino-5-hydroxybenzoic acid of the following formula (II):

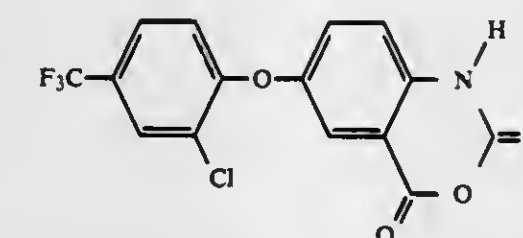


which comprises

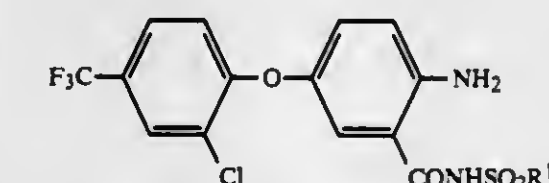
(i) reacting the acid of formula (II) with 3,4-dichlorobenzotrifluoride to produce the ether of the following formula (III):



(ii) reacting the ether of formula (III) with an acylating agent to produce the heterocycle of the following formula (IV):



(iii) reacting the heterocycle of formula (IV) with an alkanesulphonamide of the formula H₂NSO₂R¹ to produce the sulphonamide of the following formula (V):



and
(iv) oxidizing the sulphonamide of formula (V) with an oxidation agent to yield 5-(2-chloro-4-trifluoromethylphenoxy)-2-nitro-N-alkanesulphonyl benzamide of formula (I).

4,314,080

N-FORMYLATION OF

2-AMINO-2-METHYL-1-PROPANOL WITH CHLORAL HYDRATE

Mohammed T. Shipchandler, Libertyville, Ill., assignor to International Minerals & Chemical Corp., Terre Haute, Ind.

Filed Nov. 10, 1980, Ser. No. 205,113

Int. Cl.³ C07C 102/00

U.S. Cl. 564-224

3 Claims

1. A method for preparing 2-methyl-2-N-formylamino-1-propanol by the step of reacting 2-amino-2-methyl-1-propanol with chloral in about an equimolar ratio.

4,314,081

ARLOXYPHENYLPROPYLAMINES

Bryan B. Mulloy, and Klaus K. Schmieg, both of Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

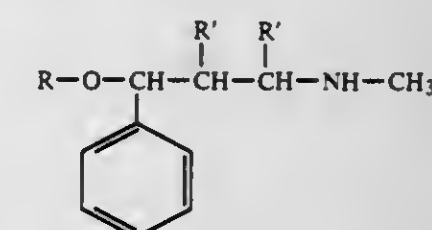
Filed Jan. 10, 1974, Ser. No. 432,379

Int. Cl.³ C07C 93/06

U.S. Cl. 564-347

9 Claims

1. A compound of the formula



(IV) wherein each R' is independently H or CH₃ and R is m- or p-chlorophenyl, o-, m-, or p-methoxyphenyl, phenyl, o- or m-fluorophenyl, o- or p-tolyl, 2,4-difluorophenyl or p-trifluoromethylphenyl and acid addition salts formed with pharmaceutically-acceptable acids.

4,314,082

DERIVATIVES OF 2-AMINO-6,7-DIHYDROXYTETRAHYDRO NAPHTHALENE (ADTN)

David M. Stout, Vernon Hills, Ill., assignor to American Hospital Supply Corporation, Evanston, Ill.

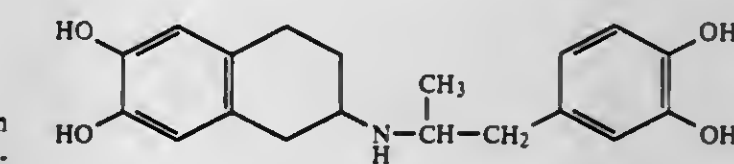
Continuation of Ser. No. 924,763, Jul. 14, 1978, abandoned. This application Jan. 23, 1980, Ser. No. 114,531

Int. Cl.³ C07C 87/28

U.S. Cl. 564-381

1 Claim

1. A compound of the formula



or a pharmaceutically acceptable salt thereof.

4,314,083

PREPARATION OF LINEAR POLYALKYLENE POLYAMINES

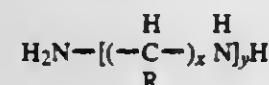
Michael E. Ford, Trexlertown, and Thomas A. Johnson, Ore-field, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Oct. 3, 1980, Ser. No. 193,762
Int. Cl.³ C07C 85/06

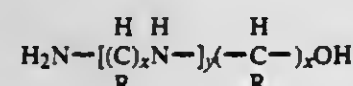
U.S. Cl. 564—479

16 Claims

1. A process for preparing a noncyclic polyalkylene polyamine comprising the steps of: contacting an alkyleneamine compound having two primary amino groups of the formula:



wherein R is hydrogen or a lower alkyl, x is a number from 2 to about 6, and y is a number from 1 to about 4 with a hydroxy compound having primary or secondary hydroxyl groups of the general formula:



wherein R is hydrogen or a lower alkyl, x is a number from 2 to about 6; and y is a number from 0 to about 3;

said contacting being performed in the presence of a catalytically effective amount of a salt of a substance of nitrogen or sulfur or their corresponding acids at temperatures sufficient to effect reaction between said alkyleneamine and said hydroxy compound under a pressure sufficient to maintain the reaction mixture essentially in liquid phase.

4,314,084

SYNTHESIS OF LOWER ALKYL AMINES

Joaquin V. Martinez de Pinillos, Wescosville, Pa., and Robert L. Fowles, Milton, Fla., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Continuation of Ser. No. 974,644, Dec. 29, 1978, abandoned.
This application Jan. 4, 1980, Ser. No. 156,228
Int. Cl.³ C07C 85/02

U.S. Cl. 564—480

6 Claims

1. A gas phase process for producing lower alkylamines by the ammonolysis of lower alkanols which comprises contacting a lower alkanol having 2 to 6 carbon atoms with 2 to 20 mols of ammonia per mol of alkanol in the presence of 0.25 to 4 mols of hydrogen per mol of alkanol and a Group 8 hydrogenation catalyst carried on a support at a temperature of from 350° to about 500° F.,

said hydrogenation catalyst being a finely divided hydrogenation catalyst comprising a Group 8 metal supported on a substantially neutral alumina support, said neutrality being incorporated into said support by the addition of an alkaline earth metal.

4,314,085

INTERMEDIATES FOR PREPARING ADRENERGIC BLOCKING AGENTS

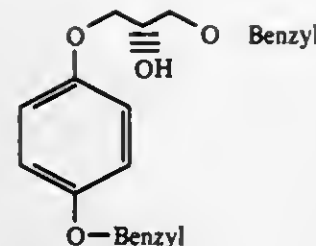
Kenneth E. Fahrenholtz, Bloomfield; Robert W. Guthrie, Saddle Brook; Richard W. Kierstead, and Jefferson W. Tilley, both of North Caldwell, all of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Division of Ser. No. 73,051, Sep. 6, 1979, Pat. No. 4,247,710, which is a division of Ser. No. 875,966, Feb. 8, 1978, Pat. No. 4,202,978. This application Aug. 22, 1980, Ser. No. 180,271
Int. Cl.³ C07C 43/20, 43/23

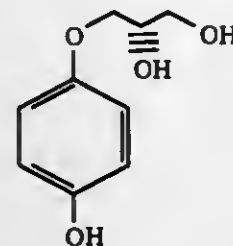
U.S. Cl. 568—644

2 Claims

1. The compound of the formula



2. The compound of the formula



4,314,086

PREPARATION OF ALIPHATIC/AROMATIC ETHERS

Gerard Soula, Meyzieu, and Daniel Michelet, Tassin-la-Demi-Lune, both of France, assignors to Rhone-Poulenc Industries, Paris, France

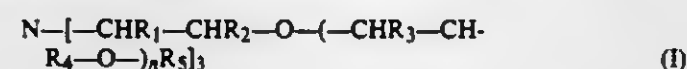
Filed Jun. 20, 1980, Ser. No. 161,516

Claims priority, application France, Jun. 20, 1979, 79 15782
Int. Cl.³ C07C 41/00, 41/16

U.S. Cl. 568—652

26 Claims

1. A process for the preparation of an aliphatic/aromatic ether, comprising reacting an aliphatic halide with an alkali or alkaline earth metal, or ammonium phenolate or naphtholate, in the presence of a catalytic amount of at least one tertiary amine sequestering agent having the formula:



in which n is an integer which is greater than or equal to 0 and less than or equal to about 10, R₁, R₂, R₃ and R₄, which are identical or different, each represent a hydrogen atom or an alkyl radical having from 1 to 4 carbon atoms and R₅ represents an alkyl or cycloalkyl radical having from 1 to 12 carbon atoms, a phenyl radical or a radical —C_mH_{2m}—φ or C_mH_{2m+1}—φ—, wherein φ is phenyl and in which m ranges from 1 to 12.

4,314,087

METHODS OF SYNTHESIZING HEXAFLUOROISOPROPANOL FROM IMPURE MIXTURES AND SYNTHESIS OF A FLUOROMETHYL ETHER THEREFROM

Phillip C. Radlick, Irvine, Calif., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Dec. 26, 1979, Ser. No. 107,116

Int. Cl.³ C07C 31/34, 31/38

U.S. Cl. 568—842

12 Claims

1. The method of oxidizing hexafluoropropylene to form an impure mixture comprising hexafluoroacetone and hexafluoropropylene and thereafter subjecting said impure mixture to reducing conditions to hydrogenate said hexafluoroacetone to 1,1,1,3,3,3-hexafluoroisopropanol product, whereby the product is easily separable from the hexafluoropropylene impurity.

4,314,088

HYDROXYLATION OF OLEFINS

Richard G. Austin, Ridgewood, and Robert C. Michaelson, Waldwick, both of N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Nov. 24, 1980, Ser. No. 209,789
Int. Cl.³ C07C 29/03

U.S. Cl. 568—860

11 Claims

1. A method for preparing polyols by the homogeneous catalytic hydroxylation of an olefinic compound having 2 to 20 carbons by contacting said olefinic compound with a catalytic amount of an osmium compound and a "co-catalyst selected from the group consisting of an alkali metal halide, an alkaline earth metal halide, a halogen, a hydrogen halide, and a tetraalkyl or aryl phosphonium halide" in an inert polar solvent and an organic hydroperoxide and at least a stoichiometric amount of water based on said amount of said olefin.

4,314,089

PROCESS FOR THE PREPARATION OF NITROBENZENE

Hans Zengel, Kleinwallstadt; Manfred Bergfeld, Erlenbach, and Werner Klostermeier, Klingenberg, all of Fed. Rep. of Germany, assignors to Akzona Incorporated, Asheville, N.C.

Filed Mar. 13, 1980, Ser. No. 129,959

Claims priority, application Fed. Rep. of Germany, Aug. 17, 1979, 2933314

Int. Cl.³ C07C 76/00, 81/02

U.S. Cl. 568—949

7 Claims

1. An improved process selectively preparing nitrosobenzene by catalytically reducing nitrobenzene with a reducing agent selected from the group consisting of saturated aliphatic hydrocarbons containing from about 1 to about 20 carbon atoms, cycloaliphatic compounds containing from about 4 to about 12 carbon atoms, benzene, naphthalene, and ethylenically unsaturated compounds containing from about 2 to about 10 carbon atoms, wherein the improvement comprises adding to the reaction mixture from about 0.05 to about 4.0 moles of water per mole of nitrobenzene preliminary to the selective catalytic reduction.

4,314,090

LINEAR ALPHA OLEFIN PRODUCTION

William E. Shewbart, Lake Jackson; Steve A. Sims; Billy D. Head, both of Angleton, and G. Eldon White, Lake Jackson, all of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Aug. 18, 1980, Ser. No. 179,348

Int. Cl.³ C07C 2/88

U.S. Cl. 585—328

2 Claims

1. A process for producing alpha olefins in the range of about 4 to about 10 carbon atoms per molecule which comprises:

- (a) feeding ethylene which may be in part in a recycle system derived from a purification of the product of the process, and triethyl or tributyl or mixed tri(ethylbutyl) aluminum compound in the absence of any significant amount of product olefin in the range of 4 to 10 carbon atoms into a growth reaction system maintained at a temperature between about 100 and 140° C. and a pressure of between about 400 to 800 psig for from about 5 to 90 minutes residence time wherein the ratio of C₂H₄ to trialkylaluminum compound is at least 5 to 1, respectively,
- (b) separating the unreacted olefins from the trialkyl aluminum growth product,
- (c) displacing the alkyl moieties from the trialkyl aluminum

growth product by contacting the growth product with C₂H₄, C₄H₈, or a mixture of C₂H₄ and C₄H₈ at a temperature of between about 200° C. and 300° C. for between about 0.1 to about 2.5 seconds residence time under elevated pressure 100 to 500 psig, thereby to displace the higher alkyl moieties of the trialkyl aluminum growth product and replace the displaced alkyl growth moieties with C₂H₄ and C₄H₈,

- (d) separating the α-olefin products obtained in the displacement step from the tri lower alkyl aluminum products produced on said displacement step,
- (e) returning the tri lower alkyl aluminum products to step (a),
- (f) separating the olefins in the gaseous effluent from said displacement products separation step (d),
- (g) separating the gaseous effluent into its component parts, including C₂H₄ and C₄H₈,
- (h) recycling the C₂H₄ component to step (a) and/or step (c) and the C₄H₈ to step (c), and
- (i) recovering the C₄, C₆, C₈, and C₁₀ α-olefins as product components.

4,314,091

PREPARATION OF 1-METHYL-3,5-DIISOPROPYL BENZENE FROM CHARGE STREAMS CONTAINING DIISOPROPYL TOLUENE

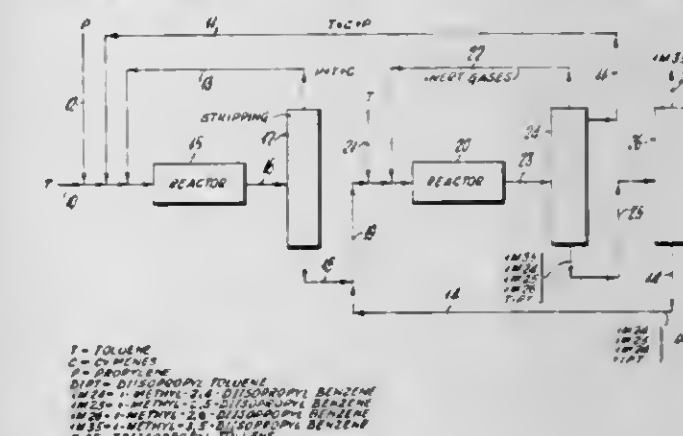
Joho M. Croone, Jr., Fishkill, and Robert M. Suggitt, Wappingers Falls, both of N.Y., assignors to Texaco Inc., White Plains, N.Y.

Filed Mar. 31, 1980, Ser. No. 135,609

Int. Cl.³ C07C 4/12

U.S. Cl. 585—486

5 Claims



ELECTRICAL

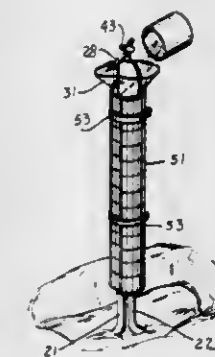
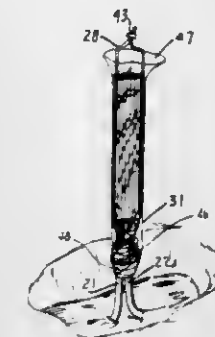
4,314,092
METHODS OF AND APPARATUS FOR
REHABILITATING OUTSIDE TELEPHONE PLANT
 Mills L. Fleming, Lawrenceville, and Francis J. Mullin, Cham-
 ble, both of Ga., assignors to Bell Telephone Laboratories,
 Incorporated, Murray Hill, N.J. and Western Electric Com-
 pany, Inc., New York, N.Y.

Filed Apr. 29, 1980, Ser. No. 144,818

Int. Cl.³ H02G 15/196, 1/14

U.S. Cl. 174—38

24 Claims



1. An enclosed cable splice comprising:

- a liner which is made of a plastic material and which is wrapped about adjacent end portions of a plurality of cables, said cables each comprising a plurality of insulated conductors and a jacket that encloses the conductors, said conductors of one of said cables being spliced to conductors of another cable;
- a length of tubing which is made of a relatively supple plastic material and which encloses said liner and the end portions of the cables, said tubing having at least one end wrapped into secured engagement with at least one of the jackets of the cables;
- a waterproofing material disposed within said tubing between said tubing and said liner and between said liner and the cables to encapsulate the adjacent end portions of the cables; and
- a cover which is made of a plastic material and which surrounds said tubing to form an open ended cylindrical closure, said cover being capable of maintaining the integrity of the tubing and of providing a mold for said tubing and said waterproofing material which is disposed within said tubing.

15. A method of rehabilitating a cable splice, said method including the steps of:

- moving a length of plastic tubing over an end portion of at least one cable with the tubing being collapsed over a jacketed portion of the cable;
- wrapping a length of a perforated liner about the at least one cable and at least another cable to which said at least one cable is spliced, the width of said liner being sufficient to cover said portions of said cables having insulated conductors thereof exposed;
- extending said tubing about said length of liner to enclose the liner with an open end of said tubing being positioned beyond the spliced conductors;

wrapping a length of a cover about the tubing, said cover having a width which is sufficient to enclose said tubing; flowing a waterproofing material into said tubing and through the perforations of said liner to mechanically bond said waterproofing material to said liner; and closing the open end of said tubing.

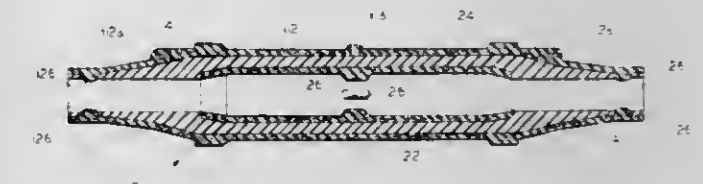
4,314,093
CABLE CONNECTOR
 Raymond W. Eldridge, and David F. Winter, both of St. Louis, Mo., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Mar. 29, 1979, Ser. No. 25,262

Int. Cl.³ H02G 15/184

U.S. Cl. 174—73 R

3 Claims



2. A splice connector for splicing adjacent ends of insulated and shielded primary distribution system cables comprising: a unitary splice body assembly of molded elastomeric material including a generally tubular longitudinal portion for receiving the cable ends from opposite sides thereof, said assembly including a semiconductive inner sleeve for surrounding the connection between said cable ends in conductive relationship therewith, said assembly including a substantially continuous outer jacket of semiconductive material and an insulated portion separating said inner sleeve and said outer jacket, said insulated portion of said assembly being adapted for engaging insulated portions of said cable ends, the central inner portion of said inner sleeve including means for engaging the electrically conductive connection of said cable ends in electrically conductive relationship therewith, and the end portions of said continuous outer jacket each including at least one circumferentially arcuately extending and radially inwardly directed protuberance extending through said insulated portion for respectively yieldably and conductively engaging outer conductive jacket portions of said cable ends.

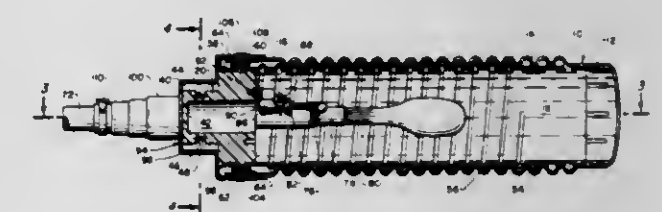
4,314,094
CABLE SEAL SPLICE ENCLOSURE
 Bert A. Smith, Northridge, Calif., assignor to Preformed Line Products Co., Cleveland, Ohio

Filed Dec. 26, 1979, Ser. No. 106,455

Int. Cl.³ H02G 15/08

U.S. Cl. 174—78

6 Claims



1. A cable splice enclosure for cable splices, comprising a vial having a first, open end and internal threads; a body of sealant contained within said vial; a sleeve having external threads substantially along its length and two open ends, said external threads on said sleeve being corrugations in the wall of said sleeve and being

pressed information signals corresponding to the next adjacent sample points.

4,314,106

LINE CIRCUIT

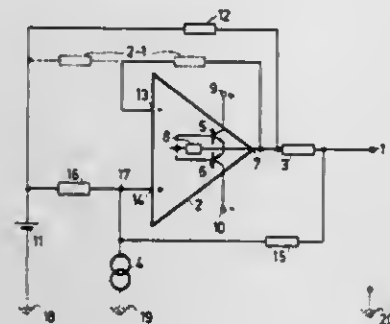
Pieter Bakker, Hilversum, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 21, 1980, Ser. No. 142,275

Claims priority, application Netherlands, May 10, 1979, 7903664

Int. Cl.³ H04B 1/58; H04Q 1/28

U.S. Cl. 179—16 F



1. A line circuit comprising: a connecting terminal, a supply source, an amplifier having a low output impedance, said amplifier being connected to said supply source and said connecting terminal for applying, by means of the line circuit, a predetermined direct current originating from said supply source to a wire of the subscriber's line which is connected to said connecting terminal, said line circuit also comprising an impedance multiplying circuit and a current injection device connected to the output of said amplifier for applying a portion, determined by the impedance of said current injection device, of the direct current to the wire of the subscriber's line, whereby the remaining smaller portion of said predetermined direct current is supplied by said amplifier.

4,314,107

SUBSCRIBER STATION NETWORKS

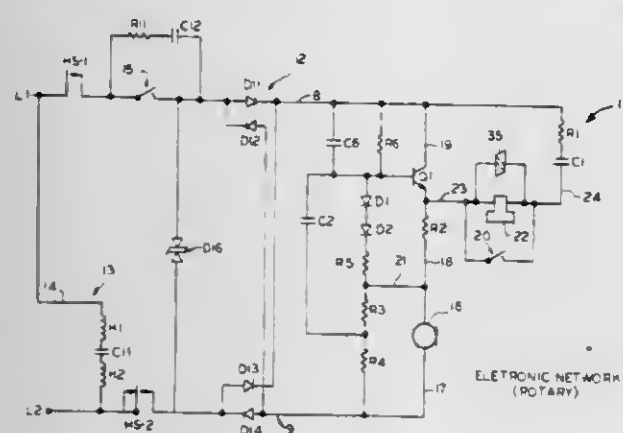
Alfred M. Hestad, Chicago, Ill.; Michael Teutler, Kenosha, Wis., and Levi L. Rose, Chicago, Ill., assignors to United Networks, Inc., Chicago, Ill. and Manu-Tronics, Inc., Kenosha, Wis.

Filed Dec. 26, 1979, Ser. No. 107,143

Int. Cl.³ H04M 1/58

U.S. Cl. 179—81 R

11 Claims



1. A subscriber station network for controlling signals transmitted and/or received over telephone lines, said network comprising a pair of line terminals connecting said network to said telephone lines, transmitter means for transmitting signals through said pair of line terminals, receiver means for receiving signals through said pair of line terminals,

amplifying means for use in controlling the amplitude of said signals, means for coupling said amplifying means in series with said transmitter means across said pair of line terminals, and receiver coupling means for coupling said receiver means across said amplifying means, whereby cancellation of transmitted signals received by the receiver means occurs and side tone at said receiver means is controlled.

4,314,108

KEY SET TOLL RESTRICTOR

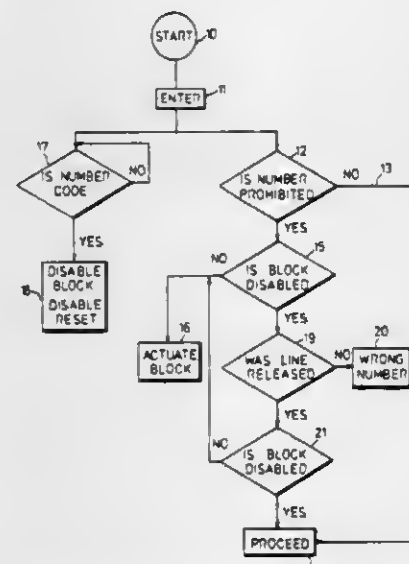
Martin M. Sharvit, Thornhill, Canada, assignor to Cindon Research Inc., Rexdale, Canada

Filed Apr. 2, 1980, Ser. No. 136,735

Int. Cl.³ H04M 1/66

U.S. Cl. 179—90 D

12 Claims



1. A telephone call restrictor comprising: input means including terminals for connecting said telephone call restrictor to a telephone line for receiving dial signals; resetting means responsive to a voltage change to said terminals associated with said telephone line changing between a seized and a released condition for resetting said telephone call restrictor to a first condition; circuit means connected to receive said signals for recognizing digits; inhibiting means responsive to the recognition of prohibited digits for inhibiting communication on said telephone line; and means responsive to the recognition of an access code for disabling said inhibiting means and said resetting means for a predetermined time period, whereby said telephone line may be released and resealed without said telephone call restrictor reverting to said first condition.

4,314,109

SYNCHRONIZATION SYSTEM FOR KEY TELEPHONE SYSTEM

Koichi Sekiguchi, Asaka, and Kazuyuki Yamamoto, Yokohama, both of Japan, assignors to Iwasaki Tsushinki Kabushiki Kaisha and Nippon Telegraph & Telephone Public Corporation, both of Japan

Filed May 20, 1980, Ser. No. 151,733

Claims priority, application Japan, Jun. 5, 1979, 54-70375

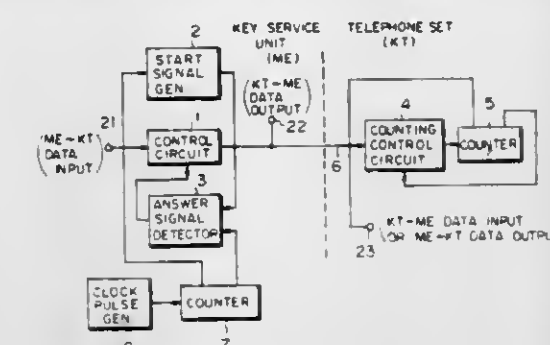
Int. Cl.³ H04J 3/06, 3/12; H04M 1/72

U.S. Cl. 179—99 M

1 Claim

1. A synchronization system for a key telephone system, in which key information or the like information signal between a key service unit and each key telephone set is transmitted in the form of a time-division pulse signal under the control of a first counter provided in the key service unit, characterized in

that the information signal has a format which is divided into a first signal from the key service unit to each key telephone set and a second signal from each key telephone set to the key service unit so as to make distinction between the first signal and the second signal in terms of time, the first signal being disposed in a time slot preceding the second signal to provide a pair of signal groups, a one-pulse start signal being disposed in the foremost time slot of the signal groups and a one-pulse answer signal is disposed in a time slot between the first and second signals; said each key telephone set comprising a second counter for producing a reference signal for controlling



the transmission of the information signal in the key telephone set and a counting control circuit for detecting the start signal to start the second counter; said key service unit comprising an answer detector for detecting, as the answer signal, a pulse present in the information signal when a certain period of time has passed after occurrence of the start signal and a control circuit for stopping the first signal for a certain period of time when the answer signal is not detected by the answer signal detector after the certain period of time has passed after occurrence of the answer signal, whereby the first counter and the second counter are synchronized with each other.

4,314,110

SYSTEM FOR THE TESTING OF TELEPHONE SWITCHING SYSTEMS

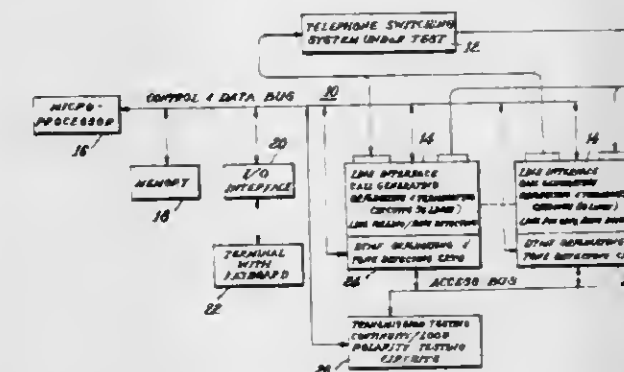
Charles J. Brelidenstein, and Charles A. Barbe, III, both of Rochester, N.Y., assignors to Redcom Laboratories, Inc., Rochester, N.Y.

Filed Aug. 13, 1980, Ser. No. 177,659

Int. Cl.³ H04M 3/24

U.S. Cl. 179—175.2 R

16 Claims



1. A system for generating calls in order to test telephone switching systems by simulating traffic loads thereon which comprises from one to a given plurality of independent and identical means for originating a plurality of calls each independently and in selected sequence and number on command and applying said calls each to a different calling line of a group of lines of a telephone switching system which is under test, separate first register means for each of said originating means each having an array of memory groups which groups each have a plurality of locations in excess of the number necessary for said commands to enable access for said commands and for different input/output data associated with the testing of the lines of said telephone switching system under test, and microprocessor control means for generating said

commands connected to said originating means and said register means thereof.

4,314,111

COMBINED DOUBLE SWITCH UNIT

Mitsun Kobayashi, Gifu, Japan, assignor to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Aichi, Japan

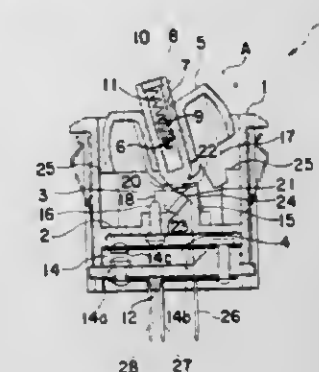
Filed May 30, 1980, Ser. No. 155,111

Claims priority, application Japan, Jun. 1, 1979, 54-74848[U]

Int. Cl.³ H01H 9/00

U.S. Cl. 200—4

8 Claims



1. A switch unit comprising: a support frame including a partition wall separating the interior of said frame into first and second chambers; a first operating member mounted within said first chamber about a shaft member for pivotal movement between first and second positions, said first operating member having extending therefrom into said first chamber a first switch operating portion; a second operating member mounted within said first operating member for movement therein in opposite linear directions between a first outer position and a second inner position, said second operating member being pivotal with said first operating member during movement thereof between said first and second positions thereof, said second operating member having at an inner end thereof a second switch operating portion and a sliding portion; spring means for urging said second operating member to said first outer position thereof; first and second switch mechanisms positioned within said second chamber; first pin means, mounted for movement through said partition wall, and positioned to be depressed by said first switch operating portion upon movement of said first operating member from said first position thereof to said second position thereof for thereby actuating said first switch mechanism; second pin means, mounted for movement through said partition wall, and positioned to be depressed by said second switch operating portion upon linear movement of said second operating member from said first outer position thereof to said second inner position thereof, when said first operating member is in said second position thereof, for thereby actuating said second switching mechanism; and cam surface means, provided on said partition wall and extending along the path of movement of said sliding portion during pivotal movement of said first operating member, and thereby of said second operating member, between said first and second positions thereof, for, upon linear movement of said second operating member from said first outer position thereof to said second inner position thereof when said first operating member is in said first position thereof, being slidably contacted by said sliding portion and thereby imparting pivoting movement to said second operating member and thus causing said first operating member to pivot to said second position thereof, thereby causing simultaneous depression of said

first and second pin means and actuation of said first and second switch mechanisms.

4,314,112 KEYBOARD HAVING SWITCHES WITH TACTILE FEEDBACK

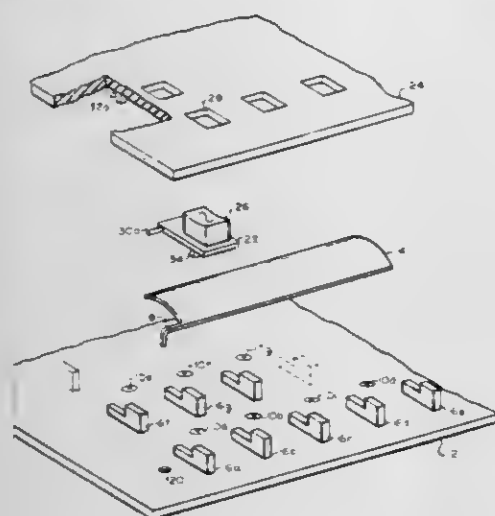
William W. Misson, Santa Rosa; Clarence K. Studley, Los Altos; Bernard M. Oliver, Los Altos Hills, and Edward T. Liljenwall, Sunnyvale, all of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Division of Ser. No. 173,754, Aug. 23, 1971, Pat. No. 3,941,953.

This application Jun. 10, 1974, Ser. No. 477,935

Int. Cl.³ H01H 13/70

U.S. Cl. 200—5 A



1. A keyboard having a plurality of normally open contact switches, said keyboard comprising:

a circuit board having first and second sides;
a plurality of spaced first electrical contacts, each contact extending through said circuit board from said first side of said circuit board to said second side thereof and being electrically connected to selective circuits on said second side;

a plurality of second contacts, each formed as a curved resilient plate of electrically conductive material spaced from said first contact in a normally open position and having a peripheral edge along at least a portion of which said second contact is supported;

a contact support on said first side of said circuit board spaced from each of said first contacts and supporting said second contacts along at least a portion of their peripheral edges, said contact support being connectable to a potential, each of said switches completing a circuit upon deflection of the center of said plate from said normally open position to a closed position against a corresponding first contact when pressure is exerted against said center, said center snapping back to said normally open position upon removal of said pressure;

a plurality of depressible keys; and
means for positioning said keys with one of said keys adjacent each of said second contacts, each of said keys being selectively depressible to deflect a respective plate from said normally open position to a closed position.

2. A keyboard assembly comprising:

an electrically insulative base member having a plurality of fixed electrically conductive contact elements arranged in a predetermined pattern and adapted to be electrically coupled to associated circuit elements, each fixed contact element having a portion projecting in a first direction from said base member, said base member further including a plurality of contact regions;

a plurality of snap action diaphragm contact elements overlying said fixed contact elements, each said diaphragm contact element having a tine extending in a direction

generally opposite said first direction to said base member and coupled to said contact regions;
electrical insulative means coupled to said base member for supporting said diaphragm contact elements and for limiting lateral movement thereof; and
means for flexing said diaphragm contact elements to enable contact with one of said fixed contact elements to provide an electrical switching function.

4,314,113 KEYSWITCH HAVING CONTACTS MOUNTED ON CANTILEVER BEAMS

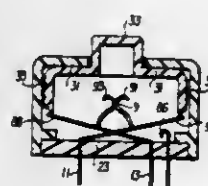
Edward I. Nelson, Sunrise, Fla., assignor to Burroughs Corporation, Detroit, Mich.

Filed Jan. 21, 1980, Ser. No. 113,907

Int. Cl.³ H01H 3/12

U.S. Cl. 200—5 R

5 Claims



1. A keyswitch, comprising:

a housing;

a plunger which is guided within said housing;

a pair of cantilever beams attached to said housing, said beams making springing contact with said plunger whereby putting pressure on said plunger results in deflection of said cantilever beams and removing pressure from said plunger causes said beams and said plunger to springably return to their rest positions; and

a pair of electrical contacts each attached to a respective cantilever beam such that when said beams are in their rest position said contacts touch one another and when said beams are deflected said contacts do not touch one another.

4,314,114 LAMINATED MEMBRANE SWITCH

Willis A. Larson, Crystal Lake, Ill., assignor to Oak Industries, Rancho Bernardo, Calif.

Filed Feb. 4, 1980, Ser. No. 118,410

Int. Cl.³ H01H 13/02

U.S. Cl. 200—5 A

8 Claims



1. An assembly comprising a membrane switch including a composite of first and second layers which are substantially coextensive and are made of materials which are heat-bondable to each other, the composite being folded back upon said second layer and forming the outer members of said membrane switch, electrical conductors formed on the composite, and a spacer member made of material which is heat-bondable to said second layer, said spacer member having spaced openings therein and extending between the folded portions of the composite, said composite being heat and pressure bonded to the spacer.

4,314,115 KEY-BOARD SWITCHING UNIT

Ryoichi Sado, Saitama, and Koichi Nei, Tokyo, both of Japan, assignors to Shin-Etsu Polymer Co., Ltd., Tokyo, Japan

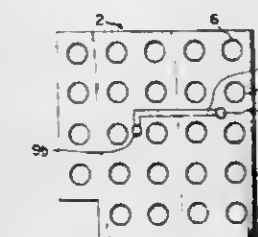
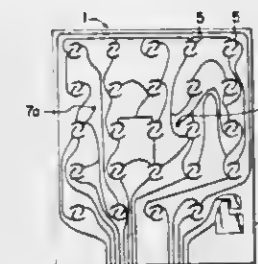
Filed Mar. 25, 1980, Ser. No. 133,663

Claims priority, application Japan, Jul. 4, 1979, 54-46393

Int. Cl.³ H01H 13/70

U.S. Cl. 200—5 A

1 Claim



1. A key-board switching unit which comprises

(a) a printed circuit board made of an electrically insulating board provided on one surface thereof with a printed circuit pattern having a plurality of fixed contacts, said circuit pattern including at least two unconnected contacts, said circuit pattern being incomplete by the lack of at least one jumping connection across said unconnected contacts,

(b) a key-board covering pad made of an electrically insulating rubbery material provided on one surface thereof with a plurality of movable contacts at positions corresponding to the fixed contacts on the printed circuit board and at least one connection circuit on the same surface as the movable contacts at a position corresponding to said at least two unconnected contacts on the printed circuit board to directly connect said unconnected contacts, said covering pad being mounted on the printed circuit board in such a manner that each of the movable contacts faces respective one of the fixed contacts on the printed circuit board, and

(c) at least one spacer means positioned between the printed circuit board and the covering pad to form only a narrow interspace between the fixed contacts and the movable contacts and thereby not forming an interspace between said connection circuit and said unconnected contacts.

4,314,116 KEYBOARD SWITCH WITH GRAPHIC OVERLAY

Herman B. Gordon, Tempe, Ariz., assignor to Rogers Corporation, Rogers, Conn.

Filed Jun. 23, 1980, Ser. No. 161,776

Int. Cl.³ H01H 13/70

U.S. Cl. 200—5 A

8 Claims

1. In a switch having:

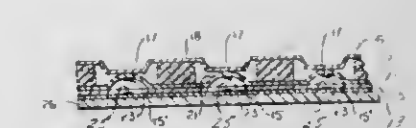
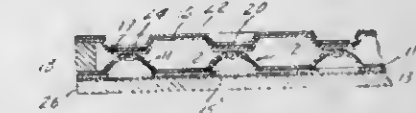
first contact means, said first contact means including a first conductive element being movable between first and second positions;

second contact means, said second contact means including a second conductive element aligned with and out of contact with said first conductive element when said first conductive element is in the first position, and said first conductive element being in contact with said second conductive element when said first conductive element is in the second position; and

flexible cover sheet means, said cover sheet means defining a planar surface having at least a first depression in alignment with and extending toward said contact means con-

ductive elements and having a base portion, whereby flexing of the base portion of said depression toward said contact means will move at least one of said conductive elements toward the other and establish electrical contact between said first and second contact means conductive elements;

the improvement comprising:



indicia bearing means for identifying a contact in said depression and supported by said base portion; and
transparent overlay means over said cover sheet means, said transparent overlay means having at least a first depression mating and nesting with said first depression in said cover sheet means.

4,314,117 MEMBRANE CONTACT SWITCH

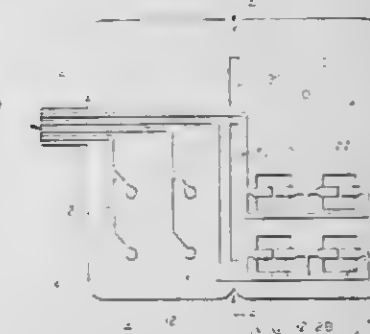
Albert F. Ditzig, Hoffman Estates, Ill., assignor to RE-AL, Inc., Wheeling, Ill.

Filed Jul. 24, 1980, Ser. No. 171,726

Int. Cl.³ H01H 13/70, 1/00

U.S. Cl. 200—5 A

12 Claims



1. A contact switch assembly comprising:

a unitary sheet of flexible and resilient insulator membrane having a first and second section separated by a fold line and a tail section;

a switch circuit pattern supported by said membrane, said switch circuit having a contact point supported by said first membrane section and a contactor element supported by said second membrane section, said circuit patterns communicating with said contact point and contactor element terminating at said membrane tail section;

said first and second membrane section being folded upon themselves along said fold line whereby said contactor element supported by said second membrane section is positioned above and in registry with said contact point supported by said first membrane section;

means for electrically insulating the circuit pattern supported by said first membrane section from the circuit pattern supported by said second membrane section;

a resilient dome having upper and lower electrically conductive surfaces which are in communication with each other positioned between said contact point and said contactor element, said dome having a rest position wherein its

lower surface is not in electrical contact with said contact point and a flexed position wherein its lower surface is in electrical contact with said contact point;
means for maintaining said contactor element in electrical contact with the upper surface of said dome; and
means for maintaining said contact point and associated circuit pattern out of electrical contact with said dome when said dome is in its rest position, whereby the lower surface of said dome will electrically engage said contact point only when said resilient dome is depressed into its flexed position thereby completing the electrical circuit between said contact point and contactor element.

12. The switch assembly of claim 1, further comprising a keyboard assembly having multiple contact points supported by said first membrane section, multiple contactor elements supported by said second membrane section and multiple resilient domes positioned between said contact points and corresponding contactor elements.

4,314,118

SWITCH HAVING A COIL SPRING AND METHOD OF ASSEMBLING

Masao Ohkita, and Hitoshi Yamashita, both of Furukawa, Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan

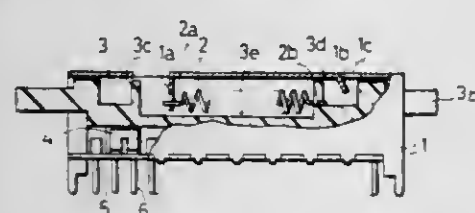
Filed Jun. 28, 1978, Ser. No. 919,800

Claims priority, application Japan, Jun. 28, 1977, 52-76797

Int. Cl.³ H01H 15/02, 11/00

U.S. Cl. 200—16 F

4 Claims



1. A method of assembling a spring loaded switch having a frame member carrying a plurality of fixed contacts and having a first catch portion adapted to hold a first end portion of a coil spring, and a slider member carrying movable contacts and adapted to slide within said frame member for engaging selectively said fixed contacts upon movement of said slider member, said slider member being adapted to hold the second end portion of said coil spring, said method comprising the steps of: inserting said coil spring into said frame so as to hold one end portion of said spring by said first catch portion and the other end portion of said spring by a second catch portion of said frame, said coil spring being held under tension between said catch portions;

inserting said slider member into said frame; and thereafter removing one end portion of said spring from its associated catch portion and securing it into engagement with said slider member.

3. A switch comprising:

a frame carrying a plurality of fixed contacts and having first and second catch portions extending inwardly from a wall portion of said frame;

a tension coil spring having a respective hook portion on each end thereof, one of said hook portions being held by said first catch portion;

a slider member carrying movable contacts and adapted to slide within said frame member for engaging selectively said fixed contacts upon movements of said slider member, said slider member having a projection adapted to engage the other of said hook portions to hold said spring under tension; and

an opening in said frame adjacent said second catch portion whereby during assembly of said switch, said coiled spring may be first held under tension by engaging its hook portions about respective catch portions of said frame and then a tool can be inserted through said opening to remove said other hook portion from the second catch

portion and onto said projection for securing said spring under tension between said frame and said slider member.

4,314,119

CONTROL DEVICE FOR MOTOR-REDUCTION UNITS

Pierre Fillion, Ville la Grand, France, assignor to Etablissements Carpano & Pons, France

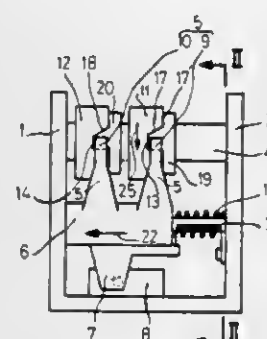
Filed Apr. 21, 1980, Ser. No. 142,050

Claims priority, application France, Apr. 25, 1979, 79 11205

Int. Cl.³ H01H 3/16

U.S. Cl. 200—47

9 Claims



1. A control device, comprising:

at least one cam having a circumferential cam surface, a circumferential shoulder surface recessed relative to said circumferential cam surface, and a notch surface defining a notch in said circumferential cam surface adjacent said circumferential shoulder surface and opening to said circumferential shoulder surface;

cam mounting means mounting said cam for rotation about an imaginary axis of rotation with said circumferential cam surface rotatable circumferentially about the imaginary axis of rotation;

a control member having a projection defining a cam follower dimensioned to ride on said circumferential cam surface and be received within said notch and ride on said circumferential shoulder surface; and

control member mounting means for pivotally and slidably mounting said control member to move said control member projection toward and away from said circumferential cam surface and generally parallel to the imaginary axis of cam rotation, said control member mounting means normally positioning said control member with said control member projection bearing against said circumferential cam surface, said control member pivoting to insert said control member projection into the notch in said circumferential cam surface when said cam rotates to bring said notch opposite said control member projection, and said control member sliding generally parallel to the imaginary cam axis of rotation along said notch surface as said cam rotates with said control member projection extending into said notch until said control member projection travels out of said notch onto said recessed circumferential shoulder surface to allow said cam to rotate beyond the position at which said control member projection extends into said notch.

4,314,120

SHOCK RESPONSIVE DEVICE

Mark B. Sharp, 19130 Sherman Way, Apt. 14, Reseda, Calif. 91335, and Robert E. Sharp, 19732 Vanowen St., Canoga Park, Calif. 91306

Filed May 8, 1980, Ser. No. 147,941

Int. Cl.³ F16K 17/36

U.S. Cl. 200—61.45 R

11 Claims

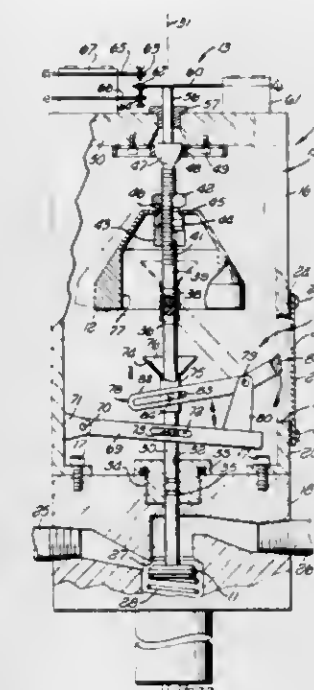
1. A shock responsive device comprising:

a first element yieldingly urged upwardly;

a weight structure above said first element displaceable by shock forces;

a universal connection above said first element suspending said weight structure in depending relation for universal pivotal movement between a normal position in which a lower portion of the weight structure blocks upward movement of said first element and laterally deflected positions releasing the first element for upward movement;

said universal connection including a ball connected to the



weight structure, and a socket structure disposed about the ball and supporting it for universal movement; an additional element projecting upwardly above said ball and movable upwardly and downwardly relative thereto; switch means actuable by said additional element; and means forming a surface on said ball engageable with said element to deflect it upwardly in response to universal pivotal movement of the weight structure from said normal position.

4,314,121

SWITCH WITH SLIDING CONTACTOR

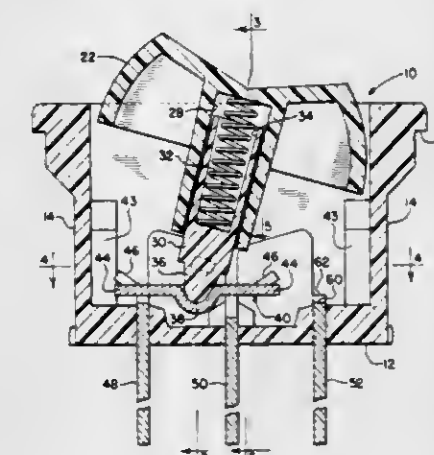
Martin Gaber, Wilmette, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Oct. 20, 1980, Ser. No. 198,676

Int. Cl.³ H01H 13/28

U.S. Cl. 200—67 G

9 Claims



1. In a switch construction comprising a plurality of opposed generally flat contacts, a sliding bridging contactor, actuator means for sliding said contactor relative to said contacts so that said contactor is shifted by said actuator means between a first position at which it completes a circuit by engaging two of said contacts and a second position at which said contactor is shifted out of engagement with at least one of said previously

engaged contacts, wherein at least one of said opposed contacts comprises first and second engagement surfaces, the improvement wherein said contactor comprises a first contact surface means moveable into engagement with said first engagement surface and a second contact surface means moveable into engagement with said second engagement surface, which are located relative to each other so that;

(a) said first contact surface means contacts said first engagement surface before said second contact surface means contacts said second engagement surface, and said first contact surface means disengages from contact with said first engagement surface after said second contact surface comes into contact with said second engagement surface during closure of said circuit between said two contacts, and

(b) said first contact surface means again contacts said first engagement surface and remains in contact with said first engagement surface until after said second contact means disengages from contact with said second engagement surfaces during opening of said circuit, thereby confining the major portion of any arcing that occurs to said first contact surface means and said first engagement surface.

4,314,122

CONTROL UNIT AND ELECTRICAL SWITCH CONSTRUCTION THEREFOR AND METHODS OF MAKING SUCH A CONTROL UNIT AND ELECTRICAL SWITCH CONSTRUCTION

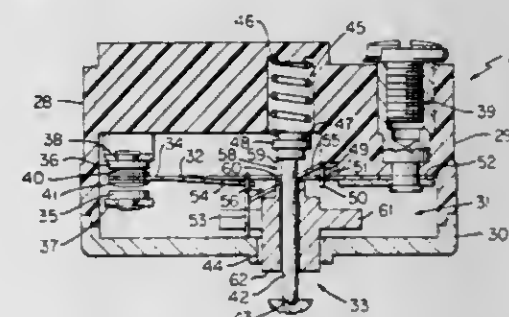
Werner R. Bauer, Radnor, and William N. Smith, Hatboro, both of Pa., assignors to Robertshaw Controls Company, Richmond, Va.

Division of Ser. No. 766,018, Feb. 7, 1977, Pat. No. 4,245,142, which is a continuation-in-part of Ser. No. 707,635, Jul. 22, 1976, Pat. No. 4,109,121. This application Feb. 11, 1980, Ser. No. 120,259

Int. Cl.³ H01H 13/22, 35/24

U.S. Cl. 200—72 A

2 Claims



1. An electrical switch construction comprising a housing means carrying a pair of spaced contact stops and a switch blade having a contact portion for being moved between said stops when said blade is moved overcenter, and a movable actuator means carried by said housing means for moving said blade overcenter in one direction when said actuator means is moved in one direction thereof and for moving said blade overcenter in the opposite direction thereof, said actuator means extending out of said housing means to thereby be accessible for operation external to said housing means, said actuator means including an actuator plunger, said actuator means including an actuator spring that is moved by movement of said actuator plunger, said actuator spring being operatively interconnected to said blade to move said blade as said actuator means is moved, said actuator means having a gap defined by a pair of spaced shoulders on said actuator means that are adapted to respectively engage said actuator spring, said actuator means including a sleeve movably carried by said housing means and being operatively associated with said plunger, said plunger having a stop part thereof that defines one of said shoulders, said sleeve defining the other of said shoulders whereby operation of said sleeve and said plunger allows

independent determination of the snap over points of said blade.

least one detent means, the actuating member being displaceable between operating positions through at least one

4,314,123

CURRENT FEED FOR A SUPER-CONDUCTING MAGNET COIL

Hans Hieronymus, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

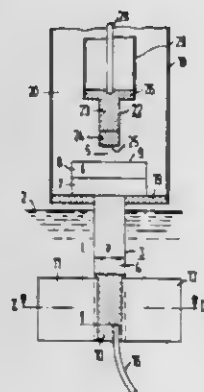
Filed Dec. 27, 1979, Ser. No. 107,713

Claims priority, application Fed. Rep. of Germany, Jan. 18, 1979, 2901892

Int. Cl.³ H01H 1/62

U.S. Cl. 200—289

13 Claims



1. In a current feed for a superconducting magnet coil which is cooled by a cryogenic medium and the coil ends of which can be short circuited by a continuous current switch, with a disconnecting device at each coil end which comprises a stationary contact member which is connected to the respective coil end and is included in the cooling effect of the cryogenic medium, a movable contact member connected to a current supply, and a mechanical actuating device for joining the contact members with a predetermined contact pressure and for separating them after the magnet coil is short-circuited, the improvement comprising:

- the mass ratio of the cooled contact element to the movable contact element being at least 5:1;
- the cooled contact element being of elongated shape in the current flow direction and having, at its end facing away from the contact region, means for enlarging the surface area, said end being connected to an end of the coil; and
- the thermal resistance of the cooled contact element between the contact region and the connection point of the coil end being at least 0.2 kelvin per watt for each 1000 amperes of current maximally to be transmitted.

4,314,124

PUSHBUTTON CONTACT

Heinrich Sauer, Amberg, and Herbert Müller, Schwarzenfeld, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Nov. 19, 1979, Ser. No. 95,332

Claims priority, application Fed. Rep. of Germany, Dec. 13, 1978, 2853880

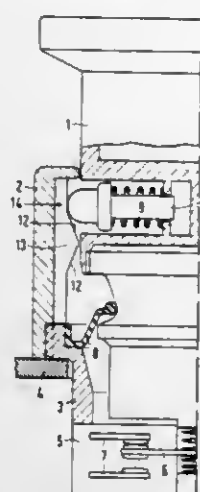
Int. Cl.³ H01H 9/00

U.S. Cl. 200—328

8 Claims

1. A push button contactor which is adapted to be changed from a contacting function to a locking function and vice versa comprising:

- a support carrying at least first and second cam surfaces each having a different profile; and
- an actuating member adjacent to the support and carrying at



predetermined angle to bring the detent means into operating engagement with either one of the cam surfaces.

4,314,125

ELECTRIC SEAM WELDING DEVICE IN THE PRODUCTION EQUIPMENT OF HOT-DIP METAL-COATED STEEL TUBES

Matsuichi Nakamura, 26, 5-chome, Itachibori-minamidori, Nishi-ku, Osaka-shi, Osaka-fu, Japan

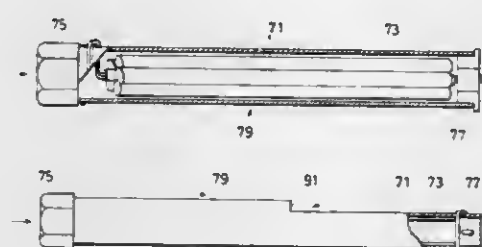
Continuation of Ser. No. 9,443, Feb. 5, 1979, abandoned. This application Sep. 9, 1980, Ser. No. 185,881

Claims priority, application Japan, May 13, 1978, 53/14173

Int. Cl.³ H05B 6/14

U.S. Cl. 219—8.5

2 Claims



1. Apparatus for the production of hot-dip metal-coated steel tubes comprising means for cold forming steel strip having parallel edges into cylindrical tube and forcing the edges of the strip together in a seam, and means for immersing the tube into molten metal, the improvement therein comprising a high frequency welding coil means extending about the areas of the strip to be seam welded, an electrically insulating and heat resisting elongated approximately cylindrical case extending into the formed cylindrical portion of the steel strip at said welding coil and including an outer cylindrical surface closely spaced from the inner surface of the cylindrical portion of the formed steel strip, said cylindrical case including at one of its end portions a joint, an air conduit means connected to said joint for directing cooling air through said cylindrical case, said cylindrical case including at the other of its end portions an air outlet opening for exhausting the cooling air from said cylindrical case into the formed cylindrical portion of the steel strip at a position beyond the welding coil, said cylindrical case including a second air outlet opening at a position for directing a flow of the cooling air from said cylindrical case into the gap between the edges of the formed cylindrical portion of the steel strip to cool the edges of the steel strip and to blow away the iron dust appearing on the inner surface of the formed cylindrical portion of the steel strip at the welding point, a

plurality of elongated ferrite cores each contained in and extending along substantially the full length of said cylindrical case and arranged in a bundle with respect to one another and disposed parallel to said cylindrical case and occupying a major portion of the diameter of said cylindrical case, and means for supplying air to said conduit means whereby the air flows into said cylindrical case and along and about said ferrite cores of the bundle of cores and then out the air outlet openings of said case and into the formed cylindrical portion of the steel strip to cool the case, cores and formed steel strip without hazard of explosion and into the gap between the edges of the steel strip to remove the iron dust from the formed steel strip.

4,314,126

MICROWAVE HEATING APPARATUS WITH COOLING CONDUIT

Hirofumi Yoshimura, Nara; Junzo Tanaka, Fujidera, and Nobuo Ikeda, Nara, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

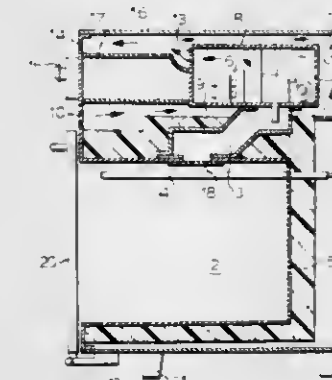
Continuation-in-part of Ser. No. 47,996, Jun. 13, 1979, abandoned. This application Jul. 30, 1979, Ser. No. 62,241

Claims priority, application Japan, Jun. 13, 1978, 53-71699

Int. Cl.³ H05B 6/64

U.S. Cl. 219—10.55 R

2 Claims



1. A microwave heating apparatus comprising:
a body having a front wall and a top wall;
a heating chamber within said body for holding an object to be heated and having a microwave inlet in the top thereof;
a microwave source for generating microwaves and having high voltage circuit components associated therewith;
a wave guide connected between said microwave source and said microwave inlet for guiding the microwaves from said microwave source to said heating chamber;
a radiant energy heating means disposed within said heating chamber for heating the object to be heated by radiant energy;
a power box above said chamber and housing said microwave source and the high voltage circuit components, the top surface of said power box being spaced from said top wall to define a top cooling conduit along the top of said power box;
a microwave source cooling fan in said power box;
thermal insulation covering the walls of said heating chamber, the upper surface of said thermal insulation on the top of said chamber and the bottom surface of said power box being spaced to provide a bottom cooling conduit along the bottom of said power box, the front wall of said body having an air suction inlet therein opening only into one end of said bottom cooling conduit; and
a power box cooling fan at the other end of said bottom cooling conduit and discharging into said top cooling conduit, said top cooling conduit having a discharge opening at the end remote from said power box cooling fan, said power box having a suction port therein at the other end of said bottom cooling conduit and opening into said cooling conduit upstream of said power box cooling fan for admitting air from said cooling conduit into said power box, and said power box having a discharge port at the end remote from said suction port communicating with said top cooling conduit,

said microwave source cooling fan and said power box cooling fan being in parallel flow relation.

4,314,127

MICROWAVE OVEN WITH ROTATING MULTI-PORT RADIATOR

Bernard J. Weiss, Barto, Pa., assignor to Raytheon Company, Lexington, Mass.

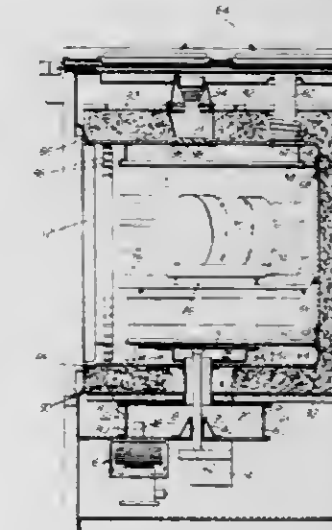
Continuation of Ser. No. 847,863, Nov. 2, 1977, abandoned. This

application Oct. 24, 1979, Ser. No. 94,135

Int. Cl.³ E05B 6/72

U.S. Cl. 219—10.55 F

11 Claims



1. A microwave heating apparatus comprising:
a substantially rectangular conductive enclosure having an aperture in a wall thereof;
a source of microwave energy outside said enclosure;
a primary radiating structure having a chamber formed by spaced first and second surfaces, said first surface having a hole therein, said structure being supported in said enclosure by a conductive rod extending into said enclosure through said aperture, said rod extending through said hole and contacting said second surface for supporting said structure;
a conductive cylinder positioned concentric with said rod and extending from said aperture into said chamber for providing a coaxial transmission line in combination with said rod for coupling said microwave energy to said chamber;
means for rotating said primary radiating structure about the axis of said rod;
and said primary radiating structure comprising a plurality of radiators for radiating simultaneous beams of said microwave energy, said beams having differently oriented polarization vectors in a plane substantially perpendicular to said axis.

4,314,128

SILICON GROWTH TECHNIQUE AND APPARATUS USING CONTROLLED MICROWAVE HEATING

Sanjeev R. Chitre, Reseda, Calif., assignor to Photowatt International, Inc., Tempe, Ariz.

Filed Jan. 28, 1980, Ser. No. 115,952

Int. Cl.³ H05B 6/80, 6/72; C30B 15/20

U.S. Cl. 219—10.55 B

15 Claims

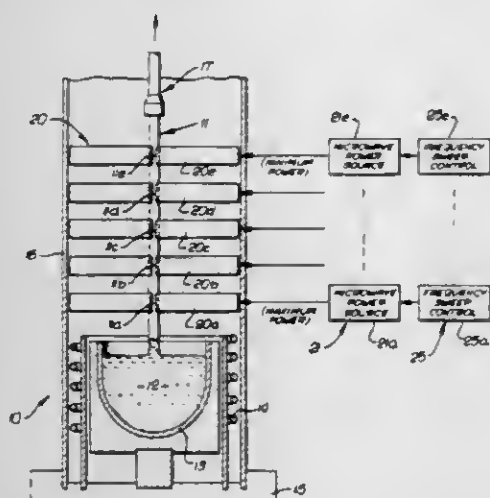
1. A method for the control of thermal gradients in crystal pulling, comprising:

- heating by microwave energy the crystal being pulled at a series of positions increasing in distance from the melt from which the crystal is formed, and
- controlling said microwave heating at each position so as to

produce a substantially uniform temperature laterally across the crystal at said position, the uniform temperatures decreasing step-wise at successive positions with increasing distance from the melt.

10. An apparatus for controlling thermal gradients in the growth of a crystal being pulled by a puller from a melt, comprising:

a plurality of microwave radiators arranged linearly along the direction of pulling by said puller so that said crystal



will sequentially pass each of said radiators and be heated by microwave energy radiated therefrom, and a like plurality of controlled microwave power sources each connected to drive a respective radiator, said sources being controlled so that power levels of microwave energy from said radiators progressively decrease with increasing distance of said radiators from said melt, the frequency of individual power sources being swept through a range of frequencies to achieve by said heating a certain lateral temperature distribution in said crystal.

4,314,129

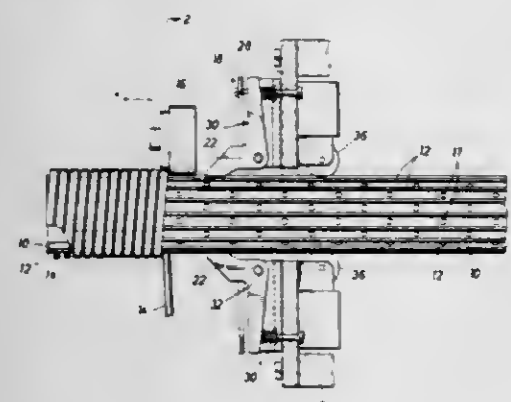
METHOD AND APPARATUS FOR MAKING WELL SCREEN

Hill D. Wilson, and Norman R. Corgey, both of Houston, Tex., assignors to Houston Well Screen Company, Houston, Tex.

Filed Feb. 12, 1979, Ser. No. 11,035
Int. Cl.³ B23K 11/00

U.S. Cl. 219—58

7 Claims



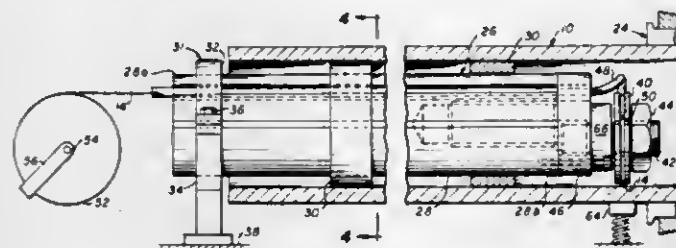
1. A method of making a rod-based screen in place on a perforated pipe base comprising the steps of mounting a perforated pipe for rotation around its longitudinal axis positioning a plurality of rods along the outer surface of the pipe rotating the pipe and the rods to wrap a wire in spaced helical coils around the pipe and the rods, welding the wire to the rods as the wire engages the rods, and grounding each individual rod ahead of the wrapped wire through a separate individual contact that engages only said individual rod on the outside surface of the rod adjacent the wire.

4,314,130
METHOD OF MAKING VARIABLY RIFLED TUBES
Thomas L. Mabery, East Ridge, and Francis B. Jackson, Chattanooga, both of Tenn., assignors to Combustion Engineering, Inc., Windsor, Conn.

Filed Sep. 10, 1979, Ser. No. 73,969
Int. Cl.³ B21D 53/06; B23K 11/32

U.S. Cl. 219—58

4 Claims



1. A method of providing a tube with a predetermined pattern of variable rifling for purposes of imbuing the tube with the requisite heat transfer characteristic comprising the steps of:

- providing a tube to be furnished with variable rifling;
- providing a length of wire to be affixed to the inner wall of the tube;
- supporting the tube and the length of wire relative to each other so as to enable relative motion to be had therebetween;
- inserting a conductor operable to supply welding power energy therethrough into the interior tube;
- supporting a grounding member externally of the tube in cooperative association with the outer surface of the tube;
- feeding the length of wire into the interior of the tube;
- effecting relative motion between the length of wire and the tube simultaneous with the feeding on the length of wire into the tube interior;
- coordinating the rate of feed of the length of wire with the relative motion occurring between the length of the wire and the tube;
- configuring the length of wire into the form of the pattern of variable rifling required to provide the tube with the desired heat transfer characteristics as the length of wire is being fed into the tube interior, by virtue of the coordination effected between the rate of feed of the length of wire and the relative motion occurring between the length of wire and the tube;
- supplying welding power energy through the conductor to weld the length of wire in the form of the requisite pattern of variable rifling to the inner wall of the tube by establishing a continuous weld between the length of wire and the tube inner wall;
- withdrawing the conductor from the interior of the tube after length of wire has been welded to the inner wall of the tube; and
- removing the grounding member from cooperative association with the outer surface of the tube.

4,314,131

METHOD OF BAND WELDING WITH WELD TESTING
George R. Fryer, Ansonia, Conn., assignor to Fryer Corporation, Oxford, Conn.

Division of Ser. No. 860,873, Dec. 15, 1977, Pat. No. 4,208,565.
This application Nov. 26, 1979, Ser. No. 97,544

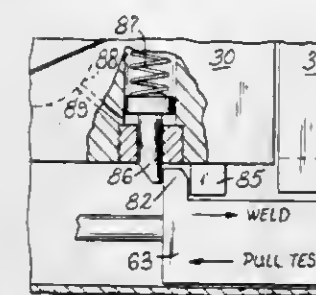
Int. Cl.³ B23K 9/225

U.S. Cl. 219—58

2 Claims

1. A method of banding articles with wire comprising the steps of passing a wire having a leading end about the articles, clamping the leading end in a first clamping member, severing the length to be banded and clamping the severed end in a second clamping member, moving the second member to bring said ends into position for welding, welding the ends together,

allowing the weld to cool, moving one of said clamping members to exert a tensional force on the wire between the points



of clamping across the weld, and thereafter releasing the clamps.

4,314,132

ARC WELDING CUPRO NICKEL PARTS
Ronald Porter, Wirral, England, assignor to Grootcon (U.K.) Limited, England

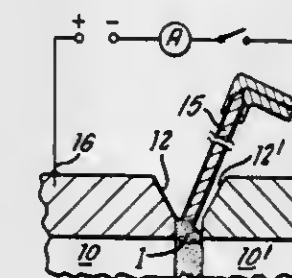
Filed May 25, 1979, Ser. No. 42,558

Claims priority, application United Kingdom, May 30, 1978, 24337/78

Int. Cl.³ B23K 9/225

U.S. Cl. 219—61

29 Claims



1. A method for welding together a pair of cupro-nickel parts, comprising the steps of providing a substantially symmetrical open V butt joint between said parts, said joint including first and second divergent faces on the respective parts, a first root face continuing said first divergent face and a second root face continuing said second divergent face, each of said first and second root faces having a mean width greater than 1.5 mm and not greater than 3.2 mm and said first and second root faces being substantially parallel and separated by a root gap of from 2 mm to 3 mm; root-welding said first root face to said second root face using a flux-coated stick electrode of from 1.6 mm to 2.2 mm diameter applied solely from the wide-mouthed side of said open V butt joint without employing inert gas shielding, backing material or subsequent welding at the opposite side of said open V butt joint; and subsequently cap-welding said divergent faces.

4,314,133

PROCESS AND APPARATUS FOR ELECTRICAL DISCHARGE MACHINING BY MEANS OF A WIRE ELECTRODE

Jean Pfau, Collonge-Bellerive, and Alain Wavre, Geneva, both of Switzerland, assignors to Ateliers des Charmilles S.A., Geneva, Switzerland

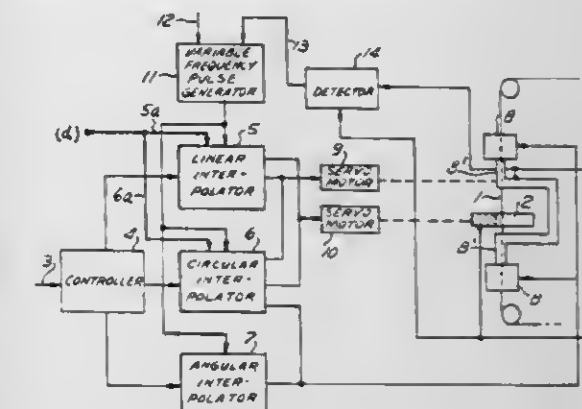
Continuation-in-part of Ser. No. 843,431, Oct. 19, 1977, abandoned. This application Feb. 7, 1980, Ser. No. 119,549
Int. Cl.³ B23P 1/12

U.S. Cl. 219—69 M

5 Claims

1. A method for machining by electrical discharges an electrode workpiece by means of an electrode wire fed longitudinally between two wire support and guide members, wherein the motion of the electrodes one relative to the other along a pair of coordinate axes is controlled in such a manner as to cut in the workpiece a desired path of predetermined shape and wherein said electrode wire is subjected to deformation during

machining causing a displacement of the cutting path relative to said desired path in a direction generally opposite to the direction of said path, said method comprising displacing relative to the workpiece at least one of the electrode wire support



and guide members along a corrected path obtained by shifting each point of the desired cutting path in the direction of the cutting path a predetermined distance corresponding to said displacement along a tangent at said point to said cutting path.

4,314,134

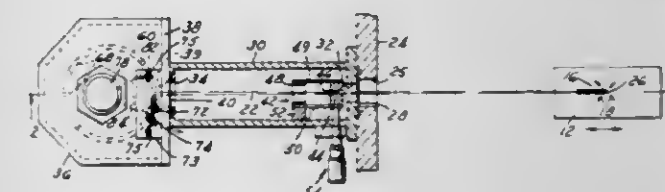
BEAM POSITION CONTROL FOR ELECTRON BEAM WELDER

Berthold W. Schumacher, and John C. Cooper, both of Dearborn, Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Nov. 23, 1979, Ser. No. 96,864
Int. Cl.³ B23K 15/00

U.S. Cl. 219—121 EW

18 Claims



1. A device for controlling the position of an electron beam impact spot at a reference position on a workpiece comprising: first aperture means mounted for adjustable movement, directed toward the reference position so that X-rays emanating from the impact spot may pass through said first aperture means, which together with the reference position defines a plane; second aperture means moveable into and out of alignment with the defined plane, whereby X-rays that pass through said first aperture means may pass through said second aperture means when such alignment is effected; means responsive to the X-rays that pass through said second aperture means for producing an error signal indicative of the displacement of the impact spot from the reference position; and means responsive to the error signal for moving the position of the impact spot to the reference position.

16. The method of controlling the position of a beam of charged particles that strikes a workpiece at an impact spot on a seam:

and moving the workpiece under the beam; passing X-rays emanating from the impact spot first through a first aperture then through a moving aperture; producing a first electrical pulse when X-rays emanating from the impact spot pass through the moving aperture; producing a second electrical signal when the moving aperture moves to a second position; producing a third electrical signal when the moving aperture moves to a third position; establishing an electrical error signal when the difference in

duration of a first interval extending between the occurrences of the first and second pulses and the duration of a second interval extending between the occurrences of the second and third pulses is greater than a predetermined difference;

passing the beam before it strikes the workpiece through a magnetic field whose polarity is determined by actuating a magnetic coil by passing an electrical current there-through;

redirecting the beam by supplying electrical current to a magnetic coil when the error signal is produced thereby relocating the impact spot to its desired position.

4,314,135

POSITIONING OF ONE OR MORE TOOLS RELATIVE TO A TUBULAR STRUCTURE

Bruno J. M. de Sivry, Neuilly; Claude R. Carsac, Saint Leu la Foret, and Jean-Pierre Hamon, Saint Ouen L'Aumone, all of France, assignors to Compagnie Francaise des Petroles, Paris, France

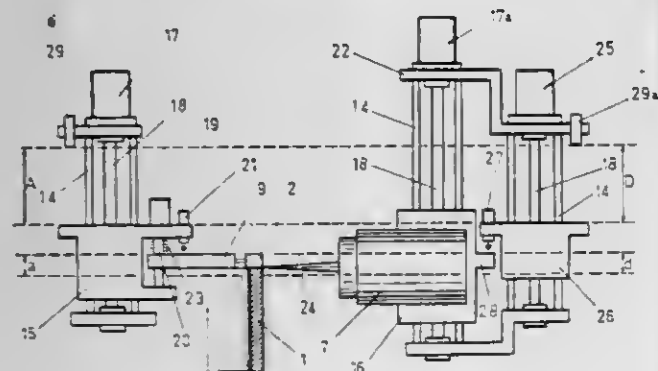
Filed Nov. 29, 1979, Ser. No. 98,441

Claims priority, application France, Nov. 29, 1978, 78 33661

Int. Cl.³ B23K 15/00

U.S. Cl. 29—121 EU

11 Claims



1. A method of positioning a work tool, the operation of which is required in an actual plane of an end face of a tubular structure of rotation of said tool about a first axis perpendicular to said actual plane, said first axis having an angular deviation from an axis of said tubular structure, said method comprising defining an imaginary plane by defining three points by means of sensors connected to a support, said points being angularly spaced from one another, said imaginary plane being parallel with said support and being initially capable of having an angular deviation from said actual plane of said end face of said tubular structure, bringing said imaginary plane near said actual plane of said tubular structure by a displacement in a direction substantially parallel to said axis of said tubular structure, and then pivoting said support and said imaginary plane about predetermined pivoting axes until said three points defining said imaginary plane are all located inside actual plane of said end face of said tubular structure, said work tool being connected to said support.

4,314,136

TUBULAR COMPOSITE ARC WELDING ELECTRODE FOR VERTICAL UP WELDING OF STAINLESS STEEL

Damian J. Kotecki, Spring Garden Township, York County, Pa., assignor to Teledyne Industries, Inc., Los Angeles, Calif.

Filed Apr. 16, 1980, Ser. No. 140,825

Int. Cl.³ B23K 35/30

U.S. Cl. 219—146.23

3 Claims

1. In a tubular composite arc welding electrode comprising a metallic outer sheath and a core within and enclosed by the sheath, of the type wherein the sheath and the metallic portion of the core are balanced to produce a stainless steel weld deposit, the improvement which comprises providing a non-metallic portion of the core which consists essentially of a slag mix constituting from 6 to 15 weight percent of the electrode,

the slag mix containing the following listed components in the proportions stated:

	Weight percent of Slag Mix
Arc stabilizer selected from potassium titanate, sodium titanate and alkali metal oxide	up to 15
Fluoride selected from calcium fluoride, magnesium fluoride, sodium fluoride, lithium fluoride, aluminum fluoride, potassium silicofluoride, and cryolite	up to 50
Silicon dioxide	up to 10
Zirconium dioxide	15 to 60
Titanium dioxide	balance.

whereby the electrode operates satisfactorily in vertical up welding.

4,314,137

ELECTRICALLY HEATED HAIR CURLING BRUSH

Klaus Dörn, Mülheim-Mintard, Fed. Rep. of Germany, assignor to Wik-Elektro-Hausgeräte-Vertriebsgesellschaft mbH Produktionskom-Manditgesellschaft, Essen, Fed. Rep. of Germany

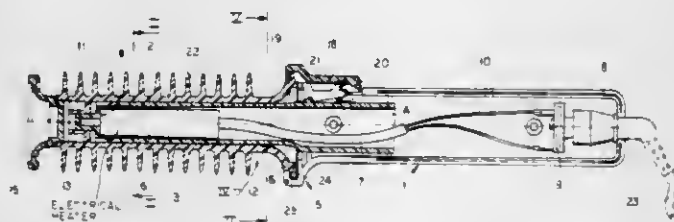
Filed Mar. 27, 1979, Ser. No. 24,444

Claims priority, application Fed. Rep. of Germany, Jan. 27, 1979, 2903105

Int. Cl.³ A46D 7/10; A45D 2/36; H05B 1/00

U.S. Cl. 219—222

10 Claims



1. A device for drying and styling hair, said device comprising:

an elongated housing defining a longitudinal axis and having a front housing end and a rear housing end;
an inner tube fixed nonrotatably to said housing and extending axially from said front housing end;
an outer tube engaged over said inner tube, having an end close to said housing formed with an array of radially directed teeth and formed as a hairbrush;
means including cooperating formations on said tubes and housing for rotation of said outer tube on said inner tube about said axis, one of said formations being a circumferential rim formed on said housing and engaging around said teeth;

locking means including a detent on said housing displaceable radially between a locking position engaging between

said teeth and preventing rotation of said outer tube on said inner tube about said axis and a freeing position clear of said teeth and permitting such rotation;
an electrical heater fixed in said inner tube and in heat-transmitting engagement therewith and therethrough with said outer tube; and
means including a wire extending through said housing and to said heater for electrically energizing same and thereby conductively heating said tubes.

4,314,138

APPARATUS FOR APPLYING A MIXTURE OF AIR AND VAPOR TO THE FACE OR HAIR

Akira Itoh, 185, Namase 1188, Sbiose-Cho, Nishinomiya-City, Hyogo, Japan

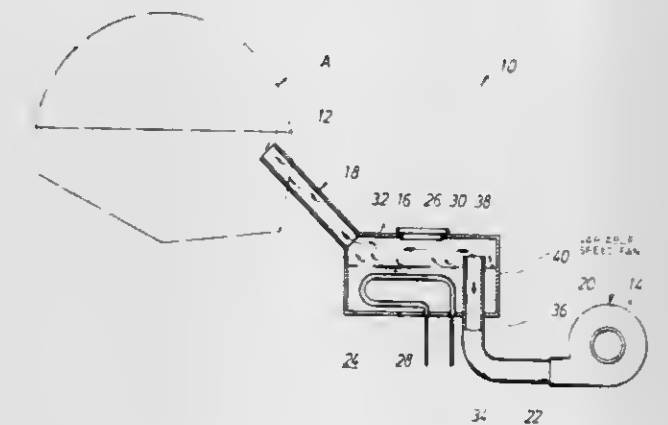
Filed Jun. 18, 1979, Ser. No. 49,388

Claims priority, application Japan, Jul. 14, 1978, 53-97431[U]

Int. Cl.³ A45D 20/00; A61H 33/06; F22B 1/28; H05B 1/00

U.S. Cl. 219—276

3 Claims



1. A hairdressing apparatus comprising:

a fan means having an inhaling entrance and an exhaling exit for inhaling relatively cool dry external air through said inhaling entrance and blowing said cool dry external air from said exhaling exit;

an attachment which can be fitted upon some portion of the body of a person in hairdressing or beauty treatment;

a communicating passage which connects the attachment with the exhaling exit of the fan and has an exhaust opening in the attachment; and

an evaporator mounted in an intermediate portion of the communicating passage and positioned substantially lower than the exhaust opening but substantially higher than the exhaling exit of the fan, said evaporator including a closed-type tank for partially containing water so that a residual space is left above the water and an electric heater means mounted for heating said water;

said communicating passage being composed of a first communicating tube which connects the attachment with the residual space in the closed-type tank and which slopes downwardly toward the residual space and a second communicating tube which connects the residual space with the exhaling exit of the fan and which slopes upwardly toward the residual space.

4,314,139

ELECTRIC BOILER HAVING MEANS FOR CONTROLLING STEAM GENERATION

Stanley A. Williams, Dorset, England, and Allen R. Tesch, Hubertus, Wis., assignors to Aqua-Chem, Inc., Milwaukee, Wis.

Filed Jul. 25, 1979, Ser. No. 60,788

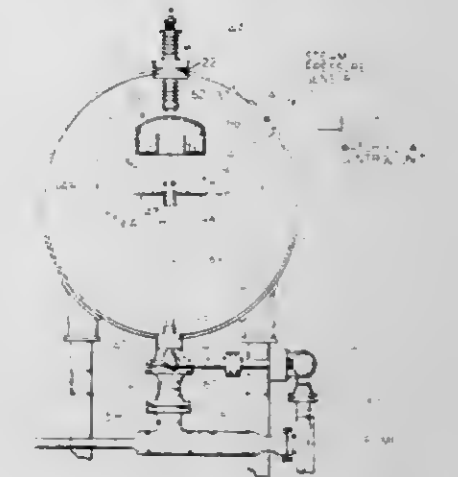
Int. Cl.³ H05B 3/60; F22B 1/30

U.S. Cl. 219—285

22 Claims

1. An electric boiler having a vessel for containing a pool of electrically conductive liquid in the lower end thereof, said vessel including a steam outlet,

first electrode means disposed within said vessel and adapted to be connected to a high voltage source,
second electrode means spaced from and below said first electrode means and above the expected level of the liquid in said pool, said second electrode means including liquid projecting means for projecting electrically conductive liquid upwardly onto said first electrode means in a first continuous stream,
means for delivering liquid from the pool to the liquid projecting means of said second electrode means,



said first electrode means including liquid receiving means for receiving and collecting the liquid from said first stream and for redirecting the same back downwardly onto said second electrode means in at least one additional continuous stream separate from said first stream and in electrical parallelism therewith,

said second electrode means being adapted to be connected into an electric circuit having a low electrical potential relative to said high voltage source whereby an electric current will flow through said liquid streams and through said first and second electrode means without passing through said pool of liquid.

4,314,140

PIPE THAWING APPARATUS

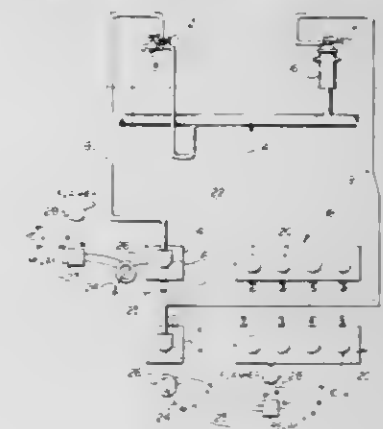
Douglas B. Hughes, Rideau Ferry, Ontario, Canada

Filed Apr. 9, 1979, Ser. No. 28,325

Int. Cl.³ H05B 1/02; F24H 1/14

U.S. Cl. 219—300

10 Claims



1. An apparatus for heating electrically conductive pipes electrically by passing an electric current through said pipes, comprising:

a source of low voltage, high current power;
means for varying said current;
a pair of terminals connected across said source of power;

at least one other pair of terminals connected across said source of power;

a pair of electrical cables adapted for selective electrical interconnection of said pair of terminals to two respective spaced locations of a pipe to be heated;

a plurality of other pairs of electrical cables adapted for selective electrical interconnection of said at least one of other pair of terminals to said two respective spaced locations of said pipe;

current sensing means arranged so as to sense the current flowing in at least one of the terminals of said first pair of terminals when said first pair of cables in interconnection between said first pair of terminals and said two spaced locations of said pipe; and

warning means operatively connected to said current sensing means for providing a warning when said current sensing means senses a current in excess of a predetermined value;

wherein when said warning is provided, an operator of said apparatus shall manually increase the total number of pairs of electrical cables connected between said source of power and said two respective spaced locations of said pipe, whereby the maximum power handling capability of each of said pairs and said plurality of other pairs of electrical cables and terminals is not exceeded.

4,314,141

APPARATUS FOR HEAT SHRINKING A PLASTIC FILM AROUND GOODS STACKED ON A PALLET

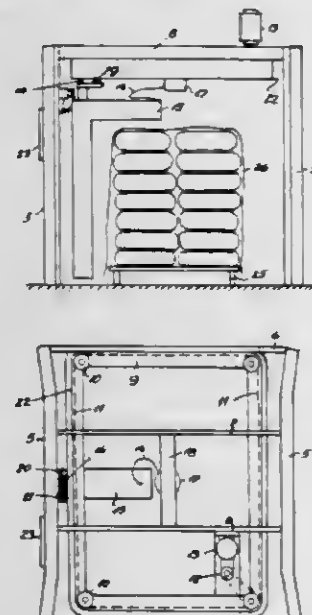
Arne Vangsted, and Ejøer V. Sørensen, both of Norre Aby, Denmark, assignors to Lip Bygningstarkler A/S, Norre Aby, Denmark

Filed Dec. 10, 1979, Ser. No. 101,609

Claims priority, application Denmark, Dec. 13, 1978, 5584/78
Int. Cl.³ B65B 53/02

U.S. Cl. 219-348

4 Claims



1. An apparatus for heat shrinking a plastic film around goods stacked upon a pallet, comprising an inverted L-shaped carrier of U-shaped cross-section having a long vertical part and a short horizontal part in the hollow space of which electrical radiation heat elements are mounted, said carrier being movably suspended, and means being provided for making the carrier perform a quadrangular movement around a pallet with stacked goods covered by a hood made from shrinkable plastic film, and means serving to make the carrier turn 90° around a vertical axis when passing a corner in the quadrangular movement, so that the horizontal part of the inverted L-shaped carrier will always extend inward over the stacked goods during the movement.

4,314,142 SPATIALLY DISTRIBUTED ELECTROSTATIC PERFORATION OF MOVING WEBS

William D. Brown, Brevard, and Hobart A. Whitman, III, Asheville, both of N.C., assignors to Olin Corporation, Pisgah Forest, N.C.

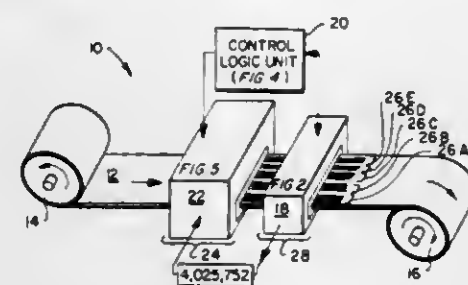
Division of Ser. No. 32,332, Apr. 23, 1979, Pat. No. 4,253,010.

This application Jul. 22, 1980, Ser. No. 171,110

Int. Cl.³ H05B 7/18

U.S. Cl. 219-384

7 Claims



1. A method for controlling the porosity of webs being moved in a longitudinal direction and being perforated by electrical arcs of an array of electrodes distributed in a transverse direction, comprising:

- generating a high voltage pulse train having a predetermined constant pulse rate and pulse width;
- generating a porosity difference control signal between a first porosity detector and a second porosity detector for each of a plurality of transverse positions on said web;
- applying said pulse train to all of said electrodes via a circuit having switching means interposed between selected individual electrodes; and
- utilizing said porosity difference control signals to selectively actuate said switching means.

4,314,143

BLOOD WARMING APPARATUS WITH DIGITAL DISPLAY AND MONITORING CIRCUIT

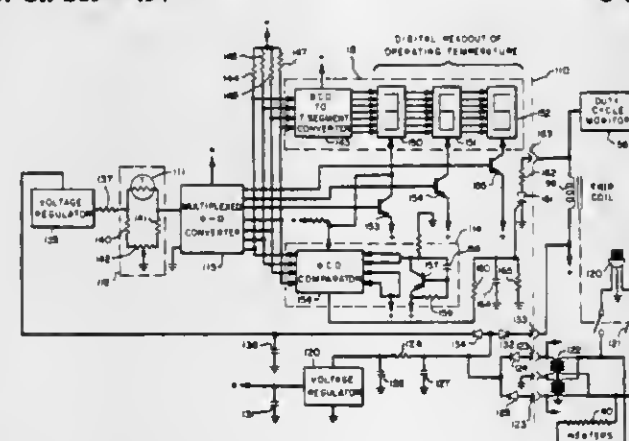
Arnold C. Bilstad, Deerfield, and John T. Foley, Wheeling, both of Ill., assignors to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Jun. 29, 1979, Ser. No. 53,547

Int. Cl.³ H05B 1/02

U.S. Cl. 219-497

8 Claims



1. Fluid warming apparatus for heating a refrigerated fluid such as blood to a predetermined nominal temperature, comprising:

- a housing defining a heating chamber for the fluid means including at least one electric heater element operable from an applied electric current in thermal communication with the fluid in said heating chamber for heating the fluid as it passes through the chamber;
- control circuit means responsive to the output temperature of the fluid for generating a heater control signal;
- switch circuit means electrically connected between said heater

ing element and a source of electrical current, and responsive to said heater control signal, for controlling the application of current to said heater element to maintain the fluid at said predetermined nominal temperature;

temperature sensing means for generating an analog output signal indicative of the output temperature of said fluid, said temperature sensing means including an output terminal, a constant current source, a thermistor in thermal communication with said fluid at the output of said heating chamber, and first and second resistances; said constant current source being connected to one terminal of said thermistor and being connected to a plane of reference potential through said first resistance; said output terminal being coupled to said other terminal of said thermistor and being connected to said plane of reference potential through said second resistance, the sum of said first and second resistances being selected to substantially linearize the temperature-voltage characteristic of said analog output signal at said output terminal over a predetermined temperature range, the ratio of said resistances being selected to provide a desired voltage level on said output terminal at a selected temperature within said operating range; and

temperature display means coupled to said output terminal and linearly responsive to said analog output signal for producing an output display indicative of the output temperature of the fluid.

4,314,144

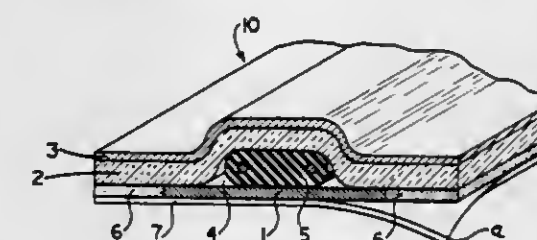
THERMOSTAT MOUNTING ARRANGEMENT FOR ELECTRIC HEATING APPLIANCE

Rudolph G. Wojtecki, Mantua, and Joseph P. Kaan, Stow, both of Ohio, assignors to Eaton Corporation, Cleveland, Ohio
Filed Oct. 29, 1979, Ser. No. 89,651

Int. Cl.³ H05B 3/34

U.S. Cl. 219-528

6 Claims



1. An elongate flexible heating package having sufficient flexibility to conform to an item to be heated to which the package is to be secured and adapted to contain and improve the heating efficiency of an elongate, electrically insulated, electrical heating element, contained within the package, said package comprising:

- a first layer comprising a wall made from a flexible heat conductive material extending between a pair of spaced-apart edges that extend longitudinally along the length of the package,
- a second layer comprising a wall made from a flexible heat insulative material extending between a pair of spaced-apart edges that extend longitudinally along the length of the package, said second layer secured to the side of said first layer that faces away from the item with said first layer being narrower in width than said second layer to provide a pair of spaced-apart spaces extending along the length of the package between said edges of said first and said second layers,
- a third layer comprising a wall made from a flexible heat resistant material that is secured to the side of said second layer that faces away from said first layer, said third layer adapted to protect said second layer,
- a layer of heat resistant adhesive disposed in said spaces along the length of the package, said adhesive adapted to secure the heating package to the item,
- an elongated cavity disposed along the length of the package between a portion of said first layer and a portion of the composite wall comprising said second and said third

layers, said cavity containing said electrical heating element and having opened ends and a cross-sectional configuration that permits the heating element to be axially inserted into and be removed from the cavity for replacement and repair without having to remove the package from the item, and a release strip disposed along the length of the package on the side of the package on the side of said first layer and said adhesive layers that face away from said cavity, said release strip made from a material adapted to enable the package to be conveniently handled and stored without the package becoming adhered to itself prior to securing the package to the item and able to be pulled away from said first layer and said adhesive layers during the process of securing the package thereto.

4,314,145

ELECTRICAL DEVICES CONTAINING PTC ELEMENTS

David A. Horsma, Palo Alto, Calif., assignor to Raychem Corporation, Menlo Park, Calif.

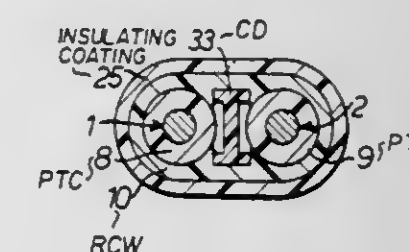
Continuation-in-part of Ser. No. 873,676, Jan. 30, 1978, Pat. No. 4,246,468. This application Feb. 1, 1979, Ser. No. 8,617

The portion of the term of this patent subsequent to Jan. 20, 1998, has been disclaimed.

Int. Cl.³ H05B 3/10

U.S. Cl. 219-553

4 Claims



1. An elongate electrical device which has a substantially constant cross-section along its length and which comprises

- a first electrode which is connectable to a source of electrical power;
- a second electrode which is connectable to a source of electrical power;
- a first PTC element which is composed of a PTC composition having a useful T_1 of 0° to 280° C. and which surrounds and physically contacts substantially the whole of the surface of said first electrode;
- a second PTC element which is composed of a PTC composition having a useful T_2 of 0° to 280° C. and which surrounds and physically contacts substantially the whole of the surface of said second electrode;
- at least one relatively constant wattage (RCW) element which surrounds said said first and second electrodes and said first and second PTC elements and which makes physical contact with each of said first and second PTC elements; and
- at least one current-directing (CD) element between said first and second electrodes and between said first and second PTC elements;

wherein when said first and second electrodes are connected to a source of electrical power while the whole device is below its operating temperature, current passes between the electrodes and either immediately or after an initial period of not more than 5 seconds the path of maximum current density passes through each of said first and second PTC elements and at least one RCW element, with the resistance of that current path being greater than the resistance of the current path which would be adopted if the CD element between said first and second electrodes and between said first and second PTC elements were replaced by an element of the same composition as that RCW element.

4,314,146

ANALOG DISPLAY DEVICE

Jean-Claude Berney, Chemin du Bois de Menton, 1066 Epalinges, Switzerland, assignor to Jean-Claude Berney, Epalinges, Switzerland

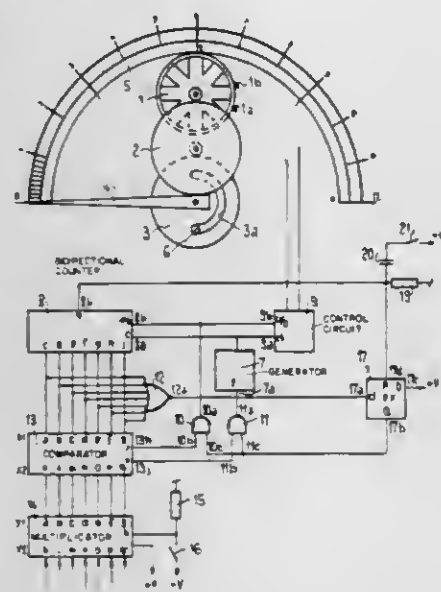
Filed Nov. 13, 1979, Ser. No. 93,925

Claims priority, application Switzerland, Nov. 21, 1978, 11903/78

Int. Cl.³ G01R 1/30

U.S. Cl. 235—92 EA

17 Claims



1. Analog display device of the value of at least one function represented by an information composed of a certain number of logic states, said device comprising at least one stepping motor driving at least one needle co-operating with a graduated dial, a control circuit for delivering driving pulses to the stepping motor, a counter having a counting capacity corresponding to the number of steps required for the needle to reach the end of the scale on the dial, first means for locking the contents of said counter in relation with the value indicated by said needle, in a determined position of said needle, and second means for setting the counter in a state corresponding to the value of the function to be displayed, said second means being connected to said counter and to said control circuit so that the stepping motor receives a number of driving pulses directly related to the number of clock pulses delivered by said first means to the input of said counter, in order for said needle to remain locked with said counter and that its position on the dial is representative of the contents of said counter and consequently of the value to be displayed.

4,314,147

MULTI-FUNCTION TYPE SHEET COUNTING MACHINE

Tuyoshi Miyagawa, and Eiko Hibari, both of Tokyo, Japan, assignors to Laurel Bank Machine Co., Ltd., Tokyo, Japan

Filed Dec. 19, 1979, Ser. No. 105,071

Claims priority, application Japan, Dec. 22, 1978, 53-177217[U]

Int. Cl.³ G06M 9/02

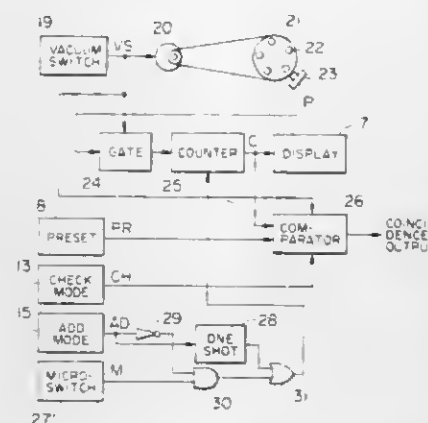
U.S. Cl. 235—92 SB

3 Claims

1. A multi-function type sheet counting machine comprising: a sheet holder; a counter for counting sheets disposed on the holder, wherein a stack of sheets disposed on the sheet holder is brought to a counting position and then counted by the counter during a counting operational mode selected from a plurality of counting operational modes, with one of the counting operational modes being an add mode; and control means for controlling said counter such that, when one counting operation of said add mode is completed, the counter maintains the content of the counter, and such that, when one counting operation of one of said other counting operational modes is completed, the counter is

caused to be reset to clear the content of the counter prior to the next counting operation, said control means comprising:

a microswitch associated with the holder for generating a first signal to reset the counter when the holder is brought to the counting position,



first means for blocking the generated first signal from being transmitted to the counter when the sheet counting machine is in said add mode, and second means for generating a second signal to reset the counter when the sheet counting machine is changed to said add mode from one of said other counting operational modes.

4,314,148

DEVICE FOR COUNTING AND DISTRIBUTING SHEETS

Jacques Lallemand, Paris, France, assignor to Societe d'Etude et de Construction d'Appareils de Precision, France

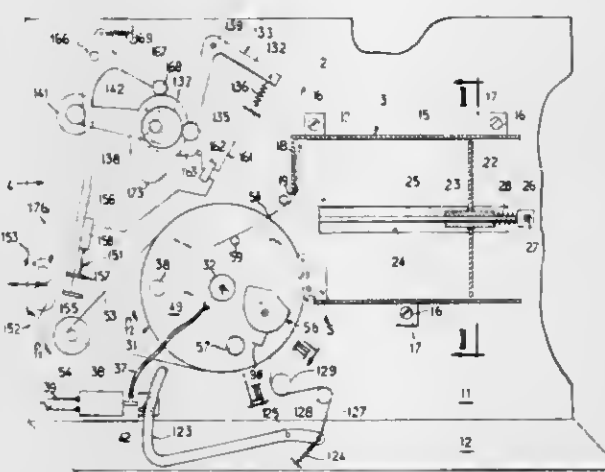
Filed Jan. 7, 1980, Ser. No. 109,818

Claims priority, application France, Feb. 9, 1979, 79 03290

Int. Cl.³ G06M 9/02

U.S. Cl. 235—92 SB

10 Claims



1. A device for counting sheets and especially bank-bills, and comprising:

a magazine in which the sheets are placed against each other so as to form a stack;

a circular turntable rotatably mounted in proximity to said magazine about an axis parallel to the plane of the sheets within the magazine;

a sheet-extracting head rotatably mounted on said circular turntable in the vicinity of the periphery of this latter about an axis parallel to that of said turntable;

means for driving the circular turntable in rotation in a first direction;

means for driving the extracting head in rotation with respect to the turntable in the other direction;

and means for counting the number of revolutions performed by the circular turntable;

drilled holes being formed in an extracting face of said sheet-

4,314,150

APPARATUS FOR DETECTING THE IN-FOCUSING CONDITIONS

Shuichi Takayama; Yoshio Nakajima; Kosaku Tsuboshima, all of Hachioji; Teruo Iwasawa, Mitaka, and Masafumi Yamazaki, Okaya, all of Japan, assignors to Olympus Optical Company Limited, Tokyo, Japan

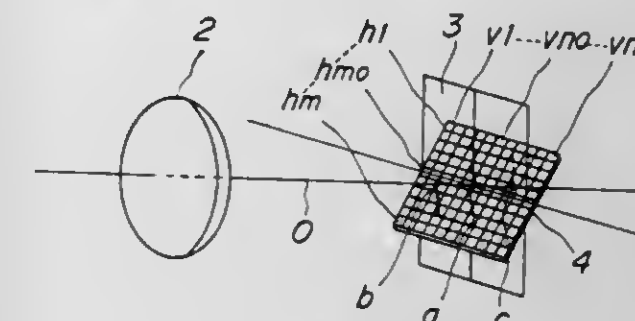
Filed Oct. 31, 1979, Ser. No. 90,083

Claims priority, application Japan, Nov. 1, 1978, 53/133761

Int. Cl.³ G01J 1/20

U.S. Cl. 250—201

3 Claims



1. An apparatus for detecting the in-focusing conditions comprising a light receiver arranged with an angle of inclination against an image surface of an optical system and consisting of a plurality of charge transfer elements aligned as a picture element array; means for deriving illuminance signals from the picture element array of the light receiver and means for treating the illuminance signals to detect the in-focused position of the optical system.

4,314,151

FOCUS DETECTION BY ACCUMULATION OF A GIVEN NUMBER OF THE LARGEST ABSOLUTE DIFFERENCE MAGNITUDES BETWEEN ADJACENT PHOTOCELLS IN AN ARRAY

Takeomi Suzuki, Tokyo, and Masahiro Aoki, Fussa, both of Japan, assignors to Olympus Optical Company Ltd., Japan

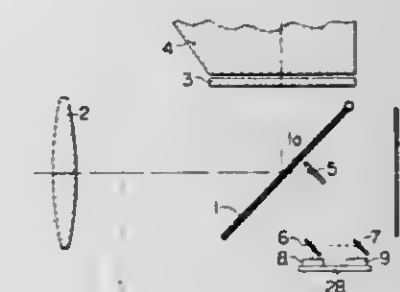
Filed Oct. 23, 1979, Ser. No. 87,489

Claims priority, application Japan, Oct. 24, 1978, 53-130620

Int. Cl.³ G03B 3/10

U.S. Cl. 250—204

12 Claims



1. A focus detection system comprising:

(a) focussing means for focussing an image of an object,

(b) light acceptor means including K photoelectric transducer elements juxtaposed with each other on a focus plane of the focussing means or on a plane which is optically conjugate with the focus plane, the light acceptor means producing photoelectric signals whose values vary in accordance with the distribution of light intensity of an image projected thereon by the focussing means,

(c) calculating means for calculating the value of an evaluation function which indicates the sharpness of the image based on the signals from the photoelectric transducer elements,

(d) the evaluation function being derived by initially obtaining the absolute magnitude of the difference between output signals from adjacent photoelectric transducer

4,314,149

DAILY MILEAGE RECORDING UNIT

Michel Gomez, Joinville-le-Pont, France, assignor to e.d. Veglia, Paris, France

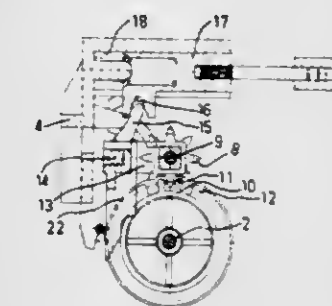
Filed Dec. 17, 1979, Ser. No. 104,432

Claims priority, application France, Dec. 20, 1978, 78 35750

Int. Cl.³ G01C 22/00

U.S. Cl. 235—96

3 Claims



1. A daily mileage recording unit, of the type comprising a plurality of drums mounted side-by-side on the same shaft and supported in rotation by a frame, a swinging member mounted to pivot with respect to the frame, a series of gears carried by the swinging member, each disposed between two drums to displace one drum by one graduation when the preceding drum has effected a complete revolution, a sliding member guided in translation in the frame and provided with a push button, a mechanism connecting the sliding member to the swinging member to pivot the latter when the push button is displaced, a cam rotatably locked with each drum and an actuator associated with each cam and carried by the swinging member for returning to zero the corresponding drum when the push button is actuated, a square rigidly locked with each gear and ramps carried by the frame which are engaged by respective squares during the pivoting of the gears, the contact surface of the ramp being a circular sector centred on the pivoting axis.

elements in the light acceptor means, and accumulating N of such absolute magnitudes which are greatest in their magnitude to provide an accumulated value (where $1 \leq N \leq K-2$), the accumulated value representing the value of the evaluation function.

4,314,152

MONOLITHICALLY INTEGRABLE SEMICONDUCTOR CIRCUIT WITH AN AMPLIFIER CONTROLLED BY A PHOTO DIODE

Josef Fenk, Ottenburg, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

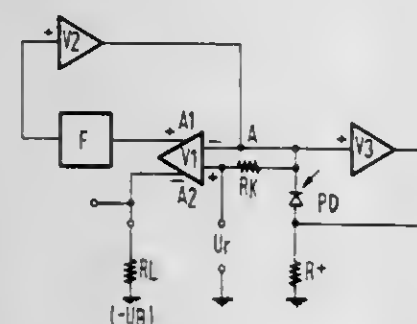
Filed Jan. 25, 1980, Ser. No. 115,255

Claims priority, application Fed. Rep. of Germany, Feb. 5, 1979, 2904316

Int. Cl.³ H01J 40/14

U.S. Cl. 250-214 A

10 Claims



1. Monolithically integrable semiconductor circuit with an amplifier controlled by a photo diode, comprising a differential amplifier having inverting and noninverting inputs and outputs and a photo diode having a first and a second lead, the first lead of said photo diode being connected in the blocking direction to the inverting input of said differential amplifier, and the noninverting input of said differential amplifier being connected to a reference potential, a coupling resistor connected between the inverting and noninverting inputs of said differential amplifier, a filter circuit and a transistor amplifier being connected in a feedback branch between the noninverting output and the inverting input of said differential amplifier, and the inverting output of said differential amplifier and the second lead of said photo diode being connected to ground.

4,314,153

OPTICAL VELOCITY RESPONSIVE APPARATUS AND ARRANGEMENTS

John M. Humphries, Hornchurch; Ivor R. Baxter, Brentwood, and David G. F. Fripp, Chelmsford, all of England, assignors to The Marconi Company Limited, Chelmsford, England

Filed Jan. 31, 1979, Ser. No. 8,087

Claims priority, application United Kingdom, Feb. 1, 1978, 3961/78

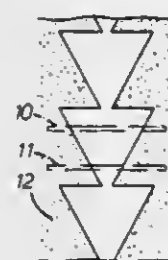
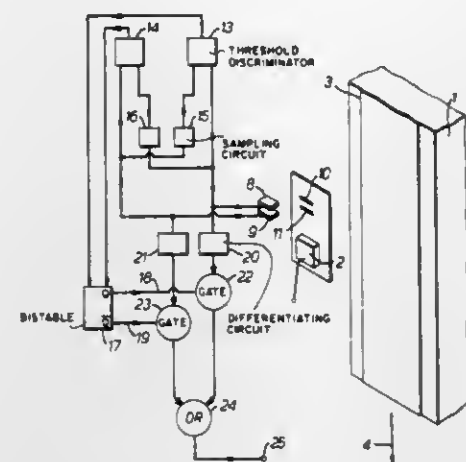
Int. Cl.³ G01D 5/34

U.S. Cl. 250-231 SE

22 Claims

1. In an arrangement for determining reversal of motion of a machine part, the combination of detector means and pattern means one of which is attached to the machine part and the other of which is stationary with respect thereto, for producing a sequence of electrical signal waveforms in response to movement of the machine part, each waveform being temporally asymmetrical so that the direction of movement of the machine part is uniquely defined thereby, and means for converting said signal waveforms to an output signal which is at least predominantly of one amplitude in

response to movement of the machine part in one direction and is at least predominantly of another amplitude in



response to movement of the machine part in the opposite direction.

4,314,154

TWO-DIMENSIONAL SCANNING DEVICE HAVING COMPENSATION FOR SCANNED IMAGE STRAIN

Kazuo Minoura, Yokohama; Takehiko Kiyohara, Zama, and Haruo Uchiyama, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

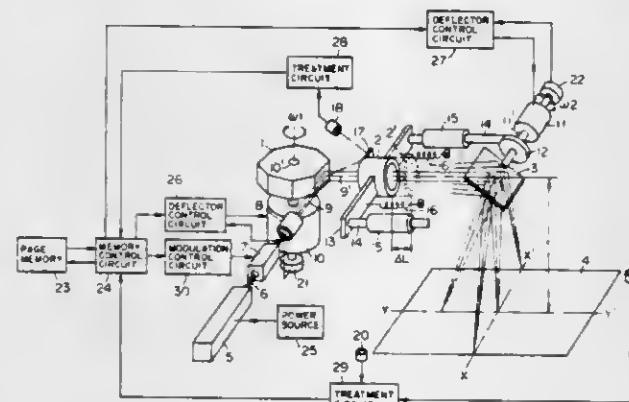
Filed Jan. 3, 1980, Ser. No. 109,278

Claims priority, application Japan, Jan. 17, 1979, 54/3034

Int. Cl.³ H04N 1/04

U.S. Cl. 250-235

8 Claims



1. A two-dimensional scanning device comprising: means for providing a light beam; first deflector means for deflecting said light beam to effect major scanning on a surface to be scanned; second deflector means for deflecting a light beam in a direction orthogonal to the direction of deflection of the light beam by said first deflector means to effect minor scanning on said surface to be scanned in a direction orthogonal to said major scanning; an image forming optical system disposed between said first deflector means and said second deflector means; and mechanical means for varying the spacing between said image forming optical system and said second deflector

means in synchronism with the deflecting action of said second deflector means.

4,314,155

METHOD AND APPARATUS FOR ELEMENTAL ANALYSIS EMPLOYING COMBINATION OF NEUTRON INELASTIC SCATTERING AND γ RAY SCATTERING

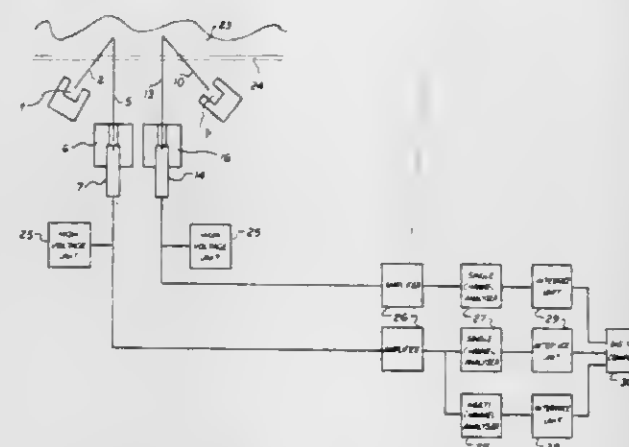
Brian D. Sowerby, Kareela, Australia, assignor to Australian Atomic Energy Commission, Coogee, Australia

Filed Jul. 19, 1979, Ser. No. 59,003

Int. Cl.³ G01V 5/00; G01N 23/00

U.S. Cl. 250-253

14 Claims



1. Measuring apparatus for quantitatively measuring the concentration of an element in a sample containing said element, said apparatus comprising a neutron inelastic scatter assembly, a γ ray scatter assembly and means to calculate said concentration from the outputs of said assemblies, said assemblies being matched to measure over essentially the same volume of said sample, said neutron inelastic scatter assembly comprising a first source yielding neutrons having energy sufficient to produce inelastically scattered first γ rays from a stable isotope of said element, a first detector to detect said first γ rays, and first shield means associated therewith to reduce the intensity of direct source radiation, said γ ray scatter assembly comprising a second source yielding second γ rays, a second detector to detect said second γ rays scattered from said sample, and second shield means associated therewith to reduce the intensity of direct source γ rays.

8. Measuring apparatus as claimed in claim 1 adapted to measure carbon content and specific energy of coal or coke by 4.43 MeV carbon γ rays, wherein said first source yields neutrons having energy sufficient to produce inelastically scattered 4.43 MeV carbon γ rays.

4,314,156

AUTOMATED MASS SPECTROMETER ANALYSIS SYSTEM

Aron Kuppermann; William J. Dreyer, both of Altadena; Charles E. Giffin, Pasadena, and Heinz G. Boettger, La Canada, all of Calif., assignors to California Institute of Technology, Pasadena, Calif.

Continuation of Ser. No. 892,409, Mar. 31, 1979, abandoned, which is a continuation-in-part of Ser. No. 587,097, Jun. 16, 1975, Pat. No. 4,084,090. This application Oct. 6, 1979, Ser. No. 85,414

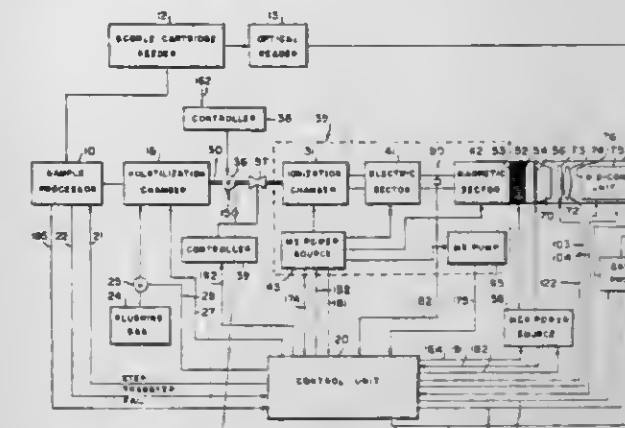
Int. Cl.³ B01D 59/44

U.S. Cl. 250-281

28 Claims

1. An analysis system comprising: volatilization chamber means adapted to volatilize a sample supplied thereto; mass spectrometric means to which said volatilized sample is supplied for generating therefrom an ion beam and thereafter separating said ion beam into a plurality of separate ion beams at least some of which are simultaneously focused at a substantially common focal plane; detection means for simultaneously converting n of said

focused ion beams into electrical signals where n being greater than one; means for detecting the ion currents in m of said n ion beams, where m being less than n and equal or greater than one;



control means for providing control signals to said detection means to control the conversion of said n ion beams into electrical signals as a function of the ion current detected in said m ion beams; and output means for receiving said electrical signals.

4,314,157

SAFETY LOCK FOR RADIOGRAPHY EXPOSURE DEVICE

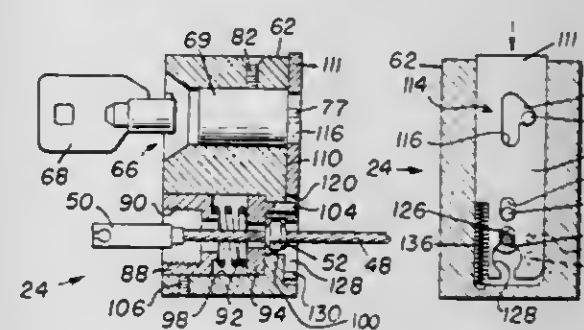
Thomas M. Gaines, Albany, Calif., assignor to Industrial Nuclear Company, Inc., Foster City, Calif.

Filed Jun. 21, 1979, Ser. No. 50,612

Int. Cl.³ G21F 5/02; G05G 5/06; E05B 55/02, 63/20

U.S. Cl. 250-497

10 Claims



1. A lock for securing a radiation source in a shield comprising: a flexible member to which the radiation source is secured, which flexible member has a stop spaced from the radiation source; means for trapping the stop, said means having a trapping and an untrapping position; first means for biasing said trapping means to the trapping position; means for receiving said stop having means for engaging said trapping means, said receiving and engaging means having an engaging position and a releasing position; second means for biasing said receiving and engaging means toward the engaging position, wherein said engaging means can engage said trapping means in the untrapping position, and wherein said trapping means is urged to the trapping position by said first biasing means with the engaging means in the release position; and wherein said engaging means includes a pin and wherein said trapping means includes means for receiving said pin and wherein said pin is received in the pin receiving means of said trapping means to engage said trapping means in the untrapping position.

4,314,158

ELECTRON APPLICATOR FOR A LINEAR ACCELERATOR

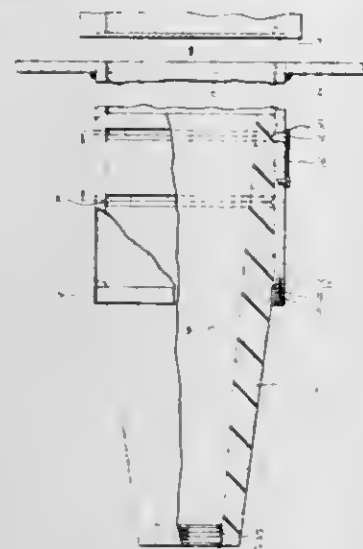
Donald R. Lucido, Martinez, Calif., assignor to Siemens Medical Laboratories, Inc., Walnut Creek, Calif.

Filed Apr. 1, 1980, Ser. No. 136,359

Int. Cl.³ G02B 5/00; H01J 29/46

U.S. Cl. 250—505

9 Claims



1. An electron applicator for a linear accelerator, comprising in combination:

- (a) a stationary support tube for transmitting high-energy electrons therethrough, said support tube having a first end portion for receiving said electrons and a second end portion;
- (b) an insert tube for transmitting said high-energy electrons therethrough, said insert tube having a first end portion extending slideably into the second end portion of said support tube, and a second end portion for discharging said electrons, and an outer and an inner surface, said inner surface being tapered longitudinally along the path of said high-energy electrons;
- (c) means for retaining said insert tube within said support tube;
- (d) first means for resistibly engaging said insert tube in a selected first working position such that upon a predetermined axial force said insert tube slides farther into said support tube; and
- (e) second means for resistibly engaging said insert tube in a selected second working position such that upon a predetermined axial force said insert tube slides farther into said support tube, said second working position being spaced from said first working position.

4,314,159

DOCUMENT SCANNER

James W. Davis, Richardson, Tex., assignor to The Mead Corporation, Dayton, Ohio

Filed May 30, 1980, Ser. No. 154,675

Int. Cl.³ G01N 21/30

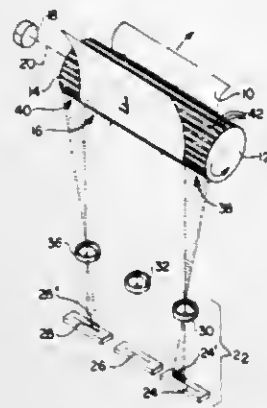
U.S. Cl. 250—561

20 Claims

1. An image scanner for scanning a document to produce electrical scan signals representative of an image on the document along a plurality of parallel scan lines, comprising:

- a document supporting drum, defining a document supporting surface, for receiving a document to be scanned and supporting said document on said surface,
- means for rotating said drum such that said document supported thereby is transported past a document scanning station,
- a plurality of photoelectric transducers, each of said transducers providing a scan signal in response to light received thereby,
- optical means for directing light from each of a plurality of scan points at said scanning station to an associated one of said photoelectric transducers, whereby each of said scan

points defines a scan line as said document is transported past said scanning station, and means on said document supporting surface of said drum

4,314,160
WIND TURBINE GENERATOR FOR ELECTRICAL POWERED VEHICLES

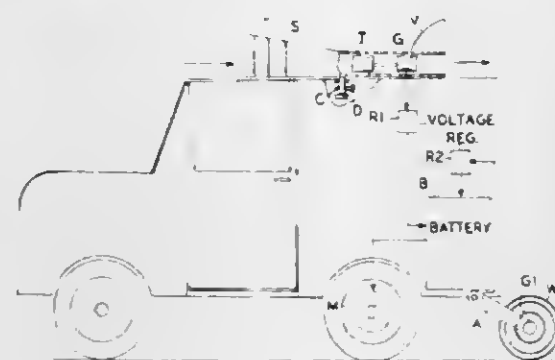
Leon Boodman, 1445 Brooklyn Blvd., Bay Shore, N.Y. 11706, and James P. Malone, 1 Odell Ct., Syosset, N.Y. 11791

Filed Apr. 25, 1980, Ser. No. 143,754

Int. Cl.³ B60K 1/00; F03D 9/02

U.S. Cl. 290—55

3 Claims



1. In a vehicle having electrical battery powered means, means to provide additional electrical power comprising: an air scoop rotatably mounted on top of the vehicle, a wind driven turbine wheel mounted in the rear of the air scoop and, an electric generator connected to the turbine wheel, and means to lock the rotatable air scoop in position, whereby air passing through the air scoop will generate additional electricity for the vehicle battery.

4,314,161

INTEGRATED SHIFT REGISTER

Jacob Luscher, Venthoee, Switzerland, assignor to Ebauches S.A., Switzerland

Filed Jun. 29, 1979, Ser. No. 53,405

Claims priority, application France, Jul. 6, 1978, 78 20163; Jul. 6, 1978, 78 20164

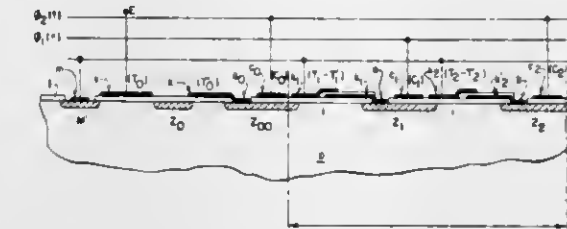
Int. Cl.³ G11C 19/28

U.S. Cl. 307—221 C

6 Claims

1. A shift register comprising a plurality of transistors and capacitors which are integrated in a semiconductor substrate and form a plurality of cells connected one after the other, each cell comprising two identical stages connected in series and capable of being supplied by respective ones of two periodic signals in phase opposition, wherein each stage comprises an MOS transistor structure which has two principal elec-

trodes forming respectively the input and output of the stage, and two control electrodes, one of which is connected, in use, to a bias source and the other of which is connected to the



output electrode, and a capacitor, one plate of which is connected to the said output electrode and the other plate of which receives, in use, one of said periodic signals.

4,314,162

FILTER CIRCUIT UTILIZING CHARGE TRANSFER DEVICE

Takao Tsuchiya, and Mitsuo Soneda, both of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan

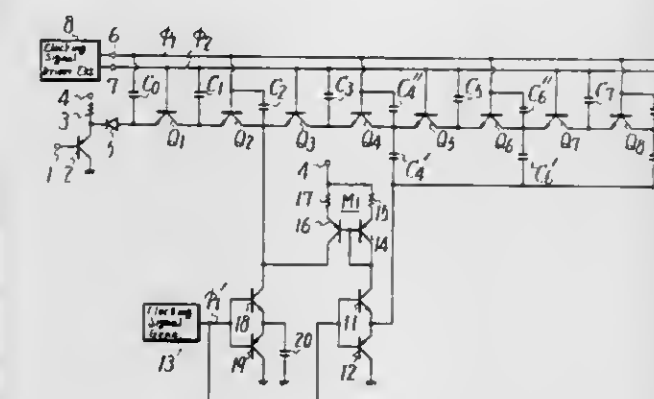
Filed Jan. 3, 1980, Ser. No. 109,336

Claims priority, application Japan, Jan. 12, 1979, 54-2782

Int. Cl.³ G11C 19/28; H03K 17/60, 5/00; H03H 15/02

U.S. Cl. 307—221 D

10 Claims



1. A filter circuit comprising clocking signal drive means for supplying a clocking signal; clock signal generator means having an output at which a clocking control signal is provided; a transistor having first and second electrodes and a control electrode; means connecting the control electrode of said transistor to said output of said clock signal generator means; a plurality of successive capacitive storage stages for sequentially holding a charge level representing a time-sampled input signal, each of said capacitive storage stages having a clocking electrode for receiving said clocking signal so that said charge level is transferred from one to another of said capacitive storage stages in succession in response to said clocking signal, at least one of said plurality of capacitive storage stages including first and second capacitive circuit portions connected in parallel, each said first capacitive circuit portion having a clocking electrode for receiving said clocking signal and each said second capacitive circuit portion having a clocking electrode connected to the first electrode of said transistor; and current feedback means for detecting the current flowing through the second electrode of said transistor and applying a corresponding current to one of said capacitive storage stages in advance of the at least one capacitive storage stage in which said second capacitive circuit portion is included.

4,314,163

INPUT STAGE FOR A CHARGE TRANSFER DEVICE (CTD) ARRANGEMENT

Karl Knauer, Kirchseeon, and Hans-Joerg Pfeleiderer, Zorneding, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Continuation of Ser. No. 63,930, Aug. 6, 1979. This application

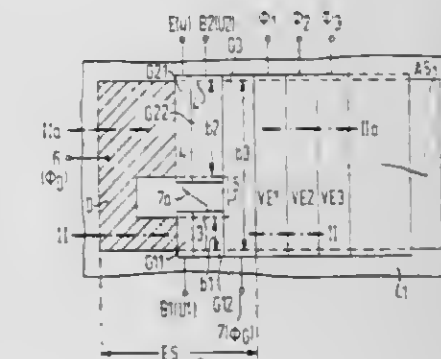
Dec. 22, 1980, Ser. No. 219,215

Claims priority, application Fed. Rep. of Germany, Aug. 31, 1978, 2838100

Int. Cl.³ G11C 19/28; H01L 29/78; H03H 15/02

U.S. Cl. 307—221 D

3 Claims



1. A charge transfer device comprising, semiconductor layer (1) of a first conductivity type, an input zone (D) of opposite conductivity type formed in said semiconductor layer, a thin insulating layer (2) covering a portion of said semiconductor layer (1), a first pair of gates (G11, G12) successively aligned on said insulating layer (2) in the channel flow direction of a first channel which is defined by longitudinally extending parallel first limited charge flow means to prevent charge transfer on opposite sides of said first channel and the transverse distance between said first limited charge flow means comprising the width of said first channel, a second pair of gates (G21, G22) successively aligned on said insulating layer (2) in the channel flow direction of a second channel which is defined by longitudinally extending parallel second limited charge flow means to prevent charge transfer on opposite sides of said second channel and the transverse distance between said second limited charge flow means comprising the width of said second channel and said width of said second channel being substantially greater than said width of said first channel, a first transfer gate (G3) mounted on said insulating layer (2) adjacent said first and second pair of gates and extending over a common channel formed by the juncture of said first and second channels and extending transversely to said common channel, an input analog signal (u) connected to the second (G12) of said first pair of gates and to the first (G21) of said second pair of gates, a first DC voltage source connected to the first (G11) of said first pair of gates, a second DC voltage source connected to the second (G22) of said second pair of gates, second and third transfer gates extending over said common channel adjacent said first transfer gate (G3) and extending transversely to said common channel and means for applying electrical signals to said input zone (D), and said first (G3), second and third transfer gates so that charges move through said first and second channels at the same time and are combined in said common channel, said first DC source having a voltage level not greater than the smallest value of said input analog signal (u), and said second DC source having a voltage level at least as large as the maximum value of said input analog signal (u).

4,314,164

COMPUTER CHANNEL ACCESS CIRCUIT FOR MULTIPLE INPUT-OUTPUT DEVICES

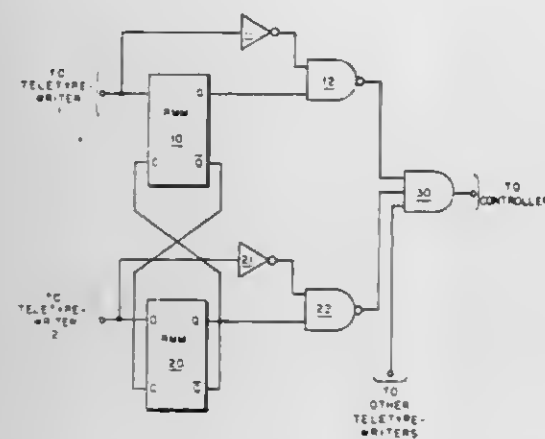
Kam B. Tin, Burnaby, and Stanley R. C. Norman, Brockville, both of Canada, assignors to GTE Automatic Electric Labs Inc., Northlake, Ill.

Filed Nov. 5, 1979, Ser. No. 91,422

Int. Cl.³ H03K 17/56; H01R 3/00; G11C 7/00

U.S. Cl. 307-243

6 Claims



1. An access circuit for connecting multiple input-output devices to a computer input-output channel for use in a computer system including an input-output channel and a plurality of input-output devices operated to generate data pulses, said access circuit comprising:

a plurality of monostable multivibrators each connected to an associated one of a plurality of said input-output devices, each of said monostable multivibrators further including a first output, a second output, and a reset input, said first output of each monostable multivibrator connected to said reset input of each other of said monostable multivibrators, a first one of said monostable multivibrators operated in response to a first one of said data pulses from said associated input-output device to generate a reset signal on said first output lead and an enable signal on said second output lead, each other of said monostable multivibrators operated in response to said reset signal from said first monostable multivibrator to prevent generation of an enable signal;

gating means connected to said plurality of monostable multivibrators and to said associated plurality of input-output devices, operated in response to said enable signal to gate said data pulses from said associated input-output device to said input-output channel.

4,314,165

ELECTRICAL STORAGE CIRCUIT WITH TEMPERATURE INDEPENDENT FET OUTPUT

John Noddings, Ryton-on-Dunsmore, and Roland K. Borton, Rugby, both of England, assignors to Associated Engineering Limited, England

Division of Ser. No. 774,865, Mar. 7, 1977, Pat. No. 4,196,466.

This application Oct. 15, 1979, Ser. No. 85,108

Int. Cl.³ H01L 31/00

U.S. Cl. 307-310

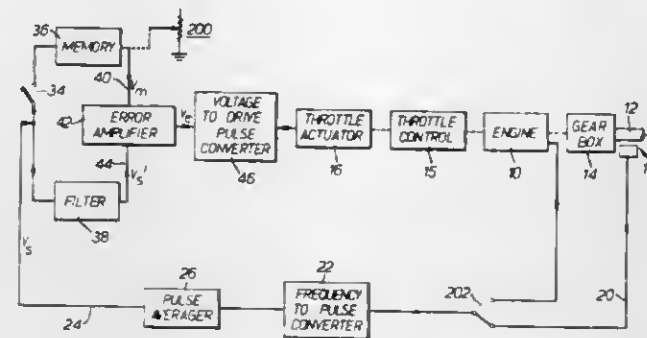
3 Claims

1. A storage circuit for storing an electrical signal, comprising

an electronic switch,
a capacitor connected to be charged by the electrical signal through the electronic switch,
the switch being capable of assuming a high impedance state to minimise subsequent discharge of the capacitor,
a pair of voltage supply lines,
a field effect transistor having an input circuit connected to receive the charge on the capacitor and having an output circuit,
a variable impedance device,
the output circuit of the field effect transistor being connected

across the voltage supply lines in series with the variable impedance device,

means responsive to the voltage across the voltage supply lines for controlling the variable impedance device so that the current in the output circuit of the field effect transistor is substantially constant at a predetermined value, and



means connected to the output circuit of the field effect transistor to derive an output signal of the storage circuit in dependence on the charge on the capacitor, the said predetermined value of the current being the current value at which the variation of the conductivity of the field effect transistor with temperature is substantially a minimum.

4,314,166

FAST LEVEL SHIFT CIRCUITS

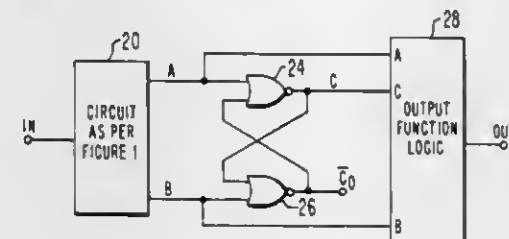
Otto H. Bismarck, Fords, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Feb. 22, 1980, Ser. No. 123,714

Int. Cl.³ H03K 19/092, 5/01, 5/12

U.S. Cl. 307-475

6 Claims



1. A level shift circuit responsive to an input signal which includes first and second voltage levels, comprising:

means for translating said input signal to provide a first logic signal which includes said third and fourth voltage levels respectively corresponding to said first and second levels, and a complementary second logic signal which includes fourth and third voltage levels respectively corresponding to said first and second levels; and

means for providing an output signal at said third voltage level responsive to a transition of said second logic signal from said fourth to said third voltage levels, and at said fourth voltage level responsive to a transition of said first logic signal from said fourth to said third voltage levels.

4,314,167

VOLTAGE CLAMPING CIRCUIT

Peter H. Groves, Southampton, and Robert A. Hilbourne, Chadders Ford, both of England, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 11, 1979, Ser. No. 84,017

Claims priority, application United Kingdom, Oct. 20, 1978, 41406/78

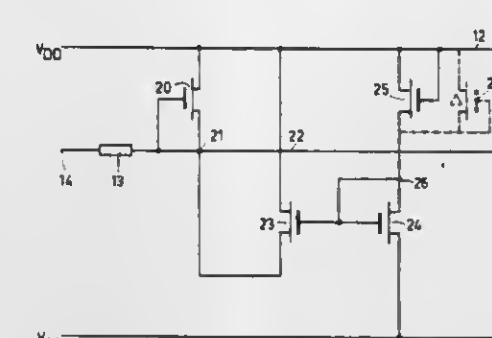
Int. Cl.³ H03K 5/08

U.S. Cl. 307-540

4 Claims

1. A voltage clamping circuit comprising first and second supply voltage lines, an input terminal for connection to an alternating line voltage source to be clamped, an output terminal, a resistive device coupled between the input and output

terminals, a first enhancement mode MOS transistor having its drain connected to the junction of the resistive device and the output terminal, its source connected to the second supply line and its gate coupled to said junction, the first transistor being rendered conductive when the voltage at the junction rises to a threshold voltage above that of the second supply line, a



second enhancement mode MOS transistor having its source connected to said junction and its drain connected to the second supply line, and biasing means coupled to the first and second supply lines for biasing the gate of the second transistor such that the second transistor is rendered conductive as the potential at said junction approaches that applied to the first supply line.

4,314,168

PREFABRICATED STATOR WINDINGS

Otto Breitenbach, Nuremberg, Fed. Rep. of Germany, assignor to Kabel-Und Metallwerke Gutehoffnungsbuette A.G., Hannover, Fed. Rep. of Germany

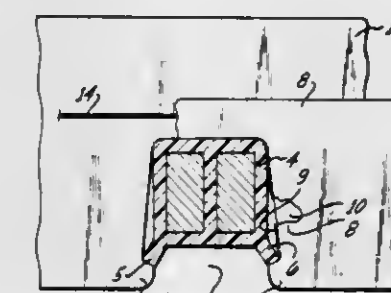
Filed May 20, 1980, Ser. No. 151,658

Claims priority, application Fed. Rep. of Germany, May 21, 1979, 2920477

Int. Cl.³ H02K 41/02

U.S. Cl. 310-13

6 Claims



1. A multiphase winding for the stator of a linear motor, assembled by placing several cables in a meandering pattern in which portions of the cable are arranged in parallel and ladder rung-like fashion, the improvement of a jacket for each cable, having each two laterally extending, resiliently bendable ridges.

4,314,169

MAGNETIC MOTOR

John Rusu, Surfside, Fla., assignor to Electro-Magnetic Motors Inc., San Juan, P.R.

Filed Mar. 18, 1980, Ser. No. 131,520

Int. Cl.³ H02K 37/00

U.S. Cl. 310-46

2 Claims

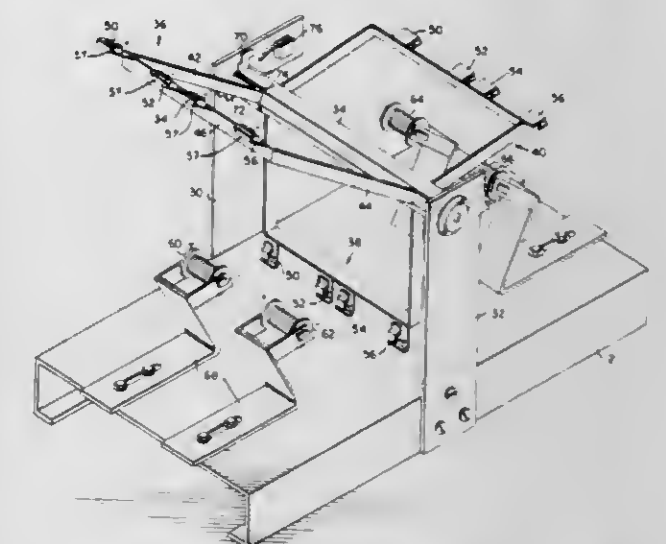
1. An electromagnetic motor comprising:

a. a fixed base,
b. an elongated shaft rotatably mounted on the base,
c. a plurality of brackets mounted in spaced circumferential relation on the shaft, each bracket comprising radial arms of the same length mounted in spaced relation on the shaft, and a transverse arm mounted on the ends of the radial arms and parallel to and spaced from the shaft,
d. a pair of permanent magnets mounted on each transverse

arm of each bracket in spaced relation along the transverse arm, with the magnets mounted on the brackets being circumferentially and radially aligned about the shaft,

e. a plurality of electromagnetic coils mounted on the base in surrounding relation to the shaft with the axis of each coil parallel to the shaft,

f. the permanent magnets of each pair and the electromag-



netic coils being so constructed and positioned that on rotation of the shaft the permanent magnets of each pair pass in close proximity to the ends of each electromagnetic coil,

g. means normally maintaining each coil deenergized, and
h. means for so energizing each coil during passage by it of a pair of permanent magnets that each pole of each pair of permanent magnets passes adjacent a pole of the same polarity as it passes each coil.

4,314,170

HAND POWER TOOL CONTROL UNIT

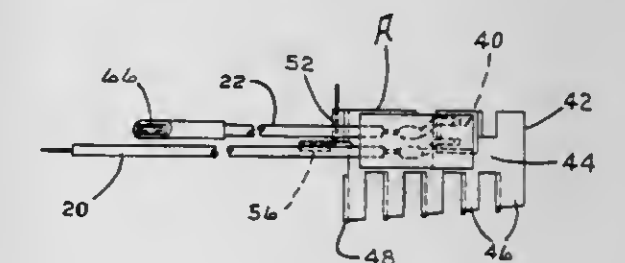
Edward V. Sahrbacker, Brecksville, Ohio, assignor to Lucerne Products, Inc., Northfield, Ohio

Filed Mar. 2, 1979, Ser. No. 16,781

Int. Cl.³ H02K 11/00

U.S. Cl. 310-68 R

1 Claim



1. A portable electric motor-driven tool comprising, a tool housing, an electrical motor operatively disposed in said housing, a coating electrical control system connected to said motor and operatively disposed in the housing for controlling the speed of said motor, said electrical control system including a coating electrical switch disposed on the housing and operatively connected to said motor for manually turning on and off the flow of electrical current to the motor to start and stop the same, said electrical control system also including a coating thyristor and heat sink assembly, coating electrical current conducting wires connecting said switch with said assembly, a coating fan operatively secured to the motor providing an air stream for cooling the motor, said housing having a housing wall having a coating cavity disposed in the air stream and configured to receive said thyristor and heat sink assembly therein, coating assembly detachable secure-

ment means disposed in said cavity for detachably securing said thyristor and heat sink assembly within the cavity and in the air stream to cool the assembly, and coating wire detachable securement means for detachably securing said wires to the switch, said heat sink being formed integral with the thyristor to form a unitary composite structure, said assembly detachable securement means being a detachable wire connector including said housing having a housing tab disposed on a wall of said cavity and said assembly having a coating resilient assembly sheath clip disposed on said heat sink and slidable onto said housing tab in detachable relation therewith, said wire detachable securement means being a detachable wire connector including said switch having at least one switch tab forming an electrical terminal for the switch and at least one of said wires leading from the assembly having a coating resilient wire sheath clip on its free end slidable onto said switch tab in detachable relation to form an electrical connection therewith, said heat sink comprising an elongated base having a plurality of laterally extending heat dispersing vanes extending therefrom, each of said vanes having a wing extending at a right angle therefrom for added heat dispersement, said vanes being formed of progressively larger size from one end of said base to the other end thereof.

4,314,171

NARROW GAP COLLECTOR WITH INTEGRAL ELECTROMAGNETIC PUMP

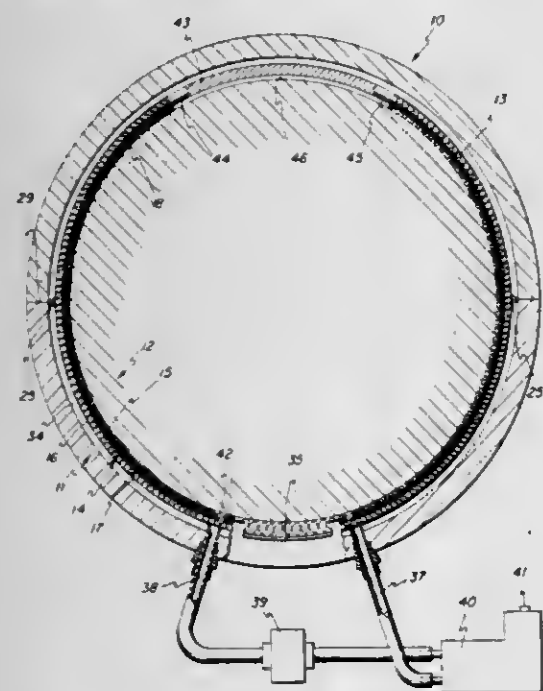
Burton D. Hatch, Ballston Lake, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Feb. 29, 1980, Ser. No. 126,043

Int. Cl.³ H02K 13/00

U.S. Cl. 310—219

10 Claims



1. An integrally pumped current collector for an acyclic machine comprising:

- a rotor collector ring having an annular rotor contact surface thereon;
- a stator collector ring surrounding and disposed in juxtaposition to said rotor collector ring and having a stator ring collector surface in juxtaposition to said rotor contact surface; and said stator ring having an annular groove adjacent said stator ring collector surface;
- a compliant braided metal filament brush extending circumferentially about said stator ring collector surface; said brush being disposed in said annular groove such that said brush and said stator ring collector surface define an annular liquid metal pumping channel extending about the circumference of said stator ring collector surface and including an annular groove formed in said stator ring collector surface; said brush being disposed in close radial

proximity to said rotor collector surface and separated therefrom by a narrow annular gap;

an inlet passage in flow communication with said pumping channel and an outlet passage in flow communication with said pumping channel; said inlet passage and said outlet passage each being in flow communication with a liquid metal reservoir; said liquid metal reservoir containing a quantity of liquid metal and an inert cover gas; said cover gas being maintained at a predetermined gas pressure;

at least one flow restricting plug disposed in said pumping channel circumferentially beyond said outlet passage in the direction of liquid metal pumping;

a liquid metal resupply slot disposed between said inlet and outlet passages for return flow of liquid metal to said pumping channel from the area adjacent said stator collector ring; and

a volume of liquid metal disposed in said pumping channel, and filling said narrow annular gap.

4,314,172

CURRENT TRANSFER BRUSH

Heinrich Diepers, Höchststadt, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

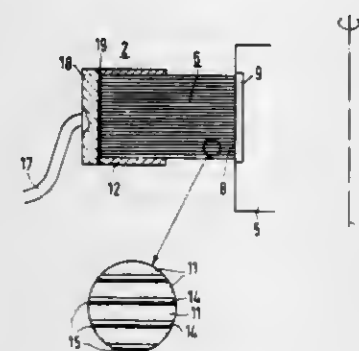
Filed Mar. 14, 1979, Ser. No. 20,402

Claims priority, application Fed. Rep. of Germany, Apr. 20, 1978, 2817371

Int. Cl.³ H02K 13/00

U.S. Cl. 310—248

15 Claims



1. A current transfer brush comprising:

- (a) a flexible slider member formed of a plurality of separate and individual flexible foils of a highly graphitized graphite in a stacked arrangement, at least one of the flat sides of at least some of said foils provided with a layer of electrically conductive material, said foils extending at least approximately perpendicular to the contact surface of the brush; and
- (b) current supply means to which one end of each of said individual flexible foils facing away from the contact surface of the brush is bonded, said current supply means containing a frame element at said end, said frame element holding together said individual flexible foils, said bonding and said holding existing only at said one end.

4,314,173

MOUNTING BRACKET FOR BRACING PERIPHERAL CONNECTING RINGS FOR DYNAMOELECTRIC MACHINES' STATOR WINDINGS

Rudolph R. Srdock, Trafford, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Apr. 10, 1980, Ser. No. 139,078

Int. Cl.³ H02K 3/46

U.S. Cl. 310—260

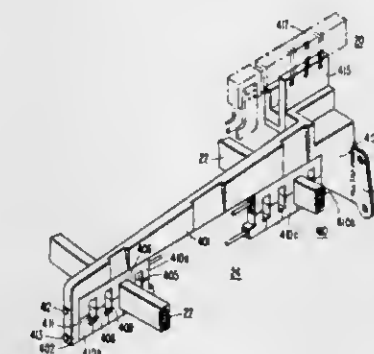
4 Claims

1. A dynamoelectric machine comprising:

- a generally tubular-shaped stator core structure having slots along the inner periphery thereof;
- a stator winding having a plurality of coil sides disposed in said stator core slots and a plurality of connector ring segments disposed in the stator core's end regions for

electrically connecting said coil sides; a plurality of mounting brackets disposed at both ends of said stator core at selected circumferential positions for bracing said connector ring segments, each of said mounting brackets comprising:

- (a) a foundation structure attached to and cantilevered from said stator core structure;
- (b) a plurality of spacers disposable about said connector ring segments for restraining relative movement of said



connector ring segments and for maintaining selected separations therebetween; and

- (c) means for securing said spacers to said foundation structure for restraining relative movement therebetween; and wherein said foundation structure comprises:
- (a) a base portion extending generally axially from said stator core structure; and
- (b) a spacer retaining leg portion disposed perpendicularly to said base portion at each end thereof.

4,314,174

PIEZOELECTRIC TRANSDUCER DRIVE HAVING TEMPERATURE COMPENSATION

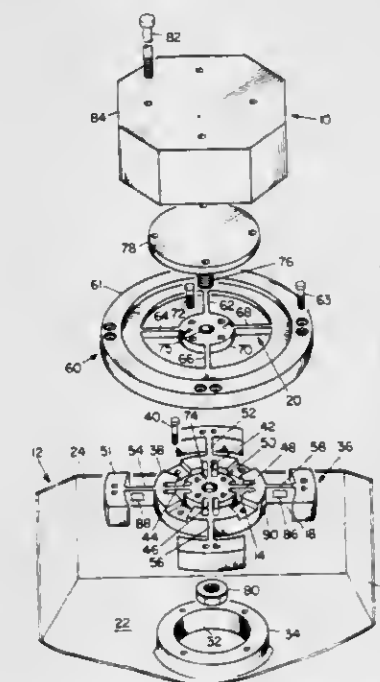
Thomas Wing, and Lloyd M. Germain, both of Woodland Hills, Calif., assignors to Litton Systems, Inc., Beverly Hills, Calif.

Filed Mar. 25, 1980, Ser. No. 133,730

Int. Cl.³ H01L 41/08; G01B 9/02

U.S. Cl. 310—315

9 Claims



1. A temperature compensated piezoelectric transducer drive, comprising:

- a flexure element connected between a fixed mass and a mass to be driven,
- a piezoelectric element attached to said flexure element,
- a resistive element attached to said flexure element,
- a temperature responsive element juxtaposed to said piezoelectric element and said resistive element,
- a power amplifier having an output for impressing a voltage

across said piezoelectric element thereby causing the movement of said piezoelectric element and, in turn, the movement of said flexure element,

said resistive element moving with said movement of said flexure element thereby undergoing a change of resistance,

said resistive element and said temperature responsive element connected in a feedback loop about said power supply for generating a feedback signal,

reference means for establishing a reference signal; and

circuit means within said feedback loop for characterizing said output of said power amplifier by comparing said feedback signal against said reference signal for controlling said movement of said piezoelectric element and said flexure element.

4,314,175

METHOD VAPOR DISCHARGE LAMP HAVING SPECIFIC RANGE OF XENON PRESSURES

Cornelis A. J. Jacobs; Johannes A. T. Schellen, and Gijbert Kuus, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

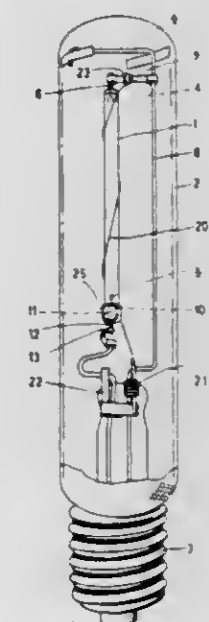
Filed Mar. 24, 1980, Ser. No. 132,945

Claims priority, application Netherlands, Apr. 26, 1979, 7903285

Int. Cl.³ H01J 61/26

U.S. Cl. 313—174

6 Claims



1. A discharge lamp comprising a discharge vessel in which a metal vapor and xenon are present and an absorbing substance in contact with the xenon in such a manner that the xenon is absorbed at least partly in the absorbing substance and when the temperature is raised is released partly from said substance and at 300K the xenon pressure P is smaller than 100 kPa and in the operating condition of the lamp P is larger than 100 kPa, characterized in that the absorbing substance and the xenon are dosed so that, at 300K, P has a value in the range 1 kPa to 25 kPa.

4,314,176

HALOGEN INCANDESCENT LAMP

Victor R. Notelteirs, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 4, 1979, Ser. No. 71,802

Claims priority, application Netherlands, Sep. 13, 1978, 7809301

Int. Cl.³ H01K 1/50

U.S. Cl. 313—185

1 Claim

1. A line voltage halogen incandescent lamp having a tubu-

lar lamp envelope and a filament stretched axially therein, the lamp envelope filling comprising an inert gas and hydrogen

more than 25 f.L when excited by 1.5 mA/cm² of electrons with an anode voltage of 10 V.



bromide, characterized in that the pressure of the gas mixture during operation of the lamp is between 0.8 and 1 bar.

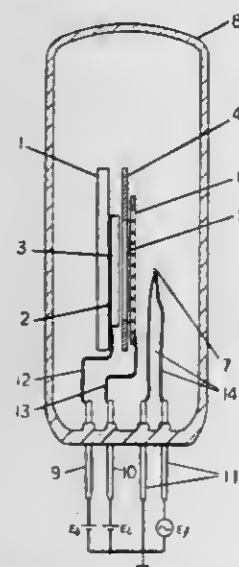
4,314,177

LOW-ENERGY-ELECTRON-EXCITING FLUORESCENT DISPLAY DEVICE

Tomizo Matsuoka, Neyagawa; Tsuneharu Nitta, Katano, and Shigeru Hayakawa, Hirakata, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Japan
Continuation of Ser. No. 55,194, Jul. 2, 1979, abandoned. This application Jan. 15, 1981, Ser. No. 225,322
Claims priority, application Japan, Jul. 7, 1978, 53-83369
Int. Cl.³ C09K 11/465

U.S. Cl. 313—497

1 Claim



1. A low-energy-electron-exciting fluorescent display device comprising an anode coated with SnO₂:Eu powder phosphor, a cathode as a thermoelectronic emission source confronting said anode, a mesh grid located between said anode and cathode, and a glass tube for sealing said components in vacuum, wherein the Eu content in said phosphor is such that the quantity of Eu based on the amount of Sn present is 5×10^{-2} to 10 atomic % and the phosphor is prepared by the steps comprising:

- preparing an aqueous solution of europium and at least one material selected from the group consisting of stannous halides and stannous sulfate, the ratio of the europium ions based on the amount of tin ions present being between 5×10^{-2} and 10 atomic %;
- pouring said solution into an aqueous solution comprising oxalic ions which is kept at a temperature between 40° and 100° C., while stirring the resultant mixed solution, thereby forming a single crystalline oxalate coprecipitate of tin and europium, the pouring rate being lower than the rate whereby the formed oxalate coprecipitate assumes rod-like polycrystalline particles having a dendrite-like configuration with numerous pores;
- thermally decomposing said coprecipitate at a temperature between 400° and 1000° C. to a product comprising stannic oxide; and
- subjecting said decomposed material to heat treatment at a temperature of from 1300° C. to below the melting temperature of stannic oxide, causing the europium ions to be diffused into the stannic oxide;

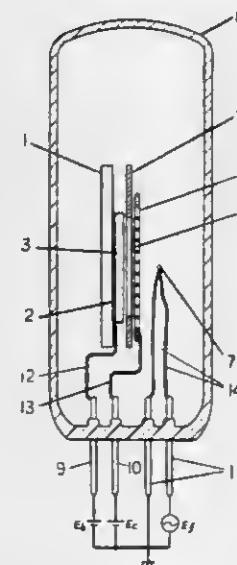
whereby the phosphor exhibits a luminescence intensity of

4,314,178 LOW-ENERGY-ELECTRON-EXCITING FLUORESCENT DISPLAY DEVICE

Tomizo Matsuoka, Neyagawa; Tsuneharu Nitta, Katano, and Shigeru Hayakawa, Hirakata, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Japan
Continuation of Ser. No. 55,193, Jul. 2, 1979, abandoned. This application Jan. 15, 1981, Ser. No. 225,323
Claims priority, application Japan, Jul. 4, 1978, 53-81810
Int. Cl.³ C09K 11/465

U.S. Cl. 313—497

1 Claim



1. A low-energy-electron-exciting fluorescent display device comprising an anode coated with SnO₂:Eu powder phosphor, a cathode as a thermoelectronic emission source confronting said anode, a mesh grid located between said anode and cathode, and a glass tube for sealing said components in vacuum, wherein Eu content in said phosphor is such that the quantity of Eu based on the amount of Sn present is 5×10^{-2} to 10 atomic % and the phosphor is prepared by the steps comprising:

- admixing a material comprising at least one member selected from the group consisting of metallic tin, stannous halides, stannic halides and stannous sulfate; with an additive which includes europium in such amount that the quantity of europium based on the amount of tin present is 5×10^{-2} to 10 atomic %;
- simultaneously heating and stirring the mixture of step (a) with nitric acid until it becomes dry through evaporation, thereby forming a mixed powder of metastannic acid and europium; and then
- subjecting the powder to heat treatment at a temperature in the range of from 1300° to below the melting temperature of stannic oxide, causing the metastannic acid to be thermally decomposed to stannic oxide and the europium to be diffused into said stannic oxide,

whereby the phosphor exhibits a luminescence intensity more than 25 f.L when excited by 1.5 mA/cm² of electrons with an anode voltage of 10 V.

4,314,179 HORIZONTAL SCANNING RATE CORRECTION APPARATUS

Akira Tooyama, and Takashi Hosono, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Mar. 31, 1980, Ser. No. 135,667
Claims priority, application Japan, Apr. 3, 1979, 54-40138
Int. Cl.³ H01J 29/41

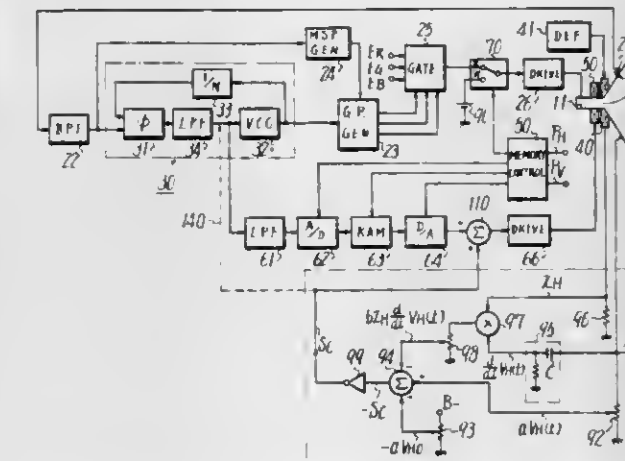
U.S. Cl. 315—12 ND

12 Claims

1. Horizontal scanning rate correction apparatus for a cath-

ode-ray tube having a screen, means for projecting an electron beam upon said screen, an anode supplied with a high voltage from a high voltage source, and a beam deflection device supplied with at least horizontal and vertical beam deflection signals for causing said beam to repeatedly scan across said screen in a vertical succession of horizontal lines, said apparatus comprising:

- memory means for storing a plurality of correction values representing deviations of the horizontal scanning rate of said electron beam from a desired scanning rate;
- reading means for reading said plurality of stored correction values from said memory means;



correcting signal forming means for sensing fluctuation in the value of said high voltage from the high voltage source and for producing a correcting signal in response thereto; and

scanning rate modulating means supplied with the plurality of correction values read by said reading means and supplied with the correcting signal from said correcting signal forming means for substantially cancelling any deviations in the horizontal scanning rate from said desired scanning rate.

4,314,180

HIGH DENSITY ION SOURCE

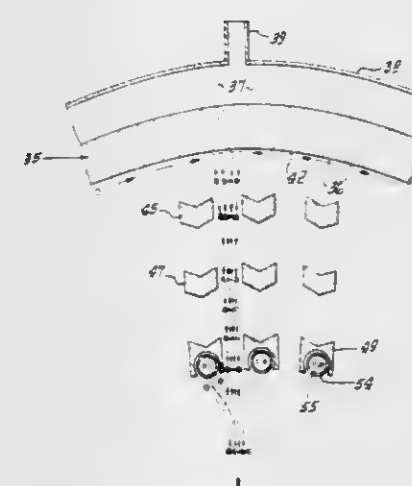
Winfield W. Salisbury, Scottsdale, Ariz., assignor to Occidental Research Corporation, Irvine, Calif.

Filed Oct. 16, 1979, Ser. No. 85,393

Int. Cl.³ H01J 7/24, 27/00

U.S. Cl. 376—130

17 Claims



1. A source for a high density electrically substantially neutral beam of combined positive and negative particles, including in combination:

- a housing
- a substrate mounted in said housing and having a first generally spherical surface;
- first means for producing free elements at said first surface;
- second means for directing a beam of electrons along said

surface for ionizing said free elements producing positive ions;

- a first positive ion extractor grid mounted in said housing spaced from said first surface;
- a second positive ion accelerator grid mounted in said housing spaced from said first grid;
- electron emitter means mounted in said housing for producing the negative particles; and
- a third electron accelerator grid mounted in said housing between said second grid and said electron emitter means;

with said second means including:

- an elongate electron gun positioned along an edge of said first surface of said substrate for emitting electrons in a first direction; and
- magnet means positioned along an adjacent edge of said surface providing a magnetic field in a second direction transverse to said first direction for curving the path of said electrons along said first surface.

4,314,181

ARC DISCHARGE LAMP STARTING DEVICE

Kenichi Kawasumi, 7-4-2, Kabemachi, Ohme-shi, Tokyo, and Kenji Narikiyo, 2196-560, Hirai, Hinodemachi, Nishitama-gun, Tokyo, both of Japan

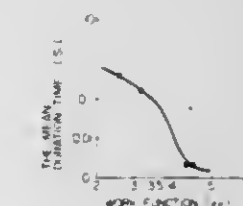
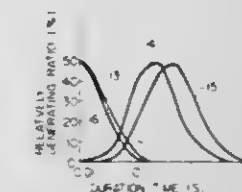
Filed May 23, 1980, Ser. No. 152,541

Claims priority, application Japan, Jun. 18, 1979, 54-75917

Int. Cl.³ H05B 41/18; H01J 61/56

U.S. Cl. 315—289

3 Claims



1. An arc discharge lamp starting device for connecting an arc discharge lamp to a power source through an inductive ballast, which comprises a starting aid circuit including, connected in series, a thermal switch having contact rods which are closed at room temperature and opened at a high temperature, a heater for controlling opening and closing of the thermal switch and a resistor for controlling an electric current flowing in the heater, said starting aid circuit being connected in parallel to an arc tube, wherein said contact rods of the thermal switch are composed of a high-melting-point metal material having a work function not exceeding 3.5 eV.

4,314,182

SYSTEM FOR CONTROLLING THE POWER OF A HIGH-VOLTAGE ELECTRON BEAM GENERATOR

Friedrich W. Thomas; Wolfgang Sperzel, and Jürgen Petzoldt, all of Gelnhausen, Fed. Rep. of Germany, assignors to Leybold-Heraeus GmbH, Cologne, Fed. Rep. of Germany
Filed May 27, 1980, Ser. No. 153,516

Claims priority, application Fed. Rep. of Germany, Jul. 13, 1979, 2928301

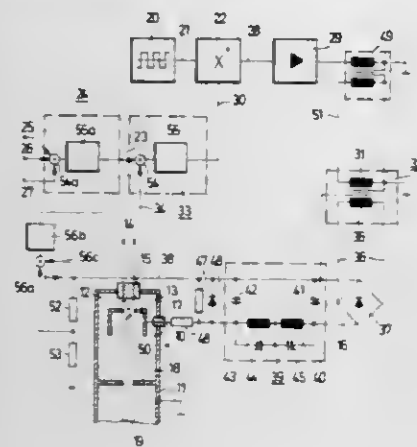
Int. Cl.³ H05B 7/02; H01J 37/30

U.S. Cl. 315—307

2 Claims

1. In a system for the control of power of a high-voltage electron beam generator having a cathode and a control electrode for the cathode, of the type having a controller at ground potential, a pulse generator for the production of square-wave

voltage pulses symmetrical with ground potential, a transformer for transferring high-voltage potential to the beam generator including a primary winding substantially at ground potential and a secondary winding at high-voltage potential, a full-wave rectifier connected to the secondary winding and a filter connecting the rectifier to the cathode and to the control



4,314,183

SAWTOOTH-GENERATING CIRCUIT

Philippe Heuze, and Pierre Lambert, both of Paris, France, assignors to Thomson-CSF, Paris, France

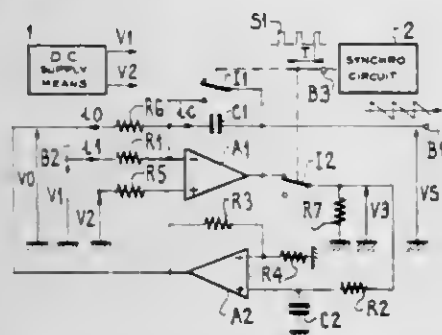
Filed Nov. 13, 1979, Ser. No. 93,495

Claims priority, application France, Nov. 14, 1978, 78 32107

Int. Cl.³ H01J 29/70, 29/72

U.S. Cl. 315—389

6 Claims



1. A circuit for generating sawtooth signals, particularly for cathode-ray scanning of the line-by-line type and comprising: an operational amplifier having a non-inverting input, an inverting input and an output for delivering said sawtooth signal; a capacitor connected between said output and said inverting input; direct-current supply means for producing a first constant positive voltage applied to said inverting input through a first resistor, and a second constant positive voltage of lower value than the first voltage and which is applied to the non-inverting input of the amplifier; a first switching circuit connected to the terminals of the capacitor and caused to close periodically by a pulse train produced by an auxiliary pulse-generating circuit; a control loop circuit connected between the output and the inverting input of the amplifier the connection to the inverting input being made through a second resistor, the loop circuit comprising a second switching circuit in series with a low-pass filter circuit whose cut-off frequency is selected to pass the D.C. component so as to produce a voltage corresponding to the mean value of the sawtooth signal, said second switching circuit being con-

trolled by said pulse-generating circuit in opposite phase with respect to the first switching circuit.

4,314,184

DEFLECTION COIL DRIVER APPARATUS

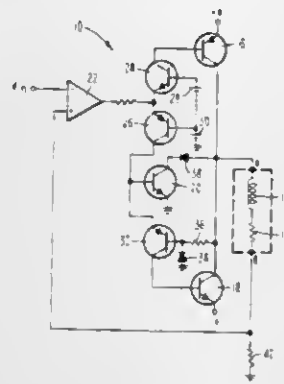
John O. Ryan, Cupertino, Calif., assignor to Ampex Corporation, Redwood City, Calif.

Filed Mar. 4, 1980, Ser. No. 127,163

Int. Cl.³ H01J 29/70

U.S. Cl. 315—408

9 Claims



1. In a deflection coil driver apparatus of the type which has a class B amplifier for driving a deflection coil via one of a plurality of power transistors, the improvement comprising: transistor switch means coupled to sense the voltage on the deflection coil and for turning on one of said power transistors when the sensed voltage is negative such that said coil is coupled to a negative voltage source for generating a negative current of negative slope, and for turning on another of said power transistors when the sensed voltage is positive such that said coil is coupled directly to ground rather than to a negative voltage source to generate a negative current of positive slope; and said deflection coil being coupled to a positive voltage source via still another power transistor to generate in the coil a positive current of positive slope.

4,314,185

CONTROL CIRCUIT FOR AN AUTOMATED PRESS SYSTEM

Franz Schneider, Göppingen, and Burkhard Schumann, Ottenbach, both of Fed. Rep. of Germany, assignors to L. Schuler GmbH, Ottenbach, Fed. Rep. of Germany

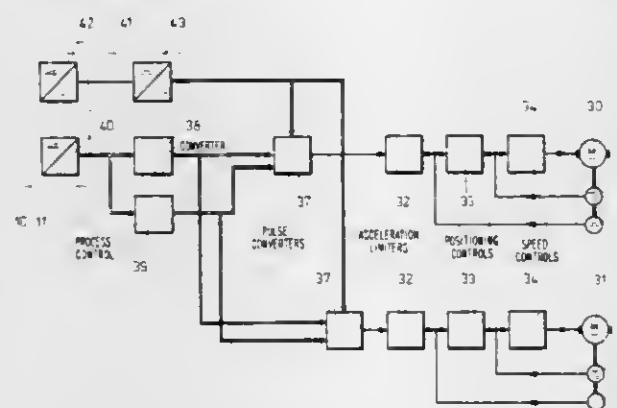
Filed Mar. 17, 1980, Ser. No. 131,197

Claims priority, application Fed. Rep. of Germany, Mar. 16, 1979, 2910399

Int. Cl.³ G05B 11/18

U.S. Cl. 318—85

9 Claims



1. A circuit arrangement for an automated press system having a press ram and a press automation system in which a pulse generator coupled to the press enables positioning control circuits via an evaluation circuit in dependence on the

speed of operation of the press, said positioning control circuits driving actuators of the press automation system and the automation system following a predetermined operating characteristic by moving up to programmable set points, the pulse generator produces directly-coded actuating signals indicative of the position of the press ram, that the evaluation circuit includes a converter in parallel with a process control circuit, the inputs of said converter and process control circuit coupled to the pulse generator output and the outputs of said converter and process control circuit being connected to one or more pulse converters for said actuators, that the pulse converters are fed with control pulses from a generator which detects the number of strokes executed by the press, and that the outputs of the pulse converters are connected to said positioning control circuits for driving said actuators.

4,314,186

WIPER MOTOR CIRCUIT ARRANGEMENT

Gunther Gille, Sersheim; Horst Goertler, Sachsenheim; Hans Prohaska, and Horst Rachner, both of Bietigheim-Bissingen, all of Fed. Rep. of Germany, assignors to ITT Industries, Inc., New York, N.Y.

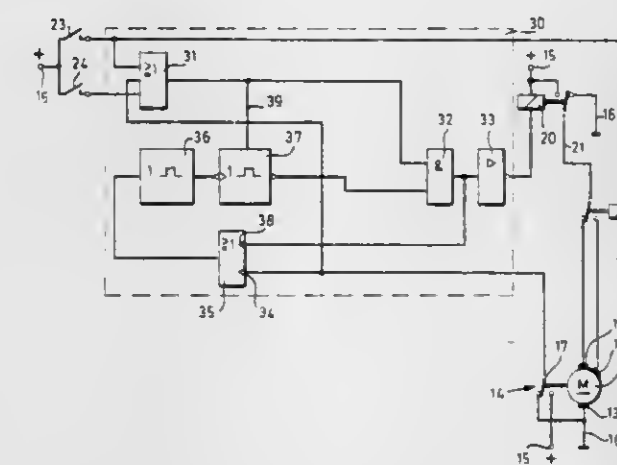
Filed Dec. 6, 1979, Ser. No. 100,948

Claims priority, application Fed. Rep. of Germany, Dec. 6, 1978, 2852676

Int. Cl.³ H02K 23/68

U.S. Cl. 318—434

2 Claims



1. A control circuit for operating the motor of a windshield wiper from a parking position and through a given angular swing, said circuit comprising, in combination: first means for producing a first signal during a portion of each wiping cycle of said motor; means for generating a reference signal having a predetermined time duration; means for comparing said first signal to said reference signal for providing an output signal when the duration between successive ones of said first signal exceeds the duration of said reference signal; switch means responsive to said output signal for removing operating potential from said motor; and, means connected between the comparing means and said switch means and responsive to said first signal for applying said output signal to said switch means only when said wiper is in said parking position.

4,314,187

DIGITAL CONTROL SYSTEM FOR AUTOMATIC-FOCUS CAMERAS

Istvan Cocron, Munich, Fed. Rep. of Germany, assignor to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

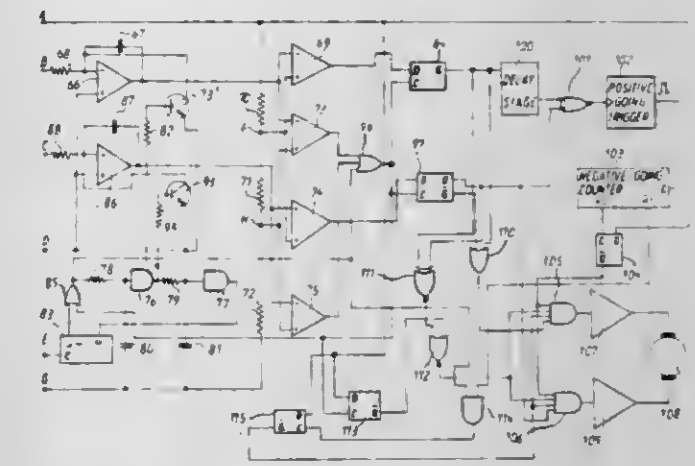
Filed Jul. 3, 1980, Ser. No. 166,093

Claims priority, application Fed. Rep. of Germany, Jul. 12, 1979, 2928142

Int. Cl.³ G05B 5/01

U.S. Cl. 318—611

8 Claims



1. A clocked control circuit for driving a bidirectional servo such as an electric motor in accordance with congruence and non-congruence between first and second digital input signals, comprising: a clocked discriminator circuit monitoring the first and second digital input signals and establishing congruence and non-congruence therebetween; a servo drive connected to the discriminator circuit and the servo and operating in a manner that when non-congruence between the first and second digital input signals is established, the servo can be driven in such a direction as will tend to establish congruence between them; a transition monitor monitoring the first and second digital input signals and generating a transition signal whenever the first and second digital input signals are initially in a non-congruent state and are subsequently in a different state; a counter counting all transition signals as such transition signals are generated; and a drive override circuit connected to the counter and to the servo drive, the drive override circuit operating in a manner that when a predetermined number of transition signals have been counted by the counter, the servo drive is overridden to de-energize the servo until a clock pulse is received and the counter is reset.

4,314,188

STABLE SUBSYNCHRONOUS DRIVE SYSTEM FOR GYROSCOPE ROTOR

Henry K. Voigt, North Merrick, N.Y., assignor to Sperry Corporation, New York, N.Y.

Filed Mar. 15, 1979, Ser. No. 20,579

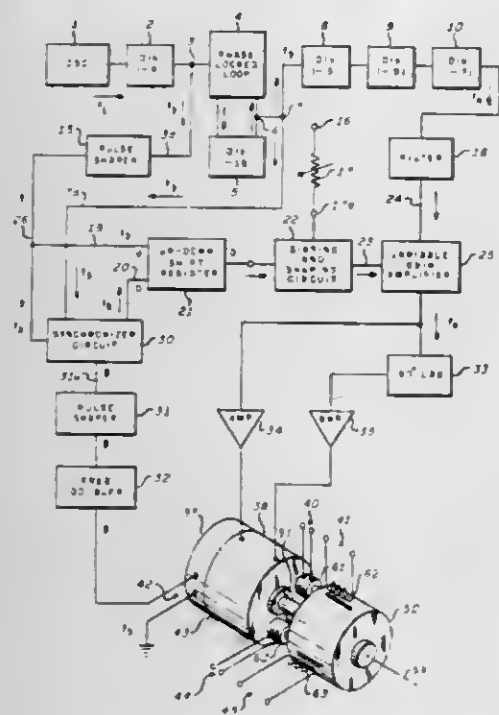
Int. Cl.³ H02P 5/28; G05B 5/01

U.S. Cl. 318—721

6 Claims

1. An improved gyroscope of the type having a rotor coupled to a synchronous motor which has randomly synchro-nizing permanent magnetic poles, wherein the improvement comprises: means for generating an excitation drive signal for said synchronous motor having a constant stable frequency and a variable amplitude; means for generating a speed signal proportional to the frequency of rotation of said gyroscope rotor coupled to said synchronous motor;

means for comparing the phase of the speed signal to the phase of the excitation drive signal and providing an output signal proportional to the difference thereof; and means for varying the amplitude of the excitation drive signal responsive to the output signal of said phase comparator means, such that the excitation drive signal ap-



plied to said synchronous motor maintains the frequency of rotation of said synchronous motor at a constant subsynchronous frequency slower than the constant stable frequency of the excitation drive signal; whereby the rotation of said synchronous motor at the constant subsynchronous frequency causes the permanent magnetic poles of said synchronous motor to rotate.

4,314,189

DEVICE FOR CONTROLLING THE COMMUTATING ANGLE OF AN INVERTER DEVICE

Chihito Okado, Fuchu; Takashi Morishita, Tokyo, and Koki Hasegawa, Hino, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

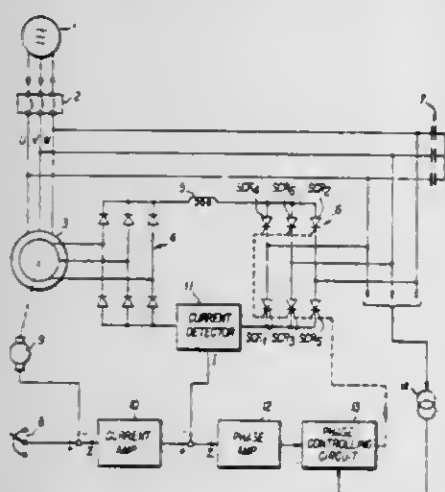
Filed Dec. 5, 1979, Ser. No. 100,561

Claims priority, application Japan, Feb. 21, 1979, 54-19472

Int. Cl.³ H02P 1/26

U.S. Cl. 318-732

7 Claims



1. A separate excitation type inverter device including an A.C. bridge circuit in which an A.C. power source is used as a commutating source, wherein D.C. power is returned to the A.C. power source by an inverter bridge circuit, said device comprising:

means for converting the A.C. power source into six phase components;

a control circuit for controlling the commutating angle of

the inverter bridge circuit by combining selected of said phase components to produce control signals based on selected combinations of said phase components, wherein said control signals are used for controlling the inverter bridge circuit commutating angle;

first means for setting a first predetermined level of voltage; second means for setting a second predetermined level of voltage;

first means for comparing the output of said converting means with the output of said first voltage setting means; second means for comparing the output of said converting means with the output of said second voltage setting means;

means for adding the outputs of said first and second comparing means; and

means for combining the output of the adding means with the control signals produced by the combination of said phase components such that the commutating angle of said inverter device is also controlled in response to the output of said adding means.

4,314,190

CONTROLLED CURRENT INVERTER WITH ANGLE COMMAND LIMIT

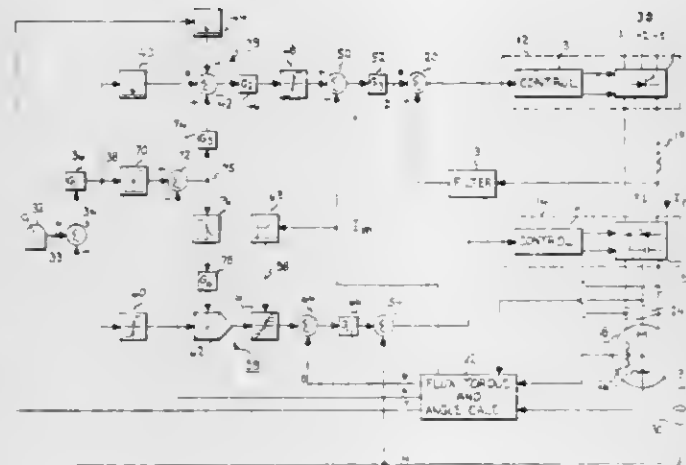
Loren H. Walker, Salem, and John H. Cutler, Roanoke, both of Va., assignors to General Electric Company, Salem, Va.

Filed Apr. 22, 1980, Ser. No. 142,657

Int. Cl.³ H02P 5/40, 7/42

U.S. Cl. 318-798

24 Claims



1. A control for an AC electric motor having a stator and a rotor spaced from the stator by a gap across which gap flux is produced in response to an electrical motor current of variable magnitude and frequency through windings associated with said stator, said control serving to control the electrical torque of said motor and comprising:

(a) means to determine, with respect to the motor, the instantaneous electrical torque, the instantaneous motor current, and the instantaneous angle between the gap flux and the motor current and to provide signals proportional thereto;

(b) means to establish a torque reference signal proportional to a desired level of electrical torque;

(c) means responsive to said torque reference signal to generate a current error signal, said current error signal acting as the primary control parameter serving to vary the magnitude of the motor current;

(d) means responsive substantially solely to said torque reference signal to derive an angle reference signal representative of the desired angle between the gap flux and the motor current;

(e) means to compare said angle reference signal with said signal proportional to the instantaneous angle between the gap flux and motor current and to generate an angle error signal representative of any difference therebetween and effective to vary the frequency of the motor current and

accordingly the angle between the gap flux and the motor current; and

(f) means responsive to said instantaneous motor current to limit said angle reference signal to predetermined values as a function of motor current in the region of relatively low valued motor currents in relation to the motor's rated current value.

4,314,191

PROTECTIVE SYSTEM FOR INVERTER CIRCUIT USED IN DRIVING AC MOTORS

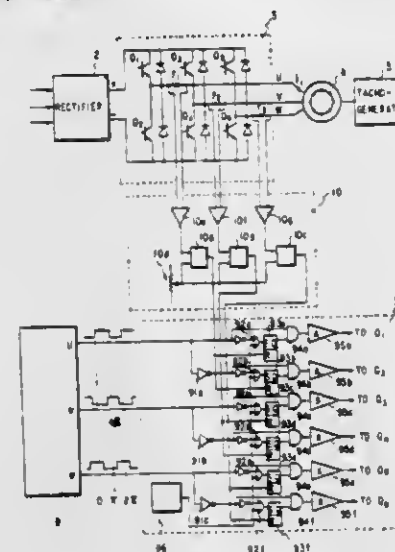
Shigeki Kawada, 346-15, Oaza-Shimoda, Hino-shi, Tokyo 191, and Hiroshi Ishida, 2-73, Matsubara-cho, 2-chome, Hamura-machi, Nishitama-gun, Tokyo 190-11, both of Japan

Filed Oct. 31, 1979, Ser. No. 89,741

Int. Cl.³ H02P 5/28

U.S. Cl. 318-802

5 Claims



1. In a speed control system which includes an inverter circuit for converting a direct current into a polyphase alternating current in the form of a rectangular wave by the switching action of transistors, and an inverter drive circuit for regulating the output frequency of the inverter circuit to a prescribed value, an AC motor being energized by the alternating current supplied thereto by the inverter circuit, an improved protective system for the inverter circuit, comprising:

overcurrent detection means for detecting the current that flows through the output side of the inverter circuit; means for interrupting the operation of the inverter drive circuit in response to a signal from said overcurrent detection means when said overcurrent detection means detects an overcurrent;

means for restoring the operation of the inverter drive circuit for fixed periods;

the operation of the inverter circuit being interrupted when the current flowing through the transistors thereof is caused when an overload in the AC motor reaches a predetermined value, and restored after the lapse of a fixed period of time; and

the means for restoring the operation of the inverter drive circuit for fixed periods comprises a flip-flop circuit and a pulse generator, the inverter drive circuit when in the interrupted state being restored to the operative state by an output signal from said flip-flop circuit which is set by a pulse generated by said pulse generator.

4,314,192

ELECTRICAL POWER GENERATION APPARATUS AND METHOD UTILIZING ELECTRON BEAM DISCHARGE

Charles R. Caro, Florence, S.C., assignor to CWM Corporation, Spruce Pine, N.C.

Filed Nov. 1, 1979, Ser. No. 90,132

Int. Cl.³ H01J 23/34; H02N 11/00

U.S. Cl. 322-2 R

22 Claims

1. Electrodynamical apparatus comprising electron beam

discharge means for directing electron beams and including a plurality of deflection, emission and target electrodes defining a parallel array of elongate electron beam channels each occluded at one end by an emission electrode and at the opposite end by a target electrode; magnetic field generating means for imposing on said array a magnetic field having flux lines directed perpendicularly to the longitudinal axes of said channels; and control circuit means electrically connected with said electron beam discharge means for applying thereto voltages effective to sequentially discharge electron beams through a succession of said channels while directing successive beams



through channels spaced one from another within said magnetic field in a direction generally perpendicular to both said axes and said magnetic flux lines.

22. A method of operating an electrodynamical apparatus comprising the steps of discharging an electron beam through an elongate electron beam channel, while imposing on the channel a magnetic field having flux lines directed perpendicularly to the longitudinal axis of the channel, and while effecting relative movement between the electron beam within the magnetic field and the magnetic flux lines in a direction generally perpendicular to both the axis of the channel and the magnetic flux lines.

4,314,193

FIELD COIL FAULT DETECTOR FOR AUTOMOTIVE ALTERNATOR BATTERY CHARGING SYSTEMS

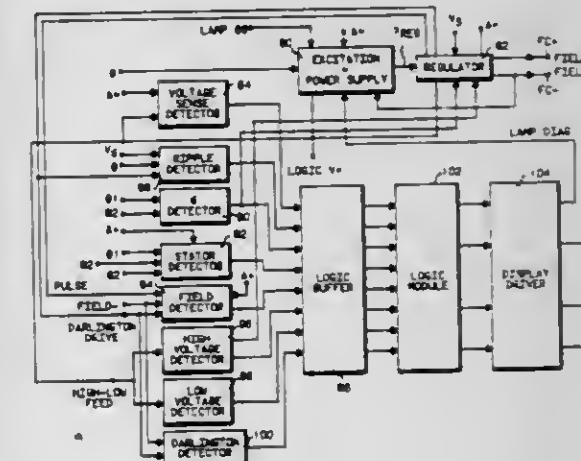
Robert W. Mortonson, Addison, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Filed May 22, 1980, Ser. No. 152,222

Int. Cl.³ H02J 7/14

U.S. Cl. 322-28

7 Claims



1. In a multiphase alternator and voltage regulator battery charging system, said alternator having a field coil and diode connected in a parallel circuit, said voltage regulator supplying excitation current to said field coil in response to a detected system voltage, a detector monitoring the operational status of said field coil circuit comprising:

means monitoring a first signal at a first terminal of said field coil circuit;

means generating sampling intervals on a repetitive basis;

means coupled to said voltage regulator and responsive to said sampling means, for interrupting said excitation signal supplied by said voltage regulator to said field coil circuit during sampling intervals;

means coupled to a second terminal of said field coil circuit and operative only during said sampling intervals to measure a second signal in said circuit; and

comparator means comparing said first and second signals producing an output signal when said comparison varies from a predetermined value.

4,314,194

ALTERNATOR-RECTIFIER UNIT WITH HIGHER VOLTAGE EXCITATION CIRCUIT

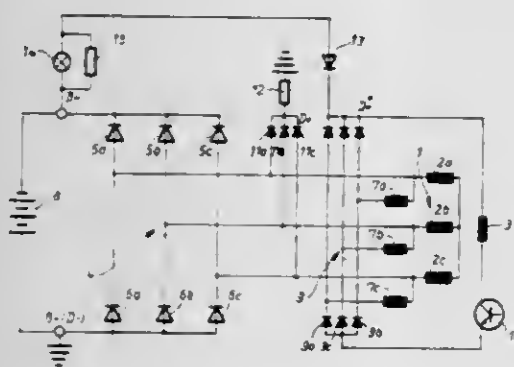
Joachim Severing, Ludwigsburg, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany
Filed May 6, 1980, Ser. No. 147,177

Claims priority, application Fed. Rep. of Germany, May 18, 1979, 2920101

Int. Cl.³ H02J 7/14; H02P 9/30

U.S. Cl. 322-89

2 Claims



1. An alternator-rectifier for a motor vehicle or other mobile or isolated unit that has its electric power requirements supplied by an engine-driven alternator feeding rectifier bridge arranged to convert multiphase alternating current into direct current delivered at a regulated voltage comprising:

- an alternator having a multiple core and a plurality of phase windings wound on said multiple core, a second core having an exciter winding thereon, said multipole and second cores being arranged for relative rotary movement, and a set of auxiliary windings on said multipole core wound respectively alongside said phase windings so as to be intersected by the same portion of a field set up by said exciter winding, said auxiliary winding being connected in series with the respective phase windings alongside of which they are wound;
- a main rectifier bridge connected to said phase windings and to positive and negative output terminals for supplying rectified current to a load;
- a plurality of exciter diodes, at least one connected to each of said auxiliary windings, for supplying rectified current at a voltage greater than the voltage across said load to a circuit comprising said exciter winding and voltage regulator for regulating the voltages across said load by control of the current passing through said exciter winding, and
- another set of diodes connected to said phase windings, one to each phase winding, and also together, for providing an independently rectified low-voltage supply of current for said voltage regulator.

4,314,195 SOLID STATE CONTROL FOR MOTOR-GENERATOR WELDER

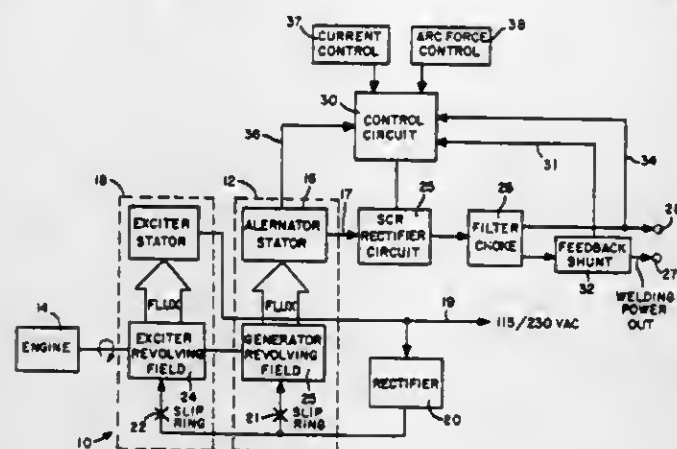
Bryce A. Muter, Troy, Ohio, assignor to Hobart Brothers Company, Troy, Ohio

Filed Nov. 1, 1979, Ser. No. 90,377

Int. Cl.³ H02M 7/155; H02P 9/30, 13/16

U.S. Cl. 322-90

2 Claims



1. A rotary welding power source comprising an alternator, including means for connecting it to a rotating source of power, for providing an alternating current output, synchronizing windings within said alternator associated with the alternator power windings for providing synchronizing signals, means for rectifying the alternating current output of said alternator for providing a direct current source of current for welding, said rectifying means including gate controlled thyristors, control circuit means sensing the condition of the direct current output of said rectifying means as compared to a reference and responsive to said synchronizing signals for controlling the time of conduction of said gate controlled thyristors and means connected between said synchronizing windings and said control circuit means for providing a source of control signals unaffected by the operation of said gate controlled thyristors.

4,314,196 CURRENT LIMITING CIRCUIT

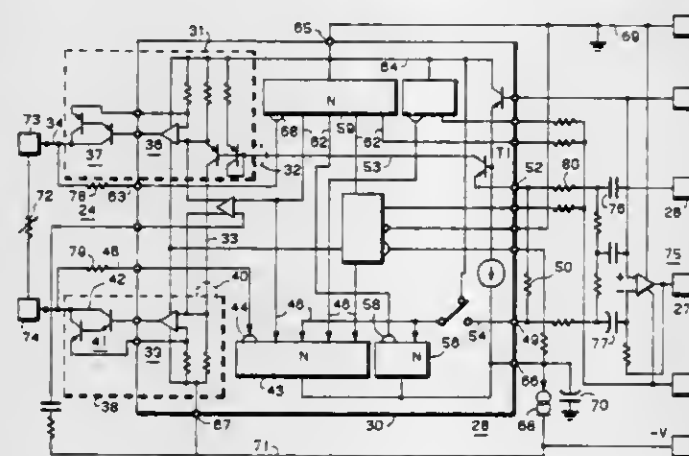
Leland T. Brown, Phoenix, Ariz., assignor to Motorola Inc., Schaumburg, Ill.

Filed Jul. 14, 1980, Ser. No. 167,852

Int. Cl.³ G05F 3/20

U.S. Cl. 323-315

17 Claims



1. Current limiting apparatus comprising: a load having one side thereof coupled to one terminal of a

power source and the other side thereof coupled to another terminal of said power source, a first and a second current path located between one side of said load and the associated terminal of said power source, current mirror circuit means having a supply terminal coupled to said associated terminal of said power source, an input terminal coupled to said second current path and an output terminal coupled to said first current path and operable to cause the current in said first current path to be proportional to the current in said second current path, and current limiting means in said second current path to limit the maximum current flow therein to a predetermined maximum value.

4,314,197

ALTERNATING CURRENT POWER CONTROL CIRCUIT

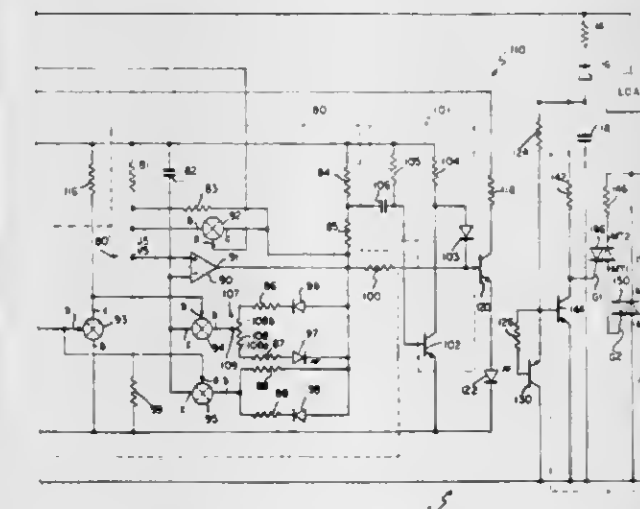
Louis M. Sandler, North Reading; Walter R. Spofford, Bedford, both of Mass., and Charles E. Scott, Noblesville, Ind., assignors to Emhart Industries, Inc., Indianapolis, Ind.

Division of Ser. No. 865,309, Dec. 28, 1977, abandoned. This application Mar. 29, 1979, Ser. No. 25,215

Int. Cl.³ G05F 3/04

U.S. Cl. 323-324

3 Claims



1. Circuit means for controlling the application of alternating current power to an apparatus, comprising: triac means having a pair of main terminals adapted for being coupled in series between said apparatus and a source of alternating current power, said triac means also having a gate terminal; non-regulated direct current power supply means adapted to receive alternating current power from said source thereof, said power supply means including rectifier means and filtering means and having a pair of output terminals for distributing direct current power; means for maintaining an approximately constant load on said non-regulated direct current power supply means and switch current therefrom to said triac means gate terminal including semiconductor junction switching means having a gate terminal, a first main terminal coupled to one output terminal of said power supply means and said triac means gate terminal and a second main terminal coupled to the other output terminal of said power supply means; and means coupled to said switching means gate terminal or activating and deactivating current flow in said switching means to deactivate and activate, respectively, current flow through said triac means by shunting current from said one terminal of said power supply means away from said triac means gate and to said other power supply means terminal thereby providing control of the application of alternating current power to said apparatus.

4,314,198

SOLAR POWER SOURCE FOR A LIGHTING SYSTEM

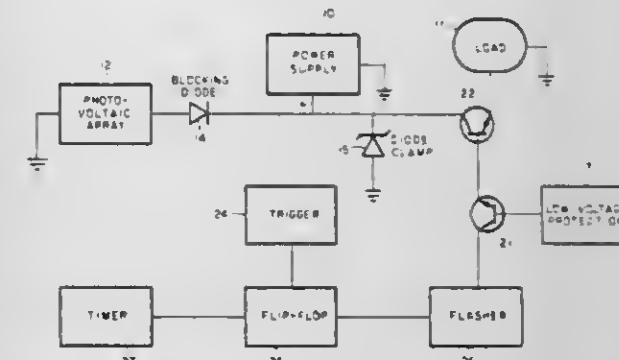
William E. Rogers, San Antonio, Tex., assignor to Solar Physics, Inc., San Antonio, Tex.

Filed Oct. 1, 1979, Ser. No. 80,405

Int. Cl.³ G05F 3/08; H02J 7/32

U.S. Cl. 323-51

5 Claims



1. A solar recharged power supply circuit for a lighting system comprising: a rechargeable power source operably connected to a lighting system operable at the same potential as said rechargeable power source; an array of photovoltaic cells operably connected to said rechargeable power source for supplying charging current to said rechargeable power source; diode means connected between said power source and said array of photovoltaic cells such that current flowing from said rechargeable power source to said array of photovoltaic cells is substantially blocked; zener diode means operably connected between said power source and ground such that said zener diode means clamps the potential of said power source at its full potential; means for disconnecting said power source from said lighting system if the potential of said power source drops below a predetermined value comprising means for comparing the potential of said power source with a reference voltage potential, and first transistor switch means connected to second transistor switch means operably connected between said power source and said lighting system wherein said first transistor switch means is responsive to a signal output from said comparing means and causes said second transistor switch means to disconnect said power source from said lighting system if said power source potential drops below a predetermined value represented by said reference voltage wherein said means for comparing includes a differential input operational amplifier with hysteresis having an output operably connected to said first transistor switch means, one input connected to said power source, the other input connected to said reference voltage potential, and a zener diode connected between said other input and ground for clamping said other input to a predetermined value; timer means for generating pulses through said first transistor switch means to said second transistor switch means causing said second transistor switch means to intermittently connect and disconnect said lighting system from said power source; bi-stable signal generating means operably connected to said timer means wherein said timer means generates pulses to said second transistor switch means causing intermittent connect and disconnect between said lighting system and said power source in response to a signal from said bi-stable signal generating means; trigger means operably connected to said bi-stable signal generating means for causing said signal generating means to generate a signal to said timer means; second timer means for automatically disconnecting said lighting system from said power source after a predetermined time interval comprising counting means operably

connected to said bi-stable signal generating means, pulse generating means operably connected to said counting means such that said counting means counts pulses generated by said pulse generating means, said counting means including signal generating means for generating a signal to said bi-stable means when a predetermined number of pulses from said pulse generating means is counted by said counting means causing said bi-stable means to generate a signal to said timer means and said second transistor switch means disconnecting said lighting system from said power source; and, said counting means being responsive to a signal generated by said bi-stable means for resetting said counting means.

4,314,199

METHOD FOR LOCATING A FAULT POINT ON A TRANSMISSION LINE

Mitsuru Yamaura, Hachioji, and Yukinari Yamakoshi, Machida, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

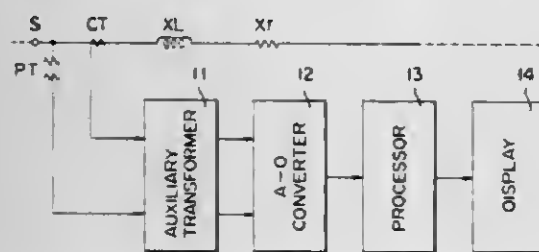
Filed Oct. 24, 1979, Ser. No. 87,771

Claims priority, application Japan, Oct. 30, 1978, 53-132575

Int. Cl.³ G01R 31/08

U.S. Cl. 324-52

7 Claims



1. A method for locating a fault point on a transmission line comprising:
 - a first step for detecting a prefault current (first current) at one end of said transmission line and detecting a faulted voltage and a faulted current (second current) at said one end;
 - a second step for subtracting said prefault current (first current) from said faulted current (second current) to obtain a fault component current at said one end;
 - a third step for shifting the phase of said fault component current by a known phase angle to obtain a third current;
 - a fourth step for assuming an assumed fault point, subtracting an impedance voltage drop from said faulted voltage to obtain an assumed fault point voltage at said assumed fault point, said impedance voltage drop being a voltage drop caused by said faulted current (second current) between said one end and said assumed fault point; and
 - a fifth step for discriminating whether the phase of said assumed fault point voltage coincides approximately with the phase of said third current obtained in said third step or not, changing said assumed fault point, repeating said fourth step and said discriminating step until the phase of said assumed fault point voltage coincides approximately with the phase of said third current, and determining the assumed fault point at which the phase of said assumed fault point voltage coincides approximately with the phase of said third current to be said fault point.

4,314,200

METHOD AND APPARATUS FOR DETECTION OF MAGNETIZATION

Alois Marek, Nussbaumen, Switzerland, assignor to BBC Brown, Boveri & Company Limited, Baden, Switzerland

Filed Sep. 1, 1977, Ser. No. 829,811

Int. Cl.³ G01R 19/00, 33/00

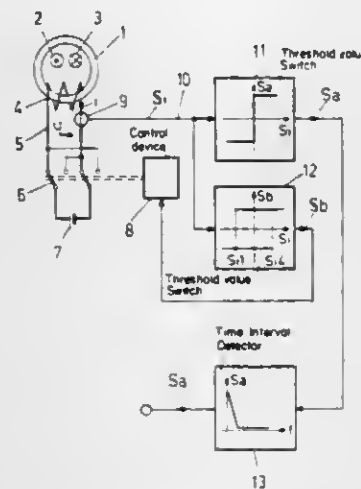
U.S. Cl. 324-117 R

31 Claims

1. A method for the detection of magnetization of a magnetic circuit, especially for the detection of a current flow and which

is coupled with the magnetic circuit and producing such magnetization, comprising the steps of:

- generating by means of a detection voltage a detection-current flow which cyclically changes over time and having a wave form dependent upon the magnetization of the magnetic circuit, said detection-current flow being used for detection purposes;
- said detection-current flow being coupled with the magnetic circuit;
- converting said detection-current flow to a first output signal whose magnitude is dependent upon said detection-current flow;



4,314,201

POWER MEASURING APPARATUS

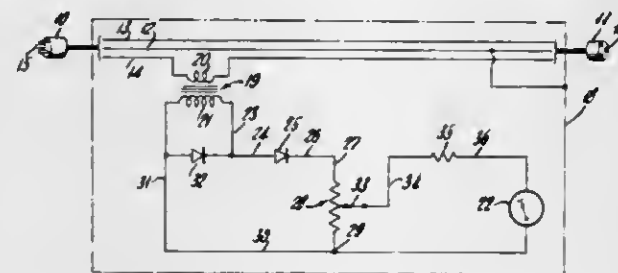
Michael Marro, Plainview, and John Monin, Woodhaven, both of N.Y., assignors to Dynamic Instrument Corporation, Hauppauge, N.Y.

Filed Apr. 14, 1980, Ser. No. 139,995

Int. Cl.³ G01R 15/02, 15/08, 19/22

U.S. Cl. 324-127

4 Claims



1. Alternating current power measuring apparatus for electric appliances comprising a male connector for engagement with a source of electric power, a female connector for attachment of an appliance to be energized, conductors interconnecting said female connector with said male connector, a transformer having a low impedance primary connected in series with one of said conductors and a higher impedance secondary, a potentiometer having a resistance element and a movable contactor electrically contacting said resistance element, means connecting said secondary to said resistance element to develop a voltage across said element proportional to the

current flowing through said primary and a voltage indicator connected between said movable contactor and one side of said resistance element for indicating current flowing through the primary of said transformer, said potentiometer being calibrated in terms of cost per kilowatt-hour and said meter being calibrated in terms of cost of operation of said appliance per hour of operation.

4,314,202

FLEXURAL VIBRATION SENSOR WITH MAGNETIC FIELD GENERATING AND SENSING

Shigeo Okubo, 350 Sharon Park Dr., Apt. E24, Menlo Park, Calif. 94025

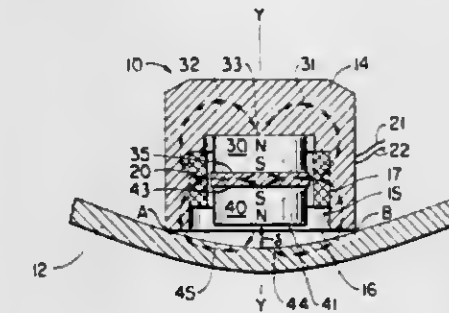
Filed Nov. 24, 1978, Ser. No. 963,476

Claims priority, application Japan, Aug. 7, 1978, 53-95474

Int. Cl.³ G01H 11/00; G01B 7/14; G01R 33/02

U.S. Cl. 324-207

7 Claims



1. A sensor for measuring the flexural vibration of an associated structural member, said sensor comprising:
 - a magnetizable housing having a top, side walls and a bottom, the inner surfaces of said top and said side walls defining an interior volume, said bottom defining a peripheral contact surface, said top and said side walls providing an internal magnetic path;
 - electrically conductive sensing coil means secured within said housing in said interior volume, said sensing coil means having an inner diameter;
 - first and second magnetic field generating means secured in said interior volume centrally of said sensing coil means inner diameter for generating first and second opposing magnetic fields, said first magnetic field generating means having one pole positioned adjacent the inner surface of said top and the other pole positioned within said sensing coil means inner diameter so that said first magnetic field extends from said one pole upwardly into said top, outwardly to said side walls, downwardly within said side walls and radially through said sensing coil means to said other pole;
 - said second magnetic field generating means having one pole positioned adjacent said bottom and recessed within said interior volume and the other pole positioned within said sensing coil means inner diameter so that said second magnetic field extends from said one pole downwardly to the exterior of said housing, outwardly to said peripheral contact surface, upwardly within said side walls and radially through said sensing coil means to said other pole, the facing poles of said first and second magnetic generating means having the same polarity and being mutually spaced; and
 - pole piece means positioned between said facing poles and said inner diameter of said sensing coil means for providing a magnetic field path for the radially directed first and second magnetic fields,
- whereby variations in the strength in that portion of said magnetic field in the region exterior to said housing caused by flexural vibration of said associated structural member when said sensor is attached thereto are sensed by said electrically conductive coil means.

4,314,203

TEST ARRANGEMENT FOR THE NON-DESTRUCTIVE TESTING OF METALLIC TEST PIECES

Peter Häberlein, Reutlingen, Fed. Rep. of Germany, assignor to Institut Dr. Friedrich Förster Prüfgerätebau, Fed. Rep. of Germany

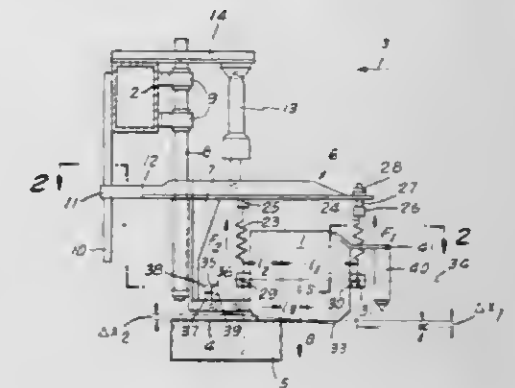
Filed Apr. 9, 1979, Ser. No. 27,711

Claims priority, application Fed. Rep. of Germany, Apr. 8, 1978, 2815228

Int. Cl.³ G01R 33/00; G01N 27/82

U.S. Cl. 324-262

12 Claims



1. In a test arrangement for the non-destructive defect testing of metallic test pieces, in particular slabs, billets and the like having surface irregularities, traction means move along the test piece surface carrying testhead mounting means with a testhead having at least one test probe, the bottom of the test probe being suited for sliding contact with the test piece surface and said testhead being towed by the testhead mounting means, the horizontal forces encountered between the testhead mounting means and the testhead being absorbed by a hinge joint which permits the testhead to swing at least about one axis vertical to the direction of movement and parallel to the test piece surface, and the vertical forces encountered between the testhead mounting means and the testhead being absorbed by separate connection means, the improvement comprising:
 - the separate connection means including two resilient elements acting upon the testhead, one at each side of the center of gravity of the testhead viewed along the direction of movement, the connecting line between the two points where said resilient elements act upon said testhead being located at a level higher than that of the testhead center of gravity, said testhead being urged toward the test piece by gravity and said two resilient means providing a resilient force opposing gravity;
 - means for varying the height of the testhead mounting means in relation to the traction means; and
 - means for keeping the testhead mounting means at a constant spacing with respect to the test piece surface.

4,314,204

RESONATOR FOR ELECTRON SPIN RESONANCE EXPERIMENTS

Reinhard Biehl, Kassel, and Dieter Schmalbein, Karlsruhe-Durlach, both of Fed. Rep. of Germany, assignors to Bruker Analytische Messtechnik GmbH, Rheinstetten, Fed. Rep. of Germany

Filed Apr. 29, 1980, Ser. No. 144,854

Claims priority, application Fed. Rep. of Germany, May 3, 1979, 2917794

Int. Cl.³ G01N 27/00

U.S. Cl. 324-316

10 Claims

1. A resonator for electron spin resonance experiments in which two different wave modes of the same frequency can be excited, whose magnetic fields build up at least approximately perpendicular to each other in a certain area of the resonator in which the electrical field mostly vanishes if possible, and which is fitted with devices for exciting the two modes and has an aperture through which a test piece is inserted into the

means (8) for exciting said laser medium to form an internal laser cavity pulse;
 a transducer (2) disposed in said laser cavity;
 means (3) for generating a standing wave in said transducer, whereby radiation from said internal laser cavity pulse is scattered out of said laser cavity on either side of said internal laser cavity pulse;
 characterized in that
 said laser further includes a first radiation detector (21) for generating a first electric signal in response to a portion (101) of the radiation scattered to one side of said internal laser cavity pulse (100);
 a second radiation detector (22) for generating a second electric signal in response to a portion (102) of the radiation scattered to the other side of said internal laser cavity pulse from said one side;
 (means (23, 24, and 27) for producing control signals in response to said first electric signal and said second electric signal; and
 means (500, 510, and 511) for adjusting said optical path length in response to said control signals.

4,314,212

TRANSIENT DATA RECORDER SYSTEMS

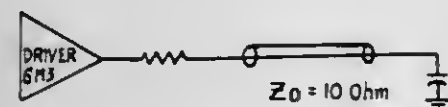
David A. Gradi, Des Plaines, Ill., assignor to Q-Dot, Inc., Des Plaines, Ill.

Filed May 31, 1979, Ser. No. 44,061

Int. Cl.³ H01P 5/02; H03H 11/40, 17/00

U.S. Cl. 333-20

3 Claims



1. In a circuit including a charge coupled device having a transport electrode array and a high frequency driver for said transport electrode array, the improvement comprising a coupling circuit for coupling said transport electrode array of said charge coupled device to said high frequency driver for said transport electrode array, comprising a coaxial cable having a length of less than about 1.5 inches for making electrical connection with said electrode array and having an impedance in the range of from about 0.5 Z_0 to about 2 Z_0 and a resistor having a resistance in the range of from 0.5 Z_0 to 2 Z_0 connecting said driver to said coaxial cable, where

$$Z_0' = X_c \left[\tan BL + \sqrt{1 + \tan^2 BL} \right]$$

and where X_c is the capacitive termination reactance to the cable, B is the cable line phase constant, and L is the cable line length.

4,314,213

THROUGH-TYPE CAPACITOR

Kikuo Wakino, Muko, Japan, assignor to Mura Manufacturing Co., Ltd., Japan

Filed Mar. 26, 1979, Ser. No. 24,023

Claims priority, application Japan, Mar. 30, 1978, 53-42156[U]

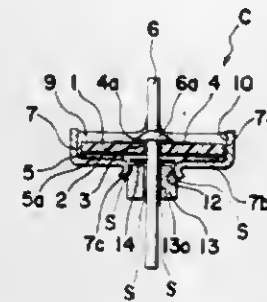
Int. Cl.³ H03H 3/00, 7/01; H01G 4/42, 1/02

U.S. Cl. 333-182

10 Claims

5. A through-type capacitor for use in electrical and electronic equipment, said capacitor comprising:
 a housing of metallic material having first and second openings and a stepped portion provided therebetween;
 a capacitor element located in said housing, said capacitor element comprising a dielectric member having an opened

end formed therein, and first and second electrode means formed on two opposite surfaces thereof, respectively;
 a central conductor member inserted through said opening in said dielectric member and secured in such position, said central conductor member being electrically connected to said first electrode means, said second electrode means being electrically connected to the interior of said housing;



plug means through which said central conductor member extends and which is fixed with respect to said housing so as to obstruct said second opening of said housing at least partially, said plug means being made of a magnetizable material; and
 a resin material closing said first opening of said housing.

4,314,214

MAGNETOSTATIC-WAVE DEVICE COMPRISING A CONDUCTING STRIP EXCHANGE STRUCTURE

Jean P. Castera; Pierre Hartemann, and Jean M. Dupont, all of Paris, France, assignors to Thomson-CSF, Paris, France

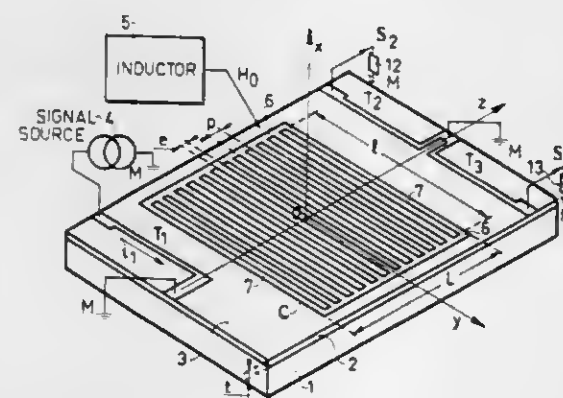
Filed Jul. 3, 1980, Ser. No. 166,698

Claims priority, application France, Jul. 6, 1979, 79 17602

Int. Cl.³ H03H 2/00

U.S. Cl. 333-141

25 Claims



1. A magnetostatic wave device comprising a layer of ferro-magnetic material subjected to a polarizing magnetic field, means for launching along one of its faces magnetostatic waves, and at least one exchange structure provided on said one face; said structure comprising an array of N adjacent conducting strips having N first ends and N second ends and further comprising conducting means electrically interconnecting said N first ends and said N second ends for causing a current induced by said magnetostatic waves in any one of said N conducting strips to loop inside said exchange structure; the arrangement of said strips being such that they take on the form of the incident wavefronts of said magnetostatic waves over at least a part of their length.

4,314,215

SURFACE ACOUSTIC WAVE FILTER DEVICE WITH EQUALIZATION OF STRAY COUPLING

Shigeo Tanji, Yokohama; Noboru Wakatsuki, Kawasaki, and Hideki Tominaga, Suzaka, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

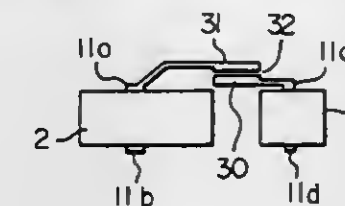
Filed Jul. 11, 1980, Ser. No. 168,324

Claims priority, application Japan, Jul. 20, 1979, 54-92292

Int. Cl.³ H03H 9/64, 9/25, 9/145, 9/42

U.S. Cl. 333-193

9 Claims



1. A surface acoustic wave filter device, comprising:
 a filter chip comprising an input transducer and an output transducer, each composed of a pair of interdigitated electrodes and formed on a piezo-electric substrate;
 a casing in which said chip is mounted;
 a plurality of externally leading input and output terminals, said terminals being connected to said chip and leading through said casing, said input terminals being connected to said input transducer and said output terminals being connected to said output transducer;
 a balanced-type differential amplifier connected to said output transducer through said externally leading output terminals;
 means for capacitatively coupling at least one of said input terminals with at least one of said output terminals, thereby to equalize the level of signals which are induced on said output terminals of said output transducer without having assumed the form of surface acoustic waves.

4,314,216

MECHANICAL FILTER

Takashi Gounji, Kawasaki; Yoshihiko Kasai, Yokohama, and Kenji Shirai, Ebina, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

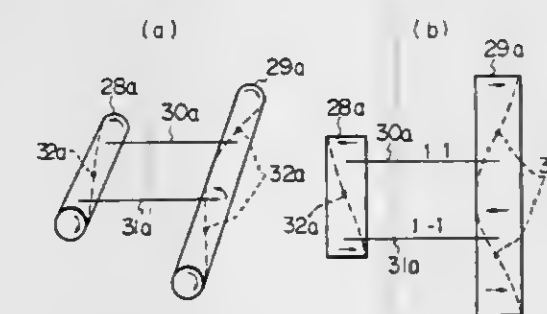
Filed Nov. 9, 1979, Ser. No. 92,855

Claims priority, application Japan, Nov. 13, 1978, 53-139648; Dec. 4, 1978, 53-149866; Dec. 4, 1978, 53-149868

Int. Cl.³ H03H 9/50, 9/24

U.S. Cl. 333-198

15 Claims



1. A mechanical filter comprising at least a pair of mechanical vibrators which are so arrayed that their longitudinal axes are substantially parallel to each other and which vibrate in the same mode of vibration, a first coupler which is arrayed at substantially right angles to said pair of mechanical vibrators together in phase, and a second coupler which is arrayed at substantially right angles to said pair of mechanical vibrators and couples said pair of mechanical vibrators together in anti-phase, and wherein the first and second couplers are connected to said pair of mechanical vibrators on mutually corresponding side surfaces of said pair of mechanical vibrators, and wherein the phase of both said first coupler and said second coupler

does not change between said pair of said mechanical vibrators.

4,314,217

LOCKING DEVICE

Fritz Krasser, Altdorf, Fed. Rep. of Germany, assignor to Ellenberger & Poensgen GmbH, Altdorf, Fed. Rep. of Germany

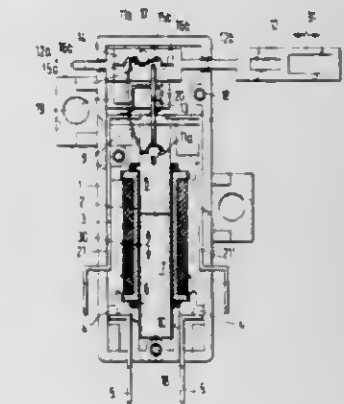
Filed Aug. 1, 1979, Ser. No. 63,114

Claims priority, application Fed. Rep. of Germany, Aug. 2, 1978, 2833860

Int. Cl.³ H01H 3/42

U.S. Cl. 335-188

17 Claims



1. In a locking device including a housing, a plunger slidably supported in the housing for displacement in a first direction between two end positions; an electromagnet disposed in the housing and having a solenoid and an armature displaceable in a second direction by the force of a magnetic field generated upon energization of the solenoid; and coupling means for operatively connecting the armature with the plunger for affecting the position of the plunger dependent upon the position of the armature; the improvement wherein said coupling means comprises a switch-over device having two stable end positions and being force-transmittingly connected to said plunger; said switch-over device comprising

(a) a slide supported in said housing for displacement by said armature in said second direction;
 (b) an extension connected with said plunger and supported in said housing for displacement in a third direction which is perpendicular to said second direction;
 (c) a first pin affixed to said slide;
 (d) a second pin affixed to said extension;
 (e) a compression spring engaging said first and second pins in an over-the-center arrangement for maintaining said extension in position in either end position of said plunger;
 (f) an abutment face of inverted W shape forming part of said extension and oriented towards said slide; and
 (g) a resilient lug affixed to said slide and extending to said abutment face for engagement therewith to transmit a displacement force to said extension in said third direction upon movement of said slide toward said extension, whereby in either end position of said plunger the force of said compression spring is overcome and said extension, together with said plunger, is moved such that the plunger is displaced towards its other end position.

4,314,218

MAGNETIC SYSTEM FOR REARRANGING OR REGROUPING CHARGED PARTICLES WITHIN A PULSED BEAM

Dominique Tronc, Paris, France, assignor to CGR-MeV, Buc, France

Filed Dec. 12, 1979, Ser. No. 102,900

Claims priority, application France, Dec. 15, 1978, 78 35383

Int. Cl.³ H05B 31/26; H05H 1/10

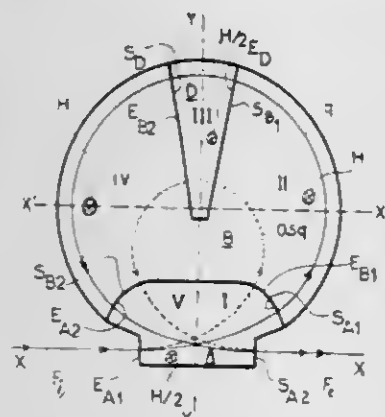
U.S. Cl. 335-210

7 Claims

1. A magnetic system for regrouping or rearranging the charged particles of an incident beam of such particles so as to

provide an exit beam having high density particle bunches, comprising:

- an electromagnet including first, second and third pairs of polepieces;
- the polepieces being arranged so that the polepieces of said first and third pairs interpenetrate the polepieces of said second pair;
- all pairs of polepieces having a common plane of symmetry perpendicular to a first axis defined by the average incident and emergent paths of said beam;
- the polepieces defining successive air gaps forming successive first, second, third, fourth, and fifth sectors in which are created, respectively, a first field H_I having a field strength $H/2$, a second field H_{II} having a field strength H , a third field H_{III} having a field strength $H/2$, a fourth field H_{IV} having a field strength H and a fifth field H_V having a field strength $H/2$;
- the first sector having an entry face (E_{A1}) and an exit face (S_{A1}), the second sector having an entry face (E_{B1}) and an



exit face (S_{B1}), the third sector having an entry face (E_D) and an exit face (S_D), the fourth sector having an entry face (E_{B2}) and said exit face (S_{B2}), and the fifth sector having an entry face (E_{A2}) and an exit face (S_{A2}), said entry face (S_{A1}) and exit face (E_{A2}) being on an arc of a circle having a radius $r = R_q \tan(\alpha_q/2)$, where R_q and α_q represent respectively the radius of curvature and the deflection angle of the paths in the air gap of said first pair of polepieces for elections having a momentum q ;

the successive sectors providing a plurality of loop-like paths for an incident beam entering through entry face (E_{A1}) and exiting through exit face (S_{A2}), the path length of each path being determined as a function of the momentum q of a particle traveling thereon, the different path lengths resulting in the bunching of particles emerging from exit face (S_{A2}) so that they are longitudinally compressed with respect to particles incident at entry face (E_{A1}); and wherein the electromagnet is provided with an annular coil in the air gap of said first, second, and third polepieces.

4,314,219

PERMANENT MAGNET TYPE LIFTING DEVICE

Tosimichi Haraguchi, Saltama, Japan, assignor to Hitachi Metals, Ltd., Tokyo, Japan

Filed Sep. 25, 1979, Ser. No. 78,620

Claims priority, application Japan, Apr. 17, 1979, 54-51165[U]; May 21, 1979, 54-68064[U]

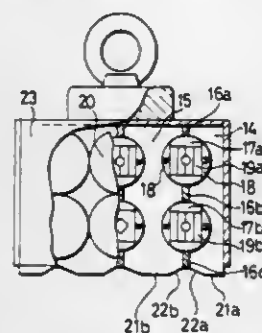
Int. Cl.³ H01F 7/04; B25B 11/00

U.S. Cl. 335-295

2 Claims

1. A permanent magnet type lifting device, comprising a plurality of magnetic members said plurality of magnetic members being isolated from one another by non-magnetic members, each pair of adjacent magnetic members defining with said isolating, non-magnetic members a plurality of vertically aligned internal circular openings, said plurality of magnetic members thereby defining a plurality of horizontally and vertically disposed internal circular openings, a plurality of perma-

nent magnet assemblies corresponding to and rotatably disposed within said plurality of internal circular openings in such a manner as to be rotatably in contact with said magnetic members through pole pieces thereof, each of said permanent magnetic assembly comprising a plurality of plate-shaped permanent magnets disposed in parallel to form a single unit and two pole pieces made of a magnetically permeable material provided adjacent respective end faces of said one unit, said two pole pieces having their outer surfaces shaped so as to be complementary with the shape of the walls of said circular



opening and the arrangement of said plate-shaped magnetics and said pole pieces being such that said plate-shaped magnetics do not slide against the walls of said circular openings, means for rotating said plurality of permanent magnet assemblies in such a manner than like magnetic poles thereof are confronted with each other through said magnetic members and a magnetic flux concentrating portion formed at the attracting surface of each magnetic member, said magnetic flux concentrating portion comprising an inclined portion formed at said attracting surface of each magnetic member.

4,314,220

FIXING STRUCTURE OF ELECTRONIC COMPONENT

Katsuo Ito, Kanazawa, and Kazunori Yoshimura, Nonouchi, both of Japan, assignors to Murata Manufacturing Co., Ltd., Japan

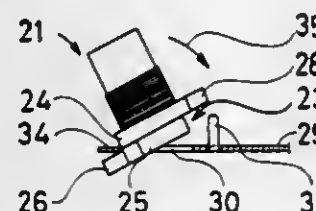
Filed Jan. 23, 1980, Ser. No. 114,496

Claims priority, application Japan, Feb. 9, 1979, 54/16497[U]

Int. Cl.³ H01F 15/02

U.S. Cl. 336-65

14 Claims



1. A structure for fixing an electronic component to a flexible and deformable base plate, said structure comprising:

- (A) an electronic component;
- (B) base plate means made of a flexible and deformable material; said base plate means having an aperture formed therein for receiving said electronic component; and said base plate means further including a strip portion extending along a portion of the periphery of said aperture and having a direction of extension; and
- (C) said electronic component including:

(1) a base portion for insertion into said aperture, said base portion being so formed that it can be inserted into said aperture only a predetermined distance; and

(2) a protrusion extending from said base portion; said protrusion and said strip portion cooperating in such a manner that when said base portion is inserted into said aperture, said protrusion engages said strip portion and deforms said strip portion in a manner such that the width of said aperture as measured in the direction parallel to said direction of extension of said strip portion is reduced to such an extent that said base portion is gripped by at least a portion of the periphery of said

aperture, whereby said electronic component is secured firmly in said aperture.

4,314,221

INDUCTANCE DEVICE

Hiroshi Satou, and Tadao Yahagi, both of Tokyo, Japan, assignors to TDK Electronics Co., Ltd., Tokyo, Japan

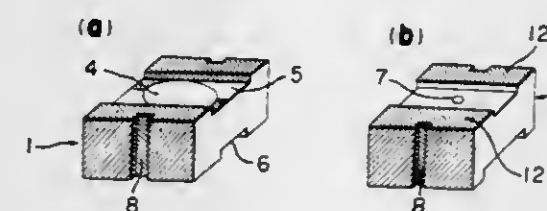
Filed Sep. 17, 1980, Ser. No. 188,263

Claims priority, application Japan, Sep. 17, 1979, 54/128174[U]

Int. Cl.³ H01F 15/02, 15/10

U.S. Cl. 336-83

4 Claims



1. An inductance device which comprises a drum core on which a coil is wound and which has a projection; a rectangular pot core having each concave part on the upper surface and the lower surface and having a hollow for fitting said drum core and a hole for fitting said projection of said drum core; electrode parts which are respectively formed on each side surface and said concave part of the upper surface of said pot core and on the bottom surface of said pot core; said drum core having said coil being fitted into said hollow of said pot core; and said coil being connected to said electrode parts at said concave part by each of lead terminals of said coil; and said drum core being sealed in said hollow.

4,314,222

THERMOSTAT ANTICIPATOR IMPROVEMENTS

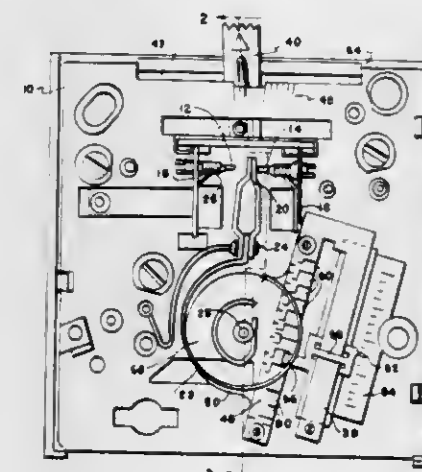
Allen L. Teichert, Placentia, Calif., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Oct. 3, 1979, Ser. No. 81,545

Int. Cl.³ H01H 37/14

U.S. Cl. 337-107

3 Claims



1. In a thermostat having a temperature responsive switch and a bimetallic actuator therefor, and an anticipator circuit for heating said bimetallic actuator during a preselected one of on or off periods of said temperature responsive switch, the improvement comprising:

a metal radiator positioned with a major portion of its area located immediately beneath said bimetallic actuator in direct heat exchange contact with said resistive heating element, and said radiator is bonded to a U-shaped assembly with a first bar located proximate to said metal radiator and a second slide bar parallel thereto, a resistive heating element mounted on said first bar and including a thin metallic ribbon resistive conductor adhesively bonded to said first bar by an insulating film, and at least

a portion of which is located immediately beneath said bimetallic actuator, said resistive conductor providing a plurality of electrical pads spaced at substantially equal increments along its length and separated by an equal plurality of open areas spaced along its length to provide a preselected decrease in the cross-sectional area of said resistive conductor, and a wiper arm is slidably carried on said slide bar with a contact arm extending into electrical contact with said resistive element, whereby movement of said wiper arm along said slide bar provides a resistivity which increases nonlinearly with distance along the length of said resistive conductor, and said metal radiator heats said bimetallic actuator accordingly.

4,314,223

THERMAL PROTECTIVE DEVICE FOR LIGHTING FIXTURES

Paul J. Kristofek, Hickory Hills, Ill., assignor to McGraw-Edison Company, Rolling Meadows, Ill.

Filed Dec. 11, 1980, Ser. No. 215,163

Int. Cl.³ H01H 61/01

U.S. Cl. 337-113

13 Claims



1. A device for interrupting current to the electrical circuit of an electrically operated, heat generating appliance such as, an electrical lighting fixture when the temperature at a preselected location in said appliance reaches a predetermined level, said device including in combination;

a receptacle located generally at said preselected location including first terminal means connected electrically to said circuit;

a plug adapted for joinder with said receptacle including second terminal means connectable with said first terminal means upon joining said receptacle and plug and thermal protector means connected electrically to said second terminal means, said thermal protector means being operable to open said circuit at said predetermined temperature level; and

latch means included in said receptacle and plug, operable to secure said receptacle and plug in disengagable relation in response to the engagement of said first and second electrical terminal means.

4,314,224

THERMALLY ACTUATABLE ELECTRICAL SWITCH CONSTRUCTION AND METHOD OF MAKING THE SAME

Emil R. Plasko, Washington Township, Montgomery County, Ohio, assignor to Emerson Electric Company, St. Louis, Mo.

Filed Dec. 31, 1979, Ser. No. 108,545

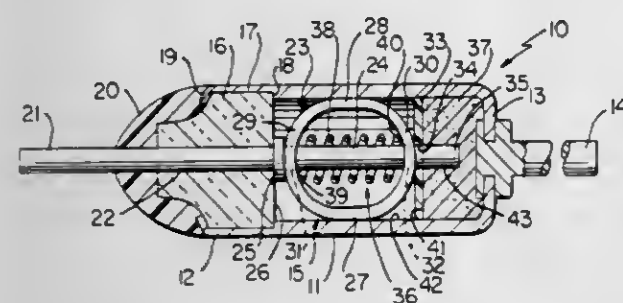
Int. Cl.³ H01H 37/76

U.S. Cl. 337-408

34 Claims

1. In a thermally actuatable electrical switch construction having a resilient contact member normally biased into electrical contact with a stationary contact member while a temperature sensitive member of said construction is in a solid condi-

tion and normally tending to spring out of contact with said stationary contact member by the natural bias of said resilient contact member when said temperature sensitive member is rendered non-solid by sensing a temperature above a predetermined temperature, said construction carrying guide means operatively associated with said resilient contact member to provide a guide for said resilient contact member that will



substantially insure that said resilient contact member will move and be maintained out of contact with said stationary contact member after said temperature sensitive member has been rendered non-solid, the improvement wherein said guide means comprises a spring engaging and acting on said resilient contact member to tend to pull said resilient contact member out of contact with said stationary contact member.

4,314,225

PRESSURE SENSOR HAVING SEMICONDUCTOR DIAPHRAGM

Tamotsu Tominaga, and Teruyoshi Mihara, both of Yokohama, Japan, assignors to Nissan Motor Company, Ltd., Yokohama, Japan

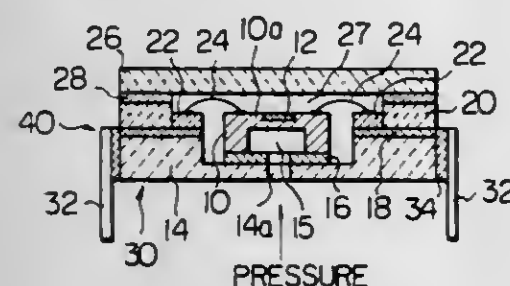
Filed Jul. 9, 1979, Ser. No. 55,755

Claims priority, application Japan, Aug. 10, 1978, 53-96722

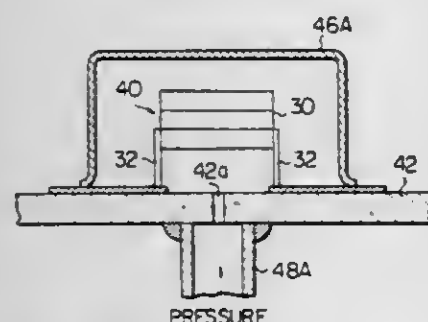
Int. Cl.³ G01L 1/22

U.S. Cl. 338—4

9 Claims



PRESSURE



PRESSURE

1. A pressure sensor comprising:
 - (a) a probe assembly comprising
 - (i) a pressure-sensitive element comprising a block of a crystalline semiconductor a portion of which takes the form of a diaphragm having front and back sides and at least one diffused resistor formed in a surface region on said front side of said diaphragm;
 - (ii) a package made up of at least two structural members integrated into a lidded box-like structure, said structural members being each made of an electrically nonconductive material whose coefficient of linear expansion is

nearly equal to the coefficient of linear expansion of said crystalline semiconductor, said block of said pressure-sensitive element being confined in the interior of said package and bonded to one of said at least two structural members such that said diaphragm is entirely spaced apart from the inside of said package and that a hermetically closed first space is defined between the inside of said package and said front side of said diaphragm, said space being kept at a predetermined pressure so as to serve as a reference pressure chamber, said one of said at least two structural members further including a first hole bored therethrough in such a position that a fluid pressure subject to measurement can be admitted into the interior of said package through said hole so as to arrive at said back side of said diaphragm; and

- (iii) a plurality of lead frames which are elongate metal members fixed to said package so as to each protrude from the outside of said package and electrically connected to said at least one diffused resistor said lead frames comprising means for supporting the weight of said package;
- (b) a base plate having a plurality of electrical terminals, said lead frames being respectively fixed to said base plate at said electrical terminals such that said package is supported by said lead frames in a state entirely spaced from said base plate;
- (c) a cap fixed to said base plate such that a second space is defined between said cap and said base plate and that said probe assembly is entirely confined in said second space and spaced from the inside of said cap, one of said cap and said base plate having a second hole bored therethrough so as to open into said second space; and
- (d) a pipe fixed to said one of said cap and said base plate such that the interior of said pipe communicates with said second space only through said second hole to introduce said fluid pressure into said second space.

4,314,226

PRESSURE SENSOR

Takeshi Oguro, Yokosuka; Teruyoshi Mihara; Tamotsu Tominaga, both of Yokohama, and Masami Takeuchi, Kokubunji, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

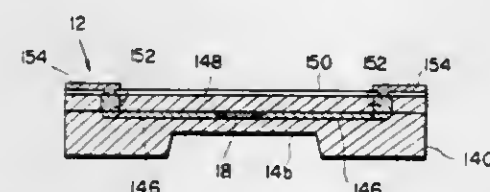
Filed Jan. 4, 1980, Ser. No. 109,489

Claims priority, application Japan, Feb. 2, 1979, 54-11583[U]

Int. Cl.³ G01L 1/22

U.S. Cl. 338—4

5 Claims



1. A pressure sensor comprising:
 - a package having a hollow interior space and an inlet for introducing into the hollow interior space a fluid pressure to be measured;
 - a silicon diaphragm block confined within and bonded to the interior space of said package, said diaphragm block including a diaphragm spaced from the inside of said package;
 - said diaphragm including a base layer, said base layer including a pressure-sensitive element comprising a diffused resistor on a surface thereof, and a protective layer opposite in conductive type to said resistor and covering said diffused resistor;
 - a plurality of aluminum electrodes extending through said protective layer;
 - an internal diffused layer being of the same conductive type as said diffused resistor and disposed substantially between said base and said protective layer, said internal diffused layer electrically connecting said aluminum electrodes and said diffused resistor; and

diffused areas in said protective layer surrounding said aluminum electrodes, said diffused areas being opposite in conductive type to said protective layer and formed by diffusing said aluminum electrodes by a heat treatment into said protective layer.

4,314,227

ELECTRONIC PRESSURE SENSITIVE TRANSDUCER APPARATUS

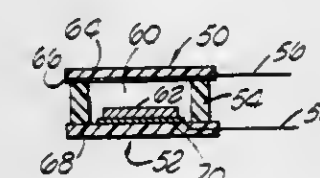
Franklin N. Eventoff, 2351 Lakeview Ave., Los Angeles, Calif. 90039

Filed Sep. 24, 1979, Ser. No. 78,323

Int. Cl.³ H01C 10/10, 10/12

U.S. Cl. 338—99

9 Claims



1. A pressure responsive analog transducer comprising:
 - a first contact;
 - a second contact;
 - at least one semiconducting layer comprising at least a pressure sensitive semiconductor particulate material, the semiconducting layer, disposed in normally spaced relationship with at least one of the first and second contacts, the semiconducting layer having a surface positioned in normally non-electrically-conducting relationship with at least one of the first and second contacts, the surface having a multiplicity of microprotrusions extending therefrom, each providing a minute contact location, at least one of the first contact, second contact and semiconducting layer being resiliently responsive to an external pressing force for causing the multiplicity of microprotrusions extending from the surface of the semiconducting layer and at least one of the first and second contacts to variably press against one another to define a variably electrically resistive junction so that electricity conducts between the first and second contacts through the minute contact location of the microprotrusions on the surface so that the resistance across the variably electrically resistive junction decreases in response to an increase in the external pressing force and increases in response to a decrease in the external pressing force.

4,314,228

PRESSURE TRANSDUCER

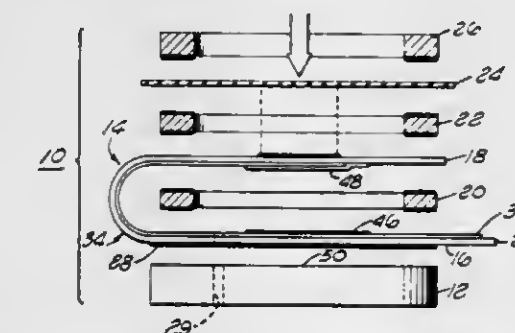
Franklin N. Eventoff, 2351 Lake View Ave., Los Angeles, Calif. 90039

Filed Apr. 16, 1980, Ser. No. 140,937

Int. Cl.³ H01C 10/10

U.S. Cl. 338—14

16 Claims



1. A pressure transducer device comprising:
 - a housing defining a chamber with a bottom surface and side walls;

- a first conductor positioned adjacent the bottom surface of the chamber;
- a flap having an upper and lower surface generally parallel with the bottom surface and a hinge region for movably attaching the flap at a spaced location above the bottom surface to extend from a side wall into the chamber, the flap being movable in the chamber about the hinge region;
- a second conductor disposed on the lower surface of the flap;
- a pressure responsive semiconducting composition layer disposed for covering at least one of the first conductor and the second conductor; and
- a diaphragm attached about its periphery to the housing in spaced relationship to the bottom surface for enclosing the chamber, the diaphragm adhesively attached to the upper surface of the flap at a center region laterally spaced from the housing, the second conductor being variably movable with the flap into electrically conducting relationship with the first conductor by the diaphragm in response to variations in pressure force exerted against the diaphragm.

4,314,229

FADER CONTROLLING VARIABLE RESISTOR

Atsushi Kawasaki, and Yukio Munakata, both of Tokorozawa, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

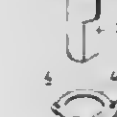
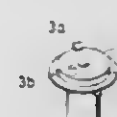
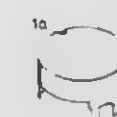
Filed Jul. 19, 1979, Ser. No. 58,653

Claims priority, application Japan, Jul. 21, 1978, 53-88263; Jul. 21, 1978, 53-88264; Jul. 21, 1978, 53-99647[U]; Jul. 21, 1978, 53-99648[U]; Jul. 21, 1978, 53-99649[U]; Aug. 16, 1978, 53-99121; Aug. 16, 1978, 53-111479[U]; Aug. 16, 1978, 53-111480[U]

Int. Cl.³ H01C 10/30

U.S. Cl. 338—160

3 Claims



1. A variable resistor comprising: a casing, a mounting board, a conductive element mounted on said mounting board and having a sliding member, a substrate having terminals and a resistance member mounted thereon, said sliding member disposed so as to contact said resistance member, and heat responsive deformable means adapted to discontinue the contact between said sliding member and said resistance member when the temperature of said resistance member exceeds a predetermined level, wherein said heat responsive deformable means includes a section of said mounting board adapted to be responsive to the generation of heat and deform in order to discontinue contact between the sliding member and the resistance member, said mounting board including a thin wall section made of a heat responsive material, and a cavity adjacent said thin wall section.

4,314,230

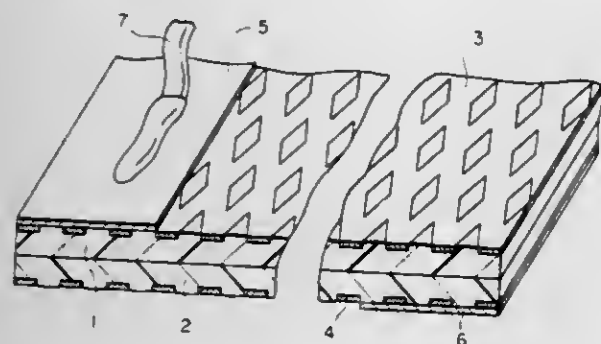
DEVICES COMPRISING CONDUCTIVE POLYMERS

Raymond F. Cardinal, Fremont, and Jack M. Walker, Portola Valley, both of Calif., assignors to Raychem Corporation, Menlo Park, Calif.

Filed Jul. 31, 1980, Ser. No. 174,136
Int. Cl.³ H01C 1/02

U.S. Cl. 338—314

43 Claims



1. An electrical device which comprises (1) an element composed of a conductive polymer composition; (2) a flame-sprayed layer of a material which at 25° C. has a resistivity of at most 5×10^{-2} ohm.cm, said layer being at least one mil thick; and (3) a foraminous element at the interface between said conductive polymer element (1) and said flame-sprayed layer (2); there being electrical and direct physical contact between said conductive polymer element (1) and said flame-sprayed layer (2) in interstices of said foraminous element (3).

4,314,231

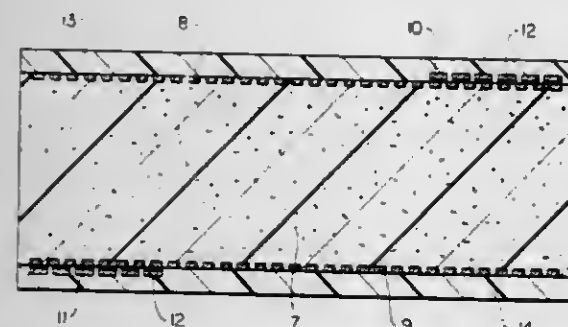
CONDUCTIVE POLYMER ELECTRICAL DEVICES

Robert J. Walty, Redwood City, Calif., assignor to Raychem Corporation, Menlo Park, Calif.

Filed Apr. 21, 1980, Ser. No. 141,990
Int. Cl.³ H01C 1/14

U.S. Cl. 338—328

26 Claims



1. An electrical device comprising:

- a conductive polymer element comprising conductive particles dispersed in a polymer matrix;
- an electrode having a plurality of openings therein secured to the surface of said element;
- a conductor having a plurality of openings superimposed over at least a portion of said electrode and conductive element and bonded thereto with an electrically conductive adhesive; and
- a layer of polymeric material covering said conductor and interpenetrating the openings of said conductor and electrode, said polymeric material bonding to said conductive element, electrode and conductor, thereby retaining said conductor in electrical contact with said electrode and conductive element.

4,314,232

VOICE WARNING SYSTEM FOR AN AUTOMOTIVE VEHICLE

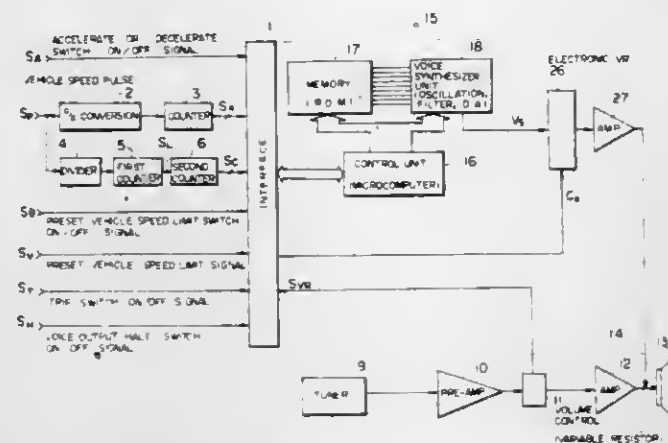
Masakazu Tsunoda, Fujisawa, Japan, assignor to Nissan Motor Company, Limited, Kanagawa, Japan

Filed Oct. 23, 1980, Ser. No. 199,710

Claims priority, application Japan, Oct. 24, 1979, 54-136430
Int. Cl.³ G08B 3/10

U.S. Cl. 340—52 F

7 Claims



1. A voice warning system for an automotive vehicle wherein an automatic vehicle speed control device is incorporated for increasing or decreasing the vehicle speed to a speed desired by the driver while an accelerate or decelerate switch in the automatic vehicle speed control device is turned on and for maintaining automatically the desired speed set when the accelerate or decelerate switch is turned off, which comprises:

- a first detector for detecting an instantaneous vehicle speed from vehicle speed pulses of a vehicle speed sensor;
 - a signal generator for generating a signal corresponding to speed limit preset by the vehicle driver;
 - a second detector for detecting a trip distance the automotive vehicle has traveled whenever a predetermined interval of distance is reached after a trip switch is turned on;
 - a voice selector connected to said first and second detectors and signal generator for selectively outputting a voice signal first according to the output signal from said first detector when the accelerate or decelerate switch is turned on and a signal representing a driver desired vehicle speed set when the accelerate or decelerate switch is turned off, secondly according to the output signal from said signal generator and lastly according to the output signal from said second detector; and
 - a voice output controller connected to said voice selector for outputting a message at a suitable volume according to the voice signal from said voice selector,
- whereby automatic vehicle speed control information such as an instantaneous vehicle speed while the accelerate or decelerate switch is turned on and a driver desired speed set when the accelerate or decelerate switch is turned off, vehicle speed warning message obtained when the actual vehicle speed exceeds the preset speed limit, and a trip distance message detected by said second detector can be conveyed to the vehicle driver in the order of priority described above reliably and without confusion with one another.

4,314,233

FOUR-WIRE SPEED INDEPENDENT ARBITER SWITCH FOR DIGITAL COMMUNICATION NETWORKS

Becky J. Clark, Tualatin, Oreg., assignor to Burroughs Corporation, Detroit, Mich.

Filed Dec. 18, 1979, Ser. No. 104,964

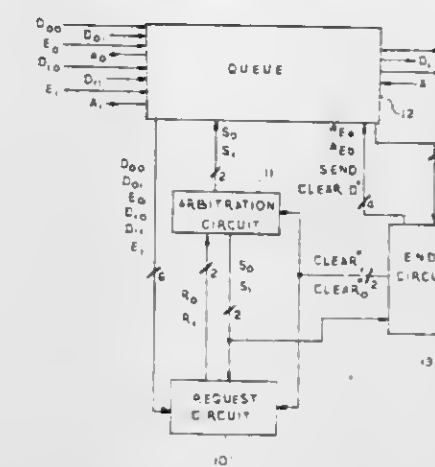
Int. Cl.³ H04Q 9/00; H04J 6/00

U.S. Cl. 340—825.02

7 Claims

1. An arbitration switch for receiving sequential sets of data

signals from two different nodes of a digital communication network and transmitting those signals to a third node, said sets including a first set of data signals, each set of data signals including an end signal, said switch comprising: queue means coupled to receive the respective sets of data signals from each of said two nodes;



an arbitration circuit coupled to said respective nodes to receive said respective sequential sets of data signals and to signal said queue means to select the first set of the data signals to be received for subsequent transmission to said third node; and end circuit means to detect the end signal of the first set of data signals and clear the switch for subsequent reception of another set of data signals.

4,314,234

TEST SET FOR RAILWAY CAB SIGNAL SYSTEM

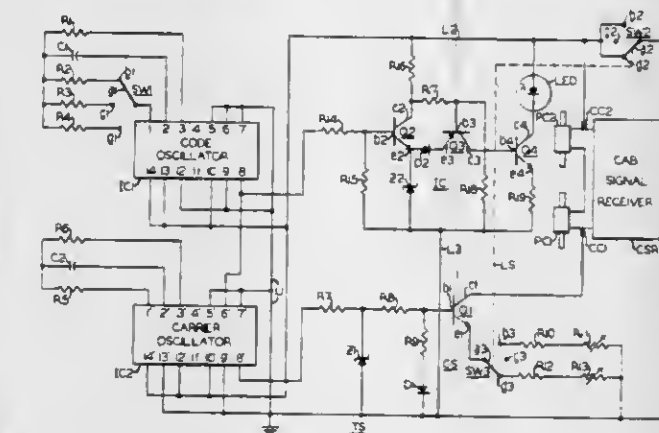
John O. G. Darrow, Murrysville, and Joseph J. Pierro, Dayton, both of Pa., assignors to American Standard Inc., Swissvale, Pa.

Filed Dec. 17, 1979, Ser. No. 103,885

Int. Cl.³ H04B 17/00; G01R 27/26; H04Q 1/20

U.S. Cl. 340—825.36

16 Claims



1. A test set for railway cab signal equipment comprising, a code oscillating circuit for producing code signals, a carrier oscillating circuit for producing carrier signals which are modulated by the code signals for producing coded carrier signals, a current source having an input and an output, the coded carrier signals fed to the input of said current source, the output of said current source connected across a pair of pickup coils of the cab signal receiver for verifying the integrity of the pair of pickup coils and for checking the sensitivity of an amplifier of the cab signal receiver.

4,314,235

SYSTEM FOR UTILIZING A CONVENTIONAL N-BIT SUCCESSIVE APPROXIMATION REGISTER TO GENERATE DATA WORDS WITH MORE THAN N PLACES

Wolfgang Ruf, Munich, and Eduard Wagensohn, Aschheim, both of Fed. Rep. of Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

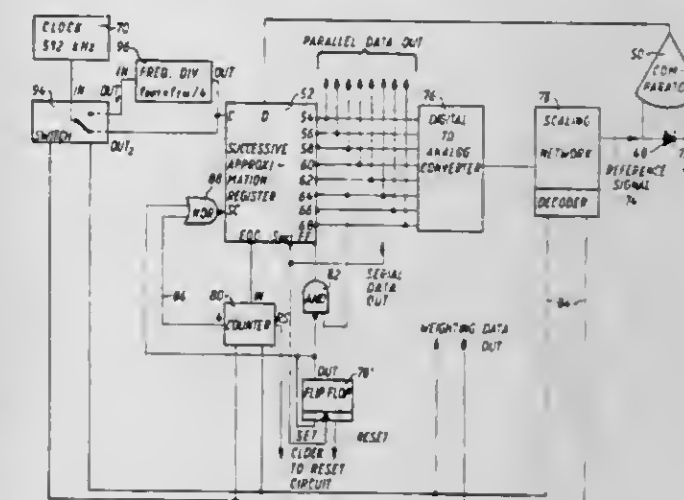
Filed Jan. 30, 1980, Ser. No. 116,801

Claims priority, application Fed. Rep. of Germany, Jan. 31, 1979, 2903728

Int. Cl.³ H03K 13/02

U.S. Cl. 340—347 AD

3 Claims



1. A system for using a conventional clocked N bit successive approximation register to continuously sample an analog electrical signal at discrete intervals and to convert the sampled analog electrical signal to a corresponding digital data word which differs from the analog electrical signal by at least a predetermined tolerance, when the analog electrical signal spans a dynamic range encompassing R bits, when R is an integer greater than N, comprising:

- an N bit successive approximation register having a data input and N parallel data outputs, of which parallel data outputs one is a most significant bit parallel data output, of which parallel data outputs another is a least significant bit parallel data output, and of which parallel data outputs still another is an intermediate significant bit parallel data output;
- an analog comparator connected to the analog electrical signal and the data input of the N bit successive approximation register, the analog comparator operating in a manner that when the analog electrical signal is at least equal to a scaled reference signal, a logically high signal will appear at the data input of the successive approximation register, and a logically low signal will appear at said data input otherwise;
- a digital-to-analog converter connected to all of the parallel data outputs and producing a reference signal representing data appearing at the parallel data outputs;
- a scaling network responsive to a scaling signal and connected to the digital-to-analog converter and the analog comparator and operating in a manner that the reference signal is scaled in response to the scaling signal and the scaled reference signal appears at the digital converter, whereby an operating range is selected in which at least one logically high signal is present at the data input of the successive approximation register;
- a clock clocking the successive approximation register at discrete regular intervals; and
- a computational supervisor cooperating with the scaling network and the successive approximation register and operating in a manner that the successive approximation register operates in a first mode in which the successive approximation register registers a group of M successive bits from the most significant bit to the intermediate signif-

icant bit wherein M is an integer less than N, and further operates in a second mode in which the successive approximation registers the successive bits N-M from the intermediate significant bit to the least significant bit, whereby the computational supervisor generates such appropriate scaling signals as to cause the successive approximation register to operate in the first and in the second mode for an integral number of cycles at most equal to C, which number C is so chosen that $(C \times M + N - M)$ will be equal to R, and repeatedly operates in the first mode until at least one of the parallel data outputs between the most significant bit and the intermediate significant bit is logically high, and subsequent to such first mode operation operates in said second mode between the intermediate significant bit to the least significant bit, such generation of appropriate scaling signals being so chosen that when all outputs appearing at the parallel data outputs are placed in that sequence in which they have been registered, and in which sequence a first bit registered is a first element in the sequence, a digital data word will be formed which corresponds to the analog electrical signal within a predetermined tolerance with an accuracy of at least N-M bits.

4,314,236

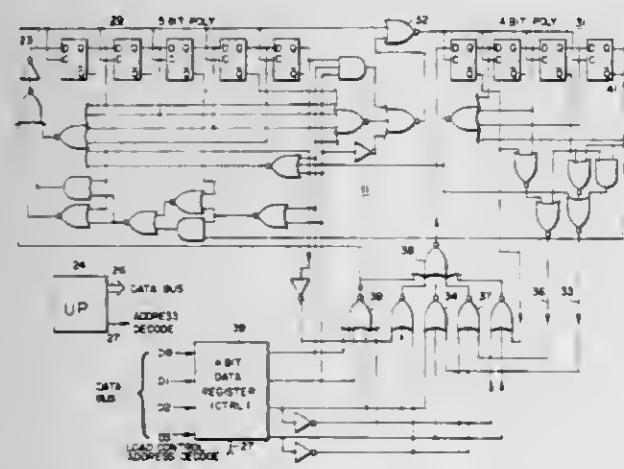
APPARATUS FOR PRODUCING A PLURALITY OF AUDIO SOUND EFFECTS

Steven T. Mayer, Auburn, and Ronald E. Milner, Grass Valley, both of Calif., assignors to Atari, Inc., Sunnyvale, Calif. Continuation of Ser. No. 758,713, Jan. 12, 1977, abandoned. This application Jan. 24, 1979, Ser. No. 6,048

Int. Cl.³ G08B 3/00

U.S. Cl. 340—384 E

7 Claims



1. An apparatus for selectively producing any one of a plurality of predetermined sound effects each specified by an associated digital command character, said apparatus comprising:

variable clock means for generating a binary clock signal having a frequency specified by an associated digital command character, said clock means including an input terminal adapted to be coupled to a source of timing signals, an output terminal for manifesting said binary clock signal, a data input terminal adapted to be coupled to said associated digital command character, and means coupled to said input terminal, said output terminal and said data input terminal for transforming said timing signals to said binary clock signals; and

sound generator means for generating sound effect signals corresponding to said associated digital command character, said sound generator means including an input terminal coupled to said output terminal of said variable clock means, an output terminal for manifesting the electrical analog signals corresponding to said desired sound effect, counter means coupled to said input terminal and said output terminal for generating a binary signal train in response to the receipt of said binary clock signal, said binary signal train having a frequency content specified by

said digital command character, and means coupled to said counter means for converting said binary signal train to said electrical analog signals corresponding to said desired sound effect, said converting means including means for providing a predetermined amplitude attenuation characteristic corresponding to said desired sound effect specified by said digital command character.

4,314,237

FAIL-SAFE ACKNOWLEDGING CIRCUIT

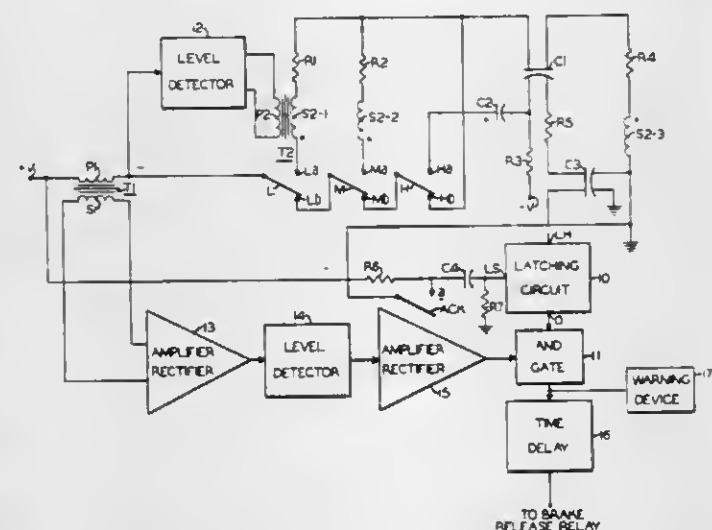
John O. G. Darrow, Murrsville, Pa., assignor to American Standard Inc., Swissvale, Pa.

Filed May 27, 1980, Ser. No. 153,493

Int. Cl.³ B61L 15/00, 3/00; G08B 23/00

U.S. Cl. 340—502

13 Claims



1. A fail-safe acknowledging circuit for requiring the acknowledgment of the receipt of a more restrictive signal comprising,

- a plurality of signal command switches having a predetermined order of more restrictive significance,
- a differentiating circuit selectively interconnectable by at least one of said plurality of signal command switches for establishing a selected one of a plurality of charging levels dependent upon the electrical condition of said plurality of signal command switches,
- a latching circuit having a Hold input connectable to said differentiating circuit and having a set input connectable to an acknowledging means, said latching circuit having an output,
- an AND circuit having one of two inputs connected to said output of said latching circuit,
- a checking circuit connected to the other of said two inputs for verifying the absence of an unsafe condition, and said AND circuit producing an output signal when said latching circuit provides a signal to said one of said two inputs and said checking circuit provides a signal to said other of said two inputs.

4,314,238

ELECTRIC LIGHTING INSTALLATION

Willy Rombaut, Ninove, Belgium, assignor to Gestinvest, Brussels, Belgium

Filed Jan. 10, 1980, Ser. No. 110,816

Claims priority, application Belgium, Jan. 10, 1979, 192823

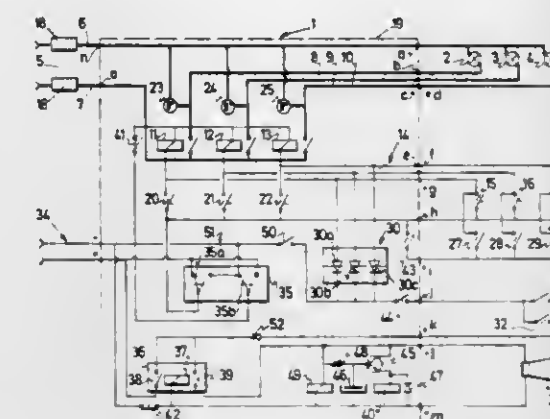
Int. Cl.³ G08B 25/00

U.S. Cl. 340—525

21 Claims

1. Electric lighting installation for buildings with a supply circuit for light points a part of which at least are operated through a low-voltage circuit, which is provided in substantially every room of the concerned building, with local switches for the various light points, in which there is provided at least one central control panel with for each light point or

light point group, an auxiliary switch which is connected in a parallel circuit with the corresponding local switch, and for



each light point or light point group, a corresponding indicator, such as an indicator lamp.

4,314,239

PORTABLE ELECTRONIC ALARM DEVICE

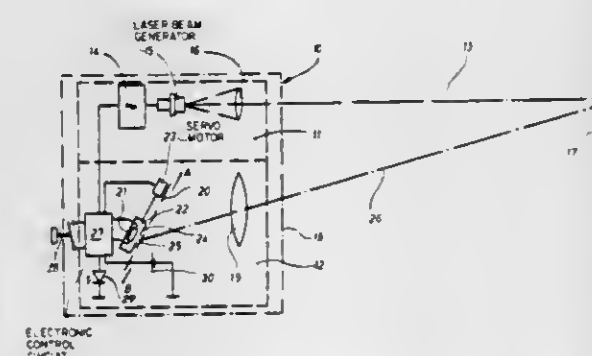
Giovanni Odono, chemin du Bochet, 56, CH 1025 Saint-Sulpice, Vaud, and Willy Buchs, chemin Montaux, CH 1027 Lonay, Vaud, both of Switzerland

Filed Dec. 13, 1979, Ser. No. 103,406

Int. Cl.³ G08B 13/18

U.S. Cl. 340—556

15 Claims



1. Apparatus for detecting and signalling intrusions, comprising in a common housing (10):

means (14,15,16) for transmitting in a selected direction at least one compact beam (13) of radiation pulses; at least one convergent optical element (19) which receives part of the radiation transmitted in said beam (13) and reflected from a surface (17) on which the beam impinges, positioned for concentrating said received radiation to form an image of said surface, the position of said image relative to said optical element (19) being dependent upon the distance of the surface (17) from the apparatus; movable detector means (21,24,25), comprising at least one photodetector (21), movable relatively to said image position and sensitive to said image position relatively to its own position, for furnishing, during a starting phase of the apparatus, a stop signal when their positions have a predetermined relationship and for furnishing during a duty phase a signal representative of an intrusion when said relationship is broken; means for moving said detector means until receipt of said stop signal; at least one electronic device (27) for processing the signals supplied by the photodetector (21) and therefor for furnishing said stop signal and said alarm signal and for transmitting it to one, or more, alarm means and also for controlling the radiation transmitter (15); a switch 28, connected with the electronic device (27) for controlling movement of said detector means;

a means, controlled by said stop signal, for indicating that said movable detector means is in the required position; the whole being arranged in such a way that, during the starting phase and therefore in absence of the intruder, either the movable detector means (21,23,24,25) or said

image position can be displaced till the predetermined relationship is achieved, whereat the signals supplied by said photodetector (21) have a predetermined relationship to predetermined threshold signals and in such a way that when an intruder intercepts the beam the consequent change of the image position of the surface impinged on by the beam (13), which at this time is on the intruder, causes a sensibly extreme variation of signals supplied by the photodetector (21) so that this abrupt variation suitably processed by said electronic device (27), gives rise to a signal representative of the intrusion.

4,314,240

DEVICE FOR LOCATING PERSONS

Manfred Schnüg, 8986 Mittelberg, Kleinwalsertal, Fed. Rep. of Germany

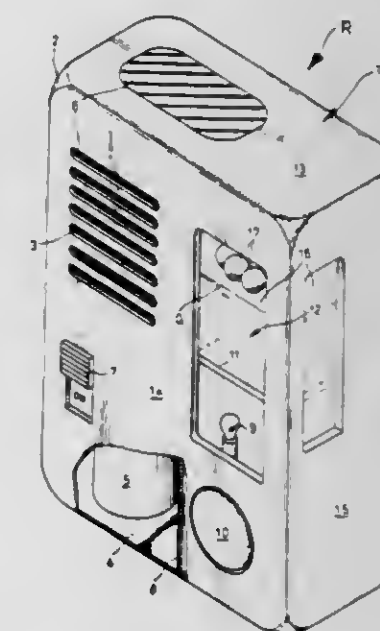
Filed Jan. 3, 1980, Ser. No. 109,235

Claims priority, application Fed. Rep. of Germany, Jan. 15, 1979, 7900927[U]

Int. Cl.³ G08B 25/00

U.S. Cl. 340—573

9 Claims



1. Apparatus for locating a person covered by snow or the like comprising a portable housing adapted for being carried by a person, a radio transmitter in said housing, and means in said housing for optically indicating the orientation of the housing with respect to the vertical.

4,314,241

COAL PIPE MONITOR

Donald W. La Plante, Randolph; Arthur Fairchild, Wayne, and Eugene L. Rebucci, Mountain Lakes, all of N.J., assignors to Merrick Scale Mfg. Company, Passaic, N.J.

Filed Jan. 28, 1980, Ser. No. 116,325

Int. Cl.³ G08B 21/00

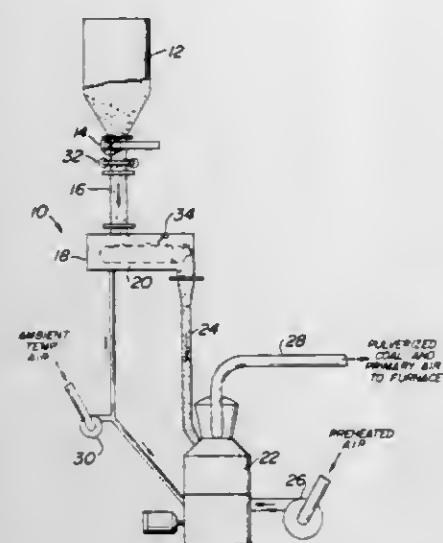
U.S. Cl. 340—603

24 Claims

1. Apparatus for monitoring the flow of coal from a coal bunker through a conduit to a feeder which delivers the coal to a pulverizer, comprising:

means for detecting the amount of coal present at a conduit zone between the bunker and the feeder and for generating a pulse signal indicative thereof, means responsive to said pulse signal for determining

whether the amount of coal passing through said conduit zone during a discrete interval of time is not more than a



first preselected value and for generating a partial flow condition signal indicative thereof.

4,314,242 APPARATUS FOR DETECTING A RESIDUAL QUANTITY OF TONER

Hiroshi Kuru; Mitsuo Akiyama, and Isao Ikemoto, all of Hachioji, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed Aug. 30, 1979, Ser. No. 71,039

Claims priority, application Japan, Sep. 8, 1978, 53-110535
Int. Cl.³ G08B 21/00

U.S. Cl. 340-617

6 Claims



1. Apparatus for detecting a residual quantity of a toner material in the toner supply hopper of an electrophotographic copying apparatus, the toner supply hopper including at least a wall in contact with toner material in the hopper, said apparatus comprising:

a vibrating element disposed in and forming an integral portion of the wall of the toner supply hopper so that one surface of the vibrating element is normally positioned in contact with toner material contained in the hopper; and electronic circuit means connected with said vibrating element for effecting vibration thereof at a predetermined frequency and for detecting a change in the operating characteristics of said element, said circuit means further including warning means for indicating said change so as to signal a decrease in the amount of toner material in the supply hopper;

said vibrating element comprising a piezoelectric plate integrally disposed in the wall of the toner supply hopper, and electrodes on oppositely-disposed faces of said piezoelectric plate such that at least one of the electrodes is normally disposed in contact with toner material contained in the supply hopper, said electronic circuit means being connected to the vibrating element at said electrodes, and said vibrating element further comprising a pair of electrodes on one face of said piezoelectric plate and a single

electrode on the opposite face of said plate, said electronic circuit means causing a voltage to be applied to said pair of electrodes and said single electrode enabling vibration of the piezoelectric plate in a direction substantially perpendicular to the oppositely-disposed faces thereof when a voltage is applied to said electrode pair.

4,314,243 WELL PUMP THEFT ALARM

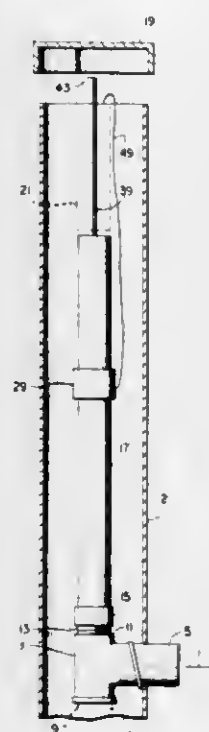
Clifford R. Phelps, P.O. Box 117, 183 Mayo Rd., Edgewater, Md. 21037

Filed Mar. 4, 1980, Ser. No. 127,037

Int. Cl.³ G08B 21/00

U.S. Cl. 340-686

8 Claims



1. A submersible pump alarm device comprising:
(a) a switch positioned within a well casing,
(b) a cover positioned over the well casing,
(c) an adapter connected to well pipe in the casing,
(d) an extension connected to said adapter,
(e) said switch being positioned in said extension, and
(f) means for actuating said switch when said cover is removed, including an actuator on said switch and means cooperating with said actuator and said cover.

4,314,244 MULTIPLE HEIGHT PROPORTIONED CHARACTER GENERATION

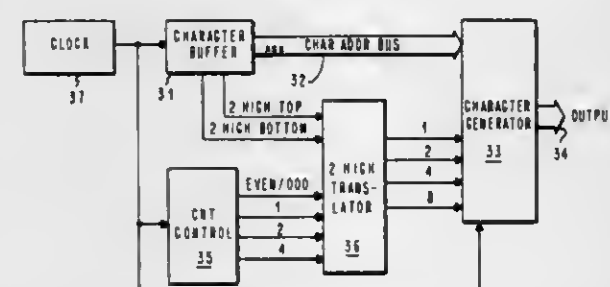
Kent R. Demke, Austin; Jerold D. Dwire, Round Rock; Michael A. Ko, and Joanne L. Mumola, both of Austin, all of Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 16, 1980, Ser. No. 159,558

Int. Cl.³ G06F 3/153

U.S. Cl. 340-731

10 Claims

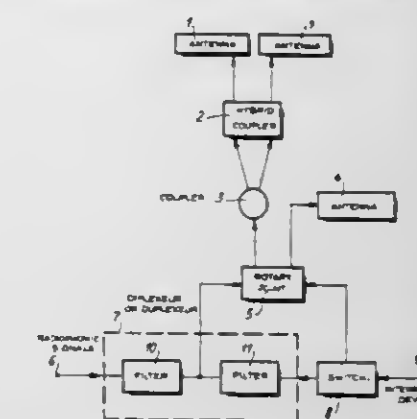


1. A method of generating alphanumeric characters and

symbols in a number of different vertical heights on a display device, comprising:

storing in a memory at separate addresses associated with said characters and symbols, a plurality of bits of video data representative of the pels of said characters and symbols to be displayed in the smallest of said number of sizes, said storing being limited to include no more than two bits representative of vertically aligned pels in a segment of a diagonal portion of said character;
applying said data stored by each of said bits to said display device for display of said characters and symbols in the lowest of said vertical heights; and
applying said data stored by each of said bits a multiple number of times in each display frame to said display device for display of said character in a taller of said number of vertical heights.

IFF of a secondary radar comprising a non-directional antenna and a directional antenna, wherein the antenna for transmitting



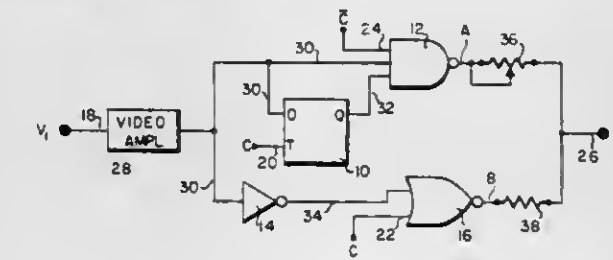
radiophonic signals is the non-directional antenna of the interrogation device.

4,314,245 VIDEO COMPENSATION SUBCIRCUIT

John R. Wilbur, Jr., 1466 Portobello Dr., San Jose, Calif. 95118
Filed Mar. 10, 1980, Ser. No. 129,084
Int. Cl.³ G06F 3/14

U.S. Cl. 340-812

7 Claims



1. A video compensation subcircuit for a circuit having a video signal, a clock signal, and an inverse clock signal, the subcircuit comprising

multivibrator means coupled to said video signal and responsive to said clock signal, and operative to develop a delay signal,

NAND gate means coupled to said video signal and responsive to said delay signal and said inverse clock signal, and operative to develop a subtraction signal, inverter means responsive to said video signal and operative to develop an inverse video signal,

NOR gate means coupled to said inverse video signal and responsive to said clock signal, and operative to develop a pulsed video signal, and

adder means for adding at least a portion of said subtraction signal and at least a portion of said pulsed video signal to produce an output video signal.

4,314,246 DEVICE FOR TRANSMITTING RADIOPHONIC SIGNALS IN SECONDARY RADAR EQUIPMENT

Jacques Cherier; Albert Dupressoir, and Olivier Aubergeon, all of Paris, France, assignors to Thomson-CSF, Paris, France
Filed May 6, 1980, Ser. No. 147,294

Claims priority, application France, May 8, 1979, 79 11630

Int. Cl.³ G01S 13/78, 13/87

U.S. Cl. 343-6 R

5 Claims

1. A device for transmitting radiophonic signals and signals from an interrogation device known under the abbreviation

1. Degarbler for use in an interrogator-transponder system with a reply code which consists of first and second framing pulses, separated by a fixed time interval, and between said two framing pulses a reply, representative of the presence or absence of code pulses in defined time slots, the degarbler comprising in combination:

a shift memory for the storage of the reply code;

a first and a second framing-pulse detector, which two detectors are connected to output taps of the shift memory, which output taps show a time difference greater than said fixed time interval, said first and second framing-pulse detectors comprising means for generating gate pulses responsive to leading and trailing edges of said second and first framing pulses, respectively, said first framing pulse detector responsive to a condition wherein at least one of the edges of the first framing pulse falls within gates generated with the second framing pulse for producing a signal indicating the presence of a first reply code in the shift memory, said second framing pulse detector responsive to a condition wherein at least one of the edges of the second framing pulse falls within gates generated with the first framing pulse for providing a signal indicating the presence of a reply code overlapping a preceding reply code in the shift memory;

a detection triggering unit; and
a first and second code pulse detector, the detection triggering unit comprising means operative in response to at least the signals delivered by the framing-pulse detectors for producing in the presence of a first reply code a series of gates in the first code pulse detector, to pass through the data from the shift memory to a register forming part of the first code pulse detector, and for producing in the presence of reply codes overlapping each other a series of gates in the relative code pulse detector to pass through the data from the shift memory to a register forming part of the relevant code pulse detector.

4,314,248

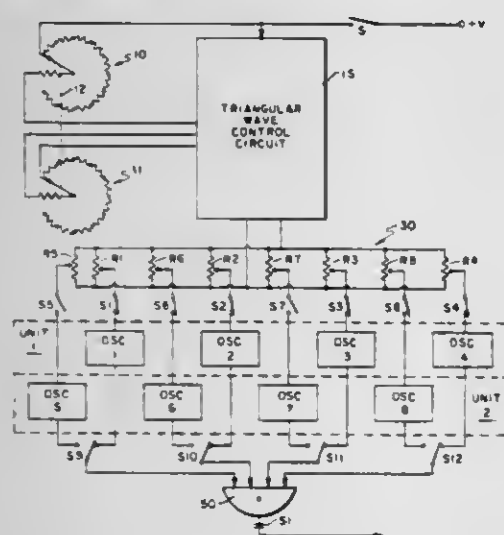
DECEPTIVE REPEATER FOR PASSIVE LOBING COUNTERMEASURES

Jerome V. White, Amherst, N.H., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sep. 17, 1969, Ser. No. 862,631
Int. Cl.³ G01S 7/38

U.S. Cl. 343—18 E

8 Claims



1. A control circuit for a repeater radar in a passive lobing countermeasure radar system comprising:
a plurality of oscillators coupled to a single voltage source through selective power switches to produce a plurality of frequency band portions on outputs thereof;
a timing circuit having a variable current flow device in the voltage source coupling of said oscillators between said voltage source and said power switches to vary the voltage from minimum to maximum and return thereby varying the time it takes each oscillator to sweep its frequency portion; and
an AND circuit coupled to the outputs of all selected oscillators to mix the output frequency band portions into a complex wave and to pass an output signal when said complex wave drops below the average values of oscillator outputs whereby said output signal is usable to activate a repeater countermeasure radar.

4,314,249

RADAR REFLECTOR WITH VARIABLE ELECTRIC REFLECTIVITY

Morio Onoe, 4-9-7 Taishido, Setagaya-ku, Tokyo, Japan
Filed Jul. 11, 1980, Ser. No. 167,783

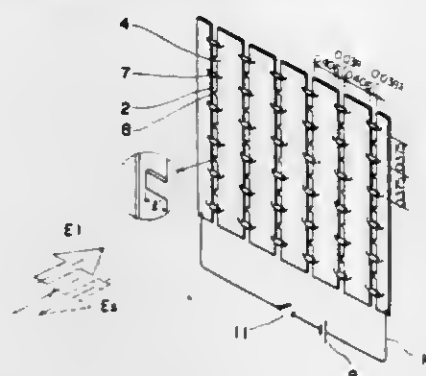
Claims priority, application Japan, Jul. 11, 1979, 54/88520
Int. Cl.³ H01Q 15/00

U.S. Cl. 343—18 D

3 Claims

1. A radar reflector adapted for retransmission of response information to a radar station upon reception of electromagnetic radar waves therefrom, said reflector comprising a plurality of metallic reflector plates arranged in parallel and in a side-by-side relation to one another, said plates each being integrally formed with bosses at fixed intervals projecting

towards an adjoining one of said reflector plates, each of said bosses defining with said adjoining one of said reflector plates a gap adapted for isolating the associated plates from each other with respect to direct current and connecting said associated plates to each other with respect to the high frequency of the electromagnetic radar waves, a plurality of switching diodes electrically connected between adjoining ones of said reflector plates and intermediate adjoining ones of said bosses associated with the same two plates, a bias source, a switch connected in series with said source, and conductor means connected to said series circuit of said source and switch and to



two of said plates, the size of each slot defined by two adjoining ones of said bosses associated with two adjoining plates and by said two adjoining plates being selected to be tuned to the specific frequency of the radar waves upon closure of said switch with consequent current conduction through all of said switching diodes and detuned to said specific frequency upon opening of said switch with consequent interruption of said switching diodes, the electromagnetic radar waves incident on the radar reflector being reflected back in the incident direction or reradiated further from the rear surface of the reflector when the slots of the reflector are tuned or detuned to said specific frequency respectively.

4,314,250

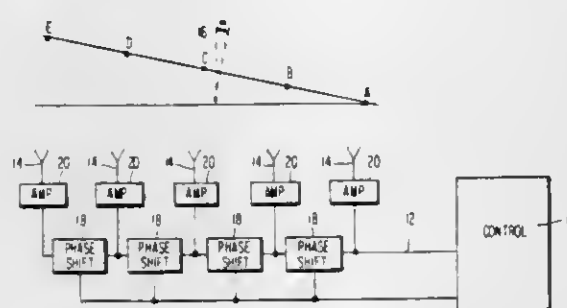
INTERMODULATION PRODUCT SUPPRESSION BY ANTENNA PROCESSING

Sigmund H. Hanell, Vernouillet, France, and Randall W. Kreutel, Jr., Rockville, Md., assignors to Communications Satellite Corporation, Washington, D.C.

Filed Aug. 3, 1979, Ser. No. 63,887
Int. Cl.³ H01Q 3/36

U.S. Cl. 343—100 SA

7 Claims



1. In a method of fabricating an active phased-array, multiple-beam antenna for radiating a plurality of N desired beams from a plurality of N carriers, each of said desired beams having a carrier frequency w_n , $1 \leq n \leq N$, said method including the steps of connecting said plurality of radiating elements to the output terminals of respective non-linear amplifiers with an inter-element spacing of d_x in an x direction and d_y in a y direction and connecting to said nonlinear amplifiers a means for generating a phase tilt of said carriers across said array of spaced radiating elements, said phase tilt having a value α_x in said x direction and α_y in said y direction, the improvement comprising:
determining, for each carrier frequency w_n , all possible

permutations of k_1, k_2, \dots, k_N for which $w_i = w_n$, where w_i is an intermodulation product frequency given by

$$w_i = k_1 w_1 + k_2 w_2 + \dots + k_N w_N$$

and k_1, k_2, \dots, k_N are constants which can be any positive or negative integer or 0 subject to the constraint

$$k_1 + k_2 + \dots + k_N = 1;$$

inserting said determined permutations into the equation

$$\theta_{xi} = k_1 \theta_{x1} + k_2 \theta_{x2} + \dots + k_N \theta_{xN}$$

$$\theta_{yi} = k_1 \theta_{y1} + k_2 \theta_{y2} + \dots + k_N \theta_{yN}$$

to determine the pointing direction $(\theta_{xi}, \theta_{yi})$ of each intermodulation product beam having a carrier frequency $w_i = w_n$, where $(\theta_{xn}, \theta_{yn})$ is the pointing direction of a desired beam having a carrier frequency w_n ; and adjusting the pointing directions $(\theta_{xn}, \theta_{yn})$ of the desired beams such that the pointing directions $(\theta_{xi}, \theta_{yi})$ of each intermodulation product beam for which $w_i = w_n$ will differ from the pointing direction $(\theta_{xn}, \theta_{yn})$ of the desired beam having that same carrier frequency w_n .

4,314,251

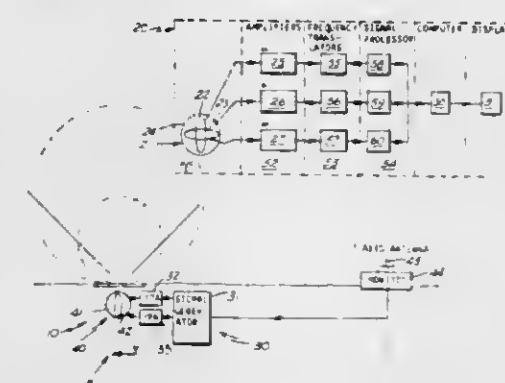
REMOTE OBJECT POSITION AND ORIENTATION LOCATER

Frederick H. Raab, Burlington, Vt., assignor to The Austin Company, Cleveland, Ohio

Filed Jul. 30, 1979, Ser. No. 62,140
Int. Cl.³ G01S 5/02

U.S. Cl. 343—112 R

31 Claims



1. Apparatus for determining the position and orientation of a remote object relative to a reference coordinate frame comprising:

a plurality of radiating means having orthogonal components centered about the origin of said reference coordinate frame;

transmitter means for applying to said plurality of radiating means electrical signals which generate a plurality of electromagnetic fields, said plurality of electromagnetic fields being distinguishable from one another;

a plurality of receiving means having orthogonal components disposed on said remote object for detecting and measuring said electromagnetic fields;

one of said plurality of radiating means and said plurality of receiving means consisting of two orthogonal components and the other consisting of three orthogonal components; and

analyzing means associated with said receiving means for converting the components of said electromagnetic fields received by said plurality of receiving means into remote object position and orientation relative to said reference coordinate frame with at most two ambiguous combinations of orientation and position, said analyzing means operating open loop with respect to said radiating means.

4,314,252

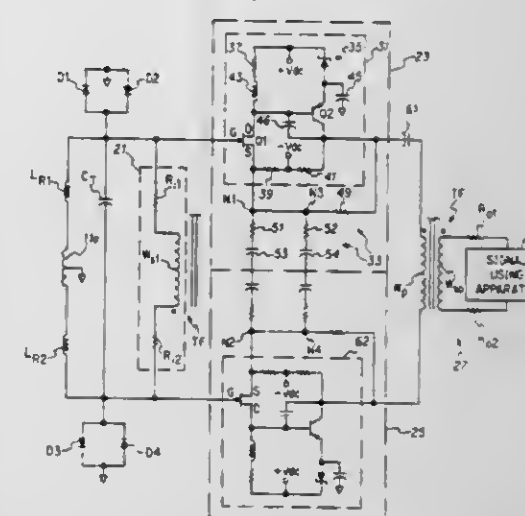
PREAMPLIFIER FOR ADF LOOP ANTENNA

Thomas W. Burrus, Cedar Rapids, Iowa, assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Nov. 14, 1980, Ser. No. 206,763
Int. Cl.³ G01S 5/02

U.S. Cl. 343—113 R

15 Claims



1. For use with an automatic direction finder, an antenna and preamplifier system comprising:

- two loop antenna windings,
- two substantially matched gain preamplifiers, each being associated with a different one of said antenna windings, each preamplifier comprising:
 - an input impedance establishing network having input means connected for receiving excitation from opposite ends of the preamplifier-associated antenna winding,
 - a pair of negative feedback amplifiers for operating in push-pull relationship and having input means connected for receiving excitation from opposite ends of the preamplifier-associated antenna winding, and
 - an output receiving means having input means connected for receiving excitation from the negative feedback amplifier pair.

4,314,253

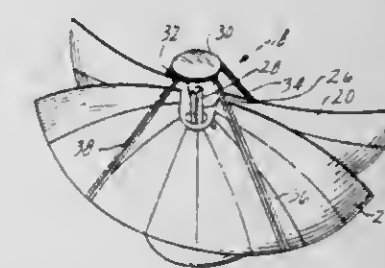
PORTABLE FOLDING MICROWAVE ANTENNA

Michael G. Sayovitz, Sunland, Calif., assignor to Compact Video Sales, Inc., Burbank, Calif.

Filed Apr. 11, 1980, Ser. No. 139,258
Int. Cl.³ H01Q 3/02, 15/20

U.S. Cl. 343—765

7 Claims



1. A portable dish antenna comprising: a base, a pedestal supported on the base, a folding circular reflector means including first and second semicircular sections having mating straight sides, mating parabolic reflecting surfaces, and hinge means joining the sections along a hinge axis parallel to the straight sides of the semicircular sections, means mounting the hinge means on top of the pedestal with the hinge axis extending substantially perpendicular to the pedestal, the hinge axis being offset from the semicircular sections by an amount slightly greater than half the width of the pedestal, means rotating the semicircular sections about the hinge axis in oppo-

site directions to move the members between a folded position and an extended position, said sections in the folded position hanging downwardly from the hinge axis on either side of the pedestal and in the extended position forming a circular reflector, means locking the two semicircular sections together in the extended position, and means rotating the locked together sections as a unit about said hinge axis to change the elevation angle of the antenna.

4,314,254

INSULATOR FOR FOLDABLE ELEMENTS OF DIPOLE TV ANTENNAS

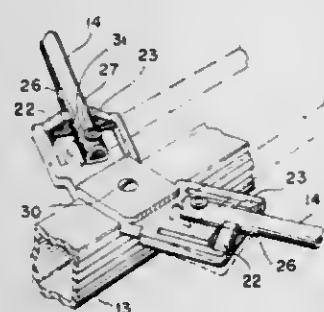
Abel C. Tamayo, 7339 SW. 45th St., Miami, Fla. 33155

Filed Jun. 6, 1980, Ser. No. 157,042

Int. Cl.³ H01Q 1/08

U.S. Cl. 343—809

5 Claims



1. A dipole element insulator comprising, in combination, a body member integrally molded of a substantially rigid, yet somewhat resilient, synthetic plastic material, said body member having a central portion and opposed, symmetrically-arranged, outwardly-extending arm portions, means for supporting said central portion of said body member to a TV antenna support boom in transverse relation with respect thereto so that said opposed arm portions extend laterally outwardly of the boom in opposite directions, means for pivotally and swingingly supporting inner end portions of a pair of tubular dipole element rods, one each, against said opposed side arm portions of said insulator body member, whereby, when said insulator is so supported with respect to a supporting boom, said element rods can be pivotally swung between a first position whereat they lie close along the boom, and a second position whereat they will be in opposed, outstretched relation with respect to the boom, and detent means integrally formed along outer marginal portions of said insulator body arm portions for removably locking the dipole element rods in said second position wherein said integrally formed detent means comprises a U-shaped through slot in each of said insulator body arm portions, said U-shaped slots defining respective U-shaped, outwardly extending, marginal detent portions the outer ends of the opposed legs of which connect with said central portion of said insulator body member, the outer ends of said U-shaped marginal detent portions being formed with laterally opposed ramp portions defining therebetween a central locking slot for the removable reception, one each, of said dipole element rods.

4,314,255

ELECTROMAGNETIC ANGLE FILTER INCLUDING TWO STAGGERED, IDENTICAL, PERIODICALLY PERFORATED CONDUCTIVE PLATES

Thomas W. Kornbau, Poway, Calif., assignor to General Dynamics, Electronics Division, San Diego, Calif.

Filed Apr. 8, 1980, Ser. No. 138,324

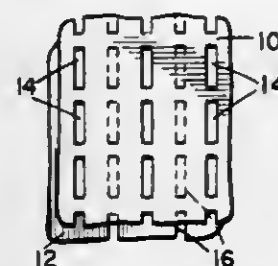
Int. Cl.³ H01Q 15/10

U.S. Cl. 343—909

4 Claims

1. An angle filter for electromagnetic radiation having a predetermined wavelength λ , comprising: a planar-parallel pair of perforated conductive plates having arrays of periodic perforations; characterized by

all of the perforations in both plates being identical; the spacing between the perforations in both plates being identical; the perforations being spaced apart for creating grating lobes between the plates at the predetermined wavelength λ at incidence angles greater than θ_G ; and



the plates being staggered so that the perforations in at least one dimension of one plate are aligned between the perforations in the corresponding dimension of the other plate for minimizing coupling between the plates at incidence angles somewhat greater than θ_G in a plan corresponding to the one dimension.

4,314,256

RADIATION-SENSITIVE MATERIAL AND METHOD FOR RECORDING INFORMATION ON RADIATION-SENSITIVE MATERIAL

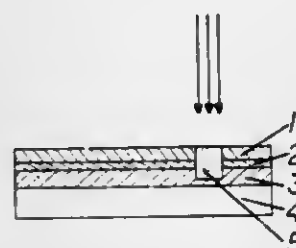
Vyacheslav V. Petrov, prospekt Vernadskogo, 85, kv. 55, and Andrei A. Krjuchin, ulitsa Studencheskaya, 12/14, kv. 43, both of Kiev, U.S.S.R.

Filed Jun. 12, 1979, Ser. No. 47,924

Int. Cl.³ G01D 15/34

U.S. Cl. 346—1.1

2 Claims



1. A method for recording information on a radiation-sensitive material comprising a metallic layer made of a metal selected from the group consisting of silver, copper, nickel, thallium and their alloys, an inorganic material layer made of material selected from the group consisting of arsenic chalcogenide, antimony chalcogenide, and bismuth chalcogenide, and a separation layer disposed between said metallic layer and said inorganic material layer and made from a material being inert relative to said metallic layer and said inorganic material layer, said separation layer having a thickness of from 50 to 300 Å and made of a material selected from the group consisting of As, Sb, Si, Ge, and their oxides, and oxides of Al, Ti, V, Fe, and polyorganosiloxane films, said method comprising irradiation of the radiation-sensitive material by pulses of actinic radiation of a duration from 10^{-6} to 10^{-8} s with an energy density in the area exposed to radiation being not less than 5.10^{-2} J/cm², said pulses being capable of producing in the exposed area of the radiation-sensitive material a potential difference between said metallic layer and said inorganic material layer so as to cause an electric breakdown of said separation layer in said area.

4,314,257

THERMOMAGNETIC RECORDING APPARATUS

Kazuyoshi Tokunaga; Masayasu Anzai; Nobuyoshi Hoshi, and Kiyohiko Tanno, Ibaraki, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

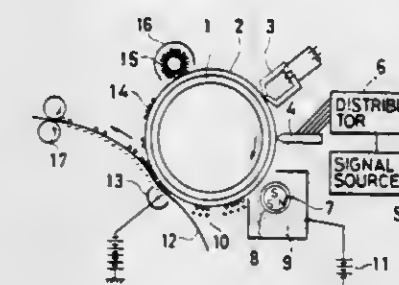
Filed Mar. 3, 1980, Ser. No. 126,694

Claims priority, application Japan, Mar. 16, 1979, 54-29907

Int. Cl.³ G11B 11/10

U.S. Cl. 346—74.4

8 Claims



1. In a thermomagnetic recording apparatus having a magnetic recording medium which is uniformly coated with a magnetic material, magnetizing means to magnetize the magnetic material, a thermal recording head which is placed in adjacency to the magnetic recording medium, means to subject the magnetic recording medium to development so as to obtain a developed image, means to transfer the developed image from the recording medium onto a transfer medium, means to fix the transferred image onto the transfer medium, and means to sweep away developer powder remaining on the recording medium after the development as well as the transfer; a thermomagnetic recording facsimile receiver characterized in that said thermal recording head comprises a large number of heating recording elements which are arrayed over substantially a full width of a recording region of said magnetic material, and that selected ones of said heating recording elements are energized to generate heat, whereby picture element areas of said magnetic material opposing to the selected elements can be heated near to a Curie point of said magnetic material.

4,314,258

INK JET PRINTER INCLUDING EXTERNAL DEFLECTION FIELD

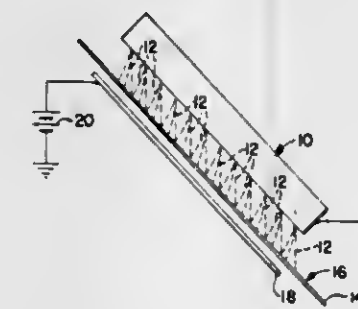
John W. Donahue, and James F. Gottman, both of Dayton, Ohio, assignors to The Mead Corporation, Dayton, Ohio

Filed Feb. 4, 1980, Ser. No. 117,909

Int. Cl.³ G01D 15/18

U.S. Cl. 346—75

20 Claims



1. An ink jet printer for depositing drops at print positions on the surface of a print receiving medium, comprising: print head means for generating a plurality of jet drop streams directed toward said print receiving medium, each drop in said jet drop streams being charged to one of a plurality of charge levels, and deflection means for generating a static electrical deflection field extending through said print receiving medium in a direction nonparallel to said plurality of jet drop streams for deflecting charged drops in said streams to print positions on said print receiving medium.

4,314,259

APPARATUS FOR PROVIDING AN ARRAY OF FINE LIQUID DROPLETS PARTICULARLY SUITED FOR INK-JET PRINTING

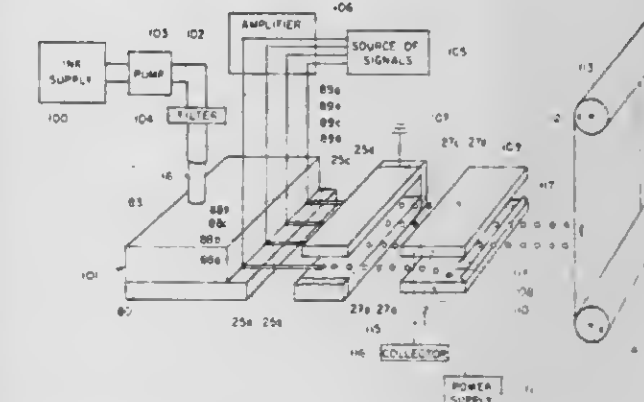
Walter J. Cairns, Marblehead, and Curtis P. Van Vloten, Cambridge, both of Pa., assignors to Arthur D. Little, Inc., Cambridge, Mass.

Filed Jun. 16, 1980, Ser. No. 159,799

Int. Cl.³ G01D 15/18

U.S. Cl. 346—75

32 Claims



1. An apparatus for providing an array of fine liquid streams which break up at drop formation points to form streams of liquid droplets, comprising the combination (a) base plate means having a plurality of grooves spaced according to a predetermined pattern in at least one contacting/sealing surface thereof; (b) cover plate means engageable with said at least one contacting/sealing surface of said base plate means to form with said grooves a plurality of nozzles extending along at least a portion of the length of said grooves wherein said base plate means and said cover plate means are maintained in liquid sealing contact and said base plate means and said grooves therein extend beyond the discharge end of said nozzles to provide groove extensions; (c) liquid manifold means communicating with said grooves to supply liquid under pressure to said nozzles; and (d) separate electrode means associated with each liquid stream arranged to contact said liquid stream in said groove extension.

4,314,260

LASER PYROGRAPHIC REFLECTIVE RECORDING LAYER IN A CARBON CONTAINING ABSORPTIVE MATRIX

Jerome Drexler, Los Altos Hills, Calif., assignor to Drexler Technology Corporation, Mountain View, Calif.

Continuation-in-part of Ser. No. 60,913, Jul. 23, 1979, abandoned, which is a continuation-in-part of Ser. No. 12,235, Feb. 14, 1979, abandoned, which is a continuation-in-part of Ser. No. 921,723, Aug. 17, 1978, abandoned. This application Mar. 18, 1980, Ser. No. 131,288

The portion of the term of this patent subsequent to May 26, 1998, has been disclaimed.

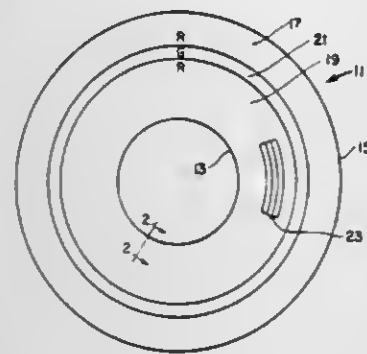
Int. Cl.³ G01D 15/10, 15/34

U.S. Cl. 346—76 L

36 Claims

1. An information storage medium for pyrographically re-

cording laser writing comprising a reflective surface coating of at least 15% reflectivity disposed on a sheet substrate, the



reflective coating comprising reflective silver particles distributed within a gelatin matrix.

4,314,261

APPARATUS FOR REPRODUCING AN IMAGE OF VARIABLE TONE DENSITY

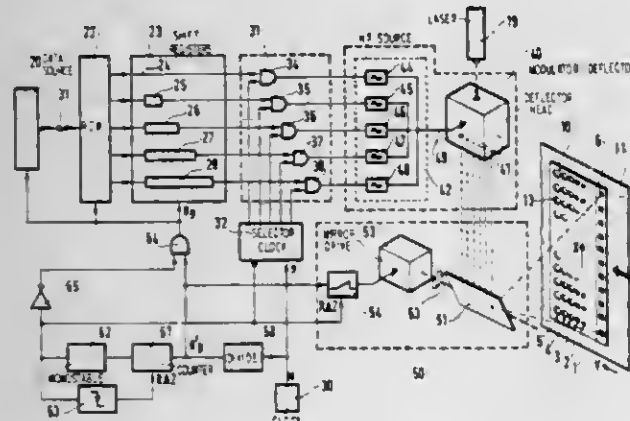
Bernard Martinage, Clamart, France, assignor to Compagnie Industrielle des Telecommunications Cit-Alcatel, Paris, France

Filed Aug. 4, 1980, Ser. No. 175,221

Claims priority, application France, Aug. 14, 1979, 79 20658
Int. Cl.³ H04N 1/22

U.S. Cl. 346—108

3 Claims



1. Apparatus for reproducing an image on a photo-sensitive medium, the image being defined by binary data representative of different tone levels of pixels defined as elementary points constituting the image, the apparatus comprising:

- a source of light providing a beam for printing the pixels;
- means for moving the beam over the medium in an X direction to scan the pixels of an image line;
- means for moving the medium in a Y direction substantially perpendicular to the X direction to scan the pixels of different image lines;
- a screen located close to the said medium on the path of the beam, said screen being opaque to said beam and including n rows of diaphragms that are transparent to the beam and are arranged in N columns extending substantially parallel to the Y direction, for an image having N pixels per image line, with each one of the n diaphragms of any given column being of a different size from the others in said column to define different half tone dot sizes, the diaphragms of each row being disposed at the spacing of pixels along an image line, and the rows of diaphragms being disposed at a spacing of m times the spacing of the image lines, where m is an integer equal to unity or a small number;

conversion means for converting said data into binary words, each representative of the rank r of the diaphragm to be used to define the tone of each pixel, where the rank r of a diaphragm is its position in the Y direction along its

column counting from the first row of diaphragms encountered by the moving medium, and where $1 < r < n$; processing means for processing said binary words delivered by said conversion means to apply shifts corresponding to the time taken by the medium to move $m(r-1)$ image lines relative to the screen;

and means for deflecting said beam under the control of said processing means to direct the said beam onto those diaphragms of each column whose respective ranks are indicated by said words as delivered by said processing means.

4,314,262

OPTICAL DATA RECORDING MEDIUM

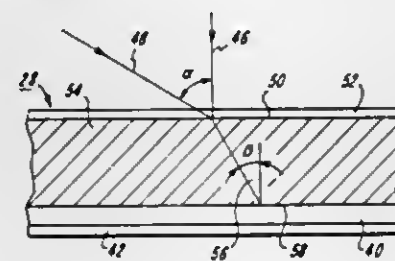
Charles M. Reilly, Pasadena, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed Feb. 4, 1980, Ser. No. 118,345

Int. Cl.³ G01D 15/34, 15/10

U.S. Cl. 346—135.1

7 Claims



1. An optical recording medium optimized to yield maximum absorption of recording optical radiation incident on a metal layer portion of said recording medium, the radiation being incident over a relatively wide range of angles comprising:

- a substrate interposed in the path of said incident optical radiation, said substrate being transparent to said incident radiation incident on one surface thereof;
- a dielectric coating overlying the other surface of said substrate, said coating being transparent to said radiation and providing a high contrast ratio for reflectivity, the thickness of said dielectric coating being determined by a weighting factor, said weighting factor being a function of the incident angle of the incident radiation; and
- a metal layer overlying said dielectric coating, said metal layer being responsive to that portion of the radiation incident thereon.

4,314,263

FLUID JET APPARATUS

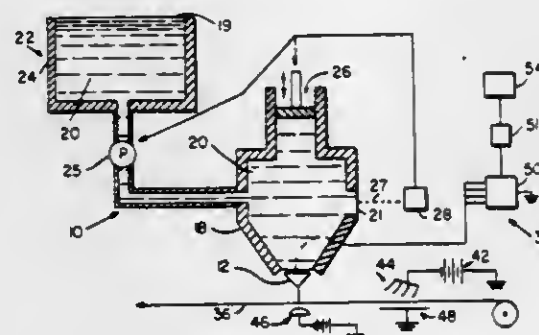
Adam L. Carley, Westside Dr., Atkinson, N.H. 03811

Filed Jul. 17, 1980, Ser. No. 169,815

Int. Cl.³ G01D 15/18

U.S. Cl. 346—140 R

149 Claims



1. Fluid jet apparatus comprising:

- (a) nozzle means having a nib at its downstream tip;
- (b) fluid supply means in communication with said nozzle means for supplying fluid to said nozzle means;

- (c) means for regulating fluid pressure conditions in the fluid at said nozzle means such that substantially no fluid flows from said nozzle nib in the absence of the action of supplemental flow causing means;
- (d) a target spaced from said nozzle means;
- (e) means for producing a field in the region between said nozzle means and said target to initially accelerate the fluid from said nozzle nib and to cause the fluid to thereafter flow in filament-like form to said target, said fluid forming an image on said target;
- (f) means for substantially suppressing breakup into droplets of the filament-like fluid flow;
- (g) means acting on the fluid before it leaves said nozzle nib for modulating the amplitude of the fluid flow; and
- (h) information signal reception means for controlling said modulating means to produce the desired fluid image on said target.

4,314,264

INK SUPPLY SYSTEM FOR AN INK JET PRINTER

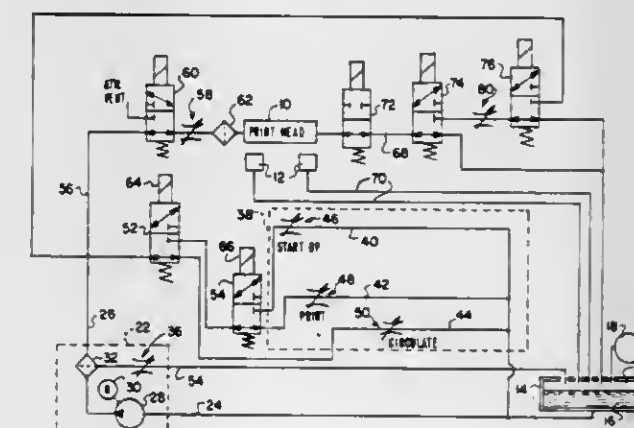
Dennis E. Bok; Mark E. Brown, both of Dayton; Steven R. Hahn, Centerville; David A. Huliba, Kettering, and Thomas M. Wysinski, Dayton, all of Ohio, assignors to The Mead Corporation, Dayton, Ohio

Filed Aug. 15, 1980, Ser. No. 178,325

Int. Cl.³ G01D 15/18

U.S. Cl. 346—140 R

19 Claims



1. An ink supply system for supplying ink to the print head of an ink jet printer for production of jet drop streams, comprising

- an ink supply tank for storing a quantity of ink,
- pump means, having a pump inlet and a pump outlet, for receiving ink from said ink supply tank at said pump inlet and for providing ink under pressure at said pump outlet,
- ink recirculation means including a plurality of ink return lines for returning ink from said pump outlet to said pump inlet, each of said ink return lines including flow restriction means, the flow restriction means in each line providing a fluid flow impedance therethrough which differs from the fluid flow impedance provided by the flow restriction means in the others of said ink return lines,
- controllable valve means for selectively directing ink from said pump means to a selected one of said ink return lines,
- print head supply line means for providing flow of ink from said pump means to said print head, and
- solenoid means for controllably actuating said controllable valve means such that a portion of the ink from said pump outlet is returned to said pump inlet through a selected one of said ink return lines while the remainder of the ink from said pump means is supplied to said print head through said print head supply line means, whereby the fluid flow rate of ink supplied to said print head means is controlled by returning ink from said pump outlet to said pump inlet through a selected flow restriction means.

4,314,265

DENSE NONVOLATILE ELECTRICALLY-ALTERABLE MEMORY DEVICES WITH FOUR LAYER ELECTRODES

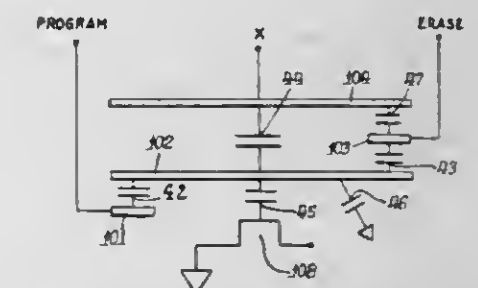
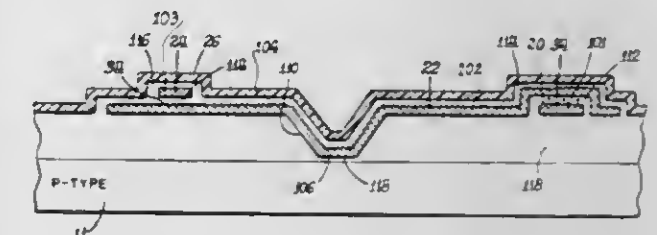
Richard T. Simko, Los Altos, Calif., assignor to Xicor, Inc., Los Altos, Calif.

Filed Jan. 24, 1979, Ser. No. 6,026

Int. Cl.³ H01L 29/78

U.S. Cl. 357—23

14 Claims



1. A nonvolatile, electrically-alterable floating gate memory device comprising:

- a semiconductor substrate,
- a dielectrically isolated floating gate conductor,
- means for detecting electrical charge on said floating gate conductor comprising a MOS sense transistor formed in said substrate and modulated by a portion of said floating gate conductor,
- means for introducing electrons onto said floating gate conductor comprising a first electrode intermediate said substrate and said floating gate conductor,
- means for removing electrons from said floating gate conductor comprising a second electrode overlying said floating gate conductor such that said floating gate conductor is intermediate said substrate and said second electrode,
- means for capacitively biasing said floating gate conductor comprising a bias electrode overlying said second electrode and said floating gate conductor such that said second electrode and said floating gate conductor are intermediate said bias electrode and said substrate, and
- dielectric means for insulating each of said electrodes from said substrate and from adjacent electrodes.

4,314,266

THYRISTOR WITH VOLTAGE BREAKOVER CURRENT CONTROL SEPARATED FROM MAIN EMITTER BY CURRENT LIMIT REGION

Victor A. K. Temple, Clifton Park, N.Y., assignor to Electric Power Research Institute, Inc., Palo Alto, Calif.

Continuation of Ser. No. 926,564, Jul. 20, 1978, abandoned. This application Oct. 10, 1980, Ser. No. 196,098

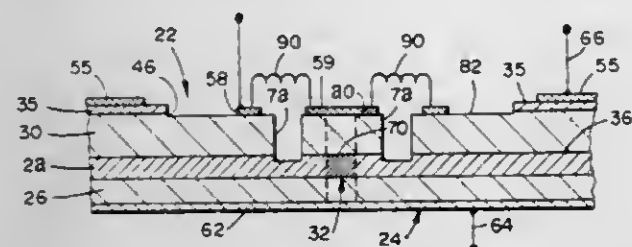
Int. Cl.³ H01L 29/74

U.S. Cl. 357—38

25 Claims

- 1. A thyristor device for controlling current flow between a pair of terminals and which switches into forward conduction by means of a gate electrode and gate current or from a blocking mode when the terminal voltage between said terminals exceeds a breakover voltage, said thyristor device comprising: a semiconductor body having at least four zones of alternate conductivity type extending between said terminals, including an emitter zone having a first emitter in contact with one said terminal, a base zone adjacent said emitter zone, a blocking pn junction defining the boundary between said base zone and a

third said zone adjacent said base zone, means in said body for localizing a breakover portion of said blocking pn junction where forward breakover initiates when said terminal voltage exceeds said breakover voltage, said base zone including a first base portion disposed adjacent said breakover portion of said blocking pn junction and a second base portion in contact with, said first emitter, said gate electrode being disposed on said



second base portion and forming a gate turn-on channel region for said gate current in said second base portion between said gate electrode and said emitter zone, and current limiting means for limiting current flow in said base zone between said first and second base positions, said current limiting means electrically interconnecting and providing an impedance between said first and second base portions.

4,314,267

DENSE HIGH PERFORMANCE JFET COMPATIBLE WITH NPN TRANSISTOR FORMATION AND MERGED BIFET

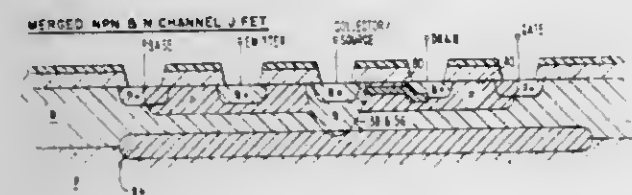
David L. Bergeron, Winooski, Vt., and Geoffrey B. Stephens, Cary, N.C., assignors to IBM Corporation, Armonk, N.Y. Continuation of Ser. No. 915,337, Jun. 13, 1978, abandoned.

This application Feb. 4, 1980, Ser. No. 118,248

Int. Cl.³ H01L 27/02, 29/80, 29/72

U.S. Cl. 357—43

3 Claims



1. In an integrated circuit having a plurality of P-type regions formed in the same process step, a first subplurality of which are P-type base regions of vertical NPN transistors, a Junction Field Effect Transistor (JFET) device formed in one of a second subplurality of said plurality of P-type regions, comprising:

- an insulating layer on the surface of said one P-type region having first and second windows therein;
- a first N-type region in said one P-type region formed through said first window for the JFET source;
- a second N-type region spaced from said first N-type region in said one P-type region formed through said second window for the JFET drain;
- an ion-implanted N-type channel region in said one P-type region connected to said source and drain regions;
- said one P-type region serving as the gate for the JFET device;
- said one P-type region extending horizontally beyond said first N-type region, with said first N-type region extending horizontally and vertically to separate said one P-type region into first and second P-type portions which are electrically isolated from one another, said first portion being said gate for said JFET device;

- a third window in said insulating layer over said second P-type portion;
- a third N-type region formed through said third window, as an emitter in an NPN transistor formed with said second P-type portion as the base and said first N-type region serving as the collector thereof;

whereby a series connected JFET and NPN bipolar transistor

are formed with said first N-type diffusion serving as the output node thereof.

4,314,268

INTEGRATED CIRCUIT WITH SHIELDED LEAD PATTERNS

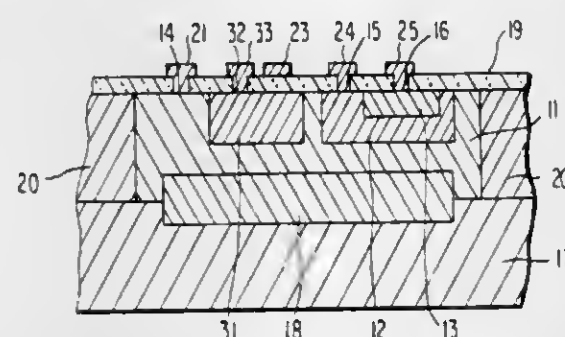
Takakazu Yoshioka, and Masayuki Kurozumi, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan Filed May 31, 1979, Ser. No. 44,140

Claims priority, application Japan, May 31, 1978, 53-66041

Int. Cl.³ H01L 27/04

U.S. Cl. 357—48

6 Claims



1. A semiconductor integrated circuit device comprising a semiconductor substrate, an isolation region, a plurality of island regions provided along one major surface of said semiconductor substrate, each said island region being substantially surrounded by said isolation region, an insulating film formed on said one major surface of said semiconductor substrate, a first wiring layer on said insulating film connected at a first contact section to an impurity region of one conductivity type within one island region among said plurality of island regions, a second wiring layer on said insulating film connected at a second contact section to a first impurity region of opposite conductivity type within said one island region, and separated from said isolation region, a third wiring layer on said insulating film connected to another island region among said plurality of island regions and extending over the portion of said one island region between said first contact section and said first impurity region of opposite conductivity type, a bonding pad formed on said isolation region and connected electrically to said third wiring layer, a second impurity region of said opposite conductivity type provided along said one major surface in the portion of said one island region under said third wiring layer and remote from said bonding pad and separated from said first impurity region of said opposite conductivity type, and a forth wiring layer on said insulating film connected to another predetermined portion of said second impurity region of said opposite conductivity type except for the portion under said third wiring layer, said second impurity region of said opposite conductivity type being held at a fixed potential through said forth wiring layer.

4,314,269

SEMICONDUCTOR RESISTOR COMPRISING A RESISTOR LAYER ALONG A SIDE SURFACE

Kunimitsu Fujiki, Kawasaki, Japan, assignor to VLSI Technology Research Association, Kawasaki, Japan

Filed Jun. 6, 1979, Ser. No. 45,890

Claims priority, application Japan, Jun. 6, 1978, 53-68575

Int. Cl.³ H01L 27/04

U.S. Cl. 357—51

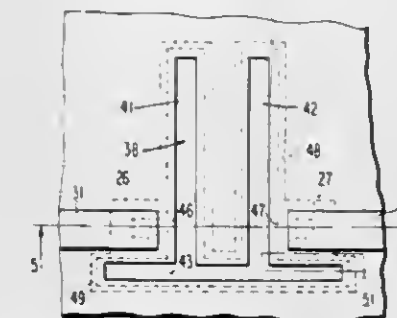
10 Claims

1. A semiconductor resistor comprising:

- a semiconductor block having a predetermined conductivity type, a block principal surface, a back surface opposite to said principal surface, and meandering internal side surface contiguous to said principal and said back surfaces, said internal side surface defining a groove extending in said semiconductor block and comprising first and second predetermined areas on said internal side surface and an

intermediate area between and continuous to said first and said second areas;

- a semiconductor bulk of the predetermined conductivity type having a bulk principal surface in contact with said back surface, with a portion of the bulk principal surface exposed through said groove to define a bottom of said groove, said semiconductor bulk having a substantially uniform impurity concentration at least along said bulk principal surface;



- a semiconductor layer of the conductivity type opposite to said predetermined conductivity type, said semiconductor layer covering said first, said second, and said intermediate areas; and

- a first and a second contact layer of the opposite conductivity type along those predetermined areas of said block principal surface which are contiguous to said first and second areas, respectively, said first and said second contact layers being electrically connected to those portions of said semiconductor layer which cover said first and said second areas, respectively.

4,314,270

HYBRID THICK FILM INTEGRATED CIRCUIT HEAT DISSIPATING AND GROUNDING ASSEMBLY

Shiro Iwatani, Himeji, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 964,439, Nov. 28, 1978, abandoned.

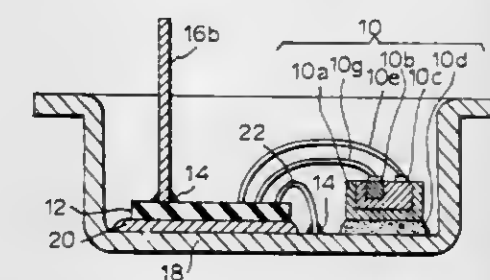
This application Oct. 10, 1980, Ser. No. 196,093

Claims priority, application Japan, Dec. 2, 1977, 52-162597

Int. Cl.³ H01L 23/16, 23/02, 23/12

U.S. Cl. 357—75

7 Claims



1. A hybrid thick film integrated circuit assembly comprising a metallic housing, an emitter substrate type power transistor element including an emitter electrode, and a thick film integrated circuit element connected to said power transistor element for controlling said power transistor element, said power transistor element and thick film integrated circuit element being fixedly disposed in spaced relationship within said metallic housing, said power transistor element having said emitter electrode fixedly secured in direct physical contact to said metallic housing for being in direct electrical and thermal conducting relationship with said metallic housing, and said metallic housing having said integrated circuit element electrically connected thereto and said metallic housing being a grounding terminal for said assembly.

1015 O.G.—12

4,314,271

TWO SEMICONDUCTOR DIODE RECTIFIER STRUCTURE

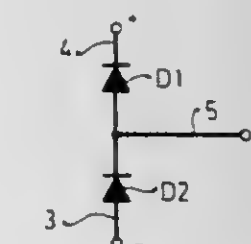
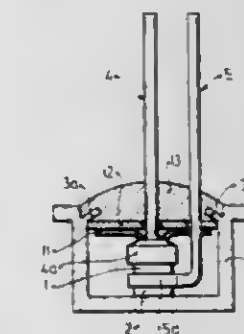
Klaus Heyke, Günter Schmidt, both of, Reutlingen, and Istvar Ragaly, Schwieberdingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany Continuation of Ser. No. 903,909, May 8, 1978, abandoned. This application Jan. 24, 1980, Ser. No. 114,836

Claims priority, application Fed. Rep. of Germany, Jul. 30, 1977, 2734571

Int. Cl.³ H01L 23/32, 23/02, 23/12

U.S. Cl. 357—76

1 Claim



1. A unitary two-semiconductor diode full wave rectifier structure and assembly comprising

- first and second semiconductor diodes (1, 2) formed as plates or discs and connected in electrical series and geometrically stacked above each other in superposed alignment;
- a first electrode (5) comprising a flat disc-shaped portion (5a) and a wire-like lead portion, the disc-shaped portion being sandwiched between and aligned with said first and second diode plates or discs, the wire-like lead portion extending from the disc-shaped portion laterally of and essentially parallel to the alignment axis of the stack;
- a second electrode (4) having an enlarged head portion with an end face placed in contact with the side of said first diode (1) remote from said first electrode (5) and in alignment therewith and having a substantially wire-like connecting portion;
- a third electrode (3) comprising a unitary substantially cup-shaped element, and disposed to coaxially surround the stack formed by said plate or disc diodes and said first and second electrodes, the interior bottom wall of said third electrode (3) being in contact with the side of said second diode (2) remote from said first electrode (5);
- said third electrode (3) having an inwardly projecting lip;
- a spring (11) supported by said rim and exerting an axial force on the head portion (4a) of said second electrode in contact with the first diode, thereby holding said stack formed by the head portion of the second electrode and first diode (1), the flat, disc-shaped portion of said first electrode (5) between said diodes, and said second diode (2) in pressure-contact with the interior bottom wall of said third electrode (3);
- a seat (13) composed of a resinous mass applied to the top of said cup-shaped element (3) said seal sealing by embedding the lip of said electrode;
- and a cover plate (12) disposed between said inwardly extending rim or lip and said spring for covering the opening of said cup-shaped third electrode (3) and retaining said

spring, and having apertures permitting the passage of the wire-like portions of said first and second electrodes (4,5).

4,314,272 ADJUSTING DEVICE FOR COLOR TELEVISION CAMERA APPARATUS

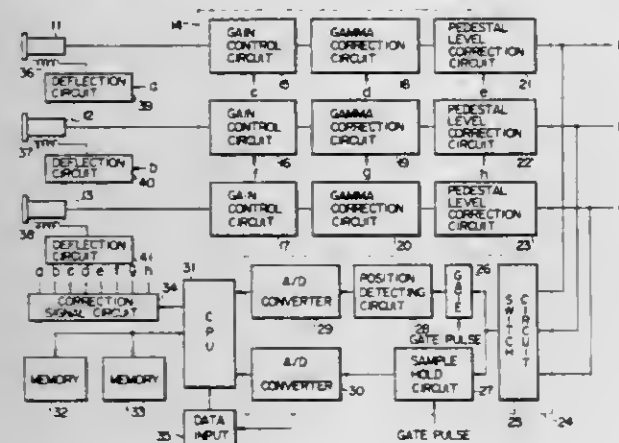
Yoshimori Miyaji, Tokyo; Hirokazu Fujiki, Asakusabashi, and Fumio Takahashi, Inagi, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

Filed Apr. 8, 1980, Ser. No. 138,557

Claims priority, application Japan, Apr. 9, 1979, 54/42822
Int. Cl.³ H04N 9/62

U.S. Cl. 358—10

6 Claims



1. An adjusting device for a television camera apparatus which comprises:

- a signal processing section for processing video signals which correspond to the pattern of a test chart and which contain adjusting data,
- a data detecting section for detecting the adjusting data from said video signals which are supplied from said signal processing section,
- an arithmetic operation section for calculating correcting data from reference data and said adjusting data detected by said data detecting section,
- a correction signal circuit for converting the correcting data calculated by said arithmetic operation section into a correcting signal and supplying said correcting signal to said signal processing section and also to a deflection circuit,
- a manual correcting data generating means for manually issuing manual correcting data used to correct adjustment errors occurring inherently in said television camera apparatus, and
- a memory section for storing said manual correcting data and also storing either one of said reference data and said calculated correcting data as reference data, whereby said arithmetic operation section adds said manual correcting data to said reference data to provide adjusting data.

4,314,273

CHROMINANCE TRANSCODER

John G. Amery, Danville, Ind., assignor to RCA Corporation, New York, N.Y.

Filed May 29, 1980, Ser. No. 154,597

Int. Cl.³ H04N 9/42

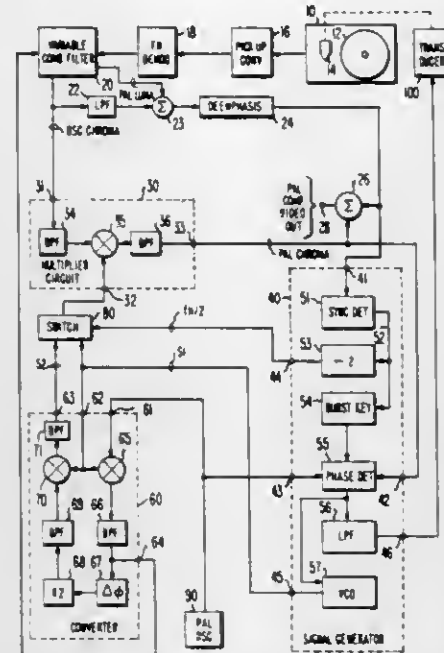
U.S. Cl. 358—11

14 Claims

1. A transcoder for converting a chrominance input signal of a first format to a chrominance output signal of a second format, said chrominance input signal being subject to spurious timebase errors, said transcoder comprising:

- multiplier means responsive to said chrominance input signal and to first and second conversion signals supplied thereto during mutually exclusive time intervals for concurrently effecting frequency translation and timebase correction of

said chrominance input signal to produce said chrominance output signal; and
circuit means for producing and supplying said conversion signals to a common input of said multiplier means, said conversion signals being supplied during alternate time



intervals and having differing frequency components, each of said conversion signals including a timebase error correction component, one of said conversion signals including a component for effecting phase reversal of a selected component of said chrominance output signal.

4,314,274

DIGITAL COLOR CORRECTION METHOD

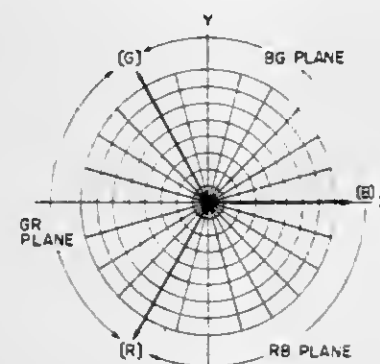
Hitomi Atoji, and Mitsuhiro Yamada, both of Kyoto, Japan, assignors to Dainippon Screen Seizo Kabushiki Kaisha, Kyoto, Japan

Filed Feb. 22, 1980, Ser. No. 123,736

Claims priority, application Japan, Feb. 28, 1979, 54-21938
Int. Cl.³ H04N 1/46

U.S. Cl. 358—80

5 Claims



1. A method for carrying out a color correction in a digital manner, comprising the steps of:

- representing in a curvilinear coordinates system a resultant value corresponding to a combination of color separation signals obtained by photoelectrically scanning a color original picture,
- said representing step including representing said resultant value as a vector extending radially from the center of the coordinates system, wherein the angle of the vector with respect to a standard radial axis, and the size of the vector represent hue and saturation corresponding to the combination of the color signals, and
- transforming the coordinates of the resultant value represented by said vector by operating the color separation signals, thereby obtaining a combination of color corrected color separation signals.

4,314,275 INFRARED TIME DELAY WITH INTEGRATION CTD IMAGER

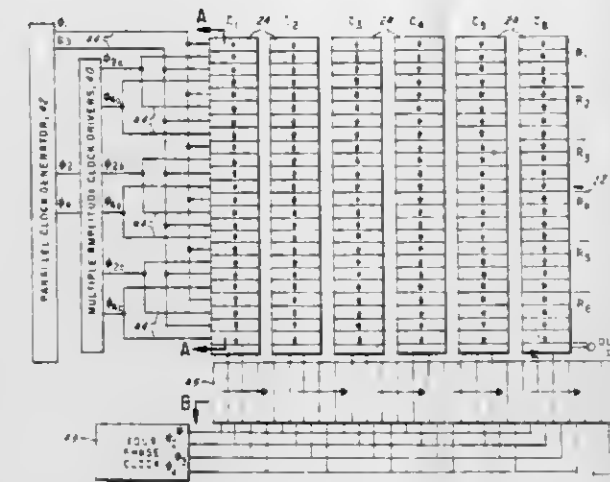
Richard A. Chapman, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Mar. 24, 1980, Ser. No. 132,911

Int. Cl.³ H04N 7/18

U.S. Cl. 358—113

12 Claims



1. An infrared energy detector system comprising:
 - (a) a scanning assembly for scanning at a preselected rate a scene emanating infrared energy;
 - (b) an infrared detector matrix of charge coupled devices in the scanning path of the scanning assembly for converting the impinging infrared energy into electrical charge packets representative of received infrared energy, said infrared detector matrix comprising a plurality of charge coupled device elements arranged in rows and columns, elements of the columns of charge coupled devices selectively connected together to form a plurality of integration stages, and means for applying selected phase clock pulses to said integration stages to synchronize the movement of the charge packets through said matrix with the image of the scene scanned by the scanning assembly, at least two of said phase clock pulses having the same phase but different amplitude, to produce electrical charge packets in the first stage which are integrated with the charge packets to each succeeding stage of the plurality of integration stages to provide time delay with integration of charge packets within said matrix thereby producing integrating signals representative of the scene; and
 - (c) signal processing means for processing the integrated signals into video signals representative of the infrared energy emanating from the scene.

4,314,276

AUTOBORESIGHTING ELECTRO-OPTICAL SYSTEM

Martin G. Woolfson, Baltimore, Md., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Feb. 5, 1980, Ser. No. 118,817

Int. Cl.³ H04N 7/18

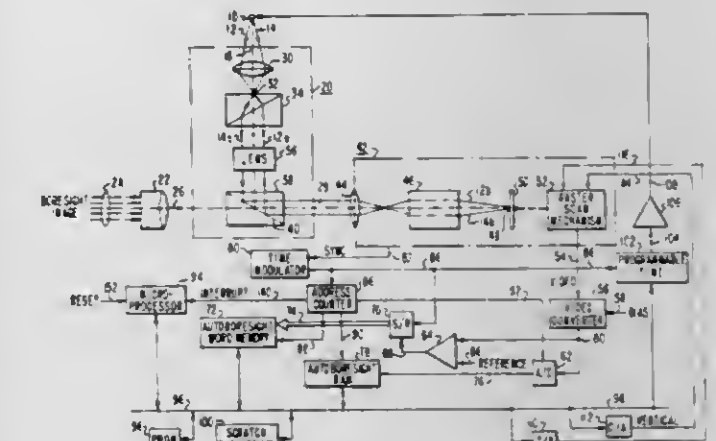
U.S. Cl. 358—125

10 Claims

1. In an electro-optical system including a light source for emitting a beam of light with a reference axis; a boresighted image having a boresight axis; an electro-optical sensor for sensing images within a field of view thereof; a combination of optical elements aligned for rendering said boresight image axis substantially colinear with said light beam reference axis and for guiding said combined light beam and boresighted images with colinear axes spatially fixed concurrently to the field of view of said electro-optical sensor, said electro-optical sensor being operative to generate sequentially frames of electrical information in a raster scan format, said electrical information of each frame being representative of the combination of light beam and boresighted images in a field of view of said sensor, an improvement comprising:

means for controlling said light source to effect a coded time

pattern of light beam image intensity variations as sensed by said electro-optical sensor over a predetermined number of sequentially generated frames thereof;
means for discriminating at least a portion of said sensed light beam image from said sensed boresighted image in the electrical information of said predetermined number of sequentially generated frames based on said coded time pattern of said sensed light beam image;
means for determining a position of said discriminated portion of said sensed light beam image in the raster scanned field of view of said electro-optical sensor;



means for establishing a positional relationship of said determined position with respect to a predetermined frame reference position in the generated frame information of said raster scanned field of view of said electro-optical sensor; and
means for adjusting the raster scanned field of view in said generated frames of electrical information as a function of said established positional relationship to converge said determined position to said predetermined frame reference position, thereby referencing the boresight image axis substantially to said predetermined frame reference position in the generated frames of electrical information.

4,314,277

INPUT-WEIGHTED TRANSVERSAL FILTER TV GHOST ELIMINATOR

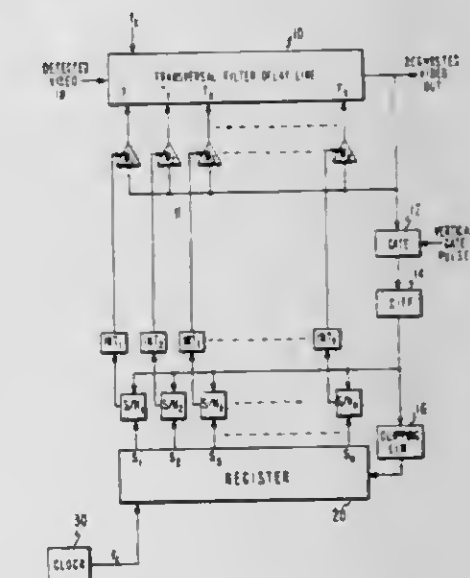
Dalton H. Pritchard, Princeton, N.J., and Alfred C. Schroeder, Southampton, Pa., assignors to RCA Corporation, New York, N.Y.

Filed May 7, 1980, Ser. No. 147,629

Int. Cl.³ H04N 5/21

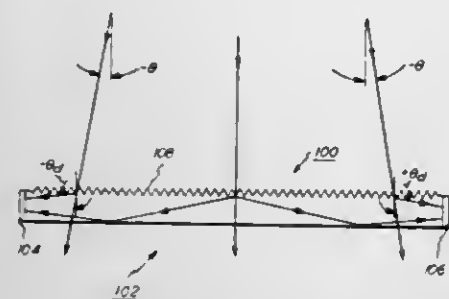
U.S. Cl. 358—167

10 Claims



1. In a television receiver, including means for detecting a

ing diffraction grating, said grating having a period selected so as to cause light incident on said grating to be coupled to said



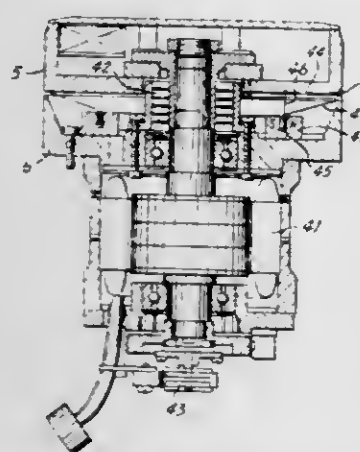
photodetector either directly or by internal reflection along the interior surface of said member.

4,314,284 VIDEO HEAD DEFLECTION APPARATUS FOR SPECIAL MOTION REPRODUCTION BY HELICAL SCAN VTR

Yoshihiko Sato, and Tatsuo Konishi, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan
Filed Nov. 7, 1979, Ser. No. 91,195

Claims priority, application Japan, Nov. 7, 1978, 53-136953
Int. Cl.³ G11B 21/18, 21/10
U.S. Cl. 360—10

7 Claims



1. A video head deflection apparatus for a helical scan video tape deck, said helical scan video tape deck comprising means for controlling the transportation of a tape on which a video signal has been recorded to produce a plurality of parallel video tracks formed diagonally with respect to the lengthwise direction of said tape, guide drum means for guiding said tape along the periphery thereof, said guide drum means comprising upper and lower drums, rotary head means provided between said upper and lower drums and rotating at a predetermined rotational speed, said rotary head means including a revolving shaft and at least one magnetic head for scanning said tape being guided along said drum for scanning said tape being guided along said drum means, and driving means arranged coaxially with said revolving shaft of said rotary head means for causing the rotation of said rotary head means, said deflection apparatus comprising:

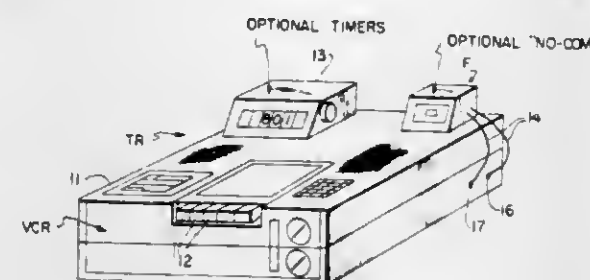
- a coil assembly arranged coaxially with said revolving shaft of said rotary head means; and
- a magnetic element arranged coaxially with said revolving shaft of said rotary head means and in opposed relationship with said coil assembly, the relative position between said coil assembly and said magnetic element being changed in response to an electromagnetic force by an electric current applied to said coil assembly, said rotary head means being coupled to one of said coil assembly and said magnetic element, whereby said rotary head is displaced in a direction normal to the rotational path of said rotary head means.

4,314,285 EDITING SYSTEM FOR VIDEO APPARATUS

Edgar L. Bonner, 325 E. Main Ave., Taylorsville, N.C. 28681, and Nelson A. Faerber, 900 Sixth Ave. South, Naples on the Gulf, Fla. 33940

Filed May 11, 1979, Ser. No. 38,161
The portion of the term of this patent subsequent to Mar. 31, 1998, has been disclaimed.
Int. Cl.³ H04N 5/48, 5/76
U.S. Cl. 360—33

10 Claims



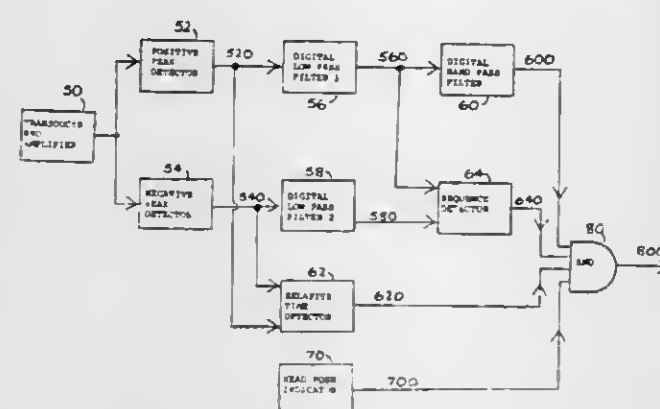
1. An editing system for video apparatus comprising, in combination, switching means for controlling the operation of said video apparatus, means for detecting the voltage level of the video signal in said video apparatus, means connected to a source of power for providing a reference voltage, means for coupling said detecting means to a source of the video signal in said video apparatus, means coupled to said detecting means and responsive to said reference voltage for comparing said detected voltage level with said reference voltage to provide an output voltage signal when the voltage level of said video signal is diminished due to absence of picture information in said video signal for at least a period equal to one frame, and voltage responsive means coupled to said comparing means and responsive to said output voltage signal for activating said switching means for a predetermined period thereby controlling the operation of said video apparatus.

4,314,286 TRIBIT SERVO TRACK DETECTOR

John F. Hardwick, Fife, Scotland, assignor to Burroughs Corporation, Detroit, Mich.
Filed Jan. 17, 1980, Ser. No. 112,975
Claims priority, application United Kingdom, Jul. 18, 1979, 25060/79

Int. Cl.³ G11B 5/09
U.S. Cl. 360—40

10 Claims



1. An apparatus for detecting and identifying a tribit signal, the signal so tested is produced when a transducer reads a particular track on a rotary disk, said apparatus comprising:

- a sequence detector means, connected to the transducer, for detecting the presence of the tribit characteristic feature of two negative pulses for every positive pulse and producing an affirmative indication when the sequence characteristic is detected;
- a frequency testing means, connected to the transducer, for determining whether the positive pulse appears at the frequency rate characteristic of tribit signals and produc-

ing an affirmative indication when this frequency characteristic is detected; and,

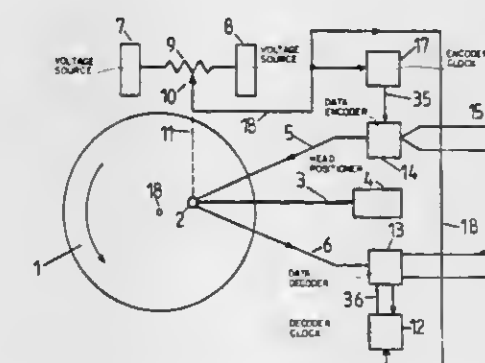
- a coincidence means, connected to the output of said sequence detector means and said frequency testing means for generating a tribit-present-signal when affirmative indicators are received from said sequence detector means.

4,314,287 HIGH STORAGE DENSITY DISC FILE

Ian B. Freeman, Leslie; John O. Rooney, and John F. Hardwick, both of Glenrothes, all of Scotland, assignors to Burroughs Corporation, Detroit, Mich.
Filed Apr. 8, 1980, Ser. No. 138,470
Claims priority, application United Kingdom, Apr. 11, 1979, 12826/79

Int. Cl.³ G11B 5/09
U.S. Cl. 360—51

10 Claims



1. A recording/decoding clock generator for use in a high density disk storage system having a disk rotating at a constant angular velocity and a head positioner, positioning a head to interact with selectable tracks on a disk, comprising:

- an analog gate means for allowing the through passage of signals from the head when in the write mode, thereby producing a reference signal;
- a head position indicating means for producing a signal indicating the radial displacement of the head; and
- a phase lock loop clock means, connected to said analogue gate means and said head position indicating means, for producing a clock output to control the rate of data recording on the disk and to synchronize the data decoding, such that when in the write mode said analog gate means is closed, depriving said phase lock loop clock means of said reference signal, and causing said phase locked loop clock means to free-run at a frequency proportional to the radial displacement of the transducer head, and such that, when in the read mode said analog gate means is open allowing a through passage of said reference signal from the head to said phase locked loop clock means and causing said phase locked loop clock means to adjust its clock output frequency and the phase relationship between its clock output signal and said reference signal to achieve synchronism.

4,314,288 AMPLITUDE AND PHASE EQUALIZER

Maung Gyi, San Francisco, Calif., assignor to Ampex Corporation, Redwood City, Calif.
Filed Aug. 29, 1980, Ser. No. 182,352
Int. Cl.³ G11B 5/45, 5/02

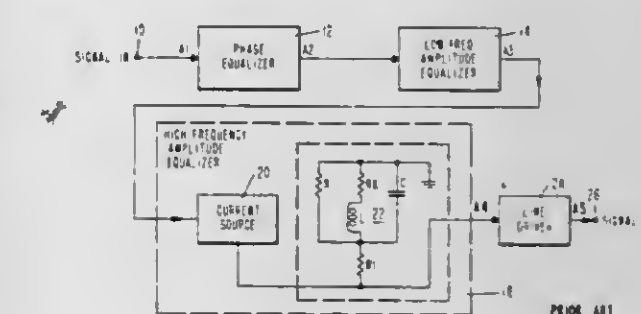
U.S. Cl. 360—65

1. An amplitude and phase equalization circuit, comprising in combination:

- an input terminal for receiving an input signal to be amplitude and phase equalized within a given frequency band;
- a first amplifier means having an inverting input, a non-inverting input coupled to ground, and an output for providing an amplitude equalized output signal;
- a first passive filter means coupled between said input terminal and said inverting input of said first amplifier means to provide an increasing amplitude characteristic with fre-

quency at said output of the first amplifier means within a known high frequency portion of said given frequency band;

- a second passive filter means coupled between said output and inverting input of said first amplifier means to provide a decreasing amplitude characteristic with frequency at said output of the first amplifier means within a known low frequency portion of said given frequency band, said amplitude equalized output signal obtained at said output of the first amplifier means having a non-linear phase characteristic with frequency within said given frequency band;

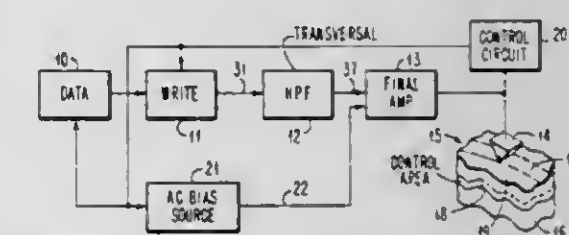


- a second amplifier means having an inverting and a non-inverting input, respectively, and an output, an input impedance coupled between said output of said first amplifier means and said inverting input of the second amplifier means, a feedback impedance coupled between said output of the second amplifier means and its inverting input; and
- a third passive filter means of a selected order coupled between said output of the first amplifier means, said non-inverting input of the second amplifier means and ground, respectively, to provide at said output of the second amplifier means an amplitude and phase equalized output signal having a substantially linearly increased amplitude with respect to said output signal of said first amplifier means and having a substantially linear phase characteristic with frequency within said given frequency band.

4,314,289 BIASED PULSED RECORDING SYSTEMS AND METHODS

Munro K. Haynes, Tucson, Ariz., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 7, 1979, Ser. No. 101,350
Int. Cl.³ G11B 21/10, 5/09
U.S. Cl. 360—77

28 Claims



12. A data recording apparatus having a transducer with a single gap and adapted to be in operative engagement with a record medium having a prerecorded low frequency control signal,

- a recording portion having high pass filter means for supplying data signals to said transducer and having frequency components substantially of higher frequency than said control signal,
- AC bias means connected to said transducer for linearly adding an AC bias signal to said filtered recording signal, and
- feedback means connected to said transducer for sensing said control signal whenever said recording means is supplying said data signal.

4,314,290

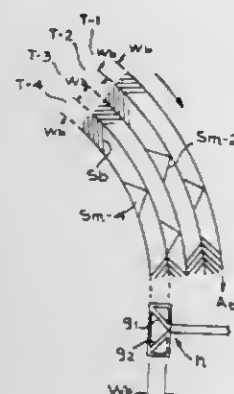
DI-BIT RECORDING TECHNIQUE AND ASSOCIATED SERVO INDICIA

Herbert U. Ragle, Thousand Oaks, Calif., assignor to Burroughs Corporation, Detroit, Mich.

Continuation of Ser. No. 970,441, Dec. 18, 1978, abandoned, which is a continuation of Ser. No. 807,155, Jun. 16, 1977, Pat. No. 4,166,282. This application Apr. 14, 1980, Ser. No. 139,919 Int. Cl.³ G11B 5/56, 21/10

U.S. Cl. 360—77

9 Claims



1. In a method of recording digital records by impressing data marks along relatively parallel tracks, in either a first or a second skew orientation, these orientations being transverse to one another, the improvement therein of:

arranging di-gap transducer means adapted to impress and/or detect such data marks along any given track; and operating said transducer means to selectively impress such data marks along selected tracks as called-for, while also operating the transducer means to selectively impress "LAMBDA" registration indicia along each given track whereby to facilitate transducer positioning along the track, these indicia taking the form of a "V" configuration or an "inverted V" (or "Λ") configuration and consisting of a pair of orthogonal intersecting registration marks, each such registration mark being aligned along a respective one of the skew orientations;

whereby said data marks and said registration indicia may be impressed and/or detected by common di-gap transducer means; and whereby one may so record along said tracks with little or no concern for inter-track "guard bands"; said registration marks facilitating self-centering along any given track when so used with such a di-gap transducer means.

4,314,291

SELF-COMPENSATING DEVICE FOR A MAGNETIC DISC APPARATUS

Yasutaka Oda, and Hiromi Hamaoka, both of Oume, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Nov. 1, 1979, Ser. No. 90,264

Claims priority, application Japan, Nov. 8, 1978, 53-136655 Int. Cl.³ G11B 21/08, 5/55

U.S. Cl. 360—78

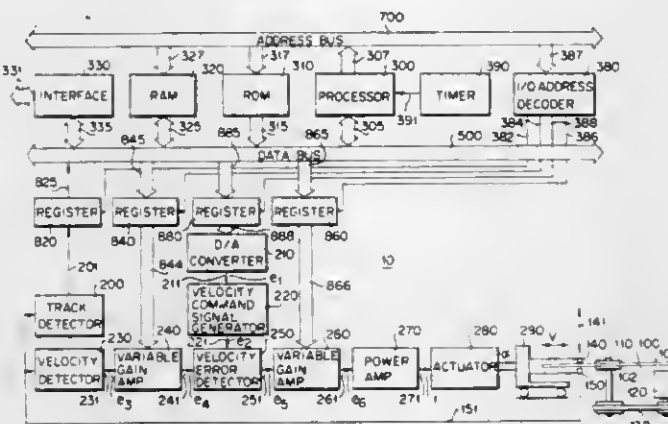
9 Claims

1. Self-compensating apparatus for a magnetic disc apparatus comprising:

- magnetic disc means with a number of data tracks and a number of servo tracks, said data tracks being concentrically arranged on a surface of the magnetic disc means and said servo tracks being concentrically arranged on a surface of said magnetic disc means;
- read/write transducer means for reading out data from or writing data into said data tracks;
- servo transducer means for reading out servo data from said servo tracks;
- actuator means for reciprocally moving said read/write and servo transducer means across said data and servo tracks;
- track detector means responsive to an output signal of

said servo transducer means to produce a pulse each time said servo transducer means crosses a servo track;

- velocity detecting means which detects the velocity of said servo transducer means to produce a velocity signal;
- velocity error detector means responsive to said velocity signal and a velocity command signal to produce a velocity error signal;
- compensator means responsive to said velocity error signal to produce a compensated velocity error signal,



thereby compensating a characteristic of said actuator means;

- drive means responsive to said compensated velocity error signal to accelerate or decelerate said actuator means so as to make compensated velocity error signal small; and
- control means for supplying said velocity command signal, and for adjusting said compensator means responsive to said output pulses of said track detector means and a given velocity command signal.

4,314,292

MAGNETIC RECORDING OR REPRODUCING APPARATUS

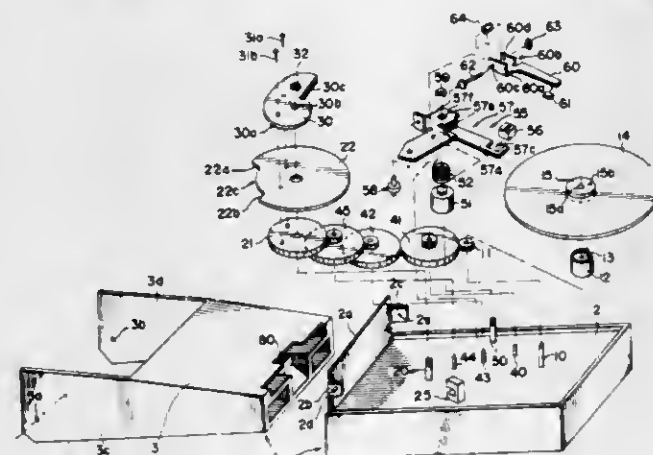
Takayuki Umaba, Nagano, Japan, assignor to Kabushiki Kaisha Sankyo Seiki Seisakusho, Nagano, Japan

Filed Apr. 3, 1980, Ser. No. 136,851

Claims priority, application Japan, Apr. 7, 1979, 54-46397[U] Int. Cl.³ G11B 5/82, 17/00, 21/12

U.S. Cl. 360—86

10 Claims



1. A magnetic recording or reproducing apparatus comprising:

- a magnetic body for recording or reproducing information;
- a magnetic head for sensing said information;
- means for mounting said magnetic body;
- means for supporting said magnetic body;
- means for driving and rotating said magnetic body mounting means;
- means for supporting said magnetic head;

- means for mounting said magnetic head supporting means;
- means for pressing said magnetic head to thereby clamping said magnetic body;
- means for detecting the position of said magnetic head supporting means;
- means for mounting said position detecting means;
- a cam mounted integrally on said position detecting means;
- means for sliding along and in abutment with the cam face of said cam;
- said sliding means mounted integrally with said magnetic head supporting means;
- means for rotating said magnetic head supporting means against the action provided by the movement of said sliding means;
- means for transmitting the rotating force provided by said driving means to said position detecting means in a decelerating manner; and
- means for sensing the position for starting and terminating recording or reproduction of said information.

4,314,293

SPIRAL DATA CARTRIDGE CAROUSEL AND POSITIONING MECHANISM

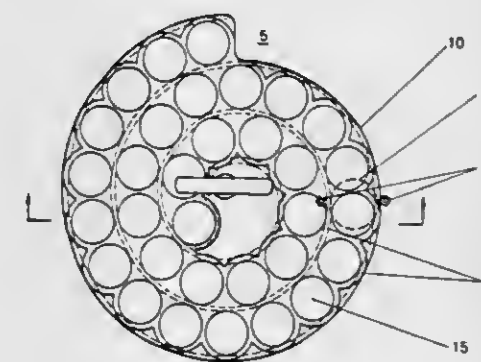
Gary R. Paulson, Meridian, Id., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jun. 25, 1979, Ser. No. 51,921

Int. Cl.³ G11B 22/04, 15/66

U.S. Cl. 360—92

8 Claims



1. Apparatus for storing and transporting digital data comprising:

- a chassis;
- a carousel having a plurality of cavities arranged in a spiral array for storing and transporting a plurality of magnetic tape cartridges having data stored therein;
- mounting means for slidably and rotatably mounting the carousel to the chassis;
- fetching means fixedly mounted to the chassis for loading and unloading the cartridges from the carousel;
- drive means coupled to the mounting means for selectively positioning a desired cartridge at the fetching means in response to rotating the carousel about its approximate center.

4,314,294

TAPE CASSETTE HOLDER

Pasquale R. Riccio, Salem, and George H. Manning, Nashua, both of N.H., assignors to MFE Corporation, Salem, N.H.

Filed Apr. 14, 1980, Ser. No. 139,672

Int. Cl.³ G11B 15/24, 23/04

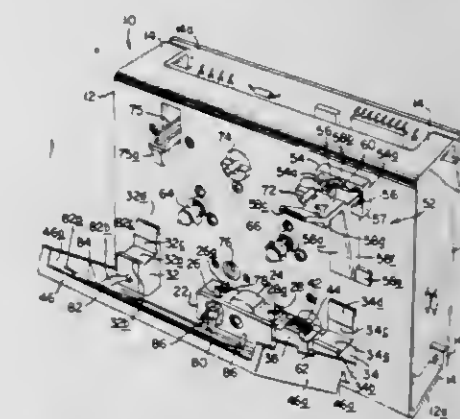
U.S. Cl. 360—96.6

15 Claims

- A tape cassette holder comprising
- A. a general support surface,
- B. a read/write head mounted to the support surface,
- C. a pair of spaced-apart rotary drive spindles projecting from the support surfaces adjacent the read/write head,
- D. a pair of abutments mounted to the support surface on opposite sides of the read/write head, said abutments

having positioning surfaces located more or less in the same plane as the read/write head,

- a generally rectangular door,
- means for hinging one long edge of the door to the support surface, said hinge line being parallel to the plane defined by said positioning surfaces and being located adjacent that plane, said door being swingable between a closed or operating position wherein the door lies more or less parallel to the support surface and an open or loading position wherein the door lies at an angle with respect to the support surface,
- means for releasably locking the door when the door is in its closed position, and
- means for establishing the door in its open position, and
- spring means mounted to the door surface facing the support surface, a first pair of said spring means extending out from the door near said one long edge thereof and



resiliently engaging said abutments so as to bias the door toward its open position, a second pair of said spring means extending out from the door near the opposite edge thereof so that

- when the door is in its open position, a conventional tape cassette having an active edge and sprocket holes and positioning pin openings in its faces can be placed onto the door so that its active edge is positioned by said abutments and a face of the cassette is positioned by the spring means and,
- when the door is moved to its closed position, said first pair of spring means urge the active edge of the cassette onto said positioning surfaces so as to locate said edge with respect to the read/write head and said spring means also resiliently bias the cassette against the support surface so that said drive spindles seat properly in the sprocket holes in a face of the cassette.

4,314,295

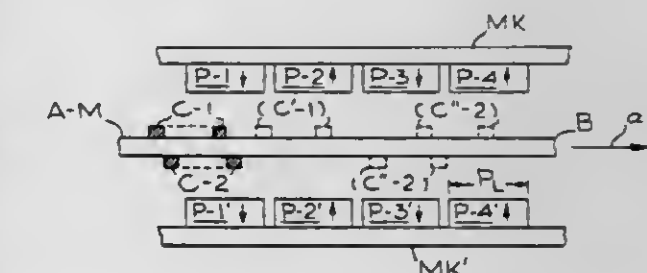
LINEAR ACTUATOR WITH STAGGERED FLAT COILS

Jorgen Frandsen, Winnipeg, Canada, assignor to Burroughs Corporation, Detroit, Mich.

Division of Ser. No. 85,945, Oct. 18, 1979. This application Dec. 26, 1979, Ser. No. 107,069 Int. Cl.³ G11B 21/02

U.S. Cl. 360—106

21 Claims



1. In an improved magnetic linear actuator means from a disk drive adapted to reciprocate and position load means along a

prescribed linear path and including two or more flat-coil means disposed on at least one side of a relatively thin, planar substrate means and also including associated magnet means comprising one or more pairs of like magnet pole pieces disposed oppositely on opposite sides of said path so as to interact inductively and drivingly with said coil means, whereby to induce the rapid, efficient and controlled translation of the substrate means along said linear path, positioningly, and in accordance with appropriate energizing current through selected coil means; the improvement therein comprising:

the operative disposition of said coils relative to one another and to said pole pairs renders them vertically offset and overlapping so as to interact with said coils spaced vis-a-vis each other on said substrate means so that when one or more flat-coil means is energized and induced to translate the substrate means along a prescribed excursion, it will be so positioned relative to said poles and to further additional flat-coil means, that the latter will be moved into operative position relative to prescribed pole pairs before termination of said excursion and thereupon may be so energized as to produce continuation of the actuating thrust of said substrate means; said pole pairs being arranged so as to have opposing magnetic polarity between adjacent pairs.

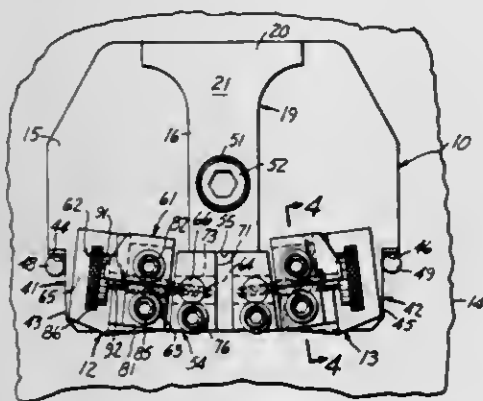
4,314,296

TRANSDUCER HEAD MOUNTING STRUCTURES
William C. Whittle, La Verne, Calif., assignor to Bell & Howell Company, Chicago, Ill.

Continuation-in-part of Ser. No. 939,533, Sep. 5, 1978, abandoned. This application Dec. 12, 1979, Ser. No. 102,801
Int. Cl.³ G11B 5/56, 21/24

U.S. Cl. 360—109

55 Claims



1. A mount for a pair of transducer heads, comprising in combination:

a base and integral riser beam jointly forming a rigid inverted T-shaped structure wherein said riser beam extends perpendicularly to a midportion of said base; and means connected to said base and to said riser beam for mounting said transducer heads on opposite sides of said riser beam.

4,314,297

PROCESS FOR GENERATING A MAGNETIC INDUCTION FIELD WITHIN A MAGNETIC MEDIUM
Jean-Pierre Lazzari, Montfort l'Amaury, France, assignor to Compagnie Internationale pour l'Informatique CII-Hoeywell Bull (Societe Anonyme), Paris, France

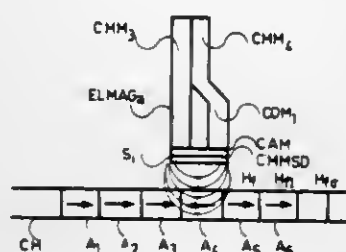
Filed Dec. 18, 1979, Ser. No. 104,859
Claims priority, application France, Apr. 6, 1979, 79 08713
Int. Cl.³ G11B 5/12

U.S. Cl. 360—113

13 Claims

1. A process for generating a magnetic induction field within a magnetic medium of a degraded type having a magnetically unsaturated portion comprising producing within the unsaturated portion a magnetic energizing field, generating a selection wave and propagating said wave along at least one given path of said medium, starting from a given datum point and

from a reference instant t_R , and reaching each point of the said path at an instant the selection wave and the energizing field



acting simultaneously at the instant t_i on an area surrounding each point of said path cause the magnetic properties of said area to be modified and the said induction field to be generated.

4,314,298

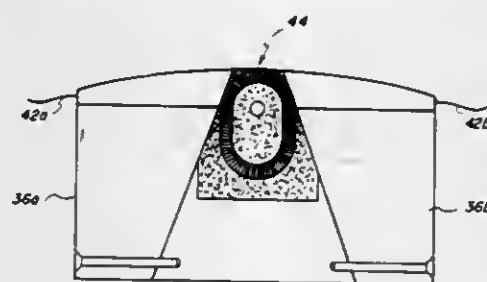
MULTITRACK MAGNETIC HEAD EMPLOYING DOUBLE HELIX STRUCTURE

William W. French, Cardiff-by-the Sea; James U. Lemke, Del Mar, and Richard J. McClure, San Diego, all of Calif., assignors to Eastman Technology, Inc., Rochester, N.Y.

Filed Oct. 9, 1979, Ser. No. 82,847
Int. Cl.³ G11B 5/27, 5/20, 5/12

U.S. Cl. 360—121

6 Claims



1. A multitrack magnetic head comprising:

- (a) a plurality of magnetic cores having respective gaps therein,
- (b) respective discrete coils on said cores, each of said coils being substantially helically wound on its corresponding core and extending from a point at one side of the gap thereof to a point at the other side of said gap without bridging said gap, and
- (c) means for supporting said cores so that the gaps thereof are laterally spaced apart from each other, and in alignment, said means for supporting said cores being provided with first and second pluralities of aligned apertures which spatially coincide with respective parts of said coils, and through which apertures electrical contact may be made to said coils,

said means for supporting said cores being such that the first and second pluralities of aligned apertures of said supporting means spatially coincide with respective aligned coil parts, at least some of which are within the extreme ends of said coils and away from the gaps of their respective cores, the number of electrically active turns of said coils being dependent upon the relative proximity of said first and second pluralities of aligned apertures.

4,314,299

PAD ASSEMBLY FOR USE IN A MAGNETIC TAPE CASSETTE

Toshihiko Ishida, and Takateru Satoh, both of Tokyo, Japan, assignors to TDK Electronics Co., Inc., Tokyo, Japan

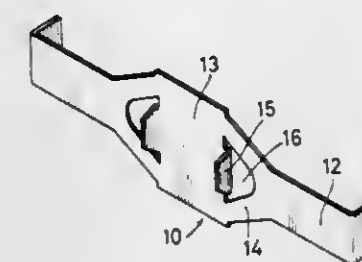
Filed Sep. 10, 1979, Ser. No. 73,988

Claims priority, application Japan, Sep. 18, 1978, 53-127088[U]

Int. Cl.³ G11B 23/08, 15/08, 15/60

U.S. Cl. 360—130.33

3 Claims



1. A pressure pad assembly for a magnetic tape cassette, said assembly comprising a substantially rectangular pad piece and a one-piece leaf spring for retaining said pad piece relative to a magnetic head having magnetic cores set therein; said leaf spring comprising a generally rectangular retaining portion for supporting the back side of said pad piece; two wing portions connected to opposed edges of said pad retaining portion; Y-shaped portions each having two legs extending from upper and lower sections of said opposite edges of said retaining portion joining the edge sections to said wing portions; the regions where said two legs of each Y portion and said retaining portion are joined together being aligned with and overlying a core set in such recorder magnetic head.

4,314,300

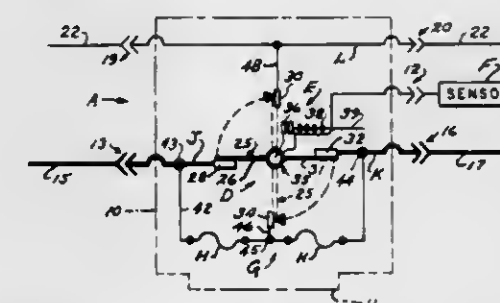
FUSED SHORT CIRCUIT AND GROUNDING SWITCH
Charles E. Griffith, 11212 Whisperwood La., Rockville, Md. 20852

Filed Nov. 9, 1979, Ser. No. 92,884

Int. Cl.³ H01H 19/10, 75/02

U.S. Cl. 361—13

23 Claims



1. A fused short circuit and grounding switch for interconnection in a main circuit, said switch having switch means operable in one position thereof as a part of the normal continuity of said main circuit and operable in another position to break continuity therewith as a part of said main circuit and to provide a solid bolted fault, and including alternate circuit means interconnected to and operable to be in parallel with said switch means in said one position thereof as a part of the normal continuity of said main circuit and including fuse means, said switch being operable to short circuit said alternate circuit and clear said fuse means thereof and to thereby interrupt said main circuit on operation of said switch means to the position thereof providing a solid bolted fault.

4,314,301

PROTECTIVE RELAYING DEVICES

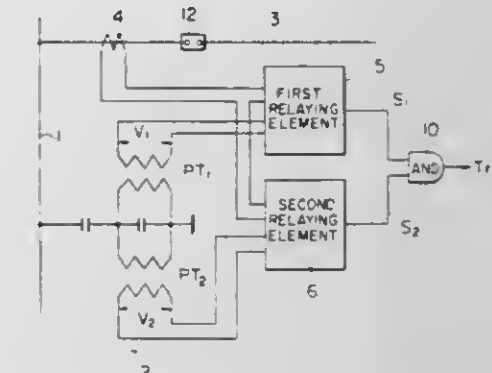
Ryotaro Koodow, Tokyo, and Junichi Inagaki, Fuchu, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Oct. 22, 1979, Ser. No. 87,156

Claims priority, application Japan, Oct. 31, 1978, 53-133220
Int. Cl.³ H02H 3/38

U.S. Cl. 361—65

8 Claims



1. A protective relaying device for protecting an electric power system, comprising first and second potential transformer circuits for transforming voltages of said electric power system, a current transformer for picking up current flowing through said electric power system, first and second relaying elements connected to receive the output voltages of the first and second potential transformer circuits, respectively, and also the output of said current transformer, wherein each of said relaying elements transmits a particular logic state output when it operates, and a logic circuit delivering a tripping signal to a circuit breaker of said power system when the logic state outputs of said first and second relaying elements are the same.

4,314,302

COMMUNICATIONS CIRCUIT LINE PROTECTOR AND METHOD OF MAKING THE SAME

Bertram W. Baumbach, Arlington Heights, Ill., assignor to Reliable Electric Company, Franklin Park, Ill.

Filed Apr. 18, 1980, Ser. No. 141,290

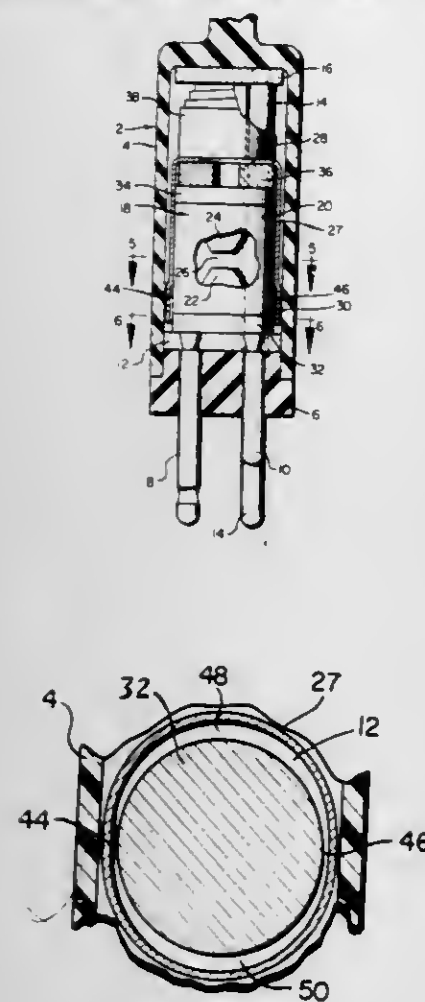
Int. Cl.³ H02H 3/22

U.S. Cl. 361—119

6 Claims

1. A line protector for a communications circuit comprising a gas tube surge voltage arrester having a central axis and opposed electrodes spaced apart by a tubular insulator to define a primary arc gap, means forming a first circuit for electrically connecting one of the electrodes to ground, means forming a second circuit for electrically connecting the other electrode to a communications line, the first circuit including a tubular element surrounding said insulator, said tubular element having a skirt portion that surrounds said other electrode in spaced relation thereto to define therewith a secondary arc gap having a breakdown voltage that is greater than the breakdown voltage of the primary arc gap but less than that of the primary arc gap should the gas tube become vented, said tubular element having a non-circular cross section and being resilient and by its resiliency engaging said gas tube at localized first and second spaced regions on opposite sides of said central axis so that the gas tube and the tubular element are prevented

from radial movement relative to each other to establish and maintain said secondary arc gap at a localized region that is at



a minimum spacing between said skirt portion and said other electrode.

4,314,304 **LINE PROTECTOR FOR A COMMUNICATIONS CIRCUIT**

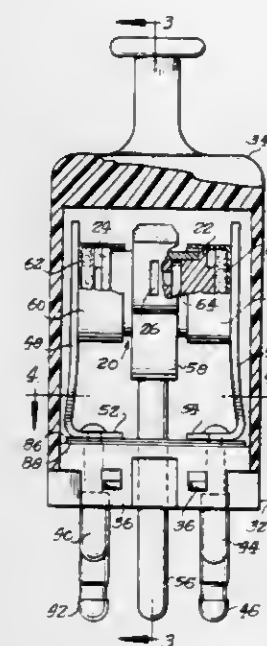
Bertram W. Baumbach, Arlington Heights, Ill., assignor to Reliable Electric Company, Franklin Park, Ill.

Filed Mar. 27, 1980, Ser. No. 134,744

Int. Cl.³ H02H 9/04, 3/22

U.S. Cl. 361-124

8 Claims



8. A line protector for a communication circuit comprising a housing of dielectric material and including a base, line pins in said base, a ground pin in said base, a gas tube surge arrester having a body in spaced relation with said base, first and second line terminals for respective connection to said line connector pins and an intermediate terminal for connection to said ground pin, said arrester including electrodes respectively connected to said terminals and comprising voltage breakdown means in the circuit between each of said line connector pins and said ground connector pin to provide in each of said circuits a high impedance at a voltage below a predetermined value and a low impedance at a voltage above said predetermined value, conductive elements each having a portion extending toward said intermediate terminal, said conductive elements each being normally spaced from said intermediate terminal, said first and second terminals including spring-bias means for applying longitudinal forces on said conductive elements to move said conductive elements toward said intermediate terminal, means opposing said spring-bias means when the current between said end terminals and said intermediate terminal is below a predetermined minimum value but operable to cause at least one of said elements to move toward said intermediate terminal to form a direct metallic ground circuit therewith when the current between said end terminals and said intermediate terminal is above said predetermined minimum value, and means forming an air gap in the circuit between each line terminal and said ground connector pin, said air gap having a breakdown voltage that is greater than the breakdown voltage of said gas tube surge arrester but less than the breakdown voltage of said surge arrester if the gas has leaked therefrom, said means forming the air gap comprising an insulating spacer defining the width of said air gap, the spacer being perforated at said air gap.

4,314,303 **OVERVOLTAGE PROTECTION DEVICE**

Rainer Bitsch, Hacienda Grande 406, Queretaro, Qro., Mexico; Armin Diessner, Cicerostr. 61, 1000 Berlin 31, and Bruno Müller, Hubertusallee 54, 1000 Berlin 33, both of Fed. Rep. of Germany

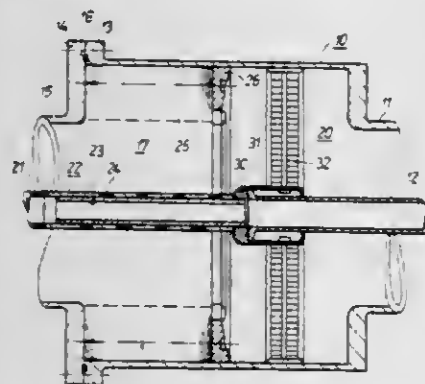
Filed Sep. 18, 1979, Ser. No. 76,582

Claims priority, application Fed. Rep. of Germany, Sep. 18, 1978, 2840900

Int. Cl.³ H02H 9/06

U.S. Cl. 361-120

16 Claims



1. An overvoltage protection device for a gas-insulated high-voltage line including an inner conductor enclosed by a metal casing, said device comprising a low pass filter which includes an inductance adapted to be electrically connected in series with the inner conductor of the high voltage line and a capacitance electrically coupled in shunt with said inductance, said capacitance adapted to be electrically coupled between said inductance and the casing of the high voltage line.

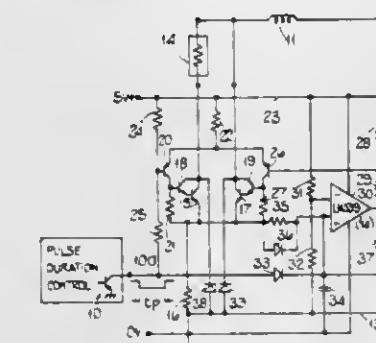
4,314,305 **SOLENOID DRIVE CIRCUITS**

Malcolm Williams, Solihull; John P. Southgate, Georgeham, and Richard G. Woodhouse, Hall Green, all of England, assignors to Lucas Industries Limited, Birmingham, England
Continuation of Ser. No. 34,043, Apr. 27, 1979, abandoned, which is a continuation of Ser. No. 923,741, Jul. 11, 1978, abandoned. This application Oct. 14, 1980, Ser. No. 196,427
Claims priority, application United Kingdom, Jul. 20, 1977, 30393/77

Int. Cl.³ F02M 52/00

U.S. Cl. 361-154

9 Claims



1. A solenoid drive circuit including first and second output transistors connected to the solenoid and providing parallel solenoid current paths of relatively high and low resistance respectively, means connected to an input terminal for permitting either transistor to conduct when the signal at the input terminal is in a first state and preventing both transistors from conducting when the signal is in a second state, and solenoid current sensing means controlling said second transistor so that said second transistor conducts when the signal at the input terminal is in said first state until the solenoid current rises above a predetermined level, said output transistors having their emitters connected to a first supply rail by a common resistor forming part of said solenoid current sensing means and having their collectors connected to one terminal of said solenoid by respective high and low resistance means, the other terminal of said solenoid being connected to a second supply rail.

4,314,306 **SIGNAL-POWERED RECEIVER**

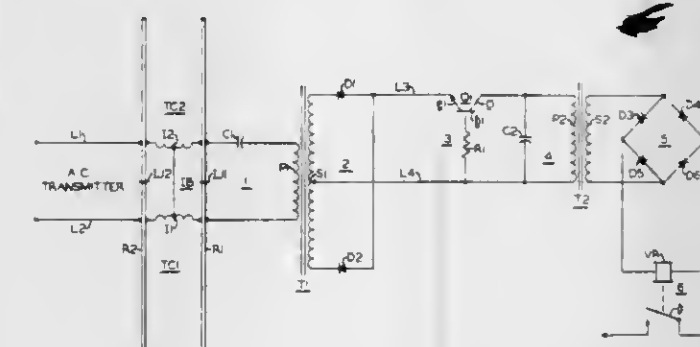
John O. G. Darrow, Murrsville, Pa., assignor to American-Standard Inc., Swissvale, Pa.

Filed Jul. 23, 1980, Ser. No. 168,861

Int. Cl.³ B61L 23/16

U.S. Cl. 361-182

10 Claims



1. A signal-powered receiver comprising, an input filter for receiving a modulated carrier signal, a demodulator coupled to said input filter for detecting the modulating signal, a switching device connected to said demodulator and being turned ON and OFF by the detected modulating signal, a modulation filter connected to said switching device which is free to swing to the opposite polarity of the modulation cycle during the

OFF period, and a rectifier coupled to said modulation filter for producing a d.c. output voltage for energizing a load.

4,314,307 **ELECTRO-MECHANICAL SENSOR POWER UP CIRCUIT**

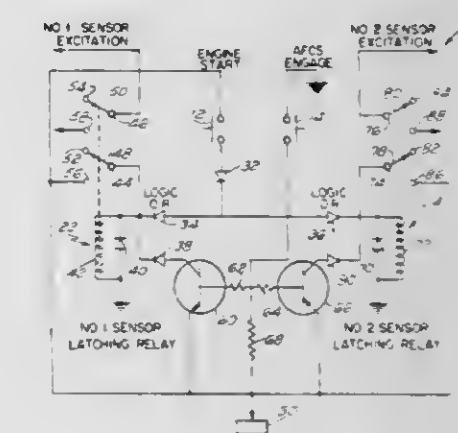
Albert Sivahop, Stratford; Don L. Adams, Sr., Fairfield, and William C. Fischer, Monroe, all of Conn., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 5, 1980, Ser. No. 146,821

Int. Cl.³ H01H 63/36

U.S. Cl. 361-194

1 Claim



1. An electrical circuit for improving the useful life of a plurality of electromechanical sensors including rate gyros of an automatic flight control system of an aircraft comprising: means for energizing a plurality of latching circuits upon command including at least one pair of push button switches closable separately or simultaneously; a plurality of relays which are activated upon energizing separately or simultaneously of said plurality of latching circuits, said relays having means for providing electric power to said plurality of electro-mechanical sensors; and means for energizing said plurality of electro-mechanical sensors only when the aircraft power and at least one of said pair of push button switches are on including a plurality of transistors which are short circuited upon closing of at least one of said pair of push button switches and thus energizing and keeping energized said plurality of relays during power-on interval of the aircraft.

4,314,308 **INCREASING THE RATE OF NEUTRALIZATION OF STATIC ELECTRICITY**

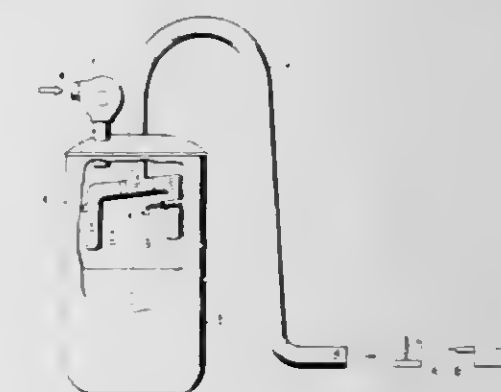
James D. Faulkner, Atlanta, Ga., assignor to Lester Laboratories, Inc., Atlanta, Ga.

Filed Oct. 6, 1980, Ser. No. 194,329

Int. Cl.³ H05F 3/00

U.S. Cl. 361-212

18 Claims



1. A process for neutralizing a static electric charge on a

surface, said process consisting essentially of contacting an atmosphere with a least one aqueous static charge composition by spraying an effective amount of said static charge composition into said atmosphere, and contacting the resulting treated atmosphere with a surface having static electric charge thereon, to thereby neutralize at least a portion of said charge, wherein said static charge composition is prepared from substantially deionized water to thereby increase the rate at which said charge is neutralized when compared with the rate of neutralization produced under the same conditions but with a static charge composition prepared from water that has not been substantially deionized.

4,314,309

ELECTRIC TEST EQUIPMENT MOUNTING

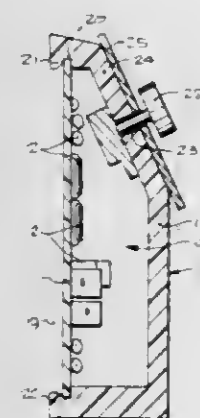
Clifford D. Read, Almonte, Canada, assignor to Northern Telecom Limited, Montreal, Canada

Filed Dec. 18, 1979, Ser. No. 104,886

Int. Cl.³ H05K 5/06

U.S. Cl. 361—331

4 Claims



1. An assembly of electrical or electronic test equipment for a telecommunications or power cable and a protective mounting, in which the mounting is of integral one piece molded construction and has walls defining a space of fixed shape determined by the molded construction, the space containing the equipment, the walls are formed of a closed cell foam and define an opening of fixed shape for insertion of the equipment into the space, the equipment is mounted upon and projects from a planar support which has outside dimensions greater than dimensions between said walls and across said space, the equipment is held within the space by the support engaging and outwardly resiliently urging the foam material at the inner surface of the walls defining the space to close the opening, the support is detachable by movement through the opening transversely to the plane of the support and the equipment is provided with at least one control switch which projects exteriorly from a switch mounting wall which is devoid of said opening, the switch rotatably and sealingly received through a hole formed in the switch mounting wall.

4,314,310

ELECTRICAL SWITCH

Eberhard Schmidt, Grossbottlingen, Fed. Rep. of Germany, assignor to Gebhard Balluff, Fabrik feinmechanischer Erzeugnisse, Neuhausen, Fed. Rep. of Germany

Filed Feb. 27, 1980, Ser. No. 125,216

Claims priority, application Fed. Rep. of Germany, Mar. 8, 1979, 2909048

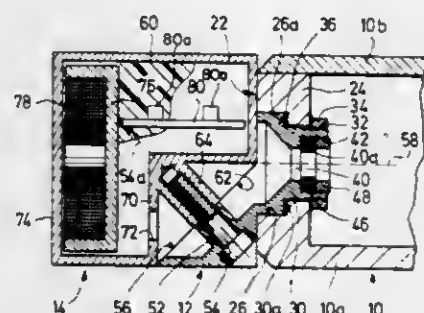
Int. Cl.³ H05K 5/00

U.S. Cl. 361—331

8 Claims

1. An electrical switch comprising a holding part (10) and a control part (14) mounted at said holding part by means of an attachment part (12), the control part (14) and the attachment part (12) defining together a cube being divided along a plane of division (56) which forms angles of 45° with the adjacent edges of the cube, the control part (14) having a housing (60) with a front wall (74) defining an operative side of said control part and four adjacent side walls embracing an installation

cavity for accommodating a sensor element (76, 78) and electric circuitry means (80) connected thereto, said holding part (10) having a front side (22) adjacent to said attachment part (12) which is mounted such that it is pivotable about a first axis (58) perpendicular to said front side (22), said control part (14) being disposed transposably on the attachment part (12) in such a way that it may be turned relative to the attachment part about a second axis (54a) forming an angle of 45° with said first axis (58) so that the control part (14) is mountable in several positions relative to said holding part (10) such that in a first position said front wall (74) is turned away from the holding



part (10) and in further positions it extends parallel to said first axis (58), the improvement comprising said plane of division (56) being offset with regard to the diagonal plane of the cube such that the volume of the control part (14) is substantially higher than that of the attachment part (12), said sensor element (76, 78) and said electric circuitry means (80) connected thereto being completely disposed within the installation cavity of the housing (60) of said control part (14), and a casting resin at least partially filling said installation cavity at least partially to embed said sensor element and said electric circuitry means.

4,314,311

PLUG-IN CARD SUPPORT PROVIDING ELECTRIC AND THERMAL CONNECTIONS

Bruno Seytre, and Hervé Bricaud, both of Suresnes, France, assignors to Socapex, Suresnes, France

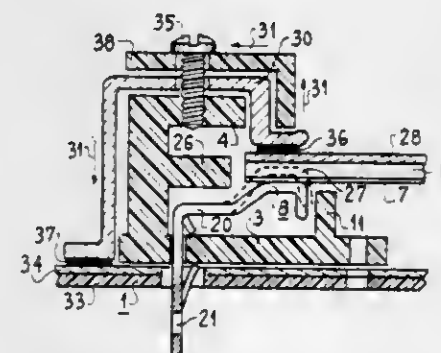
Filed Apr. 8, 1980, Ser. No. 138,319

Claims priority, application France, Oct. 26, 1979, 79 26613

Int. Cl.³ H05K 7/20

U.S. Cl. 361—386

3 Claims



1. A plug-in card support providing electrical and thermal connections, comprising:

a common flat base comprising an insulating layer and a base heat sink, forming a heat conduction cooling unit, a strip connector on said base and having groove means therein for receiving one edge of a circuit card having on one side an electric circuit and on the other side a heat-sink,

the two opposite internal faces of said groove means carrying respectively an electrical contact having elasticity and a thermal contact,

the various elements being positioned and sized so as to create a bearing force between an inserted circuit card heat sink and the thermal contact produced by a bearing

force between said card circuit and the strip connector electrical contact, a thermal conductor coupling element coupling the thermal contact with said heat conduction cooling unit, the coupling element being supported by the strip connector, and fixing means on said support for providing secure thermal and electrical contact.

4,314,312

PROGRAMMING MEANS

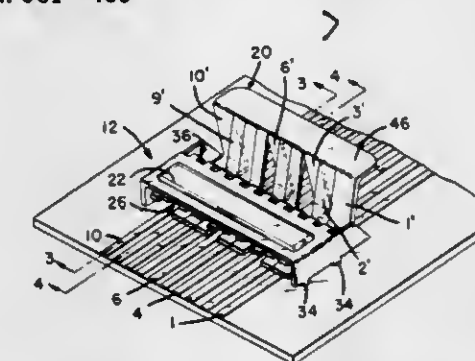
William L. Donmoyer, Noblesville, Ind., and Jon A. Fortuna, Mechanicsburg, Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Apr. 14, 1980, Ser. No. 139,911

Int. Cl.³ H05K 1/18

U.S. Cl. 361—400

6 Claims



1. Programming means for establishing a predetermined circuit selected from a plurality of possible circuits, said programming means comprising:

a circuit board having at least three side-by-side circuit board conductors on one surface thereof,

a conductive connector clip mounted on said one surface, said clip comprising a clip bar having integral mounting means extending therefrom, said clip being mounted on said circuit board with said clip bar extending transversely of, and being spaced from said circuit board conductors,

a plurality of individual spring members integral with said clip bar and extending towards said one surface of said circuit board, each of said spring members being in alignment with, and resiliently biased towards, one of said circuit board conductors, and

removable insulating program control means between said springs and a number of said circuit board conductors, at least two of said spring members being in electrical contact with their associated circuit board conductors, said insulating program control means comprising a plurality of side-by-side individual insulating members, each of said members being positioned between one of said circuit board conductors and its associated spring member and serving to insulate each circuit board conductor from its associated spring member, said individual insulating members being individually movable from between said circuit board conductors and said spring members whereby, said at least two circuit board conductors are selectively connected to each other.

4,314,313

SINGLE AND DUAL LOW INDUCTANCE CAPACITOR AND HEADER THEREFOR

William H. Elias, Six Mile, and Harold M. Granger, Greenville, Ga., assignors to Sangamo Weston, Inc., Norcross, Ga.

Filed Sep. 10, 1979, Ser. No. 74,175

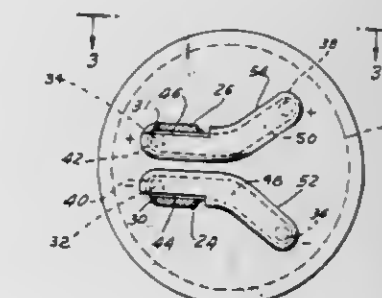
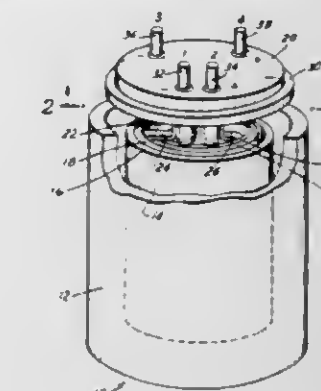
Int. Cl.³ H01G 9/00

U.S. Cl. 361—433

28 Claims

1. A capacitor header comprising: a header body; first terminal means carried by said header body and extending therefrom, said first terminal means including a first terminal portion noncoextensive with the remainder of said first terminal means spaced a predetermined distance from and parallel to one side of said header body and extending therefrom, said

second terminal means including a second terminal portion spaced substantially said predetermined distance from and parallel to said one side of said header body and to said first



4,314,314

ELECTRICALLY ILLUMINATED MIRROR

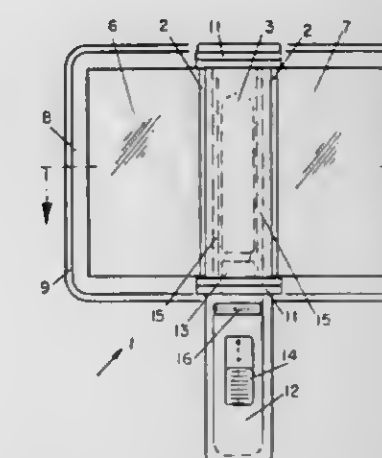
Otto Hübner, Mauerkircher Strasse 199, Herzog Park, 8000 München 81, Fed. Rep. of Germany

Filed May 30, 1980, Ser. No. 155,129

Int. Cl.³ F21V 7/04

U.S. Cl. 362—32

10 Claims



1. In an illuminated mirror device that includes a pair of spaced mirrors each mounted to be selectively pivotable, and an electrically energized source of light for illuminating the person using the pair of mirrors,

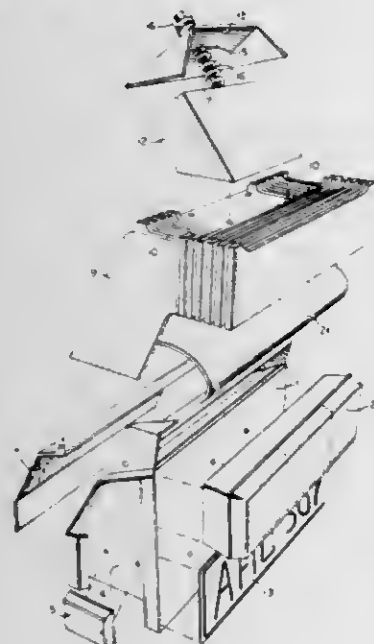
the improvement comprising, in combination: an elongated translucent tube surrounding an electrically energized source of light;

a pair of dished wings arranged to be selectively pivotable about the longitudinal axis of said translucent tube, and both being swingable between a closed position and an open planar position, a mirror mounted in the dished

portion of each wing and exposed for viewing when the wings are in open position; and each wing having light conducting character for guiding light from a region adjacent the translucent tube to the terminal edges of the wing distally from said translucent tube.

4,314,315
REAR LIGHT UNIT FOR LORRIES
Kjell F. Ohlson, Tallmövägen 2B, 752 45 Uppsala, Sweden
Filed Jul. 18, 1979, Ser. No. 58,558
Int. Cl.³ B60Q 1/00
U.S. Cl. 362—80

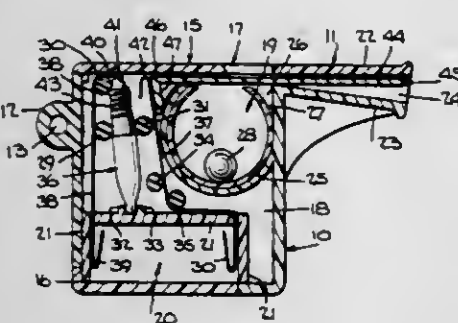
11 Claims



1. A holding unit for a vehicle comprising mounting means for mounting of at least one vehicle light and at least one vehicle number plate, climbing means attached to said mounting means for facilitating climbing upon said vehicle, and resilient suspension means attached to said climbing means for suspending said climbing means and said mounting means from said vehicle.

4,314,316
ILLUMINATING WHISTLE
Leona Gertler; Robert Gertler, both of 23-10A CPL, Kennedy St., Bayside, N.Y. 11360; Dietmar Nagel, 147 South Rd., Chester, N.J. 07930, and Melvin Kennedy, 22 Lynn Ct., Hampton Bays, N.Y. 11946
Filed Apr. 21, 1980, Ser. No. 142,420
Int. Cl.³ H04M 1/22
U.S. Cl. 362—86

20 Claims

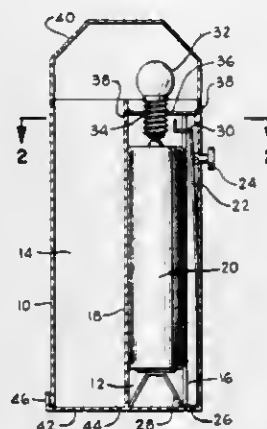


1. An apparatus for providing illumination comprising: means for orally producing the forcible passage of air; means for providing illumination; and means for energizing the illuminating means in response to the forcible passage of air comprising non-conductive means having a first portion responsive to the forcible passage of air

and a second portion for completing an electrical circuit for the illuminating means.

4,314,317
FLASHLIGHT
Jerry A. Robson, 76 Sherman Ave., Mansfield, Ohio 44906
Filed Jan. 23, 1980, Ser. No. 114,678
Int. Cl.³ F21L 21/00
U.S. Cl. 362—189

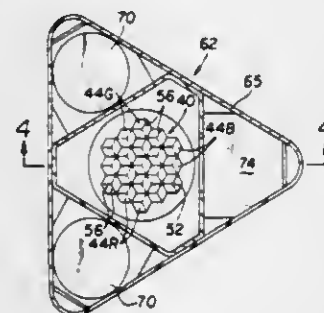
4 Claims



1. A flashlight comprising: a case having a first section with opposing narrow sides and opposing wide sides and having a bottom and a top; a pair of fins respective members of which project into said chamber towards each other from opposite wide sides of said case, said fins being spaced from one narrow side of said case to retain a battery between said one narrow side and said fins; a lamp supported adjacent the upper end of said internal chamber in position for its terminal to contact the upper terminal of the battery retained in said internal chamber; and a strip of conductive, flexible metal extending lengthwise of said internal chamber between said fins and the other one of said narrow sides, said strip having a first leg passing between said fins with an upwardly bent portion supported adjacent said bottom of said chamber to support the battery, and having a second leg adjacent the top of the battery and extending laterally inwardly between said fins for contact with a side portion of said lamp; and means for bending said flexible metal strip inwardly to bring said second leg of said strip against the base of the lamp to turn the lamp on.

4,314,318
LIGHT-REFLECTING DEVICE
James Dana, 102 Browns Rd., Nesconset, N.Y. 11767
Filed Sep. 18, 1980, Ser. No. 188,357
Int. Cl.³ F21V 11/00
U.S. Cl. 362—240

6 Claims

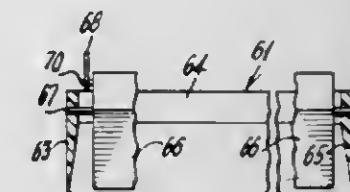


1. A device for beaming a resultant color light to a target which is a function of the mixing of red, blue, and green light sources comprising, in combination, red, blue, and green light sources circumferentially spaced 120 degrees apart, and a plurality of light-reflecting members in facing relation to said light sources operatively effective to beam light impinging thereon from said light sources to said target along closely parallel paths to thereby contribute to a visually-perceived color which is said resultant mixture of said red, blue, and

green lights, each said light-reflecting member consisting of a body having a vertically oriented central axis, a cooperating arrangement of three rectangularly shaped mirrors each disposed in facing relation to one said light source at an angular orientation in relation thereto selected to reflect light from said source impinging thereon along a path parallel to said body central axis, said long dimension of each said rectangular mirror being disposed at a perpendicular orientation to said body central axis and subtending a circumferential extent of 120 degrees, and said three mirrors being supported on an upper end of said body with the uppermost three corners of said mirrors joined at a common location and the two sides diverging outwardly therefrom of each said mirror being joined to said corresponding two sides of each of said other two mirrors to thereby form for each mirror two ridges in uppermost locations at the juncture of said sides in joined relation to each other, whereby said ridges of each said mirror confine for impingement thereon only the light from said source in facing relation thereto such that said cooperating effect of said plural light-reflecting members is to reflect light in the colors red, blue, and green along paths in closely adjacent and parallel relation.

4,314,320
MEANS INCLUDING A LIGHT DISTRIBUTION LOUVER FOR THE PROTECTION OF LIGHTING FIXTURES
William Wolar, 59 Fremont Rd., North Tarrytown, N.Y. 10591
Division of Ser. No. 956,104, Oct. 30, 1978. This application
Apr. 14, 1980, Ser. No. 139,838
Int. Cl.³ H02B 13/04
U.S. Cl. 362—342

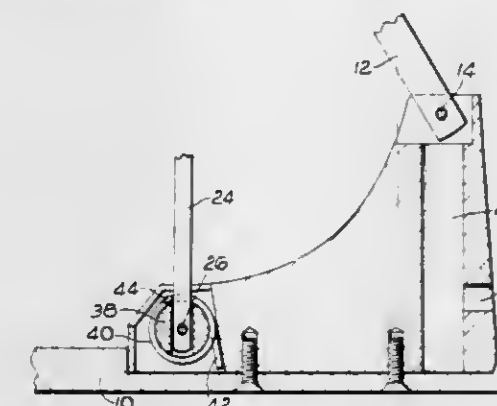
8 Claims



1. A louver for distribution of light from a lighting fixture comprising four side walls forming a rectangular frame, a plurality of diamond shaped vanes each pivotally carried by two of said side walls and angularly adjustable about the axis of the pivots relative thereto, and a control arm pivotally coupled to each of said vanes at points spaced from the first said pivots for simultaneous adjustment of said vanes.

4,314,319
ADJUSTABLE LAMPS
John V. Terry, Wasperton House, near Warwick, Warwickshire, England; Raymond M. Terry, Newbold House, Newbold-on-Stour, Warwickshire, England, and Ian A. Atkins, Wychbold, England, assignors to John Victor Terry, Warwickshire and Raymond Michael Terry, Newbold-on-Stour, both of, England
Filed Jul. 12, 1979, Ser. No. 56,964
Claims priority, application United Kingdom, Aug. 26, 1978, 34780/78
Int. Cl.³ F21V 21/18
U.S. Cl. 362—287

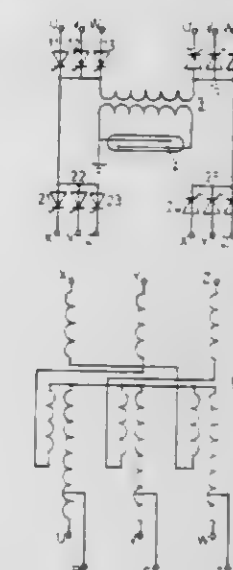
1 Claim



1. A lamp comprising a base, an arm pivoted to the base and carrying a lamp housing at its free end, and a link which supports the arm and which is also pivoted to the base and to a member having a sliding frictional connection with the arm, so that the points at which the arm and link are pivoted to the base, together with a connection point of the link and arm, form the apices of a triangle, wherein the improvement comprises a torsion spring which is wound around the axis of a pin on which the link is pivoted to the base, the link, when holding the arm upright, having a lost motion connection with the spring, and the spring, when the link and arm are swung to take up the lost motion connection, being arranged to apply torque to the link to resist further movement of the link and arm toward a more horizontal position, and to assist in returning the link and arm from such a more horizontal position.

4,314,321
OZONIZER FEEDING DEVICE
Josef Galliker, Wettingen, Switzerland, assignor to BBC Brown, Boveri & Company Limited, Baden, Switzerland
Filed Apr. 25, 1980, Ser. No. 143,554
Claims priority, application Switzerland, Apr. 30, 1979, 4031/79
Int. Cl.³ H02M 5/00
U.S. Cl. 363—10

4 Claims



1. An ozonizer power feeding device comprising: a multiphase power source having at least one terminal for each phase; a thyristor circuit coupled to the terminals of said source, said thyristor circuit comprising at least two thyristors for each phase connected at one side thereof in an anti-parallel configuration to the respective terminal of said source; a transformer having at least one primary coil coupled to the other sides of said anti-parallel connected thyristors and a

secondary coil adapted to be connected to an ozonizer for feeding power to said ozonizer;
 a joint control unit coupled to each of said thyristors for controlling the conduction time thereof in dependence on the waveforms provided at the terminals of said source;
 said transformer comprising a single primary coil having two sides;
 said thyristor circuit comprising,
 a first set of respective pairs of anti-parallel connected thyristors coupled between the terminals of said power source and one side of said primary coil, and
 a second set of respective pairs of anti-parallel connected thyristors coupled between the terminals of said power source and the other side of said primary coil;
 wherein the first and second sets of thyristors are provided for switching during selected portions of positive and negative half-periods of each power phase; and
 a power transformer comprising plural zigzag connected windings inserted between the terminals of said multiphase power source and the anti-parallel connected thyristors.

4,314,322

THREE PHASE REGULATED SUPPLY WITH RIPPLE CURRENT REGULATION

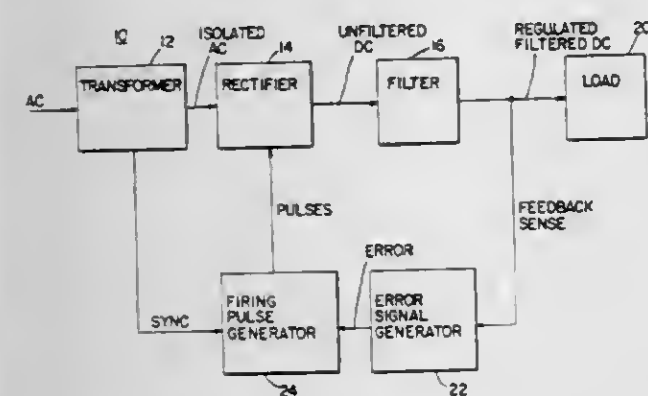
Robert J. Plow, Avon Lake, and Jerry C. Rader, Grafton, both of Ohio, assignors to Reliance Electric Company, Cleveland, Ohio

Filed Mar. 6, 1980, Ser. No. 127,869

Int. Cl.³ H02M 1/14

U.S. Cl. 363-46

21 Claims



1. A ripple regulation circuit adapted for use in a multiphase regulated supply which generates a filtered d.c. output signal having ripple, said supply including:

- (i) adjustable regulating means for regulating the value of said output signal;
- (ii) means for generating a first error signal having a magnitude dependent on the amount by which an actual value of said d.c. output signal deviates in a predetermined direction from a reference value; and
- (iii) control means connected to said regulating means and responsive to an error control signal equal to said first error signal for adjusting said regulating means to maintain said actual value equal to said desired value;

said circuit comprising:

- (a) means responsive to said ripple for generating a second error signal having an amplitude dependent on the amount by which the actual d.c. value of said ripple deviates in a predetermined direction from a desired d.c. value of said ripple; and
- (b) means responsive to said first and second error signals for selecting said error control signal as being equal only to the larger amplitude one of said first and second error signals, said control means adjusting said regulating means when said error control signal is equal only to said second error signal to thereby maintain said ripple d.c. value substantially equal to said desired value.

4,314,323 FEEDER FOR RAPID SHUTDOWN FOR SAFETY DEVICES OF NUCLEAR REACTORS

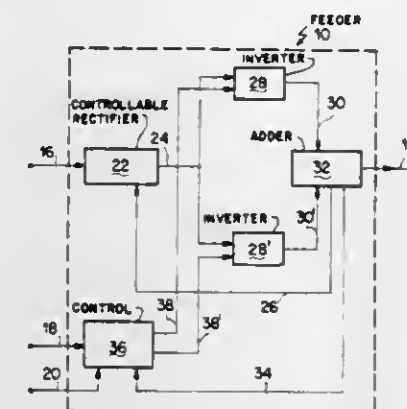
Ruggero Conti, and Franco Imperiali, both of Rome, Italy, assignors to Comitato Nazionale per l'Energia Nucleare, Rome, Italy

Filed Dec. 20, 1978, Ser. No. 971,601

Claims priority, application Italy, Dec. 21, 1977, 52311 A/77 Int. Cl.³ H02M 7/515

U.S. Cl. 363-71

4 Claims



1. A feeder circuit for use in supplying current from its output to rod-supporting electromagnet means of a nuclear reactor, said feeder circuit comprising, in combination:

- (a) a controllable rectifier for providing a regulated d.c. output from an a.c. input of network frequency;
- (b) at least two substantially identical inverters coupled to said controllable rectifier for inverting said d.c. output to an alternating current at a frequency higher than said network frequency and for elevating the voltage thereof;
- (c) a sequence control circuit coupled to said inverters for causing the exit currents of said inverters to be dephased with respect to each other by a fixed amount equal to $180^\circ/n$, wherein n is the number of said inverters; and
- (d) an adder coupled to said inverters for first rectifying and then adding said exit currents to provide a current sum constituting the output current of said feeder circuit;
- (e) wherein said sequence control circuit, in response to a signal applied to a first input terminal thereof simultaneously with a signal applied to a second input terminal thereof, starts the operation of said inverters in sequence to cause said dephasing of said exit currents of the inverters, which sequence of operation is completed for a cycle and thereafter discontinued when either signal is removed from its respective input terminal.

4,314,324

TRANSFORMER POWER SUPPLY HAVING AN INDUCTIVELY LOADED FULL WAVE RECTIFIER IN THE PRIMARY

Emmett R. Anderson, Campbell, and Douglas S. Schatz, San Jose, both of Calif., assignors to Energy Research Associates, Campbell, Calif.

Filed Nov. 8, 1979, Ser. No. 92,280

Int. Cl.³ H02P 13/24

U.S. Cl. 363-90

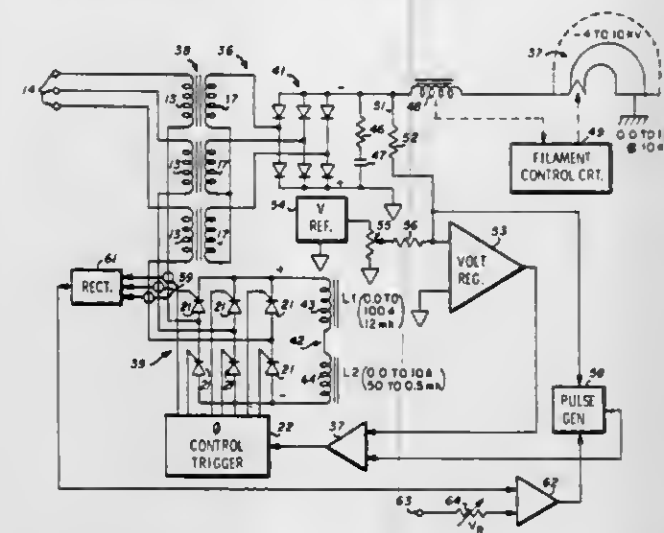
9 Claims

1. In a transformer power supply:

transformer means having a primary winding means for connection to a source of alternating electrical power and having a secondary winding means inductively coupled to said primary winding means for connection to a load for transforming alternating electrical power from the source to the load at the frequency of the source;

full wave rectifying means having an input for connection in series with said primary winding of said transformer means for supplying input alternating electrical power at the frequency of the source to said full wave rectifying means and having an output for supplying output rectified current on each half cycle of the input power in response

to the application of input alternating current to said input of said full wave rectifying means from the source;
 inductive load means for connection across said output of said full wave rectifying means for inductively loading said full wave rectifying means and hence for inductive loading of said primary winding; and



wherein the load to be connected to the output of said secondary winding of said transformer means has a predetermined resistance characteristic and wherein the inductance of said inductive load means for said full wave rectifying means exceeds the critical inductance value found from the relation:

$$\frac{L}{R_{Lref}} > \frac{\tau}{2n}$$

where L is the critical inductance, R_{Lref} is the load resistance to be connected to said secondary winding of said transformer means as reflected through said transformer means into said primary winding means, τ is the period of the electrical power supplied to said primary winding means from the source, and n is the number of phases of the power supplied from the source to said transformer means.

4,314,325

METHOD AND CIRCUIT FOR PULSE-WIDTH CONTROL OF A BILATERAL DIRECT CURRENT CONTROL ELEMENT

Jürgen Siebert, Uttenreuth, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

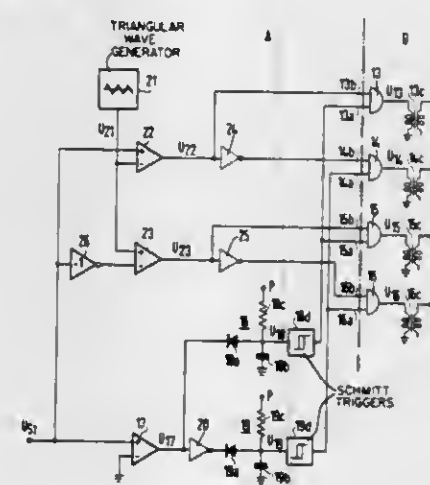
Filed Jul. 18, 1980, Ser. No. 170,990

Claims priority, application Fed. Rep. of Germany, Jul. 30, 1979, 2930920

Int. Cl.³ H02P 13/18

U.S. Cl. 363-98

9 Claims



3. A circuit arrangement for controlling a bilateral direct

current control bridge of the type having four bridge arms, each bridge arm having an electronic switching element electrically disposed therein for conducting a load current to a load which is connected between respective diagonally disposed pairs of bridge arms, the electronic switching elements each being of the type which will conduct current in response to an energizing signal, the circuit further comprising:

- a. energizing means for applying first and second energizing pulse signals respectively to first and second electronic switching elements in an associated first diagonal pair of bridge arms, said first and second pulse signals being out of phase with respect to one another, the load current being responsive in amplitude to a time interval during which the first and second electronic switching elements are simultaneously conductive.

4,314,326

RECTIFYING CIRCUIT WITH ZERO CORRECTION

Robert E. J. Van de Grift, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

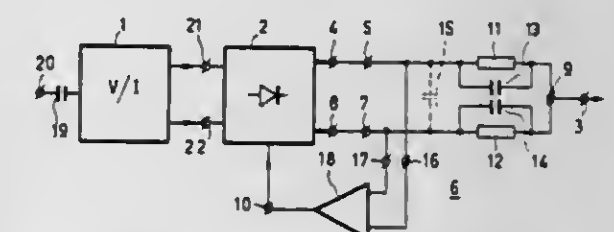
Filed Mar. 31, 1980, Ser. No. 135,968

Claims priority, application Netherlands, Apr. 2, 1979, 7902545

Int. Cl.³ H02M 7/217

U.S. Cl. 363-127

14 Claims



1. A rectifying circuit comprising a first and a second circuit input for receiving alternating currents applied in push-pull, first and second current circuits connected between the first and the second circuit inputs respectively and a power supply terminal and provided with a current mirror circuit which interconnects the current circuits for coupling the current in the one current circuit to the other current circuit with a current gain of substantially unity depending on the polarity of the difference of the currents in the current circuits, means coupling the first and the second circuit inputs to a circuit output via a third and a fourth current circuit respectively, to derive at said output a rectified alternating current, said third and fourth current circuits each comprising the main current paths of a transistor having current output electrodes coupled to the circuit output, and means for reducing a d.c. unbalance between the currents from the third and the fourth current circuits to substantially zero comprising, a current comparison device having a first input connected to the current output electrode of the third current circuit, a second input connected to the current output electrode of the fourth current circuit and a first output connected to the circuit output, said current comparison device including at least one control output connected to one of the said current circuits and further comprising two current transfer circuits included between the comparison device first and second inputs respectively and the first output, integrating means coupled to said current transfer circuits, and a differential amplifier having two input terminals coupled to said integrating means and an amplifier output connected to the control output for supplying a compensation current as a function of the d.c. unbalance between the means values of the said currents.

4,314,327

TRANSISTOR DRIVE CONTROL FOR A MULTIPLE INPUT D.C. TO D.C. CONVERTER

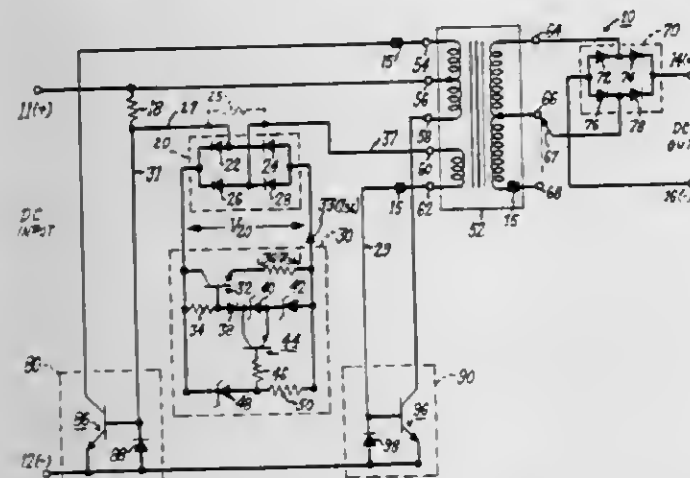
Robert P. DePuy, Cherry Hill, N.J., assignor to General Electric Company, Philadelphia, Pa.

Filed Nov. 17, 1980, Ser. No. 207,586

Int. Cl.³ H02M 3/335

U.S. Cl. 363-142

6 Claims



1. In a D.C. to D.C. voltage converter adapted for energization by various input D.C. voltages each having different D.C. voltage levels relative to each other and each having a positive and negative potential, said positive potential being connected to a center-tap of a primary winding of a saturable transformer, said saturable transformer having a first secondary or base drive winding having a first and a second end and a second secondary winding having a first and a second end with a tap positionable between its first and second ends, said saturable transformer having a core with a substantially square magnetic hysteresis loop characteristic, said negative potential being connected to first and a second transistor diode combinations, each comprising a transistor having a base electrode, said first and said second transistor diode combinations sequentially operating to couple said negative potential to opposite ends of said primary winding causing the core of the saturable transformer to be sequentially excited into its positive and its negative saturation conditions, said first and second transistor diode combinations being controlled by a base-drive circuit having a starting resistor with a first end connected to said positive potential and a second end, said base drive circuit being arranged in series with the transistor diode combinations and said base drive winding of said saturable transformer, said base drive winding having an A.C. voltage across its first and second ends representative of the D.C. voltage present at a said primary winding, said second end of said base drive winding being coupled to said base electrode of said second transistor diode combination, said base drive winding voltage experiencing a rapid reversal as the transformer is excited into its negative and positive saturation conditions, said rapid reversal causing the base drive circuit to sequentially render conductive and non-conductive the first and the second transistor diode combinations, said sequential conduction of said first and second transistor diode combinations allowing said transformer to be sequentially driven into its saturation conditions, which, in turn, develops a time-varying signal at the second secondary winding of said transformer which is rectified by an A.C. to D.C. rectifier to develop a desired D.C. output voltage, said base drive circuit further comprising:

means for converting said A.C. voltage of said base drive winding into a representative D.C. output voltage, said means for converting having a first end coupled to said first end of said base drive winding and a second end coupled to said second end of said starting resistor and to said base electrode of said first transistor diode combination, said D.C. output voltage of said means for converting being coupled across a multiple level current limiting circuit;

said multiple level current limiting circuit developing a

current representative of said coupled D.C. output voltage, said current having a first and a second range representative of a first and a second range of said coupled D.C. output voltage, said first and second ranges of said coupled D.C. output voltage being respectively representative of a range of D.C. voltage levels of a first input D.C. voltage and a range of D.C. voltage levels of a second input D.C. voltage;

said means for converting and said multiple level current limiting circuit being arranged to supply as a base drive current said first and second ranges of currents to said base electrodes of said first and second transistor diode combinations, said first and second ranges of currents correspondingly controlling the saturation condition of said first and second transistor diode combinations, said first and second ranges of currents being such as to adapt the saturation condition of said first and second transistor diode combinations to the ranges of said first and second input D.C. voltages;

said adaptation of said saturation condition of said first and second transistor diode combinations to the first and second input D.C. voltages applied to said D.C. to D.C. converter reduces the extent of any increase to the commutational losses for each of the first and second transistor diode combinations that would otherwise occur for major and minor positive increases in the D.C. voltage levels of the applied first and second D.C. voltages.

4,314,328

INFORMATION EXTRACTOR FOR THE SELECTIVE VISUALIZATION OF DATA STORED IN A MONITORING MEMORY

Massimino Di Donato, Meda-Milano, and Attilio Filisetti, Cornaredo-Milano, both of Italy, assignors to Societa Italiana Telecomunicazioni Siemens S.p.A., Milan, Italy

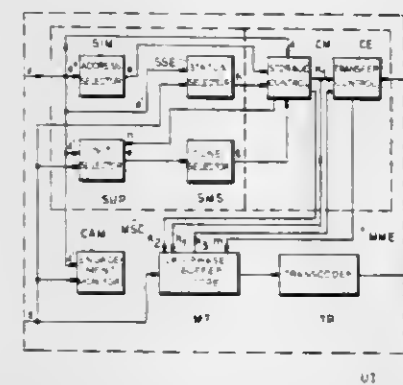
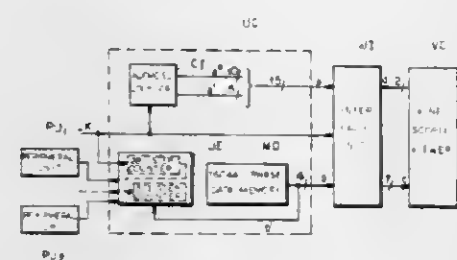
Filed Aug. 27, 1979, Ser. No. 70,035

Claims priority, application Italy, Aug. 29, 1978, 27086 A/78

Int. Cl.³ G06F 3/14, 3/04, 13/00, 7/02

U.S. Cl. 364-900

10 Claims



1. A circuit arrangement for selectively extracting information from a read/write memory at a central location of a data-processing system for visualization by an associated display device, said memory being divided into a multiplicity of sub-zones which are grouped into a plurality of zones at least temporarily allocated to respective peripheral units of the system to be monitored by an operator at said central location and which are periodically scanned in a series of time slots, marked by the stepping of an address counter by timing means generating said time slots, for the reading and writing of data

pertaining to the corresponding peripheral units, said circuit arrangement comprising:

a buffer store with input connections to said memory and with a storage capacity for data contained in any one of said zones;

selection means including a register loadable by the operator with a designation of a chosen peripheral unit;

identification means including a comparator connected to said address counter and to said register for emitting a coincidence signal upon the scanning of a zone of said memory allocated to the designated peripheral unit, said identification means further including a decoder connected to said address counter for detecting the address of a predetermined subzone of any zone carrying the designation of a respective peripheral unit to which such zone is temporarily allocated, said comparator being provided with an enabling input connected to said decoder for activation upon detection of the address of said predetermined subzone and being further provided with two sets of data inputs respectively connected to said register and to said memory for receiving from the latter the designation of the respective peripheral unit; and

transfer means responsive to said coincidence signal for commanding a transmission of at least part of the contents of the memory zone allocated to the designated peripheral unit via said buffer store to said display device.

4,314,329

METHOD AND APPARATUS FOR USING A COMPUTER NUMERICAL CONTROL TO CONTROL A MACHINE CYCLE OF OPERATION

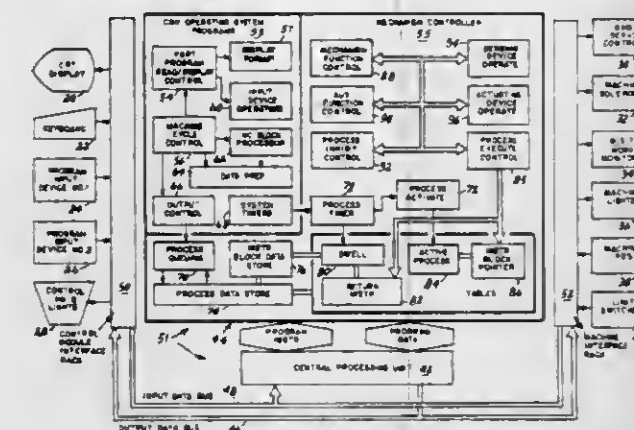
David W. Crewe, Halifax, England, and Stephen P. Hill-Hariss, Cincinnati, Ohio, assignors to Cincinnati Milacron Inc., Cincinnati, Ohio

Filed Feb. 4, 1980, Ser. No. 118,644

Int. Cl.³ G05B 19/18

U.S. Cl. 364-141

20 Claims



1. A method for executing machine processes using a control computer, said computer having a memory and generating constant period timing signals and process signals to initiate the machine processes during the execution of a machine cycle of operation, said control including a machine interface for receiving the states of input signals produced by condition sensing devices and transmitting output signals to actuate mechanisms to execute a process function, the method comprising the steps of:

- storing a program in the memory defining a number of independent processes, each process being uniquely identified by a process signal and represented by a series of instruction blocks of process information, a number of the instruction blocks defining an output signal to be produced in response to a predetermined set of states of input signals;
- storing a process signal generated by the control;
- recalling from the memory a first of the number of instruction blocks associated with the stored process signal in response to a first timing signal;
- testing the machine interface to detect the actual set of

states of selected input signals defined by the first instruction block;

- comparing the actual states of the selected input signals with the predetermined set of states;
- transferring the output signal to the machine interface in response to the detected set of states of the selected input signals corresponding to the predetermined set of states;
- generating an error signal identifying the ones of these selected input signals having actual states different from the predetermined states;
- iterating steps (c) through (g) for each of the number of instruction blocks stored in association with the first stored process signal; and
- iterating steps (b) through (h) for each of the process signals generated by the control computer.

4,314,330

MACHINE TOOL DATA SYSTEM

Kenneth L. Slawson, Depew, N.Y., assignor to Houdaille Industries, Inc., Ft. Lauderdale, Fla.

Division of Ser. No. 421,103, Dec. 3, 1973, Pat. No. 4,150,427, which is a division of Ser. No. 150,637, Jun. 7, 1971, Pat. No. 3,816,723, which is a continuation-in-part of Ser. No. 744,392, Jul. 12, 1968, Pat. No. 3,634,662, which is a continuation-in-part of Ser. No. 652,968, Jul. 12, 1967, abandoned. This application

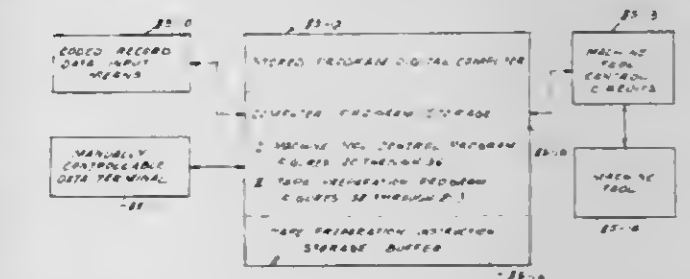
Feb. 23, 1979, Ser. No. 14,582

The portion of the term of this patent subsequent to Jun. 11, 1991, has been disclaimed.

Int. Cl.³ G06F 15/46; B23Q 21/00; G05B 19/42

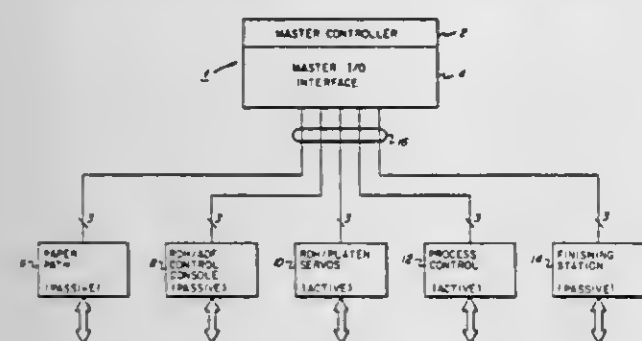
U.S. Cl. 364-192

28 Claims



- In a computer system,
 - a manually controllable input device operable to produce coded input signals as manually selected by an operator pertaining to successive blocks of new machine control data to be generated;
 - said manually controllable input device being operable to produce coded input signals representing at least the following:
 - a plural digit decimal number representing a displacement value relative to one of a plurality of machine axes
 - a coded "list" input signal, (3) a coded "delete" input signal, and (4) a coded "copy" input signal, and
 - a stored program digital computer including a computer memory with memory locations for storing machine control data pertaining to the operation of a machine, said computer memory having a stored program therein, and said digital computer under the control of said stored program being responsive to said coded input signals to generate said successive blocks of new machine control data in accordance therewith and to store said successive blocks of machine control data at said memory locations, said digital computer under the control of said stored program being operable: (1) to respond to said coded input signal representing a plural digit decimal number to generate a block of said new machine control data incorporating a displacement value relative to said one of a plurality of machine axes in accordance with said plural digit decimal number, (2) to respond to said coded "list" input signal to list all blocks of said machine control data in said memory locations, (3) to respond to said coded "delete" input signal to delete identified blocks of said

- ory storage means for storing programs and command and data bytes, and an address and data bus,
- b. interface means connected to said address and data bus of said master unit and including:
1. means connected to said data bus for receiving and storing a command byte,
 2. means connected to said data bus for receiving and storing an output data byte,
 3. means for transmitting said command and output data bytes along a first communication path, and
 4. means for storing an input data byte, said input data byte storing means connected to receive data along a second communication path, and connected for providing said received data to said data bus of said master unit, and
- c. a remote unit connected to receive said command and



output data bytes from said first communication path and for transmitting input data bytes to said input data byte storing means of said interface means along said second communication path.

said interface means including decoder means coupled to said address bus for generating a simplex/duplex bit comprising a portion of said command byte for initiating either a simplex mode of operation in said remote unit wherein data is read by said master unit from said remote unit or for initiating a duplex mode of operation in said remote unit wherein data is simultaneously read by said interface means from said remote unit and data is written into said remote unit by said interface means, and said remote unit further comprising circuit means responsive to said simplex/duplex bit for responding in said simplex and duplex modes of operation.

4,314,335

MULTILEVEL PRIORITY ARBITER

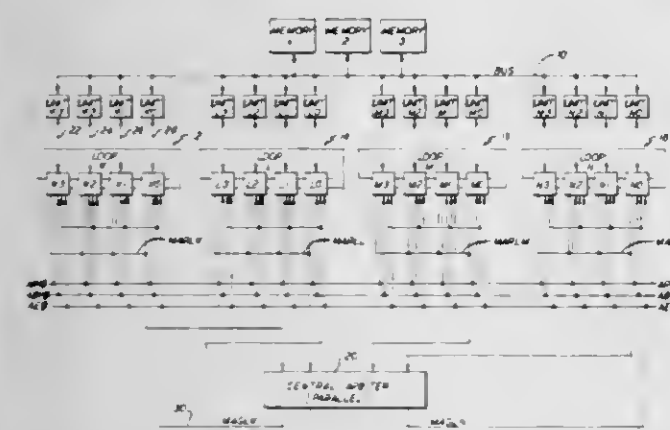
Louis D. Pezzi, Freehold Township, Monmouth County, N.J., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed Feb. 6, 1980, Ser. No. 118,879

Int. Cl.³ G06F 9/46

U.S. Cl. 364—200

10 Claims



1. A multi-level arbiter system for resolving contention between a plurality of requests for access to a shared facility comprising, in combination:

- a plurality of loop arbiters each for awarding access to the

shared facility to an external unit coupled thereto, each loop arbiter comprising, in combination;

- (a) a plurality of request latches, each responsive to one externally generated access request signal from an external unit coupled thereto and desiring access to the shared facility, each request latch producing a unit request signal and a loop request signal;
- (b) a priority resolution circuit responsive to each unit request signal for conditioning the loop arbiter to grant access to the shared facility to the unit having the highest priority of those units then producing a unit request signal upon receipt of externally generated loop grant signal; and
- a central arbiter responsive to each said loop request signal from all said loop arbiters to produce a loop grant signal to the loop arbiter producing a loop request signal and having the highest priority among all said loop arbiter request signals present at that moment of time.

4,314,336

ELECTRONIC CARD GAME SIMULATOR

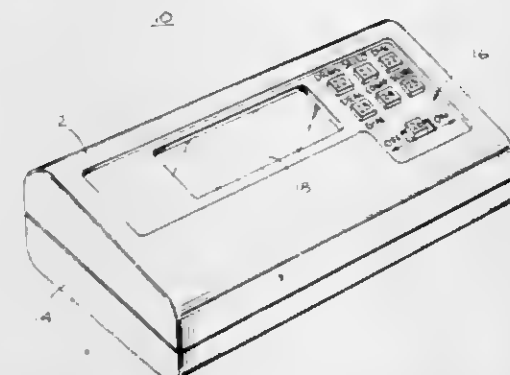
William L. Bernstein, Los Angeles, and Robert M. Del Principe, Hawthorne, both of Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed Dec. 31, 1979, Ser. No. 108,880

Int. Cl.³ G06F 15/44

U.S. Cl. 364—411

16 Claims



1. A device for simulating the play of Gin Rummy comprising a housing; a display including indicia representing the cards in a single deck of cards; a plurality of input switches by which an operator may indicate the play of a card game; and an electronic data processor operated in response to the input switches and including means for simulating the play of a hand of Gin Rummy in opposition to the play of the operator, and means for causing the display to present a simulated game, including means for using the indicia to display the operator's hand and the hand being played in opposition to the play of the operator.

4,314,337

METHOD OF AND APPARATUS FOR GENERATING IMPROVED RECONSTRUCTION IMAGES IN COMPUTERIZED TOMOGRAPHY EQUIPMENT

Günter Kowalski, Rellingen, Fed. Rep. of Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 6, 1979, Ser. No. 27,552

Claims priority, application Fed. Rep. of Germany, Apr. 15, 1978, 2816462

Int. Cl.³ G01N 23/00

U.S. Cl. 364—414

4 Claims

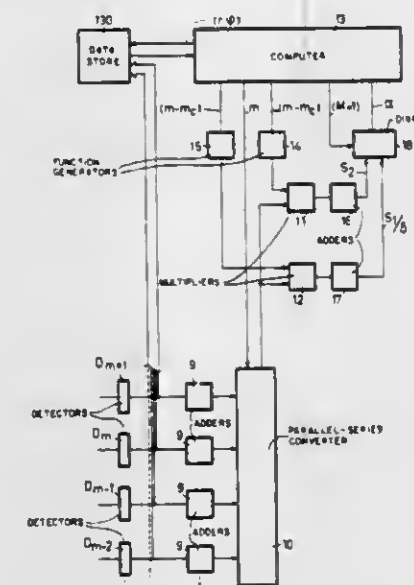
1. A method for reconstructing an image of a radiation absorption distribution in a plane of a body by means of computerized tomography comprising, in combination, the steps of:

- irradiating a plane of the body, from different directions in the plane, with penetrating radiation by rotating a radiation source which emits a fan-shaped beam of the radiation about a centre of rotation;

utilizing an array of radiation detectors to measure the attenuation of the beam of radiation in the body;

determining a first intermediate value (Z_m^1) for each detector (D_m), which first intermediate value is proportional to an intermediate sum (ϕ_m) obtained by summation of the measuring data ($Q(r_m, \phi_n)$) measured with the detector (D_m) in the various directions (ϕ_n) and which intermediate sum further is proportional to goniometric functions k_m and l_m , whose arguments are proportional to the difference between a variable detector number (m), which is representative of the position of the detector (D_m) in the array and a fixed preselected detector number (m_c) and to an angle (δ) enclosed by the centres of two adjacent detectors in the array at the radiation source;

adding the first intermediate values from all of the detectors to form a first sum (S_1);



determining a second intermediate value for each detector number (D_m) (Z_m^2), which second value is proportional to the intermediate sum and the function l_m ;

adding all of the second intermediate values to form a second sum (S_2);

dividing the first sum by the second sum to determine a third intermediate value ($r_1(v+1)$);

calculating a correction factor (α), which is proportional to the third intermediate value and inversely proportional to the angle (δ);

determining the position of the centre of rotation from a number of the detector which is indicative of the position of the centre of rotation by adding the correction factor (α) to a predetermined detector number; and

reconstructing an image of the absorption distribution utilizing the methods of convolution and back-projection based on the aforesaid determined position of the centre.

4,314,338

METHOD OF GENERATING SUBSURFACE CHARACTERISTIC MODELS

Jean Suau, Clamart, France, and William Frawley, Ridgefield, Conn., assignors to Schlumberger Limited, New York, N.Y.

Continuation of Ser. No. 178,129, Sep. 7, 1971, abandoned. This application Mar. 12, 1979, Ser. No. 19,917

Int. Cl.³ G06F 15/20

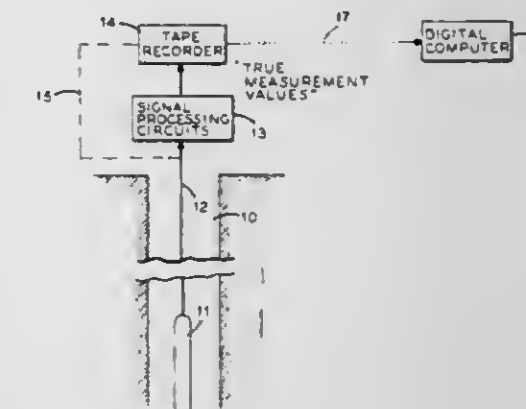
U.S. Cl. 364—422

46 Claims

1. A well logging method of producing a representation of the vertical arrangement of subsurface earth formation beds with respect to a subsurface characteristic, which representation is substantially consistent with measurements of the characteristic taken in a well in the formation with a well logging device, comprising:

- (a) deriving a set of initial well logging measurements from the measurements taken in the well with the well logging device over a given depth interval;

- (b) selecting a trial variation of the subsurface characteristic with depth in the well;
- (c) generating, by a computer, a set of new well logging measurements by applying the approximate response characteristic of the logging device to the trial variation of the subsurface characteristic;
- (d) comparing, by a computer, the new well logging measurements to the initial well logging measurements and



generating, by a computer, an error function in accordance with said comparison, said error function reflecting the comparison taken over a substantial portion of said given depth interval; and

(e) modifying, by a computer, the trial variation in a manner which tends to minimize said error function to produce a visual or a stored record of said representation of the vertical arrangement of subsurface beds.

4,314,339

METHOD OF GENERATING SUBSURFACE CHARACTERISTICS MODELS

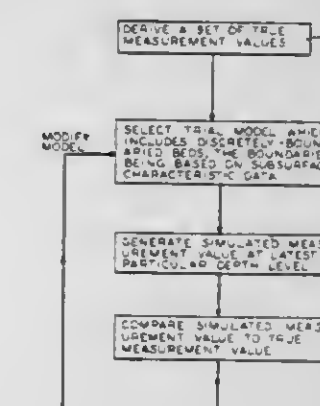
William E. Kenyon, Houston, Tex., assignor to Schlumberger Limited, New York, N.Y.

Continuation of Ser. No. 177,941, Sep. 7, 1971, abandoned. This application Mar. 12, 1979, Ser. No. 19,925

Int. Cl.³ G06F 15/20; E21B 47/00

U.S. Cl. 364—422

39 Claims



1. A well logging method of producing a representation mapping the relative arrangement of subsurface earth formation beds with respect to a subsurface characteristic measured with a well logging device, comprising:

- (a) producing initial well logging measurements for particular depths in the formation derived from measurements taken in a well in the formation with the well logging device over a given depth interval;
- (b) producing a trial variation of the subsurface characteristic, said trial variation varying in discrete steps corresponding to discretely-boundaried subsurface earth formation beds, said boundaries being based on measurements of the subsurface characteristic;
- (c) generating, by a computer, a new well logging measurement for a particular depth level for which there is an initial well logging measurement, by applying the approxi-

mate response characteristic of the logging device to the trial variation of the subsurface characteristic;
(d) comparing, by a computer, the new well logging measurement at the particular depth level to the initial measurement value at that depth level; and
(e) modifying, by a computer, the trial variation of the subsurface characteristic in accordance with the comparison to thereby produce a visual or a stored representation mapping the relative arrangement of discretely bounded subsurface earth formation beds.

4,314,340

CONTROL OF DRIVE TRAIN NOISES DURING A SHIFT OPERATION OF AN AUTOMATIC, VARIABLE SPEED TRANSMISSION

Nobuaki Miki; Mutsumi Kawamoto, both of Nagoya; Hiroyuki Amano, Chiryu; Tsuneo Hida, Toyokawa, and Tsuyosbi Yoshida, Toyota, all of Japan, assignors to Aisin-Warner Kabushiki Kaisha, Aichi, Japan

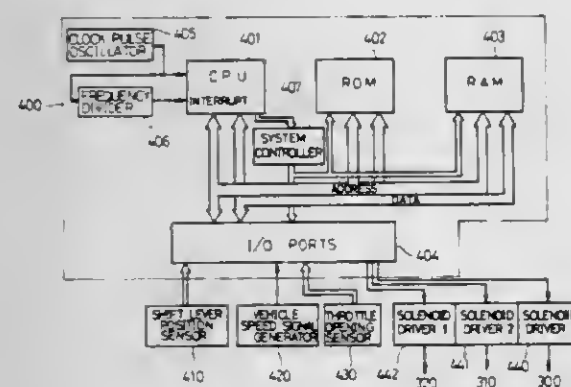
Filed Jan. 28, 1980, Ser. No. 116,133

Claims priority, application Japan, Feb. 14, 1979, 54-16481

Int. Cl.³ B60K 41/08, 41/22; G06F 15/20

U.S. Cl. 364-424.1

4 Claims



1. A system for controlling an automatic variable speed transmission including a hydraulic circuit having a plurality of oil pressure control valves and flow path switching means for selectively engaging or disengaging clutches and brakes of the transmission, and a plurality of solenoid valves associated with a shift operation, said system comprising electronic control means responsive to shift lever position, vehicle speed and throttle opening, and having gear ratio change reference data for providing control signals to said solenoid valves to thereby control the operation of the transmission wherein;
said electronic control means is responsive to a reduction of the throttle opening below a predetermined value to provide control signals to said solenoid valves for preventing up shift transition of the transmission within a predetermined time.

4,314,341

AIRCRAFT AUTOMATIC PILOT WITH AUTOMATIC EMERGENCY DESCENT CONTROL APPARATUS

Gary G. Kivela, Phoenix, Ariz., assignor to Sperry Corporation, New York, N.Y.

Filed Jan. 24, 1980, Ser. No. 114,785

Int. Cl.³ G05D 1/08

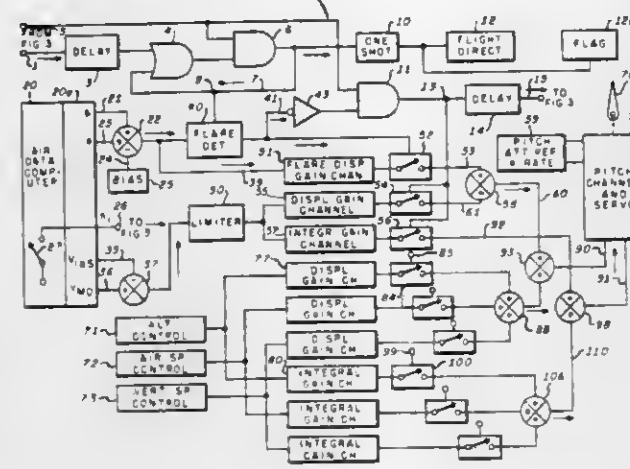
U.S. Cl. 364-433

8 Claims

1. In an automatic flight control system for aircraft having a signal-responsive pitch control channel for controlling the aircraft pitch attitude, an automatic emergency descent control apparatus for automatically controlling the descent of the aircraft to a predetermined safe low altitude upon cabin decompression at a very high altitude, said emergency descent apparatus comprising:

first switch means responsive to the altitude of the aircraft,
second switch means responsive to the air pressure within the aircraft cabin,
means responsive to said first and second switch means for

providing an initiation signal for said apparatus when said aircraft is above a predetermined altitude and when said cabin pressure decreases below its normal pressure,
airspeed responsive means for providing a control signal corresponding to a maximum operating airspeed for said aircraft, and



means responsive to said initiating signal for supplying said airspeed control signal to said pitch control channel for controlling the craft pitch attitude to achieve said maximum operating airspeed.

4,314,342

UNSAFE MACHINES WITHOUT SAFE POSITIONS

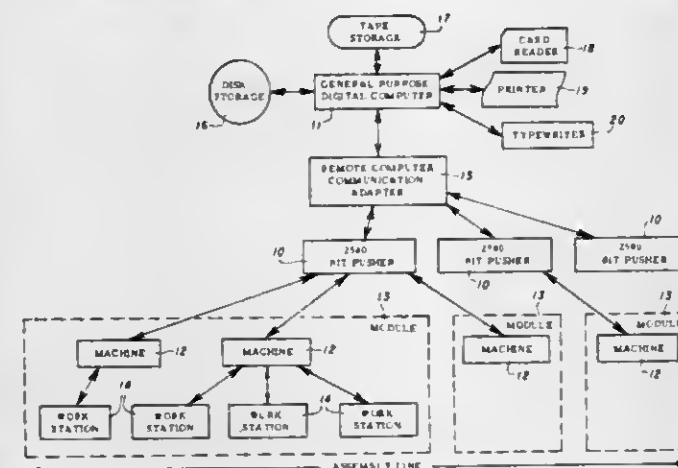
Ridge W. McNeir, Garland, and Claude D. Head, III, Dallas, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Apr. 16, 1971, Ser. No. 134,388

Int. Cl.³ G06F 15/46

U.S. Cl. 364-468

7 Claims



1. An assembly line, said assembly line having a plurality of work stations for processing workpieces including at least one unsafe work station:

- means for storing the number of safe work stations which are downstream from said unsafe work station;
- a first counter, means for operating said first counter to determine the total number of safe downstream work stations which are not presently in operation;
- subtraction means responsive to said safe storage means and said counter to obtain the difference between the number of safe downstream work stations which are not presently in operation, and the total number of safe downstream work stations;
- a second counter, means for operating said second counter to determine the number of workpieces actually present in all work stations downstream from said unsafe machine, and
- comparison means responsive to said subtraction means and said second counter means for allowing a workpiece to enter said unsafe work station only when said number of safe work stations exceeds said number of workpieces.

4,314,343

METHOD AND APPARATUS FOR DETECTING AND INTEGRATING CHROMATOGRAPHIC PEAKS

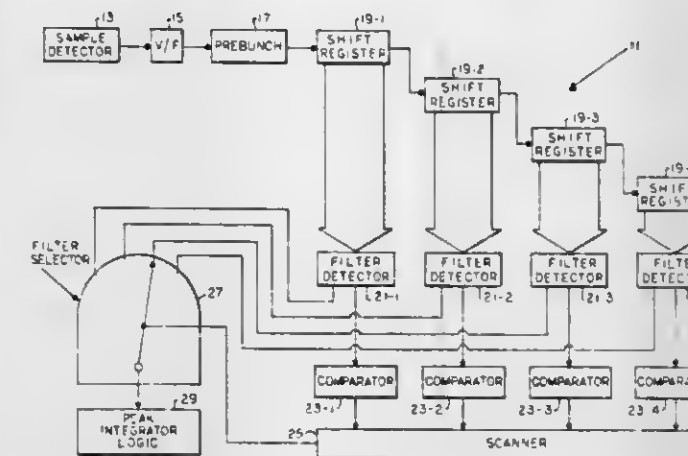
Barrett L. Tomlinson, Santa Clara, Calif., assignor to Spectra-Physics, Inc., San Jose, Calif.

Filed Jan. 25, 1980, Ser. No. 115,335

Int. Cl.³ G06F 15/20

U.S. Cl. 364-498

6 Claims



1. In a method of integrating peaks in a chromatographic analysis of the kind in which time varying signals are fed to a filter detector which detects weighted average slope or curvature over a time period in order to detect the presence of the peak to be integrated, the improvement comprising:
using a multiplicity of filter detectors having different averaging time periods for detecting the presence of a peak, scanning the output of the filter detectors to find a detecting filter detector whose output detects the presence of a peak,
then selecting as the integrating filter detector a filter detector whose averaging period is closely matched to the shape of the detected peak as detected by the detecting filter detector, and
integrating the peak with the selected filter detector.

4,314,344

METHOD AND APPARATUS FOR GENERATING SELECTED GAS CONCENTRATIONS

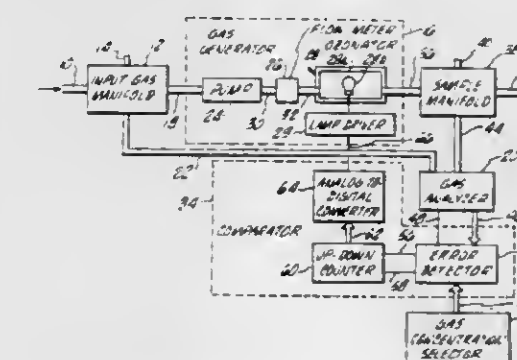
Robert K. Johns, West Covina; Donald W. Deist, Glendale, and Oweo M. Houston, Moor Park, all of Calif., assignors to Dasibi Environmental Corporation, Glendale, Calif.

Filed Jan. 31, 1980, Ser. No. 117,258

Int. Cl.³ G06F 15/46; C01B 13/12; G05D 25/02

U.S. Cl. 364-500

15 Claims



1. A method for generating a calibration gas flow including a concentration of a selected gas in a carrier gas comprising the steps of
generating a first signal,
providing a concentration of the selected gas within the carrier gas in response to the first signal,
determining the concentration of the selected gas and generating a second signal proportional thereto,

generating a third signal proportional to a predetermined concentration of the selected gas,
comparing the second and third signals to determine the difference therebetween, and
adjusting the first signal to decrease the difference between the second and third signals.

4,314,345

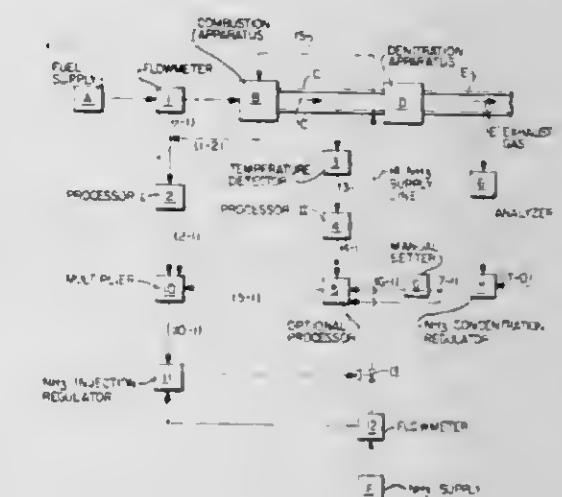
CONTROLLING THE INJECTION OF AMMONIA IN A DRY TYPE EXHAUST GAS DENITRATION PROCESS

Yoshihiro Shiraishi, and Naohiko Ukawa, both of Hiroshima, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaishi, Tokyo, Japan

Continuation-in-part of Ser. No. 2,805, Jan. 11, 1979, abandoned. This application Jul. 28, 1980, Ser. No. 172,853
Claims priority, application Japan, Jan. 23, 1978, 53-5835
Int. Cl.³ G05D 11/02; G01D 53/34

U.S. Cl. 364-500

4 Claims



3. A system for controlling injection of ammonia in a dry type of exhaust gas denitration process, in which ammonia is injected into and mixed with a combustion exhaust gas containing nitrogen oxides to decompose and remove said nitrogen oxides; comprising:

first means for deriving and storing, on the basis of a predetermined relationship between a produced nitrogen oxides concentration and a numerical value representing the amount of combustion, the amount of nitrogen oxides as a function of the numerical value representing the amount of combustion;
second means for deriving and storing, on the basis of a predetermined relationship between the combustion exhaust gas temperature and the denitration performance, the ratio of ammonia to nitrogen oxides as a function of the combustion exhaust gas temperature;
means for deriving the optimum amount of injection of ammonia by multiplying the amount of nitrogen oxides obtained from the first means by the ratio of ammonia to nitrogen oxides obtained by the second means, and means for controlling the amounts of injected ammonia to equal the derived optimum amount.

4,314,346

AUXILIARY APPARATUS FOR A PARTICLE ANALYSER

Markus Feiler, Regensdorf; Raymond Frey, and Ulrich Marti, both of Zurich, all of Switzerland, assignors to Contraves AG, Zurich, Switzerland

Filed Mar. 10, 1980, Ser. No. 128,643

Claims priority, application Switzerland, Mar. 27, 1979, 2824/79

Int. Cl.³ G01N 15/02

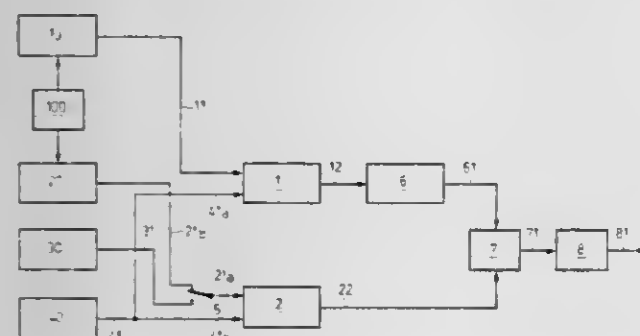
U.S. Cl. 364-555

1 Claim

1. In an auxiliary apparatus for a particle analyser for measuring the particle count within particle size intervals limited by displaceable thresholds, especially for a particle analyser for

the analysis of blood particles, wherein the particle analyser is equipped with feeler means generating an electrical signal corresponding to the size of the sensed particles, the improvement of which comprises:

- feeler means for generating an electrical signal corresponding to the size of the sensed particles;
- a first comparator;
- an infeed line for connecting said feeler means with said first comparator for the infeed of the electrical signals generated by the feeler means to said first comparator;
- means for generating a first comparison voltage;
- an infeed line for said first comparator for infeeding the first comparison voltage from said means generating said first comparison voltage to said first comparator;
- a second comparator;
- an infeed line leading from said feeler means to said second comparator for infeeding the electrical signals generated by said feeler means to said second comparator;
- means for generating a second comparison voltage and having an output line means;
- an infeed line leading to said second comparator for infeeding the second comparison voltage from said means generating said second comparison voltage to said second comparator;



- voltage shifting means for simultaneously altering the first comparison voltage and the second comparison voltage by the same amount;
- means for generating a third comparison voltage and having an output line means;
- infeed line means provided for said second comparator;
- reversing switch means for selectively connecting either the output line means of said means for generating a second comparison voltage or the output line means of said means for generating a third comparison voltage to the infeed line means provided for said second comparator;
- said first comparator having an output side;
- time-delay means containing an infeed line connected with the output side of said first comparator for delaying the output signal appearing at said infeed line leading from said first comparator to said time-delay means;
- said time-delay means having an output side;
- antivalence discriminator means connected by an infeed line with the output side of said time-delay means;
- a further infeed line leading from the second comparator to said antivalence discriminator means;
- said antivalence discriminator means having an output side; and
- pulse counter means connected by an infeed line with the output side of said antivalence discriminator means.

4,314,347

SEISMIC SIGNAL PROCESSING MACHINE AND METHOD FOR NOISE REMOVAL

John E. Stokely, Houston, Tex., assignor to Texaco Inc., White Plains, N.Y.

Continuation of Ser. No. 325,489, Jan. 22, 1973, abandoned. This application Jul. 5, 1977, Ser. No. 813,149

Int. Cl.³ G01V 1/28

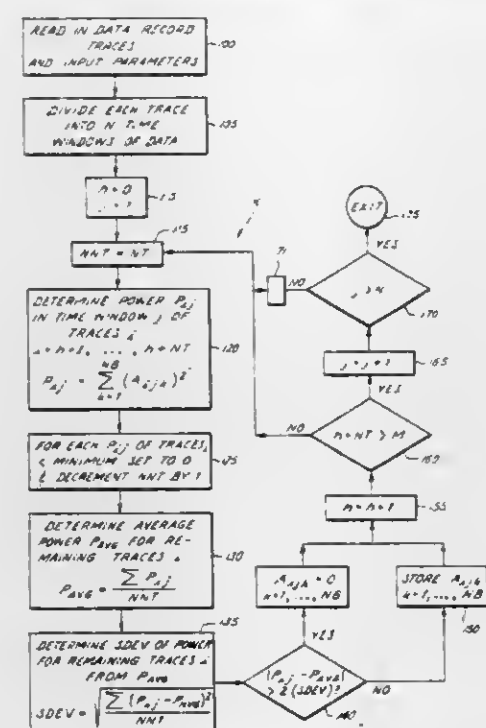
U.S. Cl. 364-574

5 Claims

1. A method of processing seismic signals, from seismic

surveys to reduce the effect of noise bursts on such signals, comprising the steps of:

- (a) recording a plurality of seismic signals from a seismic survey;
- (b) determining the power level of a plurality of the recorded seismic signals during a common time interval;



- (c) determining the average power of the power level so determined;
- (d) removing for the common time interval those seismic signals whose power level deviates from said average power by a predetermined amount to provide a corrected seismic signal in said time interval; and
- (e) recording said corrected seismic signal.

4,314,348

SIGNAL PROCESSING WITH RANDOM ADDRESS DATA ARRAY AND CHARGE INJECTION OUTPUT

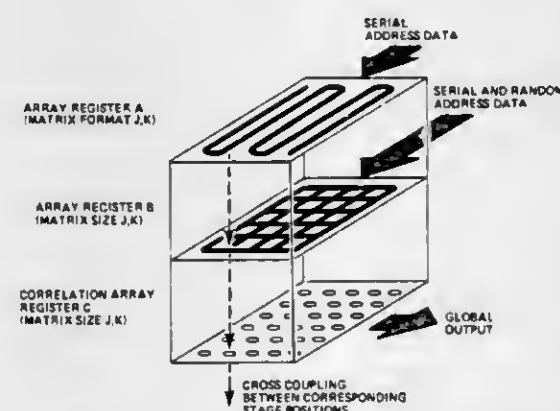
William N. Carr, Dallas, Tex., assignor to Recognition Equipment Incorporated, Irving, Tex.

Filed Jun. 5, 1979, Ser. No. 45,797

Int. Cl.³ G06J 1/00; G06F 15/336, 15/347

U.S. Cl. 364-604

12 Claims



8. A system for processing digital signals and producing a weighted output therefrom comprising; first means for shifting a serial digital signal therethrough, a second means for storing a multibit digital signal and third means for receiving the serial digital signal and the multibit digital signal and forming a product of the two signals and outputting the product in analog form.

4,314,349

PROCESSING ELEMENT FOR PARALLEL ARRAY PROCESSORS

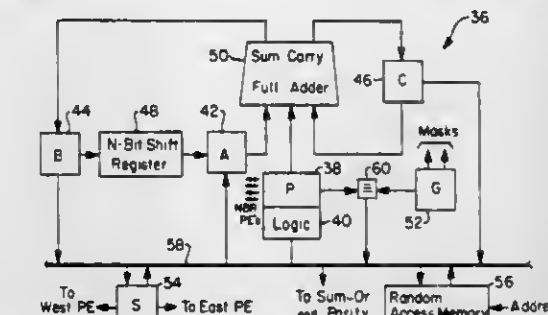
Kenoeth E. Batchter, Stow, Ohio, assignor to Goodyear Aerospace Corporation, Akron, Ohio

Filed Dec. 31, 1979, Ser. No. 108,883

Int. Cl.³ G06F 15/16

U.S. Cl. 364-716

15 Claims



1. A matrix of a plurality of processing elements interconnected with each other and wherein each processing element comprises:

- a memory;
- an adder;
- a selectably variable length shift register operatively connected to said adder, said shift register comprising a plurality of individual shift registers having gates interposed therebetween, said gates selectively interconnecting said individual shift registers; and
- communication means connected to neighboring processing elements within said matrix and further connected to said adder and memory for transferring data between said memory, adder, and neighboring processing elements.

4,314,350

SELF-CHECKING ARITHMETIC UNIT

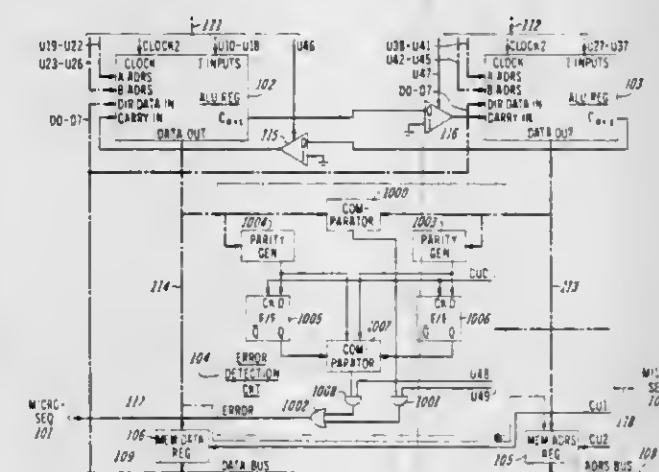
Wing N. Toy, Glen Ellyn, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 31, 1979, Ser. No. 108,363

Int. Cl.³ G06F 11/14

U.S. Cl. 364-740

7 Claims



1. A data processing arrangement comprising: logic means (102, 103) for storing first and third identical operands each having a least significant word and a most significant word and second and fourth identical operands each having a least significant word and a most significant word and for performing arithmetic operations on said operands, and error word generating means (104) connected to said logic means, characterized in that said logic means is responsive to a first control signal to perform an arithmetic operation on said least significant words of said first and second operands and to perform said arithmetic operation on said most significant words of said third and fourth operands and to generate corresponding first and second output words, and responsive to

a second control signal for performing said arithmetic operation on said most significant words of said first and second operands and for performing said arithmetic operation on said least significant words of said third and fourth operands and for generating corresponding third and fourth output words;

said error word generating means being responsive to said first and said second output words to generate and store corresponding first and second error words and responsive to said third and said fourth output words to generate corresponding third and fourth error words; and said arrangement further comprising compare means (1007) for comparing said third error word with said stored second error word and for comparing said fourth error word with said stored first error word and for generating an error signal if a mismatch occurs.

4,314,351

CURVE-GENERATING DEVICE FOR VISUAL DISPLAY OF SYMBOLS ON A CATHODE-RAY SCREEN

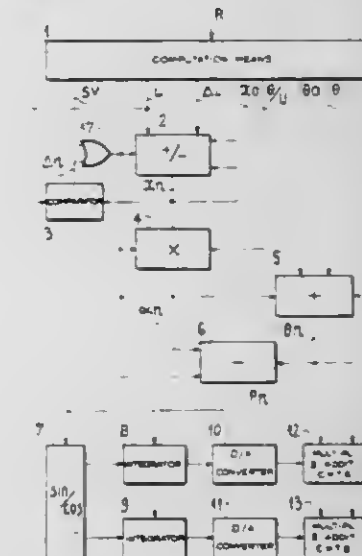
Michel Postel, and Jean-Pierre Bouron, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Jan. 28, 1980, Ser. No. 115,885

Claims priority, application France, Jan. 30, 1979, 79 02281 Int. Cl.³ G06F 3/153

U.S. Cl. 364-720

10 Claims



1. A curve-generating device for visual display of symbols on a cathode-ray screen and especially circular symbols, comprising:

digital computation means for establishing a parameter ΔL defined by the relationship,

$$R = \frac{U + \Delta L}{\theta} \text{ and } 0 \leq \Delta L < U$$

where R is the radius of said circular symbol to be displayed, U is a predetermined value of an elementary vector, and θ is a predetermined value of angle at the center of a regular polygon of side $L = U + \Delta L$ circumscribed about the circle of radius R; and

operational processing logic circuits including:

- (a) first adder means having a first input means for receiving the data U, ΔL and X_0 wherein X_0 is a predetermined value between 0 and L; output means for outputting a signal X_n ; comparator means for comparing said outputted X_n signal with data U and producing a data signal Δ_n signal whereby said first adder output X_n signal satisfies the equation:

$$X_n = X_{n-1} + \Delta L \cdot \Delta_{n-1} - U \cdot \Delta_{n-1}$$

(b) multiplier means for receiving the data X_n , θ , U and Δ_n outputting a signal α_n satisfying the equation $\alpha_n = X_{n-1}(\theta)/(U) \cdot \Delta_{n-1}$

(c) second adder means for receiving the data θ , θ_0 and Δ_{n-1} and outputting a signal θ_n which satisfies the equation

$$\theta_n = \theta_{n-1} + \theta \cdot \Delta_{n-1}$$

(d) third adder means for receiving the data θ_n and α_n and outputting a signal P_n which is the polar angle value of the outline formed by successive elementary vectors terminating in said polygon of side L and which satisfies the equation

$$P_n = \theta_n - \alpha_n$$

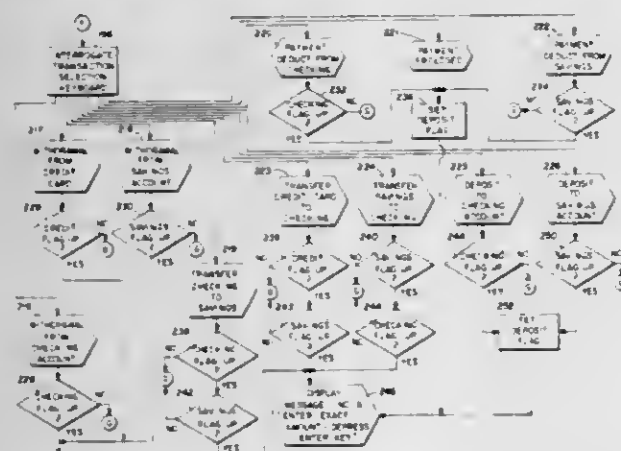
4,314,352 BANKING MACHINE

Harold D. Fought, Dallas, Tex., assignor to Docutel Corporation, Dallas, Tex.

Filed Apr. 12, 1972, Ser. No. 243,339
Int. Cl.³ G06F 15/30

U.S. Cl. 364-900

38 Claims



1. A method of machine banking an operator selected banking transaction from a group consisting of: a withdrawal transaction, a deposit transaction, a transfer transaction and a payment transaction by banking apparatus responsive to coded data on a document, the apparatus including means for reading the coded data, means for entering a selected banking transaction and means for entering a transaction amount, comprising the steps of:

generating a document verification signal from coded data read by means for reading,

in response to a generated document verification signal and in accordance with the operator selected banking transaction generating one of the following transaction signals: a withdrawal transaction signal, a deposit transaction signal, a transfer transaction signal or a payment transaction signal,

in response to a withdrawal transaction signal and a transaction amount from the means for entering, delivering currency in value equal to the transaction amount to the operator at the banking apparatus,

in response to a deposit transaction signal and a transaction amount from the means for entering, activating a depository to receive an envelope containing a tendered deposit,

in response to a transfer transaction signal and a transaction amount from the means for entering, activating means for recording the transaction amount transferred from one account to a second account, and

in response to a payment transaction signal and a transaction amount from the means for entering, activating the depository to receive an envelope containing a tendered pay-

ment or activate means for recording a payment from an account.

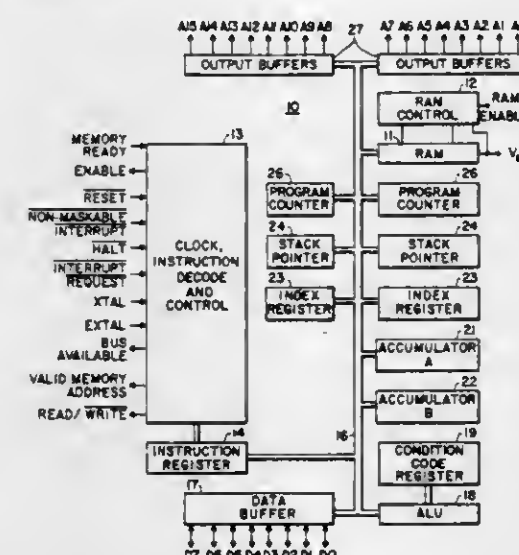
4,314,353
ON CHIP RAM INTERCONNECT TO MPU BUS
Thomas G. Gunter; Fuad H. Musa; Wm. B. Wilder, Jr., all of Austin, and Michael F. Wiles, Round Rock, all of Tex., assignors to Motorola Inc., Schaumburg, Ill.

Filed Mar. 9, 1978, Ser. No. 884,947

Int. Cl.³ G06F 13/06

U.S. Cl. 364-900

7 Claims



1. An integrated circuit microprocessor having an on-chip RAM and including circuitry to interconnect the RAM to an internal data bus of the microprocessor and to an external data bus which interfaces to the integrated circuit microprocessor, the circuitry comprising: a sense amplifier coupled to the on-chip RAM and having an output; at least one buffer coupled to the output of the sense amplifier for buffering the output of the sense amplifier thereby providing a buffered output; a bilateral switch coupled between the buffered output of the at least one buffer and the internal data bus, the bilateral switch controllably providing an interconnect between the RAM and the internal data bus, the bilateral switch including a transistor coupling the buffered output of the at least one buffer to the microprocessor internal data bus; a logic gate having an output and at least a first and a second input, the first input of the logic gate being coupled to the at least one buffer, the second input of the logic gate being coupled to a switching signal and the output of the logic gate being coupled to the external data bus so that the logic gate can logically combine signals on the first and second inputs of the logic gate; and a second buffer having an input and an output, the second buffer controllably coupled between the external data bus and the internal microprocessor bus, the second buffer having an input coupled to the external data bus and having an output coupled to the internal microprocessor bus thereby providing buffering between the external data bus and the internal microprocessor bus.

4,314,354
MEMORY PROGRAMMABLE CONTROL
Heinz-Friedrich Felder, Erlangen, and Manfred Schlang, Heildsbach, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Sep. 19, 1979, Ser. No. 77,152

Claims priority, application Fed. Rep. of Germany, Sep. 28, 1978, 2842372

Int. Cl.³ G06F 9/06

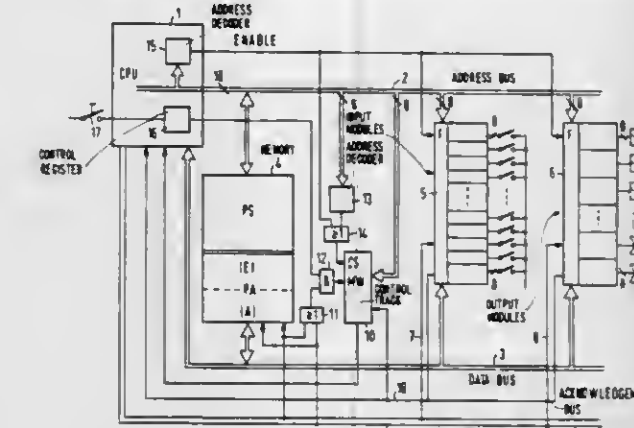
U.S. Cl. 364-900

2 Claims

1. In a memory programmable control with a central processing unit which is connected to a program memory for storing a control program, as well as with input modules having a number of inputs for the signal states from the process,

and with output modules having a number of outputs for the output states for the process, the improvement comprising:

- providing a memory for storing a process image with an input area and an output area;
- providing a control track means;
- at the beginning of each processing cycle of the control program, transferring the signal states of the inputs of the input modules block by block into the input area of the process image;
- processing the instructions of the control program with



the central processing unit using the signal states stored in the input area of the process image memory and storing the determined output states in the output area of the process image;

- after each processing cycle, transferring the output states block by block from the process image memory into the output modules; and
- addressing said control track means in parallel with the processing image memory and marking therein, by means of control bits, which input modules and output modules are and are not plugged in.

4,314,355 APPARATUS AND METHOD FOR RECEIVING DIGITAL DATA AT A FIRST RATE AND OUTPUTTING THE DATA AT A DIFFERENT RATE

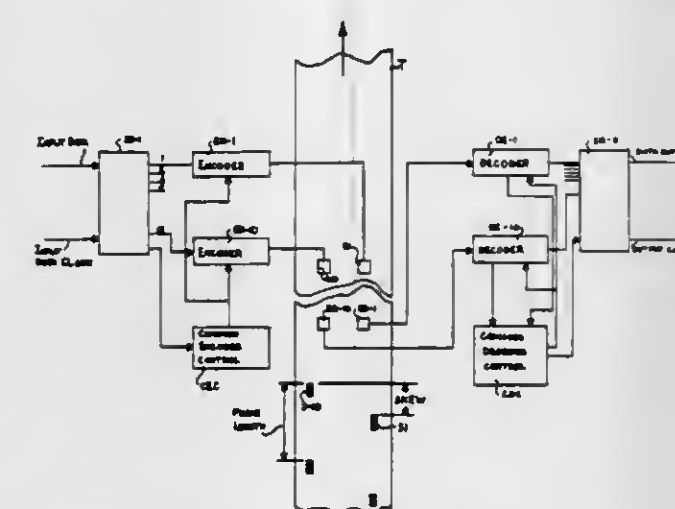
Robert O. Leighou, Lakewood, and Leighton A. Meeks, Littleton, both of Colo., assignors to Martin Marietta Corporation, Bethesda, Md.

Division of Ser. No. 798,187, May 18, 1977, Pat. No. 4,173,014.
This application Oct. 22, 1979, Ser. No. 87,424

Int. Cl.³ G11B 5/43

U.S. Cl. 364-900

4 Claims



1. Apparatus for arranging digital data provided in a plurality of individual information channels, said digital data provided in each said channel including a continuous serial stream of digital data bits having synchronizing signals periodically included therein and wherein all of said channels include a like number of data bits between successive synchronizing signals, and further wherein said data in each of said individual infor-

mation channels may be skewed in time with respect to corresponding portions of said data in the other said information channels, said apparatus for arranging including:

a plurality of processing means, each associated with a corresponding said channel and each including storage means and means for sensing the occurrence of synchronizing signals in the corresponding channel and for storing said data bits in selected positions in said storage means in accordance with the position of said data bits in said serial stream with respect to said synchronizing signals;

activatable read-out means for reading out data from selected positions in each of said storage means associated with each of said processing means in a selected sequence whereby said data is provided in a preselected order independently of said skew occurring between said channels; and

read-out control means for activating said read-out means after a predetermined delay period has elapsed after the said sensing the occurrence of a said synchronizing signal in each of said channels, said delay period being dependent upon the maximum anticipated skew.

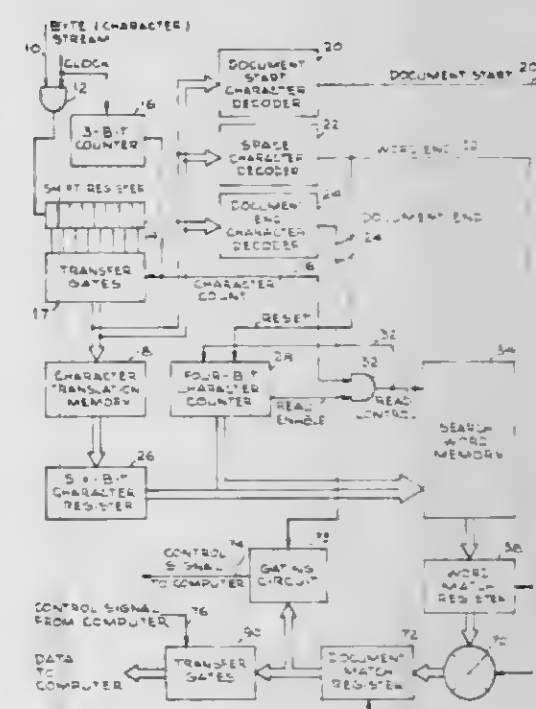
4,314,356
HIGH-SPEED TERM SEARCHER
Alfred D. Scarbrough, Northridge, Calif., assignor to Bunker Ramo Corporation, Oak Brook, Ill.

Filed Oct. 24, 1979, Ser. No. 88,048

Int. Cl.³ G06F 13/00

U.S. Cl. 364-900

12 Claims



1. In combination with a data source supplying a stream of binary signals defining both the identities of alphanumeric characters occurring in an ordered sequence and the position of each such character within a character group, an apparatus for detecting the occurrence of a particularly ordered group of R characters, said apparatus comprising:

search memory means comprised of a first group of R sets of S bit storage devices wherein R represents the number of entries in a character position field and S represents the number of entries in a character identification field, each of said bit storage devices defining a first or second state; first means responsive to the position within a character group of each character defined by said binary signals for addressing the corresponding one of said R sets;

second means responsive to the identity of each character defined by said binary signals for addressing the corresponding one of said S bit storage devices within said addressed one of said R sets; and

third means responsive to said first and second means ad-

dressings a bit storage device defining a first state for generating a mismatch signal.

4,314,357

FORM COMBINING AND RECORDING DEVICE

Tsutomu Kimura, and Hitoshi Miyoshi, both of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

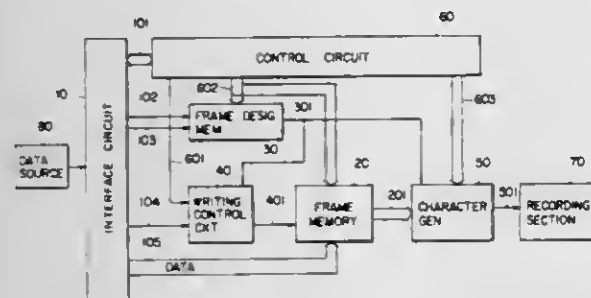
Filed Dec. 19, 1979, Ser. No. 105,332

Claims priority, application Japan, Dec. 27, 1978, 53-161920

Int. Cl.³ G06F 3/14

U.S. Cl. 364—900

5 Claims



1. A form combining and recording device comprising: a frame memory for storing print data and form data; a form designation memory for storing data for determining whether contents stored in said frame memory are form data or print data; a writing control circuit for combining said form data and print data by inhibiting writing of said print data into positions in said frame memory indicated by contents of said form designation memory as being form data and by writing said form data into positions in said frame memory indicated by said contents of said form designation memory as not being form data; a character generating circuit for generating signals representing character patterns in response to data read out from said frame memory and a recording section for recording characters and pattern information in response to an output of said character generating circuit.

4,314,358

SEGMENTED, CONDUCTOR ACCESS, MAGNETIC BUBBLE MEMORY

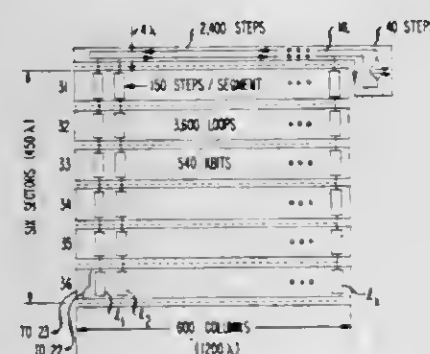
Andrew H. Bobeck, Chatham, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 20, 1979, Ser. No. 105,617

Int. Cl.³ G11C 19/08

U.S. Cl. 365—19

6 Claims



1. A magnetic bubble memory comprising a host layer of material in which magnetic bubbles can be moved synchronously about a plurality of minor loops, each of said minor loops comprising a set of segments in which bubbles can be moved selectively, said memory being characterized by means, coupled separately to corresponding segments of said minor loops and being separately energizable for moving bubbles selectively in the corresponding segments of said sets.

4,314,359
SEMICONDUCTOR MEMORY DEVICE
Yukio Kato, Kodaira; Atsuo Hotta, Higashiyamato, and Teruo Isobe, Hinode, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

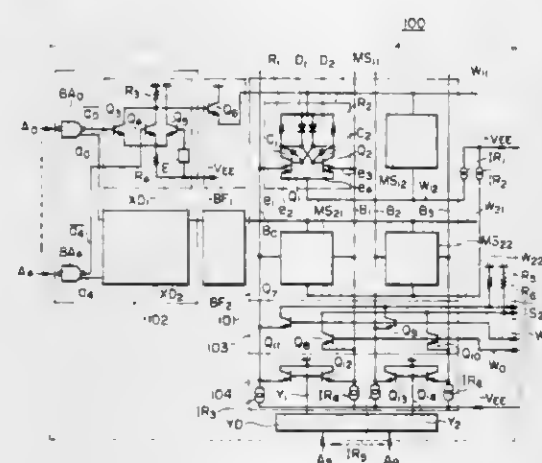
Filed Jun. 6, 1980, Ser. No. 157,156

Claims priority, application Japan, Jun. 25, 1979, 54-79203

Int. Cl.³ G11C 11/40

U.S. Cl. 365—179

3 Claims



1. In a semiconductor memory device comprising: a matrix of memory cells arranged in rows and columns; each of said memory cells including a pair of multi-emitter transistors; each of said pair of multi-emitter transistors having two emitters, a collector and a base; the base and collector of one of said pair of multi-emitter transistors cross-coupled to those of the other; one each of the emitters of said pair of multi-emitter transistors connected commonly to a current source; the other each of the emitters of said pair of multi-emitter transistors connected to a pair of column lines, respectively; the collectors of said pair of multi-emitter transistors connected to row lines via load means, respectively; and a peripheral circuit consisting of plural transistors each having an emitter, collector and base, and connected to said row and column lines; the improvement wherein capacitance means are added to said pair of multi-emitter transistors of each of said memory cells, respectively in order to increase the collector-to-base capacitance.

4,314,360
SEMICONDUCTOR MEMORY DEVICE
Mitsuo Higuchi, 5-13, Yutenji 2-chome, Meguro-ku, Tokyo 153, and Kiyoshi Miyasaka, 577-45, Iijima-cho, Totsuka-ku, Yokohama-shi, Kanagawa 244, both of Japan

Filed May 19, 1980, Ser. No. 150,800

Claims priority, application Japan, May 26, 1979, 54-65349

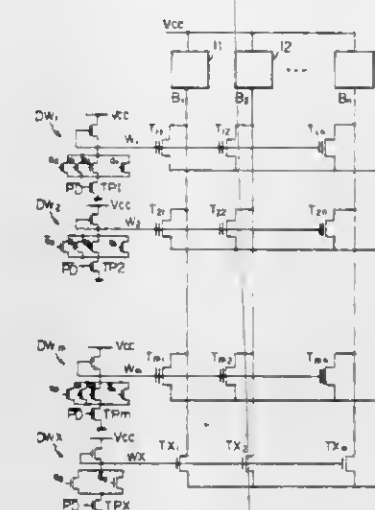
Int. Cl.³ G11C 11/40

U.S. Cl. 365—203

4 Claims

1. A semiconductor memory device comprising a plurality of word lines, a plurality of bit lines and a plurality of cell transistors, each of which is connected between one of said bit lines and a point of the reference potential, characterized in that additional transistors are connected between said bit lines

and said point of reference potential, whereby suppression of the lowering of the potential of a bit line is effected by said



additional transistors when said semiconductor memory device changes from the non-operative state into the operative state.

4,314,361

DATA BUFFER MEMORY OF THE FIRST-IN, FIRST-OUT TYPE COMPRISING A FIXED INPUT AND A VARIABLE OUTPUT

Pierre G. Jansen; Jozef L. W. Kessels, and Benny L. A. Wauwans, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 965,214, Nov. 30, 1978, abandoned.

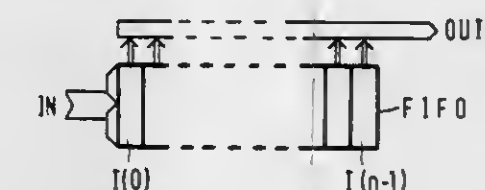
This application Jun. 6, 1980, Ser. No. 157,132

Claims priority, application Netherlands, Dec. 12, 1977, 7713708

Int. Cl.³ G11C 19/00

U.S. Cl. 365—221

9 Claims



1. A data buffer memory of the "first-in, first-out" type, comprising:

a plurality of registers sequentially arranged in sections, each section having a plurality of stages; input means connected to the first of said registers of said buffer through which register data to be written are introduced; an output bus selectively coupled to all of said registers through which bus data are read from said buffer memory, logic means associated with each of said registers to ensure that data written into the buffer memory are advanced register by register from the first of said registers in response to a request to write in data and a spare register being available; each of said logic means in use producing a status signal indicative of whether or not its associated register is full; and said logic means including means for receiving a status signal from an adjacent logic means and for producing from the status signals a control signal to enable the full register from the input register to be read out.

4,314,362
POWER DOWN SEQUENCE FOR ELECTRICALLY PROGRAMMABLE MEMORY
Jeffrey M. Klaas, Rosenberg; Paul A. Reed, and Isam Rimawi, both of Houston, all of Tex., assignors to Texas Instruments, Incorporated, Dallas, Tex.

Filed Feb. 4, 1980, Ser. No. 118,287

Int. Cl.³ G11C 7/00

U.S. Cl. 365—227

18 Claims



1. A memory device comprising an array of rows and columns of memory cells, means for coupling a selected one of said columns to one input of a differential sense amplifier, means coupling said selected one of said columns to reference potential via a selected one of two of said memory cells, each of said two of said memory cells being connected to said one of said columns, means separately connecting each column to a supply voltage via first load devices, a reference node connected to the other input of said differential sense amplifier, means connecting said reference node to said supply via a second load device and a third load device, the second load device having an impedance corresponding to one of said first load devices, and said third load device being of lower impedance than said second load device, means connecting said reference node to reference potential via a dummy memory cell corresponding to memory cells of said array; and means for activating said second load device and not said third memory device during a read mode of operation of said memory device and for activating said third load device during a power-down mode of operation.

4,314,363
MARINE SEISMIC CABLE HANDLER
Ben B. Thigpen, and Joel J. Hebert, both of Houston, Tex., assignors to Western Geophysical Company of America, Houston, Tex.

Filed Jun. 25, 1980, Ser. No. 162,865

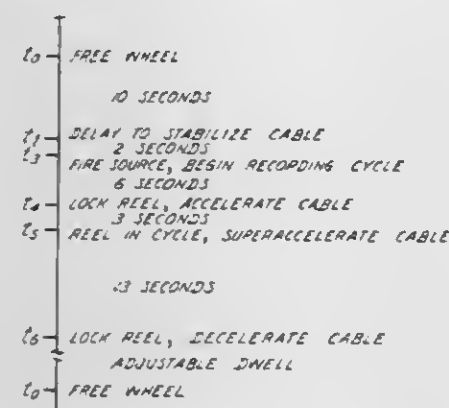
Int. Cl.³ G01V 1/38

U.S. Cl. 367—16

6 Claims

1. An improved dual-purpose cable handler for manipulating a seismic-signal detector streamer cable towed through a body of water by a ship sailing at a desired base velocity, the ship including a sound source for generating seismic impulses and a recorder for processing seismic signals received by the detector streamer cable during a recording cycle, the improvement comprising: means for operating the cable handler in an intermittent towing mode including: a. means for decelerating said detector streamer cable substantially to a standstill;

- b. means for initiating a recording cycle;
 c. means for accelerating said detector streamer cable, at the end of the recording cycle, to match the ship's velocity;
 d. means for establishing a cable reel-in cycle;
 e. means for decelerating said detector streamer cable upon completion of the reel-in cycle;



means for time-sequencing the operations of means a. through e. during a recording episode; and
 means for applying, between successive recording episodes, a vernier compensation for small velocity variations relative to a desired base velocity.

4,314,364

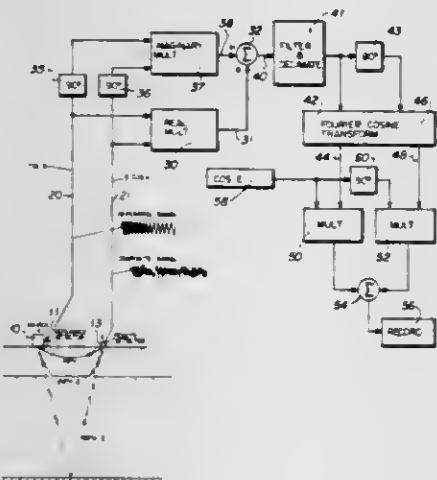
LONG SWEEP VIBROSEIS RECORD PRODUCTION
 Samuel H. Bickel, Garland, Tex., assignor to Atlantic Richfield Company, Los Angeles, Calif.

Filed Jul. 26, 1979, Ser. No. 60,949

Int. Cl.³ G01V 1/28

U.S. Cl. 367-43

13 Claims



1. A method of generating a time domain seismic record representing subsurface interfaces on a real time basis in seismic prospecting where a continuous sweep wave input generator is utilized to impart an acoustic wave train in the earth at a seismic sending station, the combination which comprises:

- (a) applying said train in the earth for a sweep interval T of the order of minutes while varying the frequency thereof monotonically over a predetermined band B;
 (b) generating a reference signal representative of said train at said sending station;
 (c) generating a composite signal representative of said train of waves appearing at a receiving station spaced from said sending station;
 (d) producing a real part product signal from said reference signal and said composite signal;
 (e) filtering out all frequency components of said product signal above the limit $B/T \times t$, where t is the travel time for a reflection from the deepest reflector of interest;
 (f) decimating a predetermined fraction of said filtered signal

- to reduce the frequency bandwidth of said filtered signal; and
 (g) generating a seismic signal by the Fourier transformation of said reduced bandwidth signal for a time domain representation of subsurface interfaces which reflected said train.

4,314,365

ACOUSTIC TRANSMITTER AND METHOD TO PRODUCE ESSENTIALLY LONGITUDINAL, ACOUSTIC WAVES

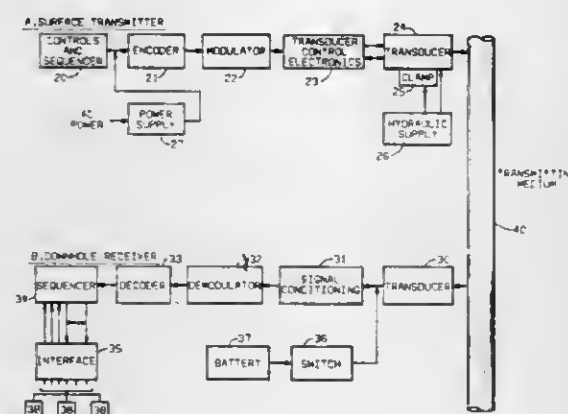
Clifford W. Petersen, Missouri City; John M. Bednar, Houston; Edwin J. Hocker, Jr., Houston, all of Tex.; David H. Gauger, Mesa, and James M. Henderson, Scottsdale, both of Ariz., assignors to Exxon Production Research Company, Houston, Tex. and Motorola, Inc., Phoenix, Ariz.

Filed Jan. 21, 1980, Ser. No. 113,831

Int. Cl.³ G01V 1/40; E21B 43/00

U.S. Cl. 367-82

2 Claims



1. A method for transmitting information along the length of a drill pipe comprising the steps of:

- (a) generating a first group of essentially longitudinal, acoustic waves within said drill pipe at a first frequency from about 290-330 Hertz or about 350-390 Hertz with the oscillating motion of reaction masses symmetrically disposed around said drill pipe, said motion being in a direction substantially parallel to the longitudinal axis of said drill pipe;
 (b) generating a second group of essentially longitudinal, acoustic waves within said drill pipe at a second frequency from about 290-330 Hertz or about 350-390 Hertz with the oscillating motion of said reaction masses, the order of the frequency of said first and second group of acoustic waves representing said information; and
 (c) receiving said acoustic waves at another point along the length of said drill pipe and detecting said information.

4,314,366

METHOD AND APPARATUS FOR SELECTING AND DISPENSING INDIVIDUAL RECORDING DISCS STORED IN COMPARTMENTS IN A JUKE-BOX

Karl Galia, Schlossstrasse 3, Obnigen, Fed. Rep. of Germany

Filed Jan. 21, 1980, Ser. No. 114,077

Int. Cl.³ G11B 17/22

U.S. Cl. 369-35

6 Claims

1. A phonograph disc storage mechanism comprising: storage means for a plurality of phonograph discs; manually operable means for indicating a desired one of said discs;
 a plurality of labels each having a machine readable optical code thereon, each label being in the form of a circular disc having a radius not greater than that of the title label of the phonograph disc and a centered hole, at least one label being affixed to each phonograph disc concentrically with a unique code being provided for each disc;
 first signal generating means operatively connected to said

4,314,368

RECEIVER FOR PULSE CODE MULTIPLEXED SIGNALS

Calvin H. Decoursey, 14310 Rancheros, Reno, Nev. 89511, and

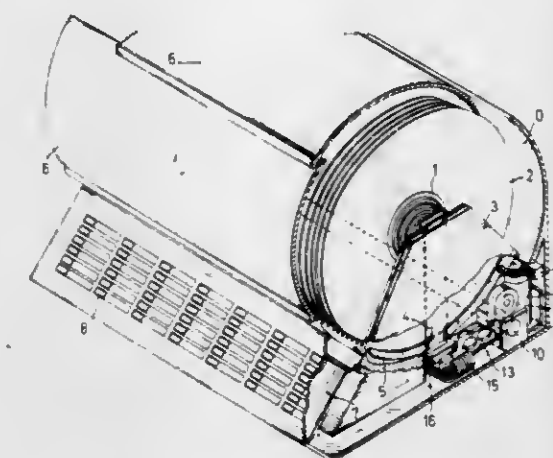
Todd V. Townsend, 3825 Squaw Valley Cir., Reno, Nev. 89509

Filed Oct. 12, 1978, Ser. No. 950,840

Int. Cl.³ H04J 3/06, 3/12

U.S. Cl. 370-108

7 Claims



sively past the rim of each disc, and a light conductor for each storage position, the inlet end of said conductor being closely adjacent said label and the outlet end closely adjacent the path of movement of said reader; and
 means for comparing the signal from said first signal generating means and the signals from said second signal generating means to determine the location of the desired disc.

4,314,367

SWITCHING CIRCUIT FOR DIGITAL PACKET SWITCHING NETWORK

Raymond Bakka, Meudon, and Marc P. G. Dieudonne, Igny,

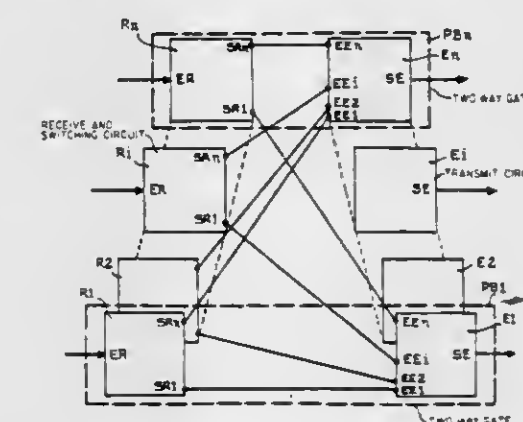
both of France, assignors to Le Materiel Telephonique Thomson-CSF, Colombes, France

Filed Jan. 17, 1980, Ser. No. 113,038

Int. Cl.³ H04Q 11/04; H04J 6/00

U.S. Cl. 370-60

10 Claims



1. A digital data burst switching circuit for "self-routing" data bursts, i.e. data bursts which are capable of traversing the network simply by means of a header or preamble placed at the beginning of the data burst in accordance with pre-defined transmission protocol applicable to the network, comprising an interface to the interior of the network which comprises two-way gates which are connected to internal interfaces of other switching circuits of said network, each of said gates comprising a 1-input and n-output receive circuit and an n-input and 1-output transmit circuit, one input of the transmit circuit being connected to the output of a receive circuit different for each of the n inputs, and the input of each receive circuit of a gate being connected to the output of the transmit circuit of a gate of another switching circuit of said network.

7. A receiver for T-1 type PCM systems, comprising:
 (a) comparison means for comparing, in a received PCM data pulse train, pairs of bits spaced an integral multiple of main frame intervals apart, said comparison means being arranged to provide an indicative output when the comparison indicates that the bits being compared cannot be main-frame bits;
 (b) bit storage means arranged to store a control word having a length equal to an integral multiple of the number of bits in a main frame;
 (c) write means connected to said comparison means and to said bit storage means, said write means being reiteratively operatively connected to successive bits of said control word in synchronism with the comparison of successive pairs of data train bits by said comparison means, and said write means being arranged to record an indication in said control word whenever said comparison means provide said indicative output;
 (d) out-of-frame detection means arranged to operatively initiate a series of iterations of said write means along said control word;
 (e) read means reiteratively operatively connected to successive bits of said control word in synchronism with the comparison of successive pairs of data train bits by said comparison means, said read means being arranged to provide a normally blocked indicative output whenever the control word bit being read is devoid of said indication recorded therein by said write means;
 (f) gating means operatively connected to unblock said indicative output of said read means when there is at least a predetermined probability that only one bit of said control word is devoid of said indication;
 (g) erasing means operatively connected to delete said indications following an iteration during which said indicative output of said read means is unblocked;
 (h) means for extracting signalling bits from said received PCM data pulse train;
 (i) output register means arranged to be serially loaded and to provide continuous parallel outputs;
 (j) a plurality of channel relay means individually operated by said parallel outputs, said channel relay means being able to respond only to changes in said outputs persisting for more than a predetermined time interval;

- (k) buffer register means connected to said extracting means and to said output register means; and
- (l) clocking means connected to said buffer register means and arranged to serially load a group of extracted signalling bits serially into said buffer register over a time period greater than said predetermined interval, and to serially unload said group of extracted signalling bits from said buffer register into said output register means within a time period shorter than said predetermined interval.

4,314,369

DIGITAL CODING PROCESS FOR RECORDING SOUND CHANNELS WITH A TELEVISION SIGNAL AND APPARATUS REALIZING THIS PROCESS

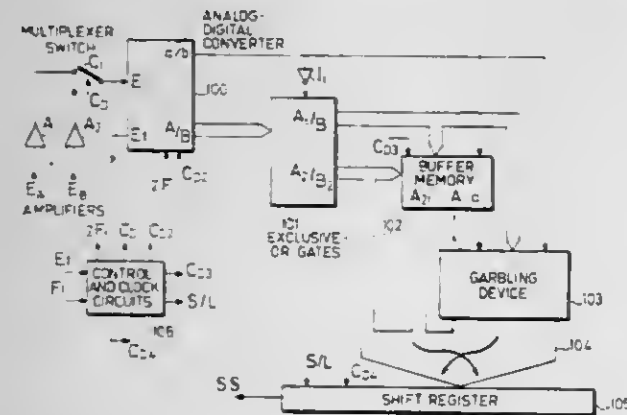
Pierre Caillet, and Rene Romeas, both of Paris, France, assignors to Thomson-Brandt, Paris, France

Filed Oct. 25, 1979, Ser. No. 88,459

Claims priority, application France, Oct. 25, 1978, 78 30316
Int. Cl.³ G06F 11/14

U.S. Cl. 371—69

22 Claims



1. A method for coding analog signals at acoustic frequencies into coded digital words which are to be recorded alternatively with video signals onto an information carrier for the subsequent reading thereof, the recording and subsequent reading forming a transcription process, the coding method intended to protect the thus coded digital words from alterations encountered during the transcription process, the method for coding comprising:

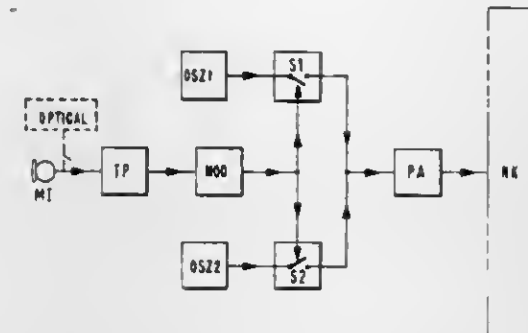
analog to digital converting the analog signals into multi-bit digital words on parallel outputs;

first transforming the digital words analog-digital converted in accordance with a first transformation function to protect the digital words representing analog signal levels within a first predetermined low range from large erroneous variations due to a deterioration of only a few bits thereof, the first transformation function being as follows: (a) no alteration to the highest order bit of a digital word and (b) combining the lowest order bit of the digital word with the inverse of the highest order bit of a digital word; parallel to series converting the first transformed digital words;

transmitting the series form digital words, resulting from the previous step, according to the following scheme-transmitting the higher order bytes of series form digital words several times with the lower order byte of the series form digital words interspersed among the repeated higher order bytes in such a manner that the distribution function related to the overall information transfer reduces to a minimum the risk of overall deterioration;

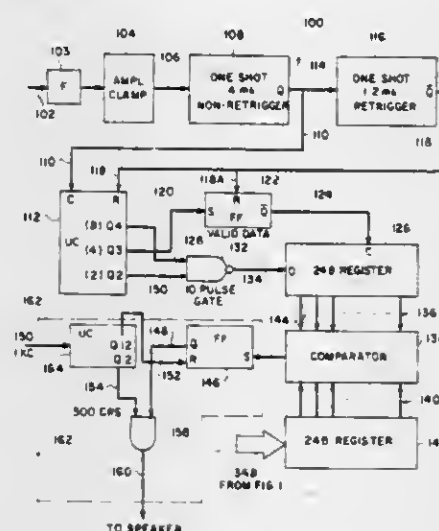
second transforming the successively transmitted series form digital words in accordance with a second transformation function permitting a subsequent error detection during an overall deterioration, the second transformation function comprising garbling the various bytes of successively transmitted digital words.

4,314,370
WIRELESS INTERCOMMUNICATION SYSTEM
Georg Figol, No. 28/II, Bingerstrasse, 8000 München 50, Fed. Rep. of Germany
Filed May 2, 1980, Ser. No. 145,914
Claims priority, application Fed. Rep. of Germany, Nov. 21, 1979, 2919940; Nov. 21, 1979, 2946875
Int. Cl.³ H03K 13/22; H04B 9/00
U.S. Cl. 375—28 7 Claims



1. An intercommunication system for the wireless transmission of speech, employing ternary synchronous or asynchronous delta modulation, wherein, the delta modulator (MDM) and demodulator (DEM) of each subscriber (A, B, . . . N) is connected via a modem to either a radio or optical channel (NK), respectively, which is common to all subscribers, in which arrangement the model (MDM) sends either two high-frequency or optical carriers, respectively, differing by a frequency shift of Δf to the common signal channel (NK) only for +1 or -1 signals, not for the idling state 0, from the delta modulator (MDM) and is able to receive such carriers from the common signal channel (NK) in order to decode them as +1 or -1 signals for the delta demodulator (DEM).

4,314,371
DIGITAL RADIO COMMUNICATIONS SYSTEM WITH HIGH NOISE IMMUNITY
Edward L. Covington, Rte. 1, Claremore, Okla. 74017, and Herman D. Self, 1225 E. Freeport, Broken Arrow, Okla. 74012
Filed Aug. 17, 1979, Ser. No. 67,709
Int. Cl.³ H04B 1/16; H04L 27/00; H04Q 9/12
U.S. Cl. 375—58 9 Claims



1. A radio transmitting system using a noise minimizing code, for selective calling of radio systems, using a selected multibit sequential binary word having a selected number of binary bits, such as 24, for example; and register means for storing said 24 bits; comprising

(a) means for coding said word of 24 sequential binary bits into a coded transmission of clocked trains of binary signal pulses, where each binary signal pulse of said binary signal

comprises a square pulse of selected magnitude, polarity and duration D, followed by a space of equal duration D; and wherein

- (b) for each bit of said 24 binary bits which is a logical one, first means to produce a train of a selected number M of said binary signal pulses; and for each bit of said 24 binary bits which is a logical zero, second means to produce a train of a selected number N of binary signal pulses; where N is substantially different from M;
- (c) between the end of a first train of said binary pulses and the beginning of the next train, means for providing a clocked time space of zero signal equal in length to the length of P binary signal pulses, where P is less than M or N; and
- (d) means to modulate a radio transmitter with said coded transmission.

4,314,372

METHODS AND MEANS FOR PRODUCING AND REPRODUCING TRANSMITTED OR RECORDED SOUND OR VIDEO SIGNALS

Knud E. Bakgaard, Struer, Denmark, assignor to Band & Olufsen A/S, Struer, Denmark

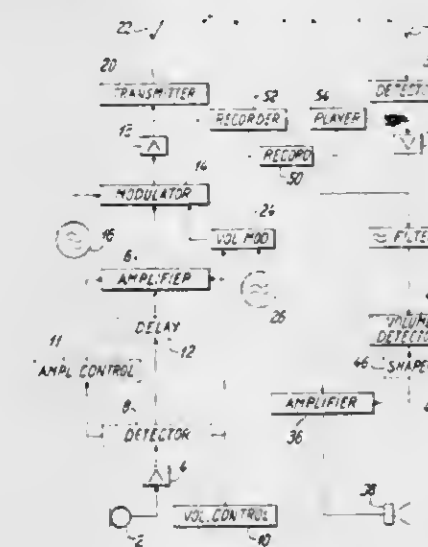
Continuation of Ser. No. 729,712, Oct. 5, 1976, abandoned. This application Dec. 18, 1978, Ser. No. 970,138

Claims priority, application United Kingdom, Oct. 6, 1975, 40769/75

Int. Cl.³ H04B 3/04

U.S. Cl. 455—68

8 Claims



1. A sound transmission system having audio signal input means, amplifier means for amplifying an audio signal from said audio signal input means and output circuit means for transmitting the output signal of said amplifier means to a signal utilization means comprising:

signal intensity detecting means for detecting the intensity of said audio signal supplied to said audio signal input means and producing a corresponding control signal in accordance therewith;

automatic amplification control circuit means for controlling the degree of amplification of said amplifier means in accordance with variations of said corresponding signal so that the dynamic range of the amplifier means output signal is narrower than the dynamic range of said audio signal;

auxiliary means included in said output circuit means for receiving said corresponding control signal from said intensity detecting means and effecting selective transmission of said corresponding control signal along with said transmission of the output signal of said amplifier means; and

delay means coupled to an input of said amplifier means for delaying the arrival of said audio signal at said amplifier means for enabling proper adjustment of said amplifier means in response to said corresponding control signal derived from said audio signal prior to arrival of said

audio signal at said amplifier means and to allow the corresponding control signal to be transmitted ahead of the audio signal to which it pertains.

4,314,373

PASSIVE TRANSMITTER INCLUDING PARAMETRIC DEVICE

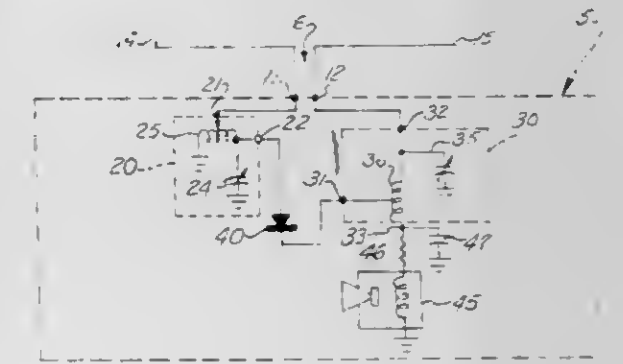
Robert W. Sellers, Palm Bay, Fla., assignor to Harris Corporation, Cleveland, Ohio

Continuation of Ser. No. 689,090, May 24, 1976, abandoned. This application Feb. 5, 1980, Ser. No. 118,757

Int. Cl.³ H04B 1/50

U.S. Cl. 455—73

4 Claims



1. A passive radio transmitter comprising: means for receiving a first radio signal, said receiving means including a first tuned circuit, tuned to a frequency F and connected to receive the first radio signal where F is the frequency of the first radio signal; parametric means coupled to said receiving means and pumped by the first radio signal, whereby said parametric means provides a subharmonic output; output means coupled to the output of said parametric means for transmitting the output thereof, said output means including a second tuned circuit tuned to a frequency F/2; modulating means coupled to said second tuned circuit for modulating the output thereof in accordance with an information signal, whereby a modulated output may be provided from said output means; and a dipole antenna having first and second terminals, wherein said first tuned circuit includes an input terminal connected to said first terminal of said antenna and said second tuned circuit includes an output terminal coupled to said second terminal of said antenna such that said first tuned circuit, parametric means, and second tuned circuit are connected in series between said first and second terminals of said antenna.

4,314,374

HIGH POWER AUDIO FREQUENCY TRANSMITTER

John J. Kubo, Allison Park, Pa., assignor to Westinghouse Air Brake Company, Swissvale, Pa.

Filed Nov. 10, 1977, Ser. No. 850,177

Int. Cl.³ H04B 1/04

U.S. Cl. 455—108

11 Claims

1. A transmitter circuit for producing a sine wave modulated output signal comprising, a low frequency oscillator for developing a modulating signal, a high frequency oscillator for developing a carrier signal, said modulating signal coupled to the input of a switching regulator, said switching regulator including a multiple of transmitter control stages for alternately turning on and off an output stage whereby a time varying voltage is produced at the modulating frequency; a switching amplifier, said carrier signal coupled to the input of said switching amplifier, and the time varying voltage modu-

DESIGN PATENTS

GRANTED FEB. 2, 1982 —

ERRATA

For CLASS	See PATENT NO.
D32-009	262,885
D34-021	262,886

97

DESIGNS

FEBRUARY 2, 1982

262,835

BATHING SUIT

Henry G. Dietz, 80 Salisbury Ave., Garden City, N.Y. 11530

Filed Apr. 19, 1978, Ser. No. 897,930

Term of patent 14 years

Int. Cl. D2-02

U.S. Cl. D2-42



262,836

BATHING SUIT

Henry G. Dietz, 80 Salisbury Ave., Garden City, N.Y. 11530

Filed Apr. 19, 1978, Ser. No. 898,430

Term of patent 14 years

Int. Cl. D2-02

U.S. Cl. D2-42



262,837

CLOTHES POCKET STRAIGHTENER

James R. Buffington, P.O. Box 7365, Daytona Beach, Fla. 32018

Filed Nov. 19, 1979, Ser. No. 95,548

Term of patent 14 years

Int. Cl. D02-07

U.S. Cl. D2-378



262,838

BUTTON SPACER

Gladys C. Rader, 502 Orchid Pl., Emmaus, Pa. 18049

Filed Feb. 21, 1979, Ser. No. 13,181

Term of patent 3 1/2 years

Int. Cl. D02-07

U.S. Cl. D3-18



262,839

STORAGE BOX OR THE LIKE

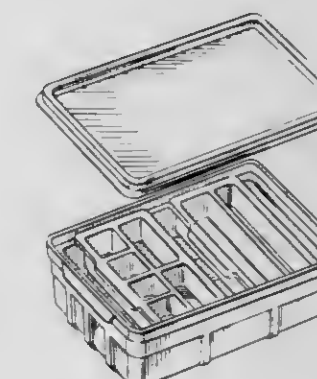
Robert H. C. M. Daenen, Hekelgem, and Pieter K. J. De Coster, Aalst, both of Belgium, assignors to Dart Industries Inc., Los Angeles, Calif.

Filed Aug. 16, 1979, Ser. No. 66,898

Term of patent 14 years

Int. Cl. D3-02

U.S. Cl. D3-74



262,840

HANDLE FOR A BRUSH

Ernst Beranek, Vienna, Austria, assignor to Eduard Frieb Gesellschaft m.b.H., Vienna, Austria

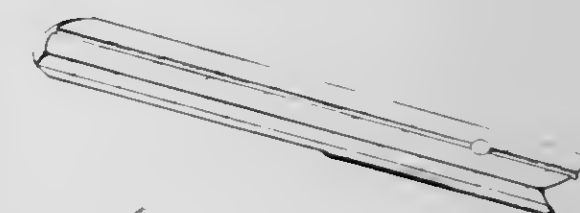
Filed Aug. 14, 1978, Ser. No. 933,719

Claims priority, application Austria, Feb. 20, 1978, 51228428

Term of patent 14 years

Int. Cl. D4-02

U.S. Cl. D4-35



262,841

BATHROOM ACCESSORY SUPPORT FOR ATTACHMENT TO A FRAME

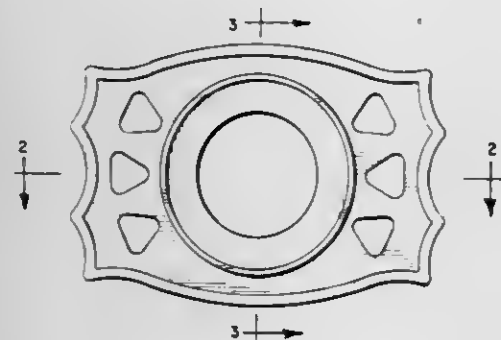
Sidney J. Shames, 57 Holly Pl., Briarcliff Manor, N.Y. 10510,
and Harold Shames, 5 Agnes Cir., Ardsley, N.Y. 10502

Filed Apr. 4, 1980, Ser. No. 137,352

Term of patent 14 years

Int. Cl. D23-02

U.S. Cl. D6-92



262,844

CABINET BAR

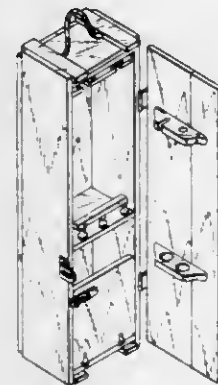
Breck J. Richardson, 1005 Worth St. Extension, Asheboro, N.C. 27203

Filed Jul. 26, 1979, Ser. No. 61,094

Term of patent 14 years

Int. Cl. D06-04

U.S. Cl. D6-144



262,842

HOLDER FOR TOWEL OR THE LIKE

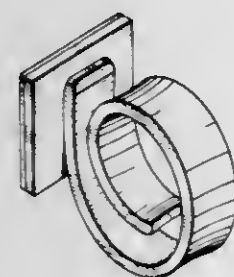
Clinton H. Morey, 166 Leisure World, Mesa, Ariz. 85206

Filed Jul. 2, 1979, Ser. No. 54,281

Term of patent 14 years

Int. Cl. D23-02; D8-08

U.S. Cl. D6-102



262,845

PARTY TABLE

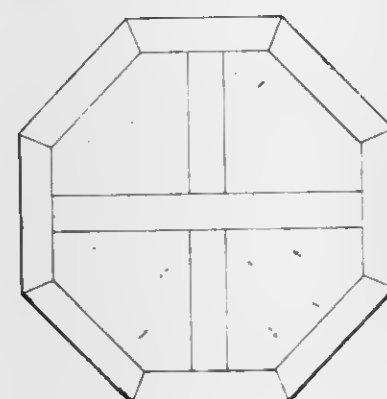
Huey T. Keller, High Point, N.C., assignor to Vaughan Furniture Company, Inc., Galax, Va.

Filed Feb. 21, 1980, Ser. No. 123,290

Term of patent 14 years

Int. Cl. D6-03

U.S. Cl. D6-146



262,843

STORAGE RACK FOR A HOLSTERED HANDGUN

Maurice L. Phillips, 3211 Wendover La., Richmond, Va. 23230

Filed Jan. 3, 1979, Ser. No. 726

Term of patent 14 years

Int. Cl. D6-04; D8-06, 08

U.S. Cl. D6-114



262,846

DUAL DESK UNIT

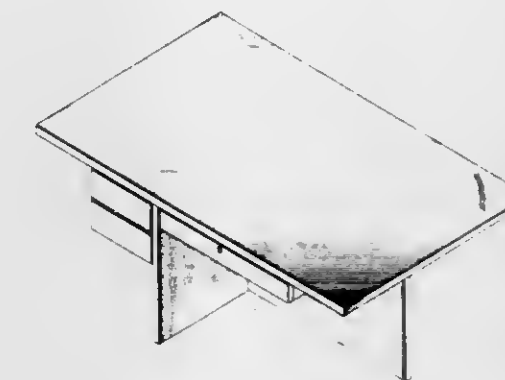
Mary E. Chaiken, 6245 Clearwood Rd., Bethesda, Md. 20034

Filed Jan. 28, 1980, Ser. No. 115,609

Term of patent 14 years

Int. Cl. D06-04

U.S. Cl. D6-157



262,848

CABINET

Bruce Dowse, Rockdale, Australia, assignor to Dowse Designs Pty Limited, Sydney, Australia

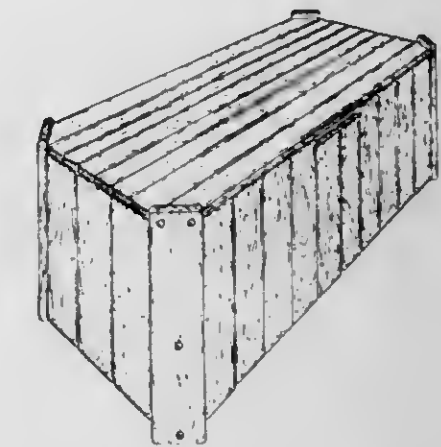
Filed Dec. 12, 1978, Ser. No. 968,822

Claims priority, application New Zealand, Jun. 13, 1978, 15537

Term of patent 14 years

Int. Cl. D6-04

U.S. Cl. D6-167



262,849

ADJUSTABLE TABLE

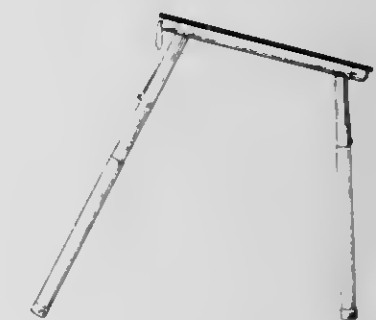
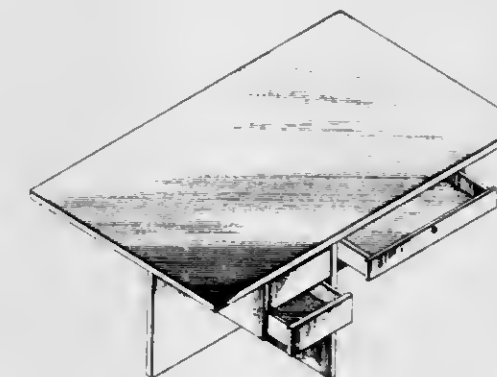
Darrell A. Schoenig, 432 Clover La., Ft. Collins, Colo. 80521

Filed Oct. 2, 1979, Ser. No. 81,212

Term of patent 14 years

Int. Cl. D6-03

U.S. Cl. D6-178



262,850

HEAD AND NECK REST

George W. E. Price, 4 Longfellow Pl., 0608, Boston, Mass. 02114

Filed May 21, 1979, Ser. No. 41,286

Term of patent 14 years

Int. Cl. D6-06

U.S. Cl. D6-200

262,847

CREDENZA

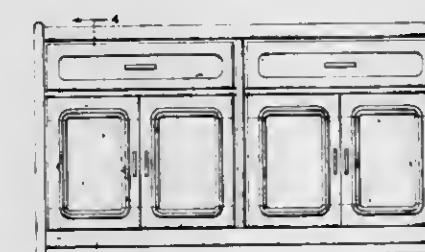
Huey T. Keller, High Point, N.C., assignor to Vaughan Furniture Company, Inc., Galax, Va.

Filed Feb. 21, 1980, Ser. No. 123,282

Term of patent 14 years

Int. Cl. D06-04

U.S. Cl. D6-159



262,851

WOVEN WINDOW BLIND

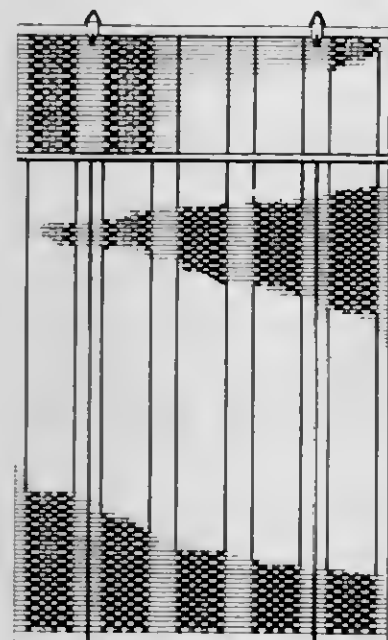
Merrill J. Gitkin, Franklin Lakes, N.J., assignor to Jencraft Corporation, Totowa, N.J.

Filed Jan. 31, 1979, Ser. No. 8,844

Term of patent 14 years

Int. Cl. D6—10

U.S. Cl. D6—205



262,853

JACKET-TYPE COASTER

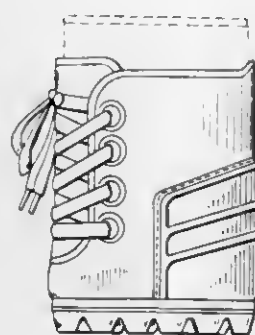
M. Dean Hayden, Jr., 3937 S. 500 East, Salt Lake City, Utah 84107

Filed Aug. 6, 1979, Ser. No. 64,207

Term of patent 14 years

Int. Cl. D7—06

U.S. Cl. D7—45



262,854

JACKET-TYPE COASTER

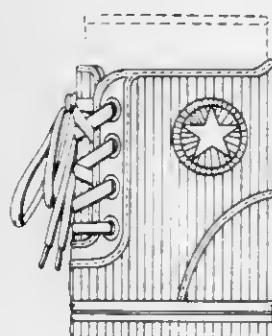
M. Dean Hayden, Jr., 3937 S. 500 East, Salt Lake City, Utah 84107

Filed Aug. 6, 1979, Ser. No. 64,330

Term of patent 14 years

Int. Cl. D7—06

U.S. Cl. D7—45



262,852

HANGER FOR CARPET DISPLAYS

Hans K. Wallenwein, 98 Grandview Ave., Thorohill, Ontario, Canada

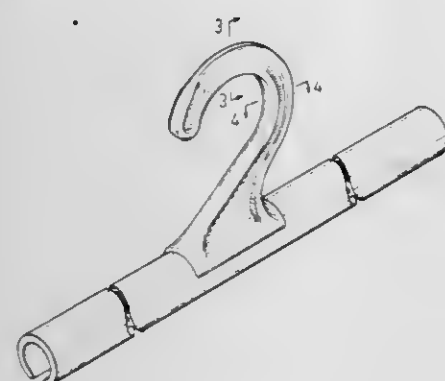
Filed Jul. 6, 1979, Ser. No. 55,450

Claims priority, application Canada, Jun. 15, 1979, 15-06-79-3

Term of patent 14 years

Int. Cl. D6—08

U.S. Cl. D6—252



262,855

CRUET FOR VINEGAR, OIL OR THE LIKE

Andre Morin, Dollard des Ormeaux, Canada, assignor to Les Industries Provinciales LTEE, St. Damien, Canada

Filed Jul. 9, 1979, Ser. No. 55,600

Claims priority, application Canada, Jun. 21, 1979, 21-06-79-10

Term of patent 14 years

Int. Cl. D7—01

U.S. Cl. D7—59



262,856

INSULATED JUG

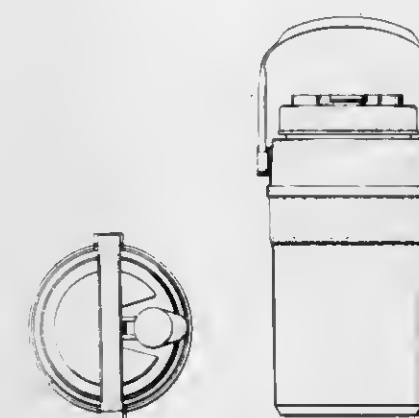
James A. MacTavish, and Ronald C. McGowan, both of Houston, Tex., assignors to Igloo Corporation, Houston, Tex.

Filed Jun. 7, 1979, Ser. No. 46,582

Term of patent 14 years

Int. Cl. D07—01

U.S. Cl. D7—77



262,858

HANGING GAS COOKER FOR CAMPERS

Francois Martin, Tournus, France, assignor to Manufacture Metallurgique de Tournus, Tournus, France

Filed Oct. 10, 1979, Ser. No. 83,535

Term of patent 14 years

Int. Cl. D7—02

U.S. Cl. D7—107



262,857

COTTAGE CHEESE MAKING APPLIANCE

Pierre Ansel, Vagney, France, assignor to SEB, Selongey, France

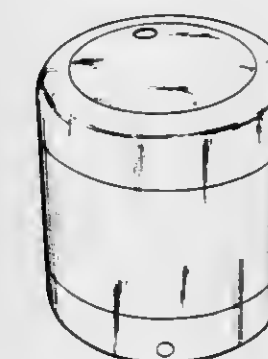
Filed Nov. 7, 1978, Ser. No. 959,194

Claims priority, application France, May 16, 1978, 150

Term of patent 14 years

Int. Cl. D07—04

U.S. Cl. D7—96



262,859

FOOD FORK

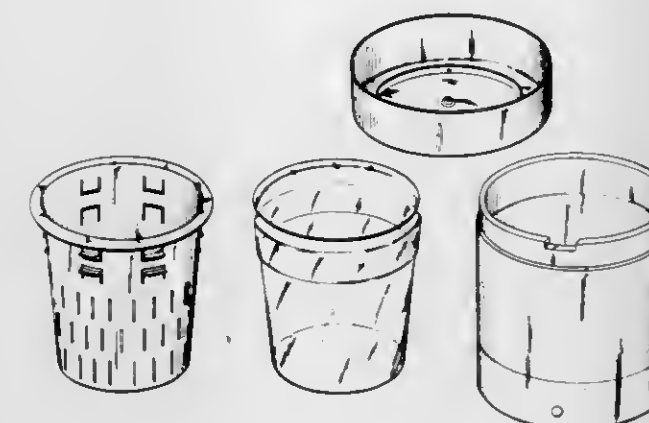
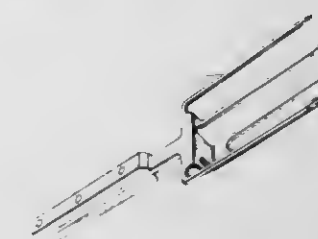
James E. Russell, Houston, Tex., assignor to Universal Food Fork Corporation, Houston, Tex.

Filed Feb. 19, 1980, Ser. No. 123,176

Term of patent 14 years

Int. Cl. D07—03

U.S. Cl. D7—151



262,860

**DOMESTIC APPLIANCE FOR GRATING, SLIVERING
AND SLICING**Bernard Loiseau, Dijon, France, assignor to SEB, Selongey,
France

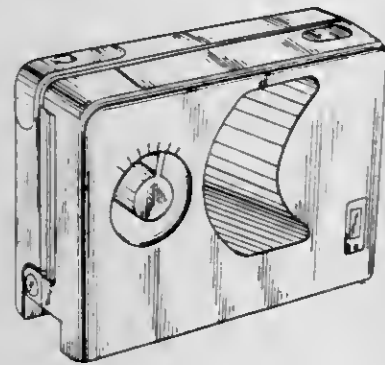
Filed Jul. 26, 1979, Ser. No. 61,041

Claims priority, application France, Feb. 6, 1979, 79 156

Term of patent 14 years

Int. Cl. D07—04

U.S. Cl. D7—153



262,861

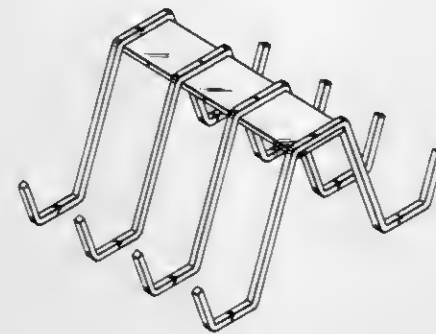
FIREPLACE GRATESonny J. S. Lee, 6273 Walker Ave., Burnaby, British Columbia,
Canada (V5E 3B5)

Filed Jul. 27, 1979, Ser. No. 61,212

Term of patent 7 years

Int. Cl. D7—08

U.S. Cl. D7—207



262,862

GLUE GUN HOLDER

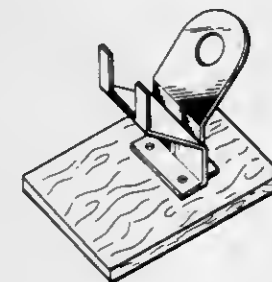
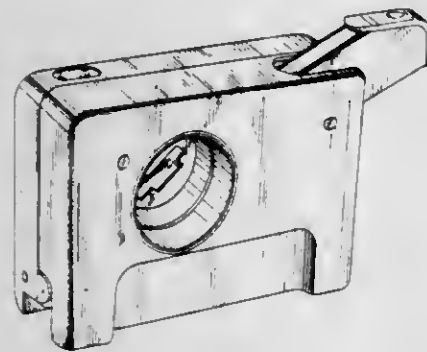
Charlotte E. Lytle, 70 Oakleigh Dr., Maitland, Fla. 32751

Filed Dec. 28, 1979, Ser. No. 108,148

Term of patent 14 years

Int. Cl. D8—05

U.S. Cl. D8—71



262,863

INSERT FOR FIXING OR FASTENING PURPOSESArthur D. Barnsdale, "Alne Cote", Great Alne, near Alcester,
Warwickshire, England

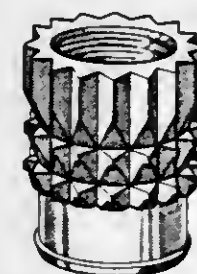
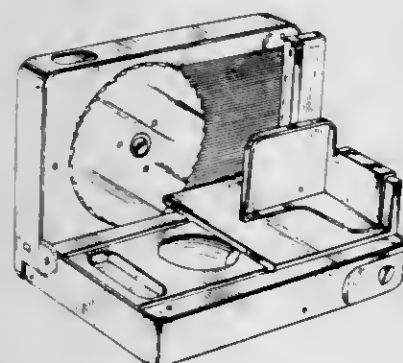
Filed Jul. 20, 1979, Ser. No. 59,175

Claims priority, application United Kingdom, Jul. 29, 1978,
985689/78

Term of patent 14 years

Int. Cl. D8—08

U.S. Cl. D8—385



262,864

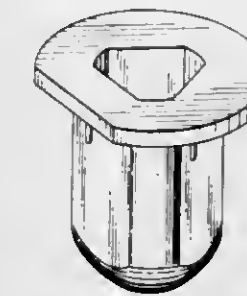
SCREW ANCHORJohn N. Schavilje, Mt. Prospect, and David C. Boyer, Chicago,
both of Ill., assignors to Illinois Tool Works Inc., Chicago, Ill.

Filed Oct. 9, 1979, Ser. No. 70,570

Term of patent 14 years

Int. Cl. D8—08

U.S. Cl. D8—385



262,865

PACKAGING FORM FOR ELECTRIC LAMPSJean Lecordier, Issy-les-Moulineaux, France, assignor to Fab-
riques Reunies de Lampes Electriques, Issy-les-Moulineaux,
France

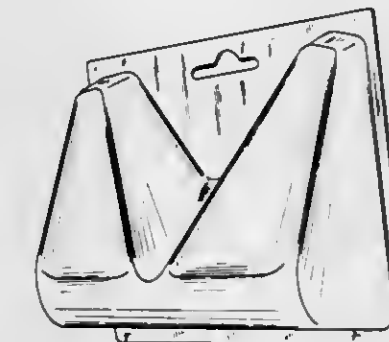
Filed Mar. 22, 1979, Ser. No. 23,049

Claims priority, application France, Sep. 22, 1978, 76876

Term of patent 14 years

Int. Cl. D9—03

U.S. Cl. D9—345



262,866

PACKAGING FOR FOOD CONTAINER OR THE LIKENicholas D. Comisso, Victor, N.Y., assignor to Mobil Oil
Corporation, New York, N.Y.

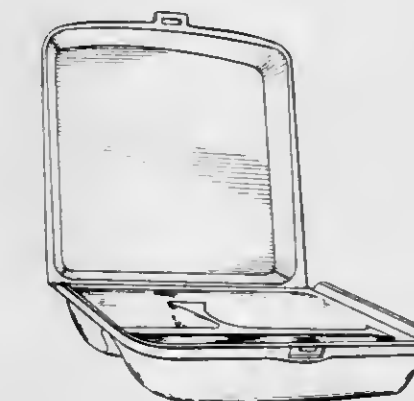
Filed Jun. 27, 1977, Ser. No. 810,557

The portion of the term of this patent subsequent to Feb. 9, 1996,
has been disclaimed.

Term of patent 14 years

Int. Cl. D9—03

U.S. Cl. D9—347



262,867

COMBINED BOTTLE AND STOPPERMichael K. Goettner, Sylvania, and James E. Plummer, Toledo,
both of Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio

Filed Jun. 21, 1979, Ser. No. 50,831

Term of patent 14 years

Int. Cl. D9—01

U.S. Cl. D9—378



262,868

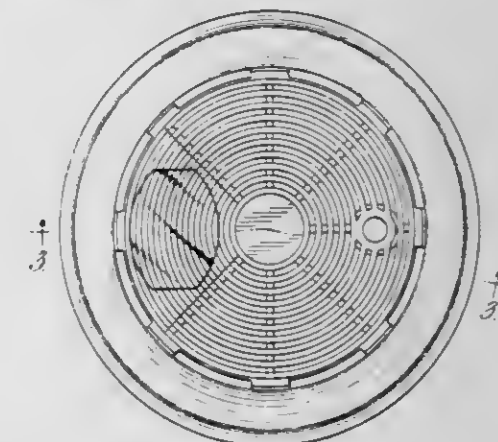
HOUSING FOR A FIRE AND SMOKE DETECTORDonald J. Westphal, South Elgin, Ill., assignor to Pittway Cor-
poration, Northbrook, Ill.

Filed Oct. 30, 1978, Ser. No. 956,350

Term of patent 7 years

Int. Cl. D10—05

U.S. Cl. D10—106



262,869

INFRARED INTRUSION DETECTOR

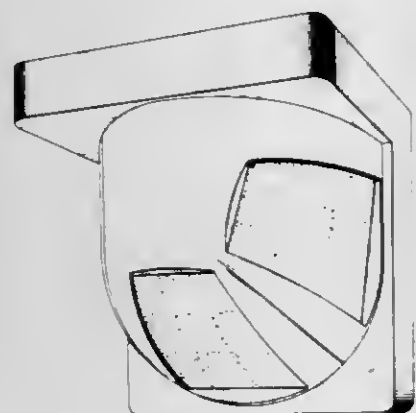
John K. Guscott, Lynnfield, and Gianfranco D. Zaccai, Newton, both of Mass., assignors to American District Telegraph Company, New York, N.Y.

Filed Apr. 26, 1979, Ser. No. 33,756

Term of patent 14 years

Int. Cl. D10—05

U.S. Cl. D10—106



262,871

AUTOMOBILE

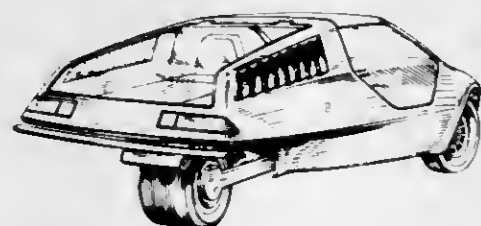
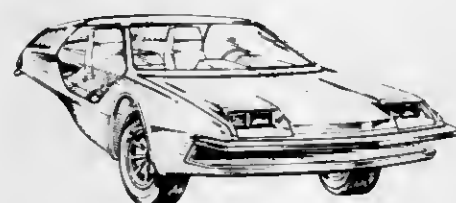
Ronald H. Powers, 1433 Superior Ave., #372, Newport Beach, Calif. 92663

Filed Oct. 12, 1979, Ser. No. 84,634

Term of patent 14 years

Int. Cl. D12—08

U.S. Cl. D12—85



262,872

VAN

Guido Magrini, Brescia, Italy, assignor to Fiat Veicoli Industriali S.p.A., Turin, Italy

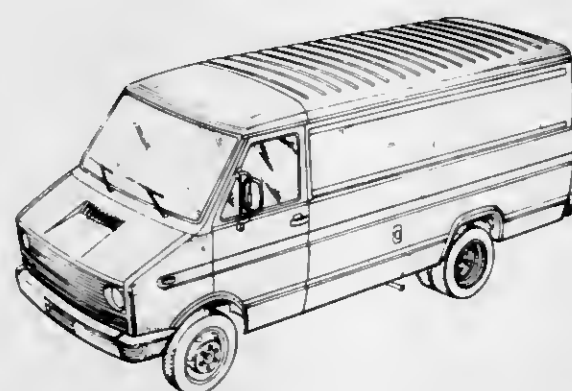
Filed Sep. 7, 1978, Ser. No. 940,238

Claims priority, application Italy, Mar. 14, 1978, 53021

Term of patent 14 years

Int. Cl. D12—08

U.S. Cl. D12—99



262,870

FIGURINE OF A BEAVER

Jesus A. Carvajales Santa Eulalia, and Javier B. Carvajales Santa Eulalia, both of Montevideo, Uruguay, assignors to John J. Madison Company, Inc., Laguna Hills, Calif.

Filed Jun. 22, 1978, Ser. No. 918,318

Term of patent 14 years

Int. Cl. D11—02

U.S. Cl. D11—158



262,873

PEDAL FOR BICYCLES

Shinpei Okajima, Sakai, Japan, assignor to Shimano Industrial Company, Limited, Osaka, Japan

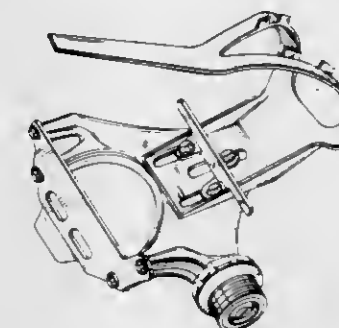
Filed Dec. 11, 1978, Ser. No. 968,407

Claims priority, application Japan, Jun. 17, 1978, 53/25318

Term of patent 14 years

Int. Cl. D12—11

U.S. Cl. D12—125



262,875

TELEPHONE ANSWERING DEVICE

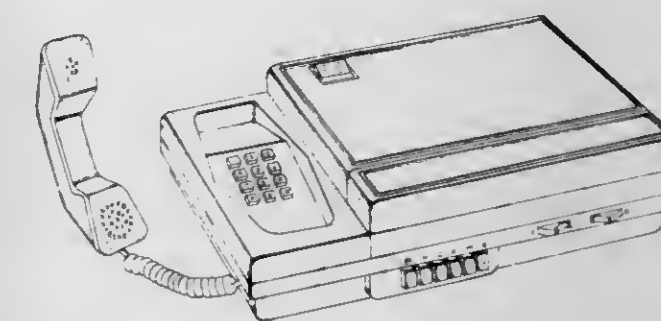
Aldo Franchi, Saronno; Severino Tessarollo, and Luigi Pesenti, both of Milan, all of Italy, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Sep. 22, 1978, Ser. No. 944,944

Term of patent 14 years

Int. Cl. D14—03

U.S. Cl. D14—4



262,876

CASSETTE TAPE

Keiichi Yoshizawa, Chiba, Japan, assignor to TDK Electronics Co., Ltd., Tokyo, Japan

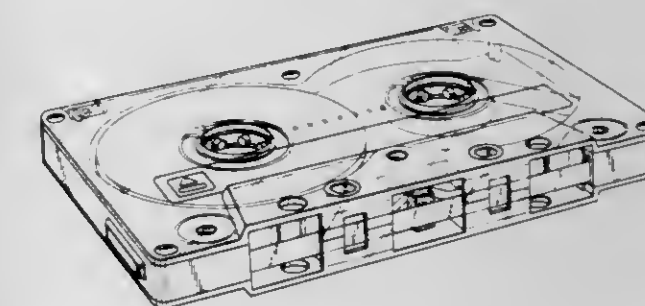
Filed May 21, 1979, Ser. No. 40,762

Claims priority, application Japan, Nov. 21, 1978, 53-49117

Term of patent 14 years

Int. Cl. D14—01

U.S. Cl. D14—11



262,874

TIRE

Joseph V. Mendiola, Ravenna; Lawrence G. Jansen, and Robert B. Norton, both of Akron, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Aug. 20, 1979, Ser. No. 68,254

Term of patent 14 years

Int. Cl. D12—15

U.S. Cl. D12—141



262,877

CASSETTE TAPE

Keiichi Yoshizawa, Chiba, Japan, assignor to TDK Electronics Co., Ltd., Tokyo, Japan

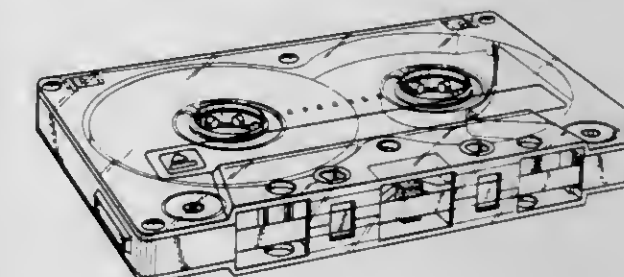
Filed May 21, 1979, Ser. No. 40,983

Claims priority, application Japan, Nov. 21, 1978, 53-49117

Term of patent 14 years

Int. Cl. D14—01

U.S. Cl. D14—11



262,878

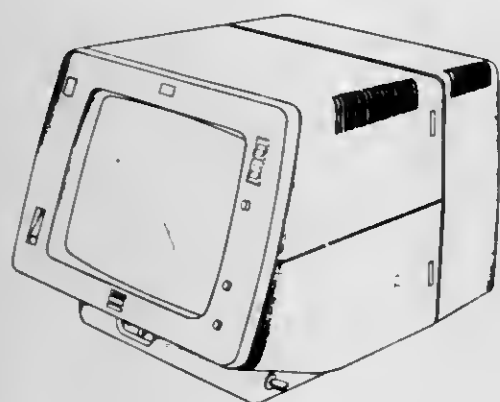
VIDEO DATA DISPLAY TERMINAL

Edward Chamberlain, Eastleigh; Nicholas M. Leon, and Michael H. Sharp, both of Winchester, all of England, assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Mar. 28, 1979, Ser. No. 24,817

Claims priority, application United Kingdom, Oct. 2, 1978, 986654/78

Term of patent 14 years
Int. Cl. D14—02

U.S. Cl. D14—113



262,880

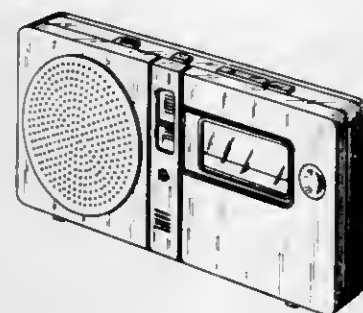
CLOCK RADIO

Peter H. J. van de Ven, Valkenswaard, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Aug. 30, 1979, Ser. No. 71,201

Claims priority, application United Kingdom, Mar. 8, 1979, 988,925

Term of patent 14 years
Int. Cl. D14—03; D10—01

U.S. Cl. D14—73

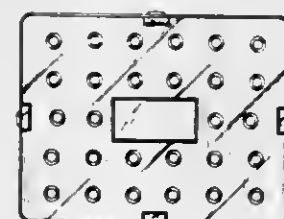
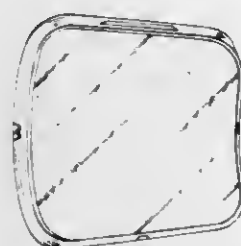


262,881

VIEWING SCREEN AND SUPPORTING STRUCTURE

Marvin P. Hodges, 6162 Leeland St. S., St. Petersburg, Fla. 33715
Filed Feb. 22, 1979, Ser. No. 14,063

U.S. Cl. D14—84



262,879

TELEPHONE

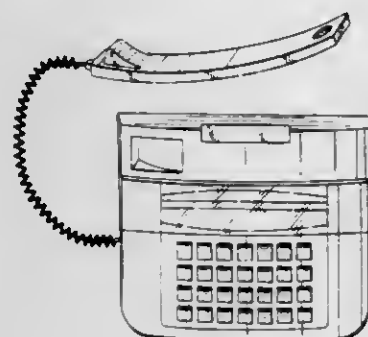
Eric J. Marshall, Flat 8, 5 Carlton Gardens, London S.W.1, England

Filed Apr. 2, 1979, Ser. No. 26,225

Claims priority, application United Kingdom, Nov. 25, 1978, 987427; Mar. 16, 1979, 989077

Term of patent 14 years
Int. Cl. D14—03

U.S. Cl. D14—53



262,882

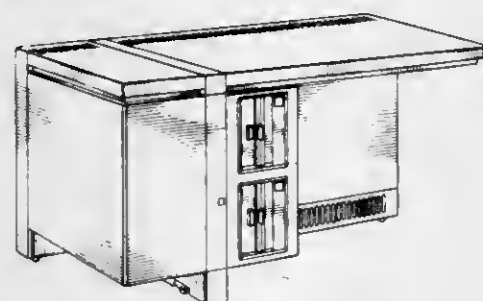
COMPUTER CONTROL TERMINAL

John W. Goodin, Long Beach; Douglas H. Grambush; Milton J. Halsted, both of Irvine, all of Calif., and Katsuo Kumagai, Kanazawa, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Jun. 18, 1979, Ser. No. 49,317

Term of patent 14 years
Int. Cl. D14—02

U.S. Cl. D14—103



262,883

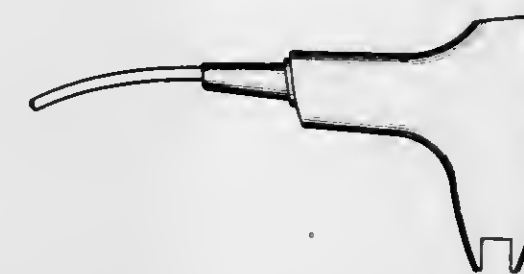
HAND HELD READER

Medford D. Sanner, Irving, Tex., assignor to Recognition Equipment Incorporated, Irving, Tex.

Filed Oct. 29, 1979, Ser. No. 88,965

Term of patent 14 years
Int. Cl. D14—02

U.S. Cl. D14—116



262,886

DUST AND MIST COLLECTOR

Tadashi Yoshimura, Nagoya, Japan, assignor to Ryosei Co., Ltd., Nagoya, Japan

Filed Apr. 6, 1979, Ser. No. 27,783

Claims priority, application Japan, Oct. 6, 1978, 53-42861
Term of patent 14 years
Int. Cl. D15—99

U.S. Cl. D34—21



262,884

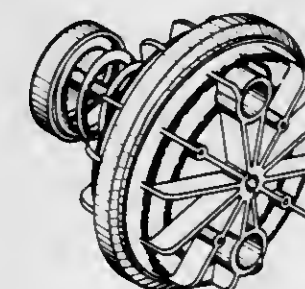
FLUID PUMP OR SIMILAR ARTICLE

Herman S. Fessler, Coon Rapids, Minn., assignor to The Coca-Cola Company, Atlanta, Ga. and The Cornelius Company, Anoka, Minn.

Filed Jan. 29, 1980, Ser. No. 116,504

Term of patent 14 years
Int. Cl. D15—02

U.S. Cl. D15—7



262,887

MANUAL FULL WEB STRETCH-WRAP PALLET WRAPPER

John W. Powell, III, 4305 Reef Rd., Marietta, Ga. 30066

Filed Dec. 3, 1979, Ser. No. 99,497

Term of patent 14 years
Int. Cl. D15—99

U.S. Cl. D15—145



262,885

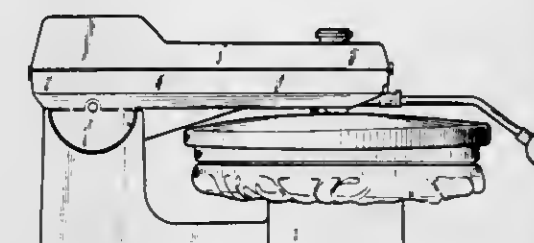
IRONING PRESS

Oliando Baruffa, Thonex, Switzerland, assignor to Mefina S.A., Fribourg, Switzerland

Filed May 18, 1979, Ser. No. 40,229

Claims priority, application Switzerland, Dec. 1, 1978, 110145
Term of patent 14 years
Int. Cl. D15—05

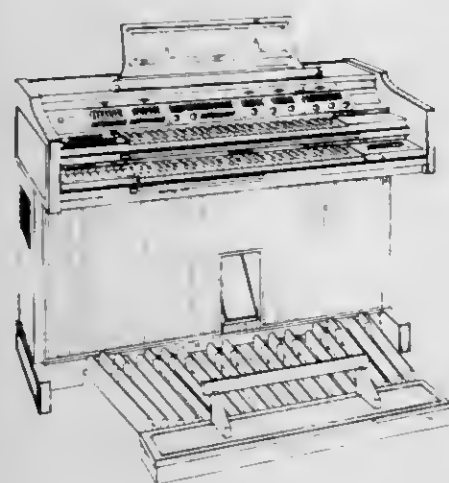
U.S. Cl. D32—9



262,888
ORGAN

Thomas E. Kimble, Covington, Ky., assignor to Baldwin Piano & Organ Company, Cincinnati, Ohio
Filed Aug. 6, 1979, Ser. No. 63,993
Term of patent 14 years
Int. Cl. D17-01

U.S. Cl. D17-6

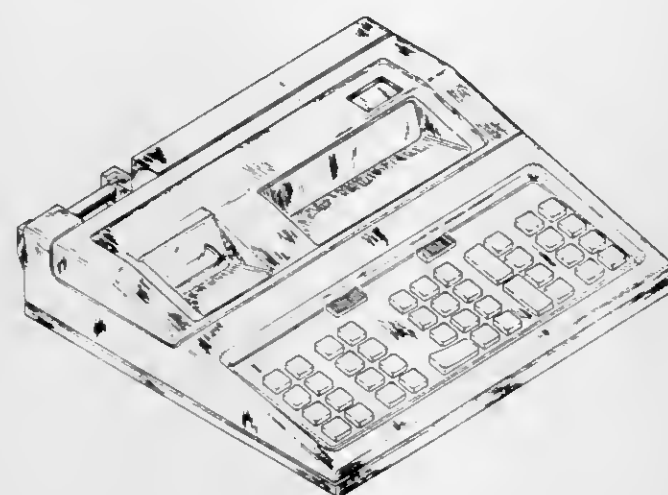


262,890

CASE FOR PRINTING CALCULATOR OR THE LIKE
Shinpei Ichikawa, Lubbock, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 1, 1978, Ser. No. 965,644
Term of patent 14 years
Int. Cl. D18-01

U.S. Cl. D18-7

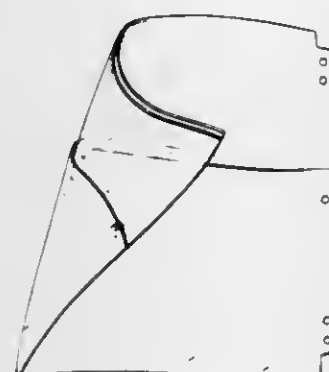


262,891

TRANSPARENT STORAGE ENVELOPE FOR FLEXIBLE, MAGNETIC COMPUTER DISCS

Richard Nast, 309 Whipoorwill La., Brentwood, Tenn. 37027
Filed Oct. 15, 1979, Ser. No. 84,728
Term of patent 14 years
Int. Cl. D19-04

U.S. Cl. D19-33



262,889
GUITAR

Bozo Pondunavac, 2726 University, San Diego, Calif. 92104
Filed Aug. 29, 1979, Ser. No. 70,900
Term of patent 14 years
Int. Cl. D17-03

U.S. Cl. D17-19

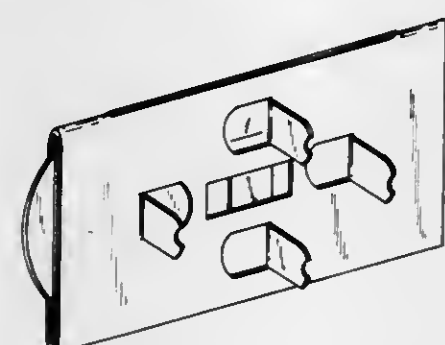


262,892

MATHEMATICAL AID

Burton S. Heiko, 15 Steuben Dr., Jericho, N.Y. 11753
Filed Jul. 2, 1979, Ser. No. 54,303
Term of patent 31 years
Int. Cl. D19-07

U.S. Cl. D19-64

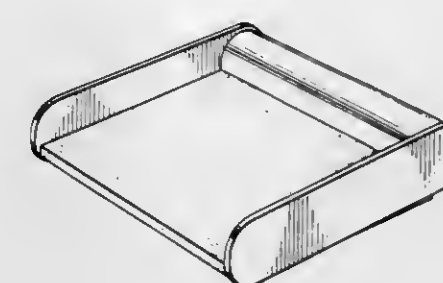


262,893

DESK ACCESSORY RECEPTACLE

Robert A. Martin, Thousand Oaks, Calif., assignor to Metcor Manufacturing, Los Angeles, Calif.
Filed Sep. 25, 1978, Ser. No. 945,577
Term of patent 14 years
Int. Cl. D19-02

U.S. Cl. D19-92

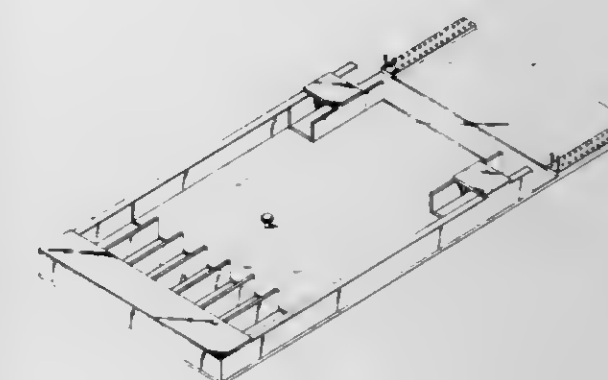


262,896

SHUFFLE POOL TABLE GAME BOARD

Allen D. Dabbs, 17839 Jefferson Hwy., Baton Rouge, La. 70816
Filed Jan. 8, 1979, Ser. No. 1,461
Term of patent 14 years
Int. Cl. D21-01

U.S. Cl. D21-7



262,894

VENDING MACHINE CABINET

Walter E. Moore, Bel-Nor, and Albert K. Grethey, Bridgeton, both of Mo., assignors to UMC Industries, Inc., Stamford, Conn.

Filed Sep. 26, 1978, Ser. No. 945,839
Term of patent 14 years
Int. Cl. D20-01

U.S. Cl. D20-4

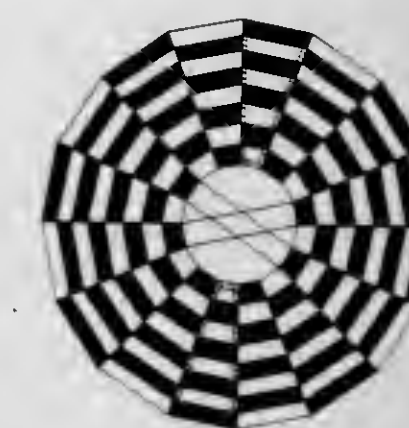


262,897

GAMEBOARD

Donald D. Goldeen, 130 Ulloa St., San Francisco, Calif. 94127
Filed Jan. 7, 1980, Ser. No. 110,321
Term of patent 14 years
Int. Cl. D21-01

U.S. Cl. D21-33



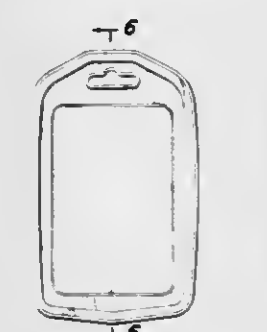
262,895

LUGGAGE TAG

Bela G. Szabo, Carnegie, Pa., assignor to Bruce Plastics, Inc., Pittsburgh, Pa.

Filed Aug. 30, 1979, Ser. No. 70,997
Term of patent 14 years
Int. Cl. D20-99

U.S. Cl. D20-27

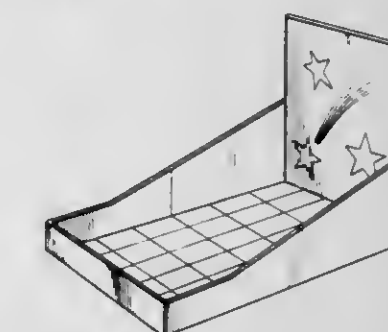


262,898

DICE GAME BOARD

Frank Lonardo, 2343 Bath Ave., Brooklyn, N.Y. 11214
Filed May 21, 1979, Ser. No. 40,718
Term of patent 14 years
Int. Cl. D21-01

U.S. Cl. D21-41



262,899

TOY WRITING SLATE

Frederick H. Kroll, 72 Wood Hollow La., New Rochelle, N.Y. 10804
 Filed May 9, 1979, Ser. No. 37,447
 Term of patent 14 years
 Int. Cl. D21—01

U.S. Cl. D21—59

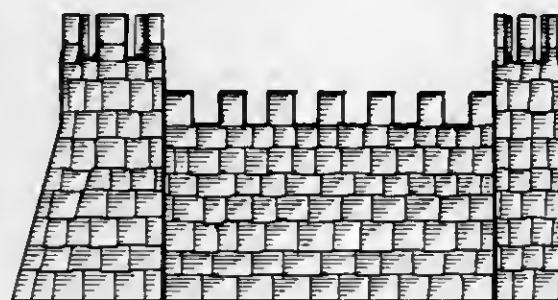


262,902

TOY CASTLE

Gabriel H. Duarte, 434 Hill St., Orange, Calif. 92669
 Filed Sep. 24, 1979, Ser. No. 78,665
 Term of patent 14 years
 Int. Cl. D21—01

U.S. Cl. D21—114



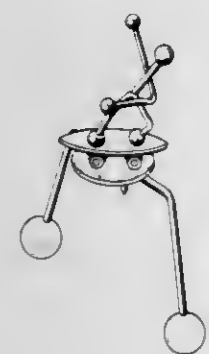
262,900

KINETIC SCULPTURE

Hidetoshi Matsui, 6-27-311, Imazunaka 3-chome, Tsurumi-ku, Osaka, Japan

Filed Sep. 4, 1979, Ser. No. 71,891
 Claims priority, application Japan, Apr. 6, 1979, 54-14092
 Term of patent 14 years
 Int. Cl. D11—02

U.S. Cl. D21—102



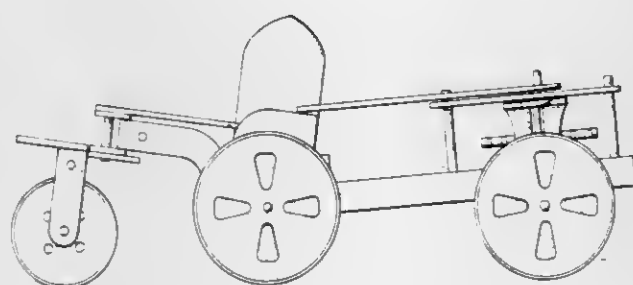
262,903

ARTICULATED VEHICLE OR THE LIKE

Robert W. Becker, 5800 McDougal Dr., Fayetteville, N.C. 28304, and Keith L. Bradshaw, 1928 W. Hill Dr., Fayetteville, N.C. 28306

Filed Aug. 31, 1979, Ser. No. 71,555
 Term of patent 14 years
 Int. Cl. D21—01

U.S. Cl. D21—135



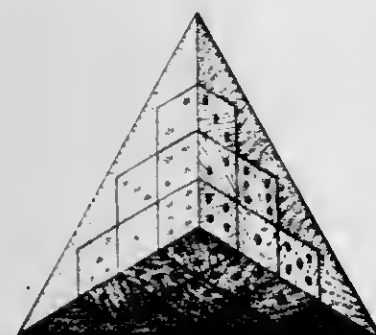
262,901

PUZZLE OR SIMILAR ARTICLE

Dragan Vukadinovic, 4812 Woodrow Ave., Parma, Ohio 44134

Filed Jul. 31, 1979, Ser. No. 62,492
 Term of patent 14 years
 Int. Cl. D21—01

U.S. Cl. D21—107



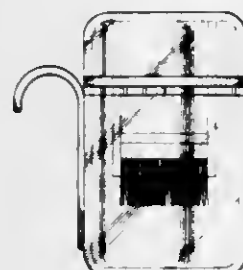
262,904

COMBINED SELF-CONTAINED WATER RESERVOIR AND GOLF CLUB SCRUB BRUSH OR SIMILAR ARTICLE

Carl C. Markwood, and Marie K. Markwood, both of 4001 Fair Oaks Blvd., Sacramento, Calif. 95825

Filed Jul. 27, 1979, Ser. No. 61,258
 Term of patent 14 years
 Int. Cl. D21—02

U.S. Cl. D21—234



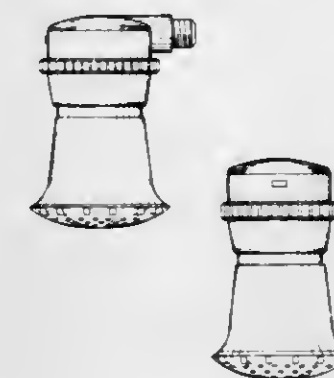
262,905

ELECTRICALLY HEATED SHOWER HEAD

Helio Tommaso, Atibaia, Brazil, assignor to Produtos Eletricos Corona Ltda., Guarulhos, Brazil

Filed Apr. 23, 1979, Ser. No. 32,215
 Claims priority, application Brazil, Oct. 16, 1976, 3600876[U]
 Term of patent 14 years
 Int. Cl. D23—01

U.S. Cl. D23—35



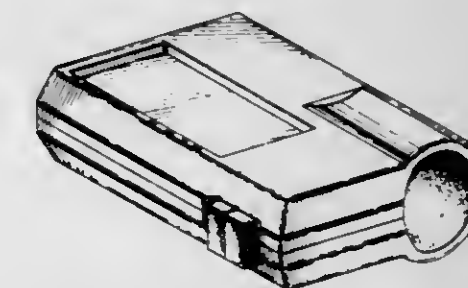
262,907

PULSE COUNTER, OR SIMILAR ARTICLE

Shinji Koshino, Shibukawa, Japan, assignor to Nihon Seimitsu Sokki Co., Ltd., Shibukawa, Japan

Filed Jan. 31, 1979, Ser. No. 8,701
 Term of patent 14 years
 Int. Cl. D24—02

U.S. Cl. D24—17



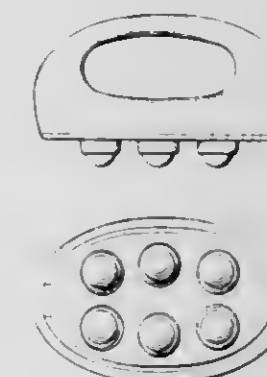
262,908

HAND-HELD BODY MASSAGER

Manny N. Pesco, P.O. Box 10772, Phoenix, Ariz. 85064

Filed Feb. 26, 1979, Ser. No. 15,478
 Term of patent 14 years
 Int. Cl. D28—03; D24—99

U.S. Cl. D24—36



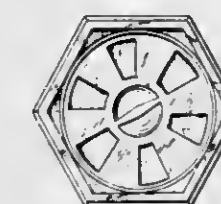
262,906

ROOM DEDORANT DISPENSER

Richard C. Palson, Medfield, and John C. Armstrong, Milton, both of Mass., assignors to The Pharmasol Corporation, Randolph, Mass.

Filed Sep. 13, 1979, Ser. No. 74,915
 Term of patent 14 years
 Int. Cl. D23—04

U.S. Cl. D23—150



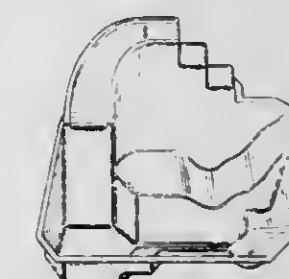
262,909

RECTANGULAR CURVED SLIDE SPA

John L. Haller, 7249 Carrizo Dr., La Jolla, Calif. 92037

Filed Dec. 6, 1978, Ser. No. 966,908
 Term of patent 14 years
 Int. Cl. D24—01; D23—02

U.S. Cl. D24—38



262,910

MIDSTREAM COLLECTION HOUSING

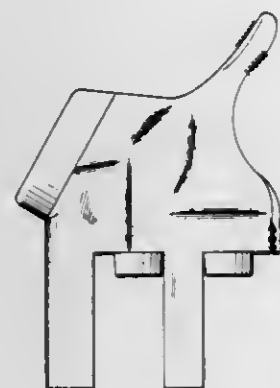
Carl J. Steigerwald, Wauconda, and Terry N. Layton, Arlington Heights, both of Ill., assignors to The Kendall Company, Boston, Mass.

Filed Dec. 12, 1979, Ser. No. 102,672

Term of patent 14 years

Int. Cl. D24—02

U.S. Cl. D24—51



262,911

LEG REST

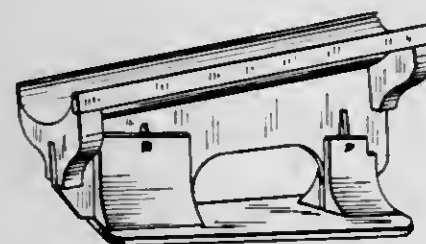
Lloyd A. Weddell, 552 Krotzer Ave., Luckey, Ohio 43443

Filed Aug. 29, 1979, Ser. No. 70,849

Term of patent 14 years

Int. Cl. D24—01; D6—06

U.S. Cl. D24—64



262,912

MOBILE KIOSK

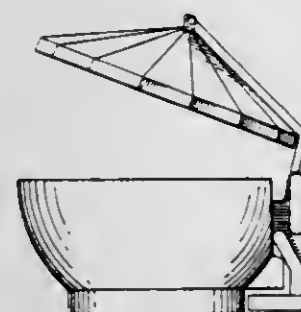
Yvon Therien, 5055 Bellechasse, suite 23, Montreal, P.Q., Canada (HIT2A3); Rene Therien, 393 rue Gosselin, Quebec, P.Q., Canada (GIP-3G2), and Charles Therien, 2753 Baldwin, Montreal, P.Q., Canada (HIL-5B3)

Filed Dec. 10, 1979, Ser. No. 101,801

Term of patent 14 years

Int. Cl. D25—03

U.S. Cl. D25—23



262,913

CANDLE HOLDER

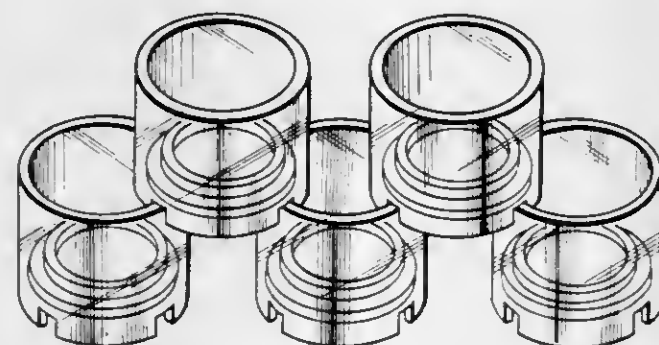
Henry P. Glass, Northfield, Ill., assignor to Westerlo House, Inc., Westerlo, N.Y.

Filed Sep. 17, 1979, Ser. No. 76,203

Term of patent 7 years

Int. Cl. D26—01

U.S. Cl. D26—13



262,914

LENS FOR LUMINAIRE

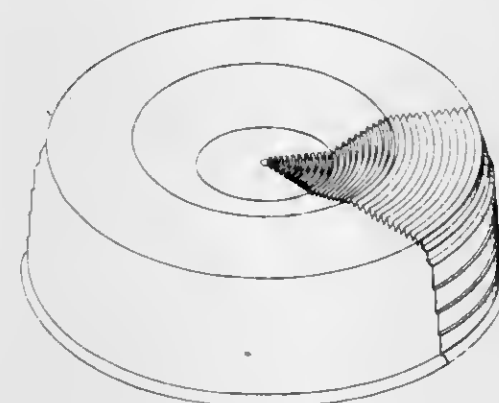
Paul J. Kristofek, Hickory Hills, Ill., assignor to McGraw-Edition Company, Rolling Meadows, Ill.

Filed Apr. 6, 1979, Ser. No. 27,781

Term of patent 14 years

Int. Cl. D26—05

U.S. Cl. D26—135



262,915

COMB

Walter Tihonovich, 1330 Pine, Pueblo, Colo. 81004

Filed Jan. 30, 1980, Ser. No. 116,858

Term of patent 14 years

Int. Cl. D28—03

U.S. Cl. D28—30



262,917

BIRD FEEDER

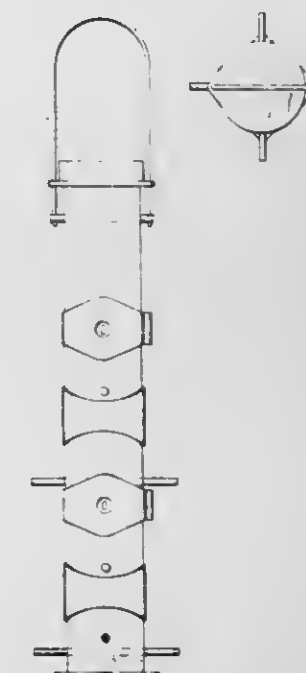
Peter Kilham, Foster, R.I., assignor to Droll Yankees, Inc., Foster, R.I.

Filed Sep. 17, 1979, Ser. No. 75,977

Term of patent 14 years

Int. Cl. D30—03

U.S. Cl. D30—14



262,918

SUPPORT RACK FOR A WESTERN SADDLE OR THE LIKE

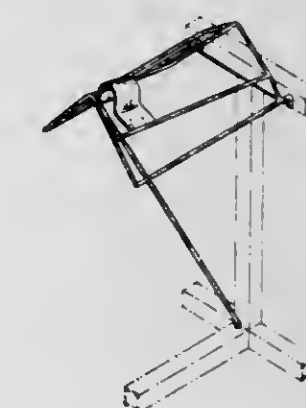
Jeffrey M. Perkins, 20122 Cape Cottage La., Huntington Beach, Calif. 92646

Filed Feb. 4, 1980, Ser. No. 117,856

Term of patent 14 years

Int. Cl. D30—99

U.S. Cl. D30—45



262,919

THREE WHEEL TROLLEY

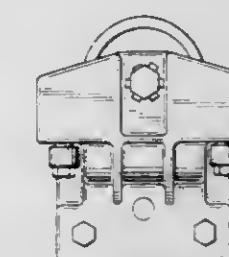
John F. Miller, P.O. Box 277, Howell, Mich. 48843

Filed Mar. 15, 1979, Ser. No. 20,662

Term of patent 14 years

Int. Cl. D12—05

U.S. Cl. D34—35



LIST OF PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 2ND DAY OF FEBRUARY, 1982

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

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- Abbey-Etna Machine Company: See—
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- Abbott Laboratories: See—
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- Alford, Harvey E.; and Frazier, David, to Standard Oil Company, The. Emulsifier system for tertiary oil recovery. 4,313,835, Cl. 252-8.50D.
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- Alink, Han: See—
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- Allen, Lawrence H.: See—
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- Altis-Chalmers Corporation: See—
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- Alps Electric Co., Ltd.: See—
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- Althaus, Werner: See—
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- Amax Inc.: See—
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- Amchem Products, Inc.: See—
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- American Bottlers Equipment Co., Inc.: See—
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- American Can Company: See—
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- Barbuscio, Frank D.; Hunter, LeRoy; Hourihan, Joseph C.; Inglis, Mary C.; Oberstar, Helen E.; and Saad, Hosny, 4,313,393, Cl. 116-200.000.
- Boltyky, Laszlo J.; and Rauhut, Michael M., 4,313,843, Cl. 252-188.3CL.
- Pasarella, Nunzio R., 4,313,940, Cl. 424-215.000.
- Raghu, Sivaraman; Hoffmann, Arthur K.; and Singh, Balwant, 4,314,066, Cl. 548-320.000.
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- Szuos, Stephen S., 4,313,754, Cl. 71-94.000.
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- American Hospital Supply Corporation: See—
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- Amko B.V.: See—
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- Aucagne, Jean: See—
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- Austermann, Karl: See—
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- Avco Everett Research Laboratory, Inc.: See—
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- B. F. Goodrich Company, The: See—
Odar, Joseph, 4,314,045, Cl. 526-93.000.
- Baas, Hendrik B., to Holland Bergen op Zoom B.V. Machinefabriek en/Idzergeterij. Butterfly valve, 4,313,592, Cl. 251-162.000.
- Babb, Albert L.; and Parks, Richard E., to Biotek, Inc. Automated, spring-powered medicament infusion system, 4,313,439, Cl. 128-214.00F.
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- Babler, James H. Method of preparing monoesters, 4,314,071, Cl. 560-127.000.
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- Bain, Lee L.: See—
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- Bakgaard, Knud E., to Band & Olufsen A/S. Methods and means for producing and reproducing transmitted or recorded sound or video signals, 4,314,372, Cl. 455-68.000.
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- Bakker, Pieter, to U.S. Philips Corporation. Line circuit, 4,314,106, Cl. 179-16.00F.
- Baldacci, Massimo. Method of treating acute alcoholic intoxication with pyridoxine P.C.A., 4,313,952, Cl. 424-263.000.
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- Bambara, Joseph E.; and Sanville, W. Woodward, to Servo Corporation of America. Railroad car wheel bearing hear signal processing circuit, 4,313,583, Cl. 246-169.00A.
- Bamberger, Carlos E., to United States of America, Energy. Thermochemical cyclic system for decomposing H₂O and/or CO₂ by means of cerium-titanium-sodium-oxygen compounds, 4,313,925, Cl. 423-263.000.
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- Banucci, Eugene G.; and Boldebeck, Edith M., to General Electric Company. Particulated polyetherimide and method for making, 4,314,047, Cl. 528-26.000.
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- Barger, William M., to French Oil Mill Machinery Company, The. Apparatus for the continuous extraction of oils and soluble substances from solid materials, 4,313,912, Cl. 422-267.000.
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- Barroso, Angel L. Method and apparatus for knotting automatically mouths of flexible packagings, 4,313,630, Cl. 289-1.500.
- Barton, James L., to Societe Generale pour l'Emballage. Process for making glass with agglomerated refining agents, 4,313,747, Cl. 65-27.000.
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- Nassry, Assadullah; Maxwell, Jerrold F.; and Compton, John W., 4,313,836, Cl. 252-32.70E.
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- Batcher, Kenneth E., to Goodyear Aerospace Corporation. Processing element for parallel array processors, 4,314,349, Cl. 364-716.000.
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- Battelle Development Corporation: See—
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- Bauer, LeRoy. Animal marker for preventing milk contamination, 4,313,271, Cl. 40-304.000.
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- Bauer, Werner R.; and Smith, William N., to Robertshaw Controls Company. Control unit and electrical switch construction therefor and methods of making such a control unit and electrical switch construction, 4,314,122, Cl. 200-72.00A.
- Baumbach, Bertram W., to Reliable Electric Company. Communications circuit line protector and method of making the same, 4,314,302, Cl. 361-119.000.
- Baumbach, Bertram W., to Reliable Electric Company. Line protector for a communications circuit, 4,314,304, Cl. 361-124.000.
- Baxter, G. Matthews. Golf tee and ball stick device, 4,313,604, Cl. 273-32.00A.
- Baxter, Ivor R.: See—
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- Baxter Travenol Laboratories, Inc.: See—
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- Radlick, Phillip C., 4,314,087, Cl. 568-842.000.
- Bayer Aktiengesellschaft: See—
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- Boden, Heinrich; Muller, Heinz; and Sowade, Bernd, 4,313,909, Cl. 422-133.000.

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 Waringer, Raymond C.; Braswell, Charles D.; Buchalter, Neal S.; Daughton, John W.; and Ellis, Robert G., 4,313,673, Cl. 355-14.00R.
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 Scarbrough, Alfred D., 4,314,356, Cl. 364-900.000.
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Caldwell, John R., to Xerox Corporation. Reproduction machine with a pivotal stapling device. 4,313,670, Cl. 355-3.00R.

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Belke, William H.; Goloff, Alexander; and Grim, George B., 4,313,301, Cl. 60-39.51H.

Fischer, Robert L., 4,313,504, Cl. 172-382.000.

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Tracy, David J.; Wood, Lindley S.; and Chakrabarti, Paritosh M., 4,313,764, Cl. 106-188.000.

Chamberlin, Ronald D.: See—
Johnson, Harlan B.; and Chamberlin, Ronald D., 4,313,813, Cl. 204-263.000.

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Hain, Paul, 4,313,899, Cl. 264-40.100.

Montealegre, James, 4,313,554, Cl. 229-28.00R.

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Winterhalter, Melvin J., 4,313,629, Cl. 285-242.000.

Champlin, H. H.: See—
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Charles, Harry K.: See—
Feldman, Charles; Charles, Harry K.; and Satkiewicz, Frank G., 4,313,254, Cl. 29-572.000.

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Mayer, Jerome F.; and Miller, Stephen J., 4,313,817, Cl. 208-89.000.

Scott, John W., 4,313,848, Cl. 252-418.000.

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Childs, Eric G.; and Just, Friedrich E., to Cameron Iron Works, Inc. Wellhead shearing apparatus. 4,313,496, Cl. 166-55.000.

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Chovanec, Clarence B. Belt for a concealed quick-draw knife. 4,313,230, Cl. 2-322.000.

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Good, Garry R.; and Anderson, Charles W., 4,313,503, Cl. 172-140.000.

Chrostowski, Ronald F.; Bussjager, Rudy C.; and del Toro, James J., to Carrier Corporation. Apparatus and method for defrosting a heat exchanger of a refrigeration circuit. 4,313,313, Cl. 62-278.000.

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Ciba-Geigy Corporation: See—
Barracough, Ronald; and Langley, Robert, 4,313,766, Cl. 106-288.00Q.

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Lund, Richard B., 4,314,062, Cl. 544-402.000.

Meyer, Hans R.; and Siegrist, Max, 4,313,846, Cl. 252-301.320.

Wiederkehr, Rene; and Scartazzini, Riccardo, 4,313,945, Cl. 424-246.000.

Zurbuchen, Jacques; Louton, Alain; and Luttringer, Jean P., 4,313,733, Cl. 8-582.000.

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Crewe, David W.; and Hill-Harriss, Stephen P., 4,314,329, Cl. 364-141.000.

Cindon Research Inc.: See—
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Penny, William A.; and Slater, Robert A. C., 4,313,332, Cl. 72-406.000.

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Cleveland, John F.: See—
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Cliff, John O., to Pittsburgh-Des Moines Corporation. Removable condensate collector for elevated water storage facilities. 4,313,457, Cl. 137-312.000.

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Gavin, Derek G.; and Jones, Michael A., 4,313,852, Cl. 252-439.000.

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Focant, Jean, 4,313,565, Cl. 239-132.300.

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Compact Video Sales, Inc.: See—
Sayovitz, Michael G., 4,314,253, Cl. 343-765.000.

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Hart, Joseph J.; and Desmond, John D., 4,313,540, Cl. 206-588.000.

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Locker, Jan A. K., 4,313,823, Cl. 209-369.000.

Copen, Dennis E. Automotive exhaust system incorporating venturi to reduce back pressure. 4,313,523, Cl. 181-261.000.

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Sanford, Leon M.; and Tick, Paul A., 4,314,031, Cl. 501-44.000.

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Cowie, Christopher G.: See—
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Cox, John W., to Transworld Drilling Company. Submersible pipe installation systems. 4,313,694, Cl. 405-168.000.

Crackel, Lawrence E.; and Oglesby, Lloyd S. Spectral converter. 4,313,425, Cl. 126-438.000.

Cramer, Charles W., to Cramer Products, Inc. Ankle stabilizer. 4,313,433, Cl. 128-80.00H.

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Cremona, Angelo. Log shearing device. 4,313,481, Cl. 144-209.00B.

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Crooks, Graham R., to Imperial Chemical Industries Limited. Process for the production of an aromatic dicarboxylic acid. 4,314,073, Cl. 562-416.000.

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CSS International Corporation: See—
Lulejian, Donald A.; Faure, Alphonse W.; and Fijalkowski, Eugene F., 4,313,750, Cl. 65-160.000.

Csurgay, Gregory: See—
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Chu, Nan S.; Clinton, Nye A.; Cupper, Robert A.; Wolf, Philip F.; and Stanley, Priscilla B., 4,313,890, Cl. 260-410.600.

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Lundberg, Robert D.; Makowski, Henry S.; O'Brien, Dennis; and Klein, Robert R., 4,313,862, Cl. 260-29.6SQ.

Sherwood, Rexford D.; Baker, Rees T. K.; Derouane, Eric G.; and Pieters, Wim J. M., 4,313,853, Cl. 252-445.000.

Veluswamy, Lavanga R.; and Maa, Peter S., 4,313,816, Cl. 208-10.000.

Ezzell, Bobby R.: See—
Burney, Harry S.; and Ezzell, Bobby R., 4,313,805, Cl. 204-98.000.

Fabrig, Paul, to Womako Maschinenkonstruktionen GmbH. Apparatus for breaking up stacks of paper sheets or the like. 4,313,703, Cl. 414-115.000.

Fachbach, Heinz: See—
Skatsche, Othmar; Fachbach, Heinz; Thien, Gerhard; Kirchweiger, Karl; Greier, Josef; and List, Hans, 4,313,405, Cl. 123-195.00C.

Faerber, Nelson A.: See—
Bonner, Edgar L.; and Faerber, Nelson A., 4,314,285, Cl. 360-33.000.

Fahrenholtz, Kenneth E.; Guthrie, Robert W.; Kierstead, Richard W.; and Tilley, Jefferson W., to Hoffmann-La Roche Inc. Intermediates for preparing adrenergic blocking agents. 4,314,085, Cl. 568-644.000.

Fail Safe Industries, Inc.: See—
Wise, Stanley S.; and Csurgay, Gregory, 4,313,641, Cl. 303-3.000.

Fairchild, Arthur: See—
La Plante, Donald W.; Fairchild, Arthur; and Rebutti, Eugene L., 4,314,241, Cl. 340-603.000.

Farber, Heinrich: See—
Bauer, Walter; and Farber, Heinrich, 4,313,538, Cl. 206-455.000.

Farha, Floyd E., Jr.; and Gardner, Lloyd E., to Phillips Petroleum Co. Hydrodesulfurization of organic sulfur compounds and hydrogen sulfide removal with incompletely sulfided zinc titanate materials. 4,313,820, Cl. 208-213.000.

Farr, Glyn P. R., to Girling Limited. Hydraulic power boosters for vehicle braking systems. 4,313,302, Cl. 60-547.00R.

Farr, Glyn P. R., to Lucas Industries Limited. Disc brake caliper having a sliding cylinder. 4,313,526, Cl. 188-72.400.

Faulkner, Alfred H. Harmonic generator for additive synthesis of musical tones. 4,313,360, Cl. 84-1.210.

Faulkner, James D., to Lester Laboratories, Inc. Increasing the rate of neutralization of static electricity. 4,314,308, Cl. 361-212.000.

Faure, Alphonse W.: See—
Lulejian, Donald A.; Faure, Alphonse W.; and Fijalkowski, Eugene F., 4,313,750, Cl. 65-160.000.

Fauth, Frederick E., to American Bottlers Equipment Co., Inc. Conveyor and control therefor. 4,313,536, Cl. 198-781.000.

Fehlmann, Viktor, to Ferrum AG. Apparatus for pitting dates or the like. 4,313,373, Cl. 99-549.000.

Feicho, Lutz: See—
Wischniewski, Martin; Feicho, Lutz; and Althaus, Werner, 4,313,930, Cl. 424-32.000.

Feier, Markus; Frey, Raymond; and Marti, Ulrich, to Contraves AG. Auxiliary apparatus for a particle analyser. 4,314,346, Cl. 364-555.000.

Feight, Robert A., to Rockwell International Corporation. Cam-lock rocket securing mechanism. 4,313,567, Cl. 239-265.330.

Felder, Heinz-Friedrich; and Schlang, Manfred, to Siemens Aktiengesellschaft. Memory programmable control. 4,314,354, Cl. 364-900.000.

Feldman, Charles; Charles, Harry K.; and Sankiewicz, Frank G., to Johns Hopkins University. The. Thin-film silicon solar cell with metal boride bottom electrode. 4,313,254, Cl. 29-572.000.

Feldman, Naum B.: See—
Fesenko, Evgeny G.; Dantsiger, Alla Y.; Filipiev, Viktor S.; Razumovskaya, Olga N.; Klevitsov, Alexandr N.; Lebedev, Vladimir N.; Grineva, Ljudmila D.; Rogach, Tatyana V.; Feronov, Anatoly D.; Akbaeva, Galina M.; Cheptsov, Evgeny I.; Panich, Anatoly E.; Lisitsina, Ljudmila G.; Lavrikova, Svetlana A.; Ochirov, Vasily A.; Dudkina, Svetlana I.; Nevsky, Alexandr N.; Aleshin, Vladimir A.; Kupriyanov, Mikhail F.; Baljunis, Evgeny S.; Mordanov, Boris P.; Zhitomirsky, Grigory A.; Feldman, Naum B.; Smazhevskaya, Ekaterina G.; and Devlikanova, Ravilya U., 4,313,839, Cl. 252-62.900.

Fenk, Josef, to Siemens Aktiengesellschaft. Monolithically integrable semiconductor circuit with an amplifier controlled by a photo diode. 4,314,152, Cl. 250-214.00A.

Feronov, Anatoly D.: See—
Fesenko, Evgeny G.; Dantsiger, Alla Y.; Filipiev, Viktor S.; Razumovskaya, Olga N.; Klevitsov, Alexandr N.; Lebedev, Vladimir N.; Grineva, Ljudmila D.; Rogach, Tatyana V.; Feronov, Anatoly D.; Akbaeva, Galina M.; Cheptsov, Evgeny I.; Panich, Anatoly E.; Lisitsina, Ljudmila G.; Lavrikova, Svetlana A.; Ochirov, Vasily A.; Dudkina, Svetlana I.; Nevsky, Alexandr N.; Aleshin, Vladimir A.; Kupriyanov, Mikhail F.; Baljunis, Evgeny S.; Mordanov, Boris P.; Zhitomirsky, Grigory A.; Feldman, Naum B.; Smazhevskaya, Ekaterina G.; and Devlikanova, Ravilya U., 4,313,839, Cl. 252-62.900.

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Fettweis, Paul: See—
de Mevergnies, Marcel N.; and Fettweis, Paul, 4,313,807, Cl. 204-157.10R.

Figol, Georg. Wireless intercommunication system. 4,314,370, Cl. 375-28.000.

Fijalkowski, Eugene F.: See—
Lulejian, Donald A.; Faure, Alphonse W.; and Fijalkowski, Eugene F., 4,313,750, Cl. 65-160.000.

Filipi, Thomas J.; and Mazzei, Michael E., to Whatman, Inc. Two dimensional two phase thin layer chromatography plate and method. 4,313,906, Cl. 422-69.000.

Filipiev, Viktor S.: See—
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Filiseti, Attilio: See—
Di Donato, Massimino; and Filiseti, Attilio, 4,314,328, Cl. 364-900.000.

Fillion, Pierre, to Etablissements Carpano & Pons. Control device for motor-reduction units. 4,314,119, Cl. 200-47.000.

Filtrol Corporation: See—
Block, Thomas E.; and Scherzer, Julius, 4,313,923, Cl. 423-628.000.

Finnemore, Fred M., to Polaroid Corporation. Carrying strap attachment for camera. 4,313,664, Cl. 354-288.000.

Fisch, Richard S., to Minnesota Mining and Manufacturing Company. Photoresist developers and process. 4,314,022, Cl. 430-326.000.

Fischbeck, Kenneth H.; Wright, Allen T.; Bain, Lee L.; and Paraskevopoulos, Demetris E., to Xerox Corporation. Multifunction graphic engine based on an oscillating scanner. 4,314,282, Cl. 358-286.000.

Fischer, Arthur H.; Strow, Lawrence E.; and Bolth, Franklin A. Preparation and use of xanthogen chloropropyl formate flotation reagents. 4,313,838, Cl. 252-60.000.

Fischer, John F.; and Morris, Wayne A. Field test for methaqualone and mecloqualone. 4,313,736, Cl. 23-230.00M.

Fischer & Porter Co.: See—
Ratigan, Brian J.; and Roop, Robert N., 4,313,827, Cl. 210-136.000.

Fischer, Robert L., to Caterpillar Tractor Co. Tandem ripper assembly. 4,313,504, Cl. 172-382.000.

Fischer, William C.: See—
Sivahop, Albert; Adams, Don L., Sr.; and Fischer, William C., 4,314,307, Cl. 361-194.000.

Fishwick, Brian R.: See—
Boyd, Violet; Fishwick, Brian R.; and Glover, Brian, 4,313,874, Cl. 260-207.000.

Fitzgerald, Patrick W. Folding furniture. 4,313,385, Cl. 108-38.000.

Fleckenstein, Andrew J.; and Mortl, Michael C., to L. W. Fleckenstein, Inc. Control system for meter actuated regeneration in a water treatment system. 4,313,825, Cl. 210-89.000.

Fleming, James C.: See—
Adin, Anthony; and Fleming, James C., 4,314,019, Cl. 430-202.000.

Fleming, Mills L.; and Mullin, Francis J., to Bell Telephone Laboratories, Incorporated; and Western Electric Company, Inc. Methods of and apparatus for rehabilitating outside telephone plant. 4,314,092, Cl. 174-38.000.

Fleming, Robert J. Toy chair construction kit. 4,313,276, Cl. 46-16.000.

Flo-Con Systems, Inc.: See—
King, Patrick D., 4,313,596, Cl. 266-207.000.

Florent, Jean; Lunel, Jean; Mancy, Denise; and Vuillemin, Bernard, to Rhone-Poulenc Industries. Biologically active substance, its preparation and compositions containing it. 4,313,936, Cl. 424-117.000.

Flow Industries, Inc.: See—
Olsen, John H., 4,313,570, Cl. 239-583.000.

Flux, Peter R.: See—
Tupper, Alan W.; and Flux, Peter R., 4,313,236, Cl. 9-14.000.

FMC Corporation: See—
Gerow, Gordon P.; and Blake, John H., 4,313,372, Cl. 99-483.000.
Skoli, Sigmund P.; Ore, William C.; Kemp, David M.; and Mojonier, Harry G., 4,313,370, Cl. 99-323.100.

Focant, Jean, to Stephan Pask & Cie, Societe Anonyme; and Cockerill, Societe Anonyme, a part interest. Apparatus for the projection of refractory and other material particularly for the repair of the linings of metallurgical plant. 4,313,565, Cl. 239-132.300.

Foffel, John F., to Berlin Industries, Inc. Envelope insert for magazines. 4,313,557, Cl. 229-68.00R.

Fohl, Artur, to Repa Feinstanzwerk GmbH. Belt buckle or lock for a safety belt. 4,313,246, Cl. 24-230.0AT.

Foley, John T.: See—
Bilstad, Arnold C.; and Foley, John T., 4,314,143, Cl. 219-497.000.

Follows, James S.; and Grant, Douglas. Rain gutter joint. 4,313,693, Cl. 405-121.000.

Folmer, Carroll W.; and Hunter, Aldridge T., to Rohr Industries, Inc. Reverser door mechanisms. 4,313,581, Cl. 244-110.00B.

Ford, Jere B., Jr., to Jere B. Ford, Inc. Roadway stripper. 4,313,780, Cl. 156-523.000.

Ford, Michael E.; and Johnson, Thomas A., to Air Products and Chemicals, Inc. Preparation of linear polyalkylene polyamines. 4,314,083, Cl. 564-479.000.

Ford Motor Company: See—
Douthwaite, Donald, 4,313,249, Cl. 29-159.00B.
Schumacher, Berthold W.; and Cooper, John C., 4,314,134, Cl. 219-121.0EW.

Forsyth, Paul F.: See—
McMurtry, Carl H.; Naum, Robert G.; and Forsyth, Paul F., 4,313,973, Cl. 427-205.000.

Fortin Laminating Corporation: See—
Delgadillo, Joseph A., 4,313,995, Cl. 428-201.000.

Fortuna, Jon A.: See—
Donmoyer, William L.; and Fortuna, Jon A., 4,314,312, Cl. 361-400.000.

Foshee, William R.: See—
Best, Walter E.; and Foshee, William R., 4,313,320, Cl. 70-134.000.

Fotis, Peter: See—
Kildahl, Nicholas K.; and Fotis, Peter, 4,313,850, Cl. 252-429.00B.

Fought, Harold D., to Docutel Corporation. Banking machine. 4,314,352, Cl. 364-900.000.

Fowler, Clarence W.; and Penrod, Bruce M., to Tractor, Inc. Antenna low-noise Q spoiling circuit. 4,314,378, Cl. 455-291.000.

Fowlkes, Robert L.: See—
Martinez de Pinillos, Joaquin V.; and Fowlkes, Robert L., 4,314,084, Cl. 564-480.000.

Fox, Brian G.: See—
Keller, Robert J., III; Fox, Brian G.; and Korec, Benjamin A., 4,313,350, Cl. 74-526.000.

Fox, Robert L.: See—
Buckley, John D.; Swaim, Robert J.; and Fox, Robert L., 4,313,777, Cl. 156-272.000.

Fraer, Michael J.: See—
Matthews, John W.; and Fraer, Michael J., 4,313,273, Cl. 42-1.00A.

Frahme, Carl E., to Industrial Insulations Inc. Lightweight refractory fiber burner block. 4,313,789, Cl. 162-152.000.

Frandsen, Jorgen, to Burroughs Corporation. Linear actuator with staggered flat coils. 4,314,295, Cl. 360-106.000.

Frank, Cyril W.: See—
Etchell, Gordon; and Frank, Cyril W., 4,313,378, Cl. 101-415.100.

Frank, Frank, to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschränkter Haftung. Endoscopic apparatus with a laser light conductor. 4,313,431, Cl. 128-7.000.

Frank, Helen: See—
DeLuca, Hector F.; Schnoes, Heinrich K.; Paaren, Herbert E.; and Frank, Helen, 4,313,942, Cl. 424-236.000.

Franklin, Timothy W.; and Declercq, Paul G., to Schlegel (UK) Limited. Pile weatherstrip. 4,313,990, Cl. 428-85.000.

Frappier, David E.: See—
Jones, Wallace R.; Haas, John F.; Krieger, Paul A.; and Frappier, David E., 4,313,970, Cl. 427-56.100.

Frawley, William: See—
Suau, Jean; and Frawley, William, 4,314,338, Cl. 364-422.000.

Frazier, David: See—
Alford, Harvey E.; and Frazier, David, 4,313,835, Cl. 252-8.55D.

Frechet, Daniel: See—
Nedelec, Lucien; Frechet, Daniel; and Dumont, Claude, 4,313,944, Cl. 424-248.400.

Freeman, Ian B.; Rooney, John O.; and Hardwick, John F., to Burroughs Corporation. High storage density disc file. 4,314,287, Cl. 360-51.000.

Frelin, Frank J.; Kelly, Timm L.; and Malloy, Anthony J., to Amchem Products, Inc. Coating solution for metal surfaces. 4,313,769, Cl. 148-6.270.

French Oil Mill Machinery Company, The: See—
Barger, William M., 4,313,912, Cl. 422-267.000.

French, William W.; Lemke, James U.; and McClure, Richard J., to Eastman Technology, Inc. Multitrack magnetic head employing double helix structure. 4,314,298, Cl. 360-121.000.

Frey, Raymond: See—
Feier, Markus; Frey, Raymond; and Marti, Ulrich, 4,314,346, Cl. 364-555.000.

Fridlander, Bertold R., to Ames-Yissum Ltd. Immunoassay method for detecting viral antibodies in whole blood samples. 4,313,927, Cl. 424-1.000.

Fried. Krupp Gesellschaft mit beschränkter Haftung: See—
Artz, Gerd, 4,313,356, Cl. 83-37.000.

Friedrich, Heinz: See—
Beschke, Helmut; Friedrich, Heinz; Muller, Klaus-Peter; and Schreyer, Gerd, 4,314,064, Cl. 546-317.000.

Fripp, David G. F.: See—
Humphries, John M.; Baxter, Ivor R.; and Fripp, David G. F., 4,314,153, Cl. 250-231.05E.

Fritsch, Hermann. Stretching and folding appliance. 4,313,268, Cl. 38-12.000.

Front, Charles M. Wind deflector system for aerodynamic drag reduction. 4,313,635, Cl. 296-1.00S.

Frye, Robert B.; and Conroy, James T., to General Electric Company. Method for improving adhesion of silicone resin coating composition. 4,313,979, Cl. 427-387.000.

Fryer Corporation: See—
Fryer, George R., 4,314,131, Cl. 219-58.000.

Fryer, George R., to Fryer Corporation. Method of band welding with weld testing. 4,314,131, Cl. 219-58.000.

Fugner, Armin: See—
Walther, Gerhard; Schneider, Claus S.; Weber, Karl-Heinz; and Fugner, Armin, 4,313,931, Cl. 424-45.000.

Fuji Electric Co., Ltd.: See—
Kirisawa, Noriaki, 4,313,450, Cl. 133-5.00R.

Fuji Kaden Co., Ltd.: See—
Kobayashi, Kyoji; Kosaka, Takaichi; Takahara, Sigeki; and Tamura, Akira, 4,313,310, Cl. 62-175.000.

Fuji Mfg. Co., Ltd.: See—
Asai, Koichi; and Kawada, Tohsuke, 4,313,251, Cl. 29-564.600.

Fuji Photo Film Co., Ltd.: See—
Idemoto, Noboru; Yamada, Minoru; Tashiro, Mamoru; and Matsushita, Sachio, 4,313,808, Cl. 204-180.00P.

Kimura, Tsutomu; and Miyoshi, Hitoshi, 4,314,357, Cl. 364-900.000.

Fujii, Takayoshi: See—
Yoshikumi, Chikao; Ohmura, Yoshio; Hirose, Fumio; Ikuzawa, Masanori; Matsunaga, Kenichi; Fujii, Takayoshi; Ohhara, Minoru; and Ando, Takao, 4,313,939, Cl. 424-180.000.

Fujikake, Jun, to Fukurawa Metals Co., Ltd. Method of producing heat transfer tube for use in boiling type heat exchangers. 4,313,248, Cl. 29-157.30A.

Fujikawa, Kanichi: See—
Takahashi, Ryohei; Fujikawa, Kanichi; Yokomichi, Isao; Someya, Sinzo; and Sakashita, Nobuyuki, 4,314,069, Cl. 560-62.000.

Fujiki, Hirokazu: See—
Miyaji, Yoshimori; Fujiki, Hirokazu; and Takahashi, Fumio, 4,314,272, Cl. 358-10.000.

Fujiki, Kunimitsu, to VLSI Technology Research Association. Semiconductor resistor comprising a resistor layer along a side surface. 4,314,269, Cl. 357-51.000.

Fujimatsu, Wataru: See—
Kojima, Tamotsu; Imamura, Hiroyuki; Fujiwhara, Mitsuto; Fujimatsu, Wataru; and Endo, Takaya, 4,314,023, Cl. 430-389.000.

Fujisawa Pharmaceutical Co., Ltd.: See—
Komori, Tadaaki; Yamashita, Michio; Iguchi, Eiko; Kohsaka, Masanobu; Aoki, Hatsu; and Imanaka, Hiroshi, 4,313,935, Cl. 424-115.000.

Fujitsu Limited: See—
Gounji, Takashi; Kasai, Yoshihiko; and Shirai, Kenji, 4,314,216, Cl. 333-198.000.

Kobayashi, Kyoji; Kosaka, Takaichi; Takahara, Sigeki; and Tamura, Akira, 4,313,310, Cl. 62-175.000.

Tanji, Shigeo; Wakatsuki, Noboru; and Tominaga, Hideki, 4,314,215, Cl. 333-193.000.

Fujiwhara, Mitsuto: See—
Kojima, Tamotsu; Imamura, Hiroyuki; Fujiwhara, Mitsuto; Fujimatsu, Wataru; and Endo, Takaya, 4,314,023, Cl. 430-389.000.

Fukunaga, Yukio, to Nissan Motor Company, Limited. Structure for mounting a meter on an instrument panel of motor vehicles. 4,313,584, Cl. 248-27.300.

Fukurawa Metals Co., Ltd.: See—

Fujikake, Jun, 4,313,248, Cl. 29-157.30A.

Fulmer, Glenn E.; and Vollmerhausen, Conrad, to W. R. Grace & Co. Polyurea polyurethane foamed sponge with high wet strength. 4,314,034, Cl. 521-65.000.

Furukawa, Yoshimi; and Sano, Shoichi, to Honda Giken Kogyo Kabushiki Kaisha. Steering apparatus for vehicles. 4,313,514, Cl. 180-143.000.

Furuno, Akihisa: See—

Handa, Ryoji; Yoshida, Norimasa; Hosoda, Jun; and Furuno, Akihisa, 4,313,863, Cl. 260-29.60E.

Furuya, Michio; and Sakamoto, Susumu, to Tokyo Automatic Machinery Works, Ltd. Apparatus for packing. 4,313,290, Cl. 53-230.000.

Fusion Systems Corporation: See—

Matthews, John C.; and Couch, Robert W., 4,313,969, Cl. 427-44.000.

G. S. Blakeslee & Company: See—

Vilen, Erik O., 4,313,451, Cl. 134-47.000.

Gaber, Martin, to Illinois Tool Works Inc. Switch with sliding contact. 4,314,121, Cl. 200-67.00G.

GAF Corporation: See—

Tracy, David J.; Wood, Lindley S.; and Chakrabarti, Paritosh M., 4,313,764, Cl. 106-188.000.

Gaines, Thomas M., to Industrial Nuclear Company, Inc. Safety lock for radiography exposure device. 4,314,157, Cl. 250-497.000.

Galia, Karl. Method and apparatus for selecting and dispensing individual recording discs stored in compartments in a juke-box. 4,314,366, Cl. 369-35.000.

Galliani, Giulio: See—

Guzzi, Umberto; Omodei-Sale, Amedeo; and Galliani, Giulio, 4,313,950, Cl. 424-258.000.

Galliker, Josef, to BBC Brown, Boveri & Company Limited. Ozonizer feeding device. 4,314,321, Cl. 363-10.000.

Gambro AB: See—

Lehmann, Hans-Dieter; and Larsson, Lars-Ake, 4,313,831, Cl. 210-646.000.

Gambro Dialysatoren KG: See—

Lehmann, Hans-Dieter; and Larsson, Lars-Ake, 4,313,831, Cl. 210-646.000.

Gammill, Ronald B., to Upjohn Company, The. 5-Hydroxyfurochromones. 4,313,881, Cl. 260-345.200.

Gammill, Ronald B., to Upjohn Company, The. 7-Methyl-6-methylthio- methylsulfonyl-, and methylsulfonyl-methyl-furochromones. 4,313,882, Cl. 260-345.200.

Gammill, Ronald B., to Upjohn Company, The. Halofurochromones. 4,313,883, Cl. 260-345.200.

Garbuz, Tatyana F.: See—

Gotovtseva, Ljubov A.; Konkova, Maia B.; Garbuz, Tatyana F.; Bunin, Oleg A.; Osmenin, Evgeny A.; Zabavina, Nina A.; Ivanov, Alexei I.; Snopov, Vladimir P.; and Batkov, Alexandr I., 4,313,235, Cl. 8-149.100.

Gardner, Hugh C., to Union Carbide Corporation. Composition containing a half ester of an organic polyol, an unsaturated monomer, an epoxide, and a basic compound. 4,313,859, Cl. 260-18.0PF.

Gardner, Lloyd E.: See—

Farha, Floyd E., Jr.; and Gardner, Lloyd E., 4,313,820, Cl. 208-213.000.

Garrard, Bruce. Gas and liquid admixing system. 4,313,897, Cl. 261-64.00D.

Garwood, William E.; Voltz, Sterling E.; and Wu, Ellen L., to Mobil Oil Corporation. Processing of coal liquefaction products. 4,313,821, Cl. 208-245.000.

Gauger, David H.: See—

Petersen, Clifford W.; Bednar, John M.; Hocker, Edwin J., Jr.; Gauger, David H.; and Henderson, James M., 4,314,365, Cl. 367-82.000.

Gavin, Derek G.; and Jones, Michael A., to Coal Industry (Patents) Limited. Catalysts. 4,313,852, Cl. 252-439.000.

Gavina, Gian A.: See—

Calderoni, Gabriele; and Gavina, Gian A., 4,313,315, Cl. 62-475.000.

Gaylor, V. Frances; Greene, Janice L.; Miller, Arthur F.; and Pichler, Marty A., to Standard Oil Company, The. Electrochemical maintenance of optimum catalytic activity in copper-catalyzed nitrile hydrolysis processes. 4,313,803, Cl. 204-74.000.

Gebhard Balluff, Fabrik feinmechanischer Erzeugnisse: See—

Schmidt, Erhard, 4,314,310, Cl. 361-331.000.

Gebruder Loepfe AG: See—

Weidmann, Erich, 4,313,472, Cl. 139-370.200.

General Dynamics, Electronics Division: See—

Kornbau, Thomas W., 4,314,255, Cl. 343-909.000.

General Electric Company: See—

Banucci, Eugene G.; and Boldebuck, Edith M., 4,314,047, Cl. 528-26.000.

Barnes, Norman S.; and Mogle, Rodman A., 4,313,262, Cl. 29-840.000.

Blake, Charles R., 4,314,008, Cl. 429-8.000.

DePuy, Robert P., 4,314,327, Cl. 363-142.000.

Frye, Robert B.; and Conroy, James T., 4,313,979, Cl. 427-387.000.

Haaf, William R.; and Lee, Gim F., Jr., 4,313,864, Cl. 260-30.60R.

Hatch, Burton D., 4,314,171, Cl. 310-219.000.

Heitman, Christopher J.; and Becker, Joseph A., 4,313,349, Cl. 74-507.000.

Hughes, Raymond B., 4,313,999, Cl. 428-251.000.

Huss, Christina L.; and West, Jon K., 4,313,824, Cl. 210-86.000.

Kindig, Alan L.; and Wesseldyk, Albert J., 4,313,258, Cl. 29-596.000.

Tomlinson, Harold W., Jr., 4,313,510, Cl. 177-165.000.

Walker, Loren H.; and Cutler, John H., 4,314,190, Cl. 318-798.000.

West, Jon K., 4,313,833, Cl. 210-663.000.

Wilkes, Colin; and Gerhold, Bruce W., 4,313,300, Cl. 60-39.020.

Woodbury, Henry H.; and Lewandowski, Robert S., 4,313,257, Cl. 29-592.00R.

General Fire Extinguisher Corporation: See—

Eckert, Robert D., 4,313,501, Cl. 169-58.000.

General Foods Corporation: See—

Dwyer, Daniel E., Jr., 4,313,265, Cl. 34-5.000.

General Motors Corporation: See—

Lehnhoff, Richard N.; and Staker, William C., 4,313,402, Cl. 123-41.120.

George Koch Sons, Inc.: See—

Williams, Stanley E., 4,313,634, Cl. 294-166.000.

Georgi, Heinz W., to IVAC Corporation. Electronic sphygmomanometer. 4,313,445, Cl. 128-680.000.

Georgia Tech Research Institute: See—

Moran, Thomas F.; Powers, James C.; and Lively, Mark O., III, 4,313,911, Cl. 422-159.000.

Gerhold, Bruce W.: See—

Wilkes, Colin; and Gerhold, Bruce W., 4,313,300, Cl. 60-39.020.

Germain, Lloyd M.: See—

Wing, Thomas; and Germain, Lloyd M., 4,314,174, Cl. 310-315.000.

Germert, Herbert, to Agfa-Gevaert Aktiengesellschaft. Stabilized photographic emulsion, a process for its preparation and stabilized photographic materials. 4,314,024, Cl. 430-564.000.

Gerow, Gordon P.; and Blake, John H., to FMC Corporation. Citrus processing system and method. 4,313,372, Cl. 99-483.000.

Gertler, Leona; Gertler, Robert; Nagel, Dietmar; and Kennedy, Melvin. Illuminating whistle. 4,314,316, Cl. 362-86.000.

Gertler, Robert: See—

Gertler, Leona; Gertler, Robert; Nagel, Dietmar; and Kennedy, Melvin, 4,314,316, Cl. 362-86.000.

Gessinger, Gernot, to BBC Brown, Boveri & Company Limited. Composite shaped articles. 4,314,007, Cl. 428-614.000.

Gestinvest: See—

Rombaut, Willy, 4,314,238, Cl. 340-525.000.

Gewerkschaft Eisenhütte Westfalen: See—

Weirich, Walter, 4,313,463, Cl. 137-538.000.

Geyer, Henno: See—

Woitschitzke, Hans; and Geyer, Henno, 4,313,614, Cl. 280-610.000.

Gidge, Kenneth N.; and Richard, Henry J., to BSL Corporation. Transparent access curtain for coolers and the like. 4,313,485, Cl. 160-328.000.

Giffin, Charles E.: See—

Kuppermann, Aron; Dreyer, William J.; Giffin, Charles E.; and Boettger, Heinz G., 4,314,156, Cl. 250-281.000.

Gildemeister AG: See—

Kuska, Joachim; and Twiefel, Gunter, 4,313,252, Cl. 29-568.000.

Gillan, John; and Richards, Colin M., to Dulux Australia Ltd. Cross linked polyester. 4,314,033, Cl. 521-65.000.

Gille, Gunther; Goertler, Horst; Prohaska, Hans; and Rachner, Horst, to ITT Industries, Inc. Wiper motor circuit arrangement. 4,314,186, Cl. 318-434.000.

Gillett, Kenneth: See—

Daughton, John W.; Gillett, Kenneth; Nelson, Frank; and Wilczek, Stephen P., 4,314,334, Cl. 364-200.000.

Girgis, Mikhail M., to PPG Industries, Inc. Method of preparing a phenolic aldehyde resin and resin composition for an adhesive system to be applied to glass fibers. 4,314,050, Cl. 528-140.000.

Girling Limited: See—

Farr, Glyn P. R., 4,313,302, Cl. 60-347.00R.

Givaudan Corporation: See—

Kaiser, Roman; and Lamparsky, Dietmar, 4,313,856, Cl. 252-522.00R.

Glenn, William E., to New York Institute of Technology. Method and apparatus for ultrasonic Doppler detection. 4,313,444, Cl. 178-663.000.

Glover, Brian: See—

Boyd, Violet; Fishwick, Brian R.; and Glover, Brian, 4,313,874, Cl. 260-207.000.

Godfrey, Frederick D., Jr., to Gulf & Western Corporation. Apparatus and method of producing a succession of die cut tobacco blanks. 4,313,435, Cl. 128-105.000.

Goertler, Horst: See—

Gille, Gunther; Goertler, Horst; Prohaska, Hans; and Rachner, Horst, 4,314,186, Cl. 318-434.000.

Gold, Nicholas, to Polaroid Corporation. Film processor having automatically actuated film severing means. 4,313,667, Cl. 354-303.000.

Goldberger, William M.; Epstein, Harold M.; and Parekh, Bhupendra K., to Battelle Development Corporation. Two stage comminution. 4,313,573, Cl. 241-1.000.

Goldenberg, Enrique A. Diverter/bypass valve. 4,313,428, Cl. 126-422.000.

Goller, Glen J.; and Salonia, Joseph R., to United Technologies Corporation. Dry method for making an electrochemical cell electrode. 4,313,972, Cl. 427-113.000.

Goloff, Alexander: See—

Belke, William H.; Goloff, Alexander; and Grim, George B., 4,313,301, Cl. 60-39.51H.

Gomez, Jim H.; and Davila, Jose E., to Transit Systems Technology, Inc. Fare collection system and components thereof. 4,313,700, Cl. 406-156.000.

Gomez, Michel, to e.d. Veglia. Daily mileage recording unit. 4,314,149, Cl. 235-96.000.

Gonzales, Frank, Jr.; and Sobon, Joseph, to International Business Machines Corp. Method of forming a ceramic article with a glassy surface. 4,313,900, Cl. 264-61.000.

Gooch, Ralph M.: See—

Johnson, Robert L.; and Gooch, Ralph M., 4,313,977, Cl. 427-342.000.

Good, Garry R.; and Anderson, Charles W., to Chromalloy American Corporation. Agricultural implement. 4,313,503, Cl. 172-140.000.

Goodyear Aerospace Corporation: See—

Batcher, Kenneth E., 4,314,349, Cl. 364-716.000.

Gopichand, Yalamanchili: See—

Schmitz, Francis J.; van der Helm, Dick; Hossain, M. Bilayet; Gopichand, Yalamanchili; and Prasad, Ravi S., 4,314,057, Cl. 542-401.000.

Gorchev, Dimitir; and Ingard, Karl U., to Mitco Corporation. Static pressure regain coupler for an air distribution system. 4,313,522, Cl. 181-224.000.

Gordon, Herman B., to Rogers Corporation. Keyboard switch with graphic overlay. 4,314,116, Cl. 200-5.00A.

Goshi Kaisha Kanemitsu Doko Yosetsu-sho: See—

Kanemitsu, Yukio, 4,313,323, Cl. 72-84.000.

Goto, Jugo; and Doura, Fumihiko, to Takeda Chemical Industries, Ltd. Composition for powder coating. 4,314,042, Cl. 525-59.000.

Goto, Masana: See—

Oizumi, Masayuki; Goto, Masana; Ishiki, Minoru; and Uozumi, Shoji, 4,314,002, Cl. 428-414.000.

Gotovtseva, Ljubov A.; Konkova, Maia B.; Garbuz, Tatyana F.; Bunin, Oleg A.; Osmenin, Evgeny A.; Zabavina, Nina A.; Ivanov, Alexei I.; Snopov, Vladimir P.; and Batkov, Alexandr I. Method of treating cotton cloth of twisted yarn in loom state. 4,313,235, Cl. 8-149.100.

Gottman, James F.: See—

Donahue, John W.; and Gottman, James F., 4,314,258, Cl. 346-75.000.

Gounji, Takashi; Kasai, Yoshihiko; and Shirai, Kenji, to Fujitsu Limited. Mechanical filter. 4,314,216, Cl. 333-198.000.

Gradeff, Peter S.: See—

Schreiber, Fred G.; and Gradeff, Peter S., 4,314,070, Cl. 560-64.000.

Gradi, David A., to Q-Dot, Inc. Transient data recorder systems. 4,314,212, Cl. 333-20.000.

Gradi, Reinhard; Schroeder, Klaus; and Ehlers, Klaus-Peter, to Hoechst Aktiengesellschaft. Liquid-liquid extraction apparatus. 4,313,826, Cl. 210-114.000.

Graef, Harry T.; Mercer, Scott A.; Hill, Jeffrey A.; and Leontas, Spiro, to Diebold Incorporated. Automatic banking machine with sealed tamper-indicating container for receiving and storing diverted paper money bills. 4,313,601, Cl. 271-207.000.

Graham, Louis A.: See—

Teague, Edward W.; Graham, Louis A.; and McConnell, Bobby L., 4,313,732, Cl. 8-541.000.

Graham, Richard H.: See—

Tsai, Shirley C.; Graham, Richard H.; and Oder, Robin R., 4,313,499, Cl. 166-248.000.

Graham, Ricky T. Pressure control valve. 4,313,497, Cl. 166-124.000.

Grammatica, Steven J., to Xerox Corporation. Photoconductive reflex exposure member. 4,314,012, Cl. 430-31.000.

Granger, Harold M.: See—

Elias, William H.; and Granger, Harold M., 4,314,313, Cl. 361-433.000.

Grant, Douglas: See—

Follows, James S.; and Grant, Douglas, 4,313,693, Cl. 405-121.000.

Gras, Rainer; and Wolf, Elmar, to Chemische Werke Huls Aktiengesellschaft. Production of isophoronedisocyanate adducts containing free NCO-groups and NCO-groups end blocked with ϵ -caprolactam. 4,313,876, Cl. 260-239.30R.

Graves, Richard E., Jr.: See—

Throne, James L.; and Graves, Richard E., Jr., 4,314,036, Cl. 521-99.000.

Graves, Walter E., Jr.; Boys, Donald; and Turner, Frederick T., to Varian Associates, Inc. Sputter-coating system, and vacuum valve, transport, and sputter source array arrangements therefor. 4,313,815, Cl. 204-298.000.

Greatbatch, Wilson. Tissue growth control apparatus and method. 4,313,438, Cl. 128-207.210.

Green Cross Corporation, The: See—

Arimura, Hirofumi; Nagai, Masanori; Yamauchi, Takeshi; Kitagawa, Tsutomu; and Suyama, Tadakazu, 4,313,938, Cl. 424-180.000.

Greenbaum, George. Agricultural system with articulated members. 4,313,279, Cl. 47-29.000.

Greene, Janice L.: See—

Gaylor, V. Frances; Greene, Janice L.; Miller, Arthur F.; and Pichler, Marty A., 4,313,803, Cl. 204-74.000.

Greenspan, Joseph, to Beatrice Foods Co. Method for tenderizing cut meat portions. 4,313,963, Cl. 426-58.000.

Grefco, Inc.: See—

Ruff, David L.; and Nath, Narikottile G., 4,313,997, Cl. 428-220.000.

Grehal, Pierre: See—

Malagnoux, Roger; and Grehal, Pierre, 4,313,333, Cl. 72-410.000.

Greier, Josef: See—

Skatsche, Othmar; Fachbach, Heinz; Thien, Gerhard; Kirchweiger, Karl; Greier, Josef; and List, Hans, 4,313,405, Cl. 123-195.00C.

Greve, Heinz; and Whale, Gunter, to Hauni-Werke Korber & Co. KG. Method of applying atomized liquid plasticizer to a running tow of filamentary filter material. 4,313,974, Cl. 427-209.000.

Griffith, Charles E. Fused short circuit and grounding switch. 4,314,300, Cl. 361-13.000.

Grim, George B.: See—

Belke, William H.; Goloff, Alexander; and Grim, George B., 4,313,301, Cl. 60-39.51H.

Grineva, Ljudmila D.: See—

Fesenko, Evgeny G.; Dantsiger, Alla Y.; Filipiev, Viktor S.; Razumovskaya, Olga N.; Kleitsov, Alexandr N.; Lebedev, Vladimir N.; Grineva, Ljudmila D.; Rogach, Tatyana V.; Feronov, Anatoly D.; Akbaeva, Galina M.; Cheptsov, Evgeny I.; Panich, Anatoly E.; Lisitsina, Ljudmila G.; Lavrikova, Svetlana A.; Ochirov, Vasily A.; Dudkina, Svetlana I.; Nevsky, Alexandr N.; Aleshin, Vladimir A.; Kupriyanov, Mikhail F.; Baljunis, Evgeny S.; Mordanov, Boris P.; Zhitomirsky, Grigory A.; Feldman, Naum B.; Smazhevskaya, Ekaterina G.; and Devlikanova, Ravi-lyia U., 4,313,839, Cl. 252-62.900.

Grootcon (U.K.) Limited: See—

Porter, Ronald, 4,314,132, Cl. 219-61.000.

Grove Valve and Regulator Company: See—

Adamson, Kenneth S., 4,313,462, Cl. 137-512.100.

Brumm, Richard S., 4,313,461, Cl. 137-489.000.

Groves, Peter H.; and Hilbourne, Robert A., to U.S. Philips Corporation. Voltage clamping circuit. 4,314,167, Cl. 307-540.000.

Gruppo Lepetit S.p.A.: See—

Guzzi, Umberto; Omodei-Sale, Amedeo; and Galliani, Giulio, 4,313,950, Cl. 424-258.000.

Grzesnikowski, Walter. Universal equipment leg. 4,313,586, Cl. 248-188.400.

Gschwend, Heinz W.: See—

Huebner, Charles F.; and Gschwend, Heinz W., 4,313,955, Cl. 424-278.000.

GTE Automatic Electric Labs Inc.: See—

Tin, Kam B.; and Norman, Stanley R. C., 4,314,164, Cl. 307-243.000.

Guenter, Robert O.; and Huffhines, Donald F., to Mobil Oil Corporation. System for deploying and retrieving seismic source assembly from marine vessel. 4,313,392, Cl. 114-244.000.

Gulf Oil Corporation: See—

Bertino, Clarence D.; Hill, Robert W.; and Schulz, J. Gustav, 4,313,887, Cl. 260-367.000.

Gulf Research & Development Company: See—

Tsai, Shirley C.; Graham, Richard H.; and Oder, Robin R., 4,313,499, Cl. 166-248.000.

Gulf & Western Corporation: See—

Godfrey, Frederick D., Jr., 4,313,435, Cl. 128-105.000.

Gulley, Mark R., to Air Products and Chemicals, Inc. Process for reducing oxygen consumption in black liquor oxidation. 4,313,788, Cl. 162-31.000.

Gunkinger, Siegfried; Weeger, Hans-Peter; Kriechbaum, Kurt; and Igel, Wolfgang, to Zinser Textilmaschinen Gesellschaft mit beschränkter Haftung. Methods and apparatus for changing bobbins in flyer spinning frames. 4,313,299, Cl. 57-267.000.

Gunter, Thomas G.; Musa, Fuad H.; Wilder, Wm. B., Jr.; and Wiles, Michael F., to Motorola Inc. On chip ram interconnect to MPU bus. 4,314,353, Cl. 364-900.000.

Gupta, Ramesh, to Exxon Research & Engineering Co. Catalytic reactor having bed bypass. 4,313,908, Cl. 422-111.000.

Guthrie, Robert W.: See—

Fahrenholtz, Kenneth E.; Guthrie, Robert W.; Kierstead, Richard W.; and Tilley, Jefferson W., 4,314,085, Cl. 568-644.000.

Gutsche, Walter: See—

Panek, Peter; Gutsche, Walter; and Woditsch, Peter, 4,313,913, Cl. 423-82.000.

Guzzi, Umberto; Omodei-Sale, Amedeo; and Galliani, Giulio, to Gruppo Lepetit S.p.A. Antireproductive tricyclic ortho-fused nitrogen containing compounds. 4,313,950, Cl. 424-258.000.

Gyi, Maung, to Ampex Corporation. Amplitude and phase equalizer. 4,314,288, Cl. 360-65.000.

Gyromat Corporation, The: See—

Wiggins, Richard F., 4,313,475, Cl. 141-18.000.

H. E. Rudge and Company Limited: See—

Adams, John F., 4,313,466, Cl. 137-614.170.

Haaf, William R.; and Lee, Gim F., Jr., to General Electric Company. Polyphenylene oxide/plasticizer/hydrogenated radial teleblock copolymer blends. 4,313,864, Cl. 260-30.60R.

Haas, John F.: See—

Jones, Wallace R.; Haas, John F.; Krieger, Paul A.; and Frappier, David E., 4,313,970, Cl. 427-56.100.

Haase, Thomas A.: See—

Pesa, Frederick A.; and Haase, Thomas A., 4,313,893, Cl. 260-465.400.

Habal, Mutaz B.; and Leake, Donald L. An elastomeric mesh hinge primarily for replacement of the finger joints. 4,313,232, Cl. 3-1.910.

Haberlein, Peter, to Institut Dr. Friedrich Forster Prüfgerätee. Test arrangement for the non-destructive testing of metallic test pieces. 4,314,203, Cl. 324-262.000.

Habich, Hans-Joachim, to C. A. Greiner & Sohne GmbH. Test tube for the examination of urine samples. 4,314,030, Cl. 435-296.000.

Hafele, Robert X. Blow molding method. 4,313,905, Cl. 264-532.000.

Haga, Hachiro: See—
Tsuruta, Mitsuo; and Haga, Hachiro, 4,313,369, Cl. 98-115.0SB.

Hagemann, Edmund; and Wildschutte, Herbert, to Volkswagenwerk AG. Window crank assembly. 4,313,282, Cl. 49-352.000.

Hagin, Faust, to Maschinenfabrik Augsburg-Nürnberg Aktiengesellschaft. Multiple-power gear drive transmission and drive assembly including such transmission, and brake energy accumulator. 4,313,351, Cl. 74-687.000.

Hahn, Steven R.: See—
Bok, Dennis E.; Brown, Mark E.; Hahn, Steven R.; Huliba, David A.; and Wysinski, Thomas M., 4,314,264, Cl. 346-140.00R.

Hailer, Gottfried, to Daimler-Benz Aktiengesellschaft. Independent wheel suspension. 4,313,619, Cl. 280-691.000.

Hain, Paul, to Champion International Corporation. Process for forming laminated paperboard containers. 4,313,899, Cl. 264-40.100.

Hajime Industries, Ltd.: See—
Yoshida, Hajime, 4,314,279, Cl. 358-212.000.

Haley, Floyd C., to International Refining Equipment. Climbing film heat exchange apparatus. 4,313,784, Cl. 159-6.00W.

Hall, Eric R. D., to Schaefer Marine, Inc. Mast shroud system. 4,313,391, Cl. 114-90.000.

Halliburton Company: See—
Harris, Lawrence E., 4,313,834, Cl. 252-8.55C.

Halliburton Services: See—
Brandell, John T., 4,313,495, Cl. 166-53.000.

Halm Instrument Co., Inc.: See—
Lyon, Floyd A.; Yale, William H.; and Lyon, Donald, 4,313,419, Cl. 126-421.000.

Ham, Young S. Baseball game apparatus. 4,313,606, Cl. 273-89.000.

Hamaoka, Hiromi: See—
Oda, Yasutaka; and Hamaoka, Hiromi, 4,314,291, Cl. 360-78.000.

Hamon, Jean-Pierre: See—
de Sivry, Bruno J. M.; Carsac, Claude R.; and Hamon, Jean-Pierre, 4,314,135, Cl. 29-121.0EU.

Handa, Ryoji; Yoshida, Norimasa; Hosoda, Jun; and Furuno, Akihisa, to Nitto Chemical Industry Co. Ltd.; Mitsubishi Rayon Co., Ltd.; and Diaflo Co., Ltd. Modification of acrylamide polymers. 4,313,863, Cl. 260-29.60E.

Hanell, Sigmund H.; and Kreutel, Randall W., Jr., to Communications Satellite Corporation. Intermodulation product suppression by antenna processing. 4,314,250, Cl. 343-100.0SA.

Hansen, Loren F.; and Stolley, Ronald M., to Outboard Marine Corporation. Blade housing mount for riding mowers. 4,313,295, Cl. 56-15.800.

Hanson, Robert B., to Standard Oil Company (Indiana). Glass filled polyamide-imide phthalimide copolymer. 4,313,868, Cl. 260-37.00N.

Hanyu, Susumu; Morimoto, Shyuzo; and Sano, Yasuro, to Janome Sewing Machine Co. Ltd. Sewing machine with a pattern selecting device. 4,313,389, Cl. 112-158.00A.

Hanyu, Yoshiaki: See—
Suzuki, Yoshihisa; Kaizuka, Takanoli; Hanyu, Yoshiaki; Otake, Mituyoshi; and Hidano, Yoichi, 4,313,989, Cl. 428-64.000.

Haraguchi, Tosimichi, to Hitachi Metals, Ltd. Permanent magnet type lifting device. 4,314,219, Cl. 335-295.000.

Haraguchi, Youichiro: See—
Urai, Muneharu; Abe, Tadafumi; Haraguchi, Youichiro; and Hayashi, Koji, 4,313,776, Cl. 156-220.000.

Harbecke, Gerold J. Pipe support coupling and method of using same. 4,313,286, Cl. 52-220.000.

Harbin, Charles M., to AMCS Corporation. Shoe cleaning machine. 4,313,238, Cl. 15-37.000.

Hardwick, John F., to Burroughs Corporation. Tribit servo track detector. 4,314,286, Cl. 360-40.000.

Hardwick, John F.: See—
Freeman, Ian B.; Rooney, John O.; and Hardwick, John F., 4,314,287, Cl. 360-51.000.

Harris Corporation: See—
Sanders, Thomas J.; and White, William H., 4,313,768, Cl. 148-1.500.

Sellers, Robert W., 4,314,373, Cl. 455-73.000.

Harris, Lawrence E., to Halliburton Company. High viscosity acidic treating fluids and methods of forming and using the same. 4,313,834, Cl. 252-8.55C.

Harris, Richard W.; and Cleveland, John F., to VBC, Inc. Narrow band voice modulator system. 4,314,104, Cl. 179-15.55R.

Harris & Thrush Manufacturing Company: See—
Johnson, Don R., 4,313,631, Cl. 292-201.000.

Hart, Joseph J.; and Desmond, John D., to Container Corporation of America. Carton with article retaining structure. 4,313,540, Cl. 206-588.000.

Hart, Joseph J.; and Desmond, John D., to Container Corporation of America. Carton with article retaining structure. 4,313,541, Cl. 206-588.000.

Hartmann, Pierre: See—
Castera, Jean P.; Hartmann, Pierre; and Dupont, Jean M., 4,314,214, Cl. 333-141.000.

Harvey, James P.: See—
Richards, Thomas E.; Harvey, James P.; and Daigle, Michael A., 4,313,919, Cl. 423-321.00R.

Hasegawa, Koki: See—
Okado, Chihiro; Morishita, Takashi; and Hasegawa, Koki, 4,314,189, Cl. 318-732.000.

Hashimoto, Mitsuru; Sakai, Kiyoshi; Ohta, Masafumi; Kozima, Akio; Sasaki, Masaomi; and Tsutsui, Kyoji, to Ricoh Co., Ltd. Electrophotographic sensitive materials containing disazo compounds. 4,314,015, Cl. 430-58.000.

Hashimoto, Mitsuru: See—
Ohta, Masafumi; Hashimoto, Mitsuru; and Tsutsui, Kyoji, 4,314,016, Cl. 430-59.000.

Hashio, Moriki; and Kimura, Tomohiko, to Sumitomo Kinzoku Kogyo Kabushiki Kaisha. Apparatus for changing the width of a cast piece. 4,313,487, Cl. 164-436.000.

Hasquenoph, Jean H.; and Coutin, Pierre F., to R. Alkan & Cie. Device with independent hooks and automatic locking mechanism for hooking up loads under aircraft. 4,313,582, Cl. 244-137.00R.

Hata, Masayuki: See—
Kobayashi, Isao; Akimoto, Hideo; Takahashi, Yoshiyuki; Hibiya, Tokio; and Hata, Masayuki, 4,313,343, Cl. 73-290.00V.

Hatch, Burton D., to General Electric Company. Narrow gap collector with integral electromagnetic pump. 4,314,171, Cl. 310-219.000.

Hattori, Tadashi: See—
Yamaguchi, Hiroaki; Hattori, Tadashi; and Ootsuka, Yoshinori, 4,313,341, Cl. 73-862.330.

Haug, W. Gordon: See—
Tolliver, Daniel R.; and Haug, W. Gordon, 4,313,381, Cl. 102-413.000.

Hauni-Werke Korber & Co. KG.: See—
Greve, Heinz; and Whale, Gunter, 4,313,974, Cl. 427-209.000.

Peters, Hartmut, 4,313,577, Cl. 242-66.000.

Haus, Paul Z., Jr.; and Signorelli, John A. Lock and key combination with mastering concept. 4,313,319, Cl. 70-34.000.

Hawkins, Paul F., to Wysong & Miles Company. Workpiece support and discharge system for power squaring shears. 4,313,357, Cl. 83-81.000.

Hayakawa, Shigeru: See—
Abe, Atsushi; Ogawa, Hisahito; Nishikawa, Masahiro; Sekido, Satoshi; and Hayakawa, Shigeru, 4,313,338, Cl. 73-23.000.

Matsuoka, Tomizo; Nitta, Tsuneharu; and Hayakawa, Shigeru, 4,314,177, Cl. 313-497.000.

Matsuoka, Tomizo; Nitta, Tsuneharu; and Hayakawa, Shigeru, 4,314,178, Cl. 313-497.000.

Hayami, Masaaki; and Tonikoshi, Seiko, to Matsushita Electric Industrial Co., Ltd. Indolines styryl-like compounds. 4,314,058, Cl. 542-455.000.

Hayashi, Koji: See—
Urai, Muneharu; Abe, Tadafumi; Haraguchi, Youichiro; and Hayashi, Koji, 4,313,776, Cl. 156-220.000.

Hayashi, Masaharu: See—
Hori, Takanobu; and Hayashi, Masaharu, 4,313,531, Cl. 192-58.00B.

Hayashi, Masaki: See—
Wakatsuka, Hirohisa; Hayashi, Masaki; and Konishi, Yoshitaka, 4,313,954, Cl. 424-274.000.

Haynes, Munro K., to International Business Machines Corporation. Biased pulsed recording systems and methods. 4,314,289, Cl. 360-77.000.

Hays, Gordon W. Weight portioning method and apparatus. 4,313,507, Cl. 177-1.000.

Hayward Tyler Limited: See—
Anderson, Eric J., 4,313,498, Cl. 166-206.000.

Hazue, Masaaki: See—
Kato, Makoto; and Hazue, Masaaki, 4,313,928, Cl. 424-1.500.

Head, Billy D.: See—
Shewbart, William E.; Sims, Steve A.; Head, Billy D.; and White, G. Eldon, 4,314,090, Cl. 585-328.000.

Head, Claude D., III: See—
McNeir, Ridge W.; and Head, Claude D., III, 4,314,342, Cl. 364-468.000.

Hebert, Joel J.: See—
Thigpen, Ben B.; and Hebert, Joel J., 4,314,363, Cl. 367-16.000.

Heeren, Hermann; and Kraetschmer, Liselotte, to Maschinenfabrik Augsburg Nürnberg Aktiengesellschaft. Heat exchanger. 4,313,490, Cl. 165-82.000.

Heeres, Jan; and Mostmans, Joseph H., to Janssen Pharmaceutica, N.V. Heterocyclic derivatives of (4-aryloxymethyl-1,3-dioxolan-2-yl)methyl-1H-imidazoles and 1H-1,2,4-triazoles. 4,313,953, Cl. 424-269.000.

Heilman, Marlin S.: See—
Moore, Eric R.; Heilman, Marlin S.; and Kinney, Philip C., 4,314,095, Cl. 174-84.00C.

Heinrich, Ernst; and Ribka, Joachim, to Cassella Aktiengesellschaft. Azo coupling in two-phase water-alcohol mixtures. 4,313,872, Cl. 260-152.000.

Heinze, Frank D., Jr.; and Heinze, Frank D., III. Sulky having adjustable fulcrum point. 4,313,611, Cl. 280-63.000.

Heinze, Frank D., III: See—
Heinze, Frank D., Jr.; and Heinze, Frank D., III, 4,313,611, Cl. 280-63.000.

Heitman, Christopher J.; and Becker, Joseph A., to General Electric Company. Sealed electrical control device for x-ray apparatus. 4,313,349, Cl. 74-507.000.

Helan Iron Works, Ltd.: See—
Suzuki, Yukitomo, 4,313,478, Cl. 144-1.00A.

Hell, August; Borowski, Kurt; Cocron, Istvan; and Huber, Theodor, to Agfa-Gevaert AG. Focussing system with automatic control of emitted radiant power. 4,313,655, Cl. 354-25.000.

Henderson, Donald L., Sr., to Burroughs Corporation. Method of fabricating a charge transfer channel covered by a stepped insulating layer. 4,313,253, Cl. 29-571.000.

Henderson, James M.: See—
Petersen, Clifford W.; Bednar, John M.; Hocker, Edwin J., Jr.; Gauger, David H.; and Henderson, James M., 4,314,365, Cl. 367-82.000.

Hendriks, Petrus F. A. M.; Jansen, Arie; van den Berg, Willem B.; and Hoek, Cornelis, to Unie Van Kunststestfabrieken, B.V. Process and device for the preparation of a product containing ammonium orthonitrate, and product obtained by this process. 4,313,918, Cl. 423-310.000.

Henning, William A.; and Linebarger, Henry F., to Union Carbide Corporation. Method for adding unalloyed magnesium metal to molten cast iron. 4,313,758, Cl. 75-130.00R.

Henriques, Joseph. Oil burner diffuser. 4,313,721, Cl. 431-265.000.

Hercules Incorporated: See—
Holt, William G., 4,313,546, Cl. 220-74.000.

Herman, Frederick L.; and Dixon, Dale D., to Air Products and Chemicals, Inc. Monomeric compounds having vinyl and imidazolidin-2-one terminal groups. 4,314,067, Cl. 548-320.000.

Herman, Michel M. Device for removing and/or re-installing manhole lids on an apparatus under pressure. 4,313,709, Cl. 414-684.300.

Hermann Hemscheidt Maschinenfabrik GmbH & Co.: See—
Maykemper, Alfred; Schorrad, Gerbard; and Werth, Gunter, 4,313,698, Cl. 405-296.000.

Hermann Rappold & Co. GmbH: See—
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Hestad, Alfred M.; Tentler, Michael; and Rose, Levi L., to United Networks, Inc.; and Manu-Tronics, Inc. Subscriber station networks. 4,314,107, Cl. 179-81.00R.

Hetzl, Henry T.: See—
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Hewlett-Packard Company: See—
Carau, Frank P., Sr.; Hetzel, Henry T.; and Tremblay, Michael A., 4,314,096, Cl. 178-19.000.

Misson, William W.; Studley, Clarence K.; Oliver, Bernard M.; and Liljenwall, Edward T., 4,314,112, Cl. 200-5.00A.

Paulson, Gary R., 4,314,293, Cl. 360-92.000.

Heyke, Klaus; Schmidt, Gunter; and Ragaly, Istvar, to Robert Bosch GmbH. Two semiconductor diode rectifier structure. 4,314,271, Cl. 357-76.000.

Hibari, Eiko: See—
Miyagawa, Tuiyoshi; and Hibari, Eiko, 4,314,147, Cl. 235-92.05B.

Hibiya, Tokio: See—
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Hickmann, Karl: See—
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Hieronymus, Hans, to Siemens Aktiengesellschaft. Current feed for a super-conducting magnet coil. 4,314,123, Cl. 200-289.000.

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Hill-Harriss, Stephen P.: See—
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Hoffmann, Arthur K.: See—
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Hoffmann-La Roche Inc.: See—
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Wick, Alexander E., 4,314,063, Cl. 546-298.000.

Højbjerg, Svend, to AS Phonix. Asphalt laying machine. 4,313,690, Cl. 404-114.000.

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Holland Bergen op Zoom B.V. Machinefabriek en/ljzergietenij: See—
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Holzem, Heinz; and Kehrmann, Helmut, to Pierburg Luftfahrtgeräte Union GmbH. Method and control device for dosing flow media. 4,313,465, Cl. 137-599.000.

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- Hoshi, Nobuyoshi: See—
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- Hosoda, Jun: See—
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- Hosono, Takashi: See—
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- Hossain, M. Bilayet: See—
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- Houdaille Industries, Inc.: See—
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- Houston, Owen M.: See—
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- Houston Well Screen Company: See—
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- Howard, Durrell U. Speed responsive trailer stabilizer with zero slack, 4,313,616, Cl. 280-446.00B.
- Howmet Turbine Components Corporation: See—
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- Hrusch, Louis C.: See—
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- Hsu, Ying Y., to Timex Corporation. 4-Substituted phenyl 4'-(5-n-alkyl-1,3-dioxan-2-yl)benzoates, 4,313,878, Cl. 260-340.700.
- Huber, Theodor: See—
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- Hubner, Otto. Electrically illuminated mirror, 4,314,314, Cl. 362-32.000.
- Huebner, Charles F.; and Gschwend, Heinz W., to Ciba-Geigy Corporation. 1,5-Bis(1,4-benzodioxin-2-yl)-3-azapentane-1,5-diols, 4,313,955, Cl. 424-278.000.
- Huffhines, Donald F.: See—
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- Huggins, Dale K.; Queneau, Paul B.; and Beckstead, Leo W., to Amex Inc. Autoclave tungstate upgrading of scheelite concentrates, 4,313,914, Cl. 423-58.000.
- Hughes Aircraft Company: See—
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- Hughes, Douglas B. Pipe thawing apparatus, 4,314,140, Cl. 219-300.000.
- Hughes, Kathleen A.; Kine, Benjamin B.; and Swift, Graham, to Rohm and Haas Company. Process for preparing low molecular weight water-soluble polymers, 4,314,044, Cl. 260-29.60M.
- Hughes, Raymond B., to General Electric Company. Laminate composition comprising polyetherimide impregnated fabric, 4,313,999, Cl. 428-251.000.
- Huizinga, John S.: See—
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- Huliba, David A.: See—
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- Hull, Frederick H., to Budd Company. The. Environmental testing system, 4,313,347, Cl. 73-669.000.
- Hults, Johnathan J. Educational frame device having a rotatable body and rotatable symbol-bearing inserts, 4,313,727, Cl. 434-174.000.
- Humphries, John M.; Baxter, Ivor R.; and Fripp, David G. F., to Marconi Company Limited. The. Optical velocity responsive apparatus and arrangements, 4,314,153, Cl. 250-231.05E.
- Hunt, Arlon J., to United States of America. Energy. Radiant energy collection and conversion apparatus and method, 4,313,304, Cl. 60-641.800.
- Hunter, Aldridge T.: See—
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- Hunter, LeRoy: See—
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- Huss, Christina L.; and West, Jon K., to General Electric Company. Waste water treatment system and process, 4,313,824, Cl. 210-86.000.
- Hydronautics, Incorporated: See—
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- Ichihashi, Yasuhiko: See—
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- Ichizawa, Yoshiyuki: See—
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- ICI Americas Inc.: See—
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- Kruse, Walter M.; and Stephen, John F., 4,314,078, Cl. 564-99.000.
- ICI Australia Limited: See—
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- Ide, Akira: See—
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- Idemoto, Noboru; Yamada, Minoru; Tashiro, Mamoru; and Matsushita, Sachio, to Fuji Photo Film Co., Ltd. Electrodialyzer and method of regenerating waste photographic processing solution, 4,313,808, Cl. 204-180.00P.
- Igel, Wolfgang: See—
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- Iguchi, Eiko: See—
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- Ihle Ingenieurgesellschaft mbH: See—
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- Ijuin, Noriaki: See—
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- Ikeda, Hironosuke; and Nakaido, Shigehiro, to Sanyo Electric Co., Ltd. Battery, 4,314,009, Cl. 429-161.000.
- Ikeda, Nobuo: See—
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- Ikeda, Toshimitsu: See—
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- Ikemoto, Isao: See—
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- Ikuzawa, Masanori: See—
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- Imai, Masafumi: See—
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- Imai, Shozaburo; Suzuki, Haruo; Asai, Kuniaki; and Ueno, Katsuji, to Sumitomo Chemical Company, Limited. Process for producing polycondensates, 4,313,870, Cl. 260-40.00R.
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- Crooks, Graham R., 4,314,073, Cl. 562-416.000.
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- Inada, Masami; and Aoki, Kongou, to Aisin Seiki Kabushiki Kaisha. Electromagnetic valve assembly, 4,313,366, Cl. 91-459.000.
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- Inca-One Corporation: See—
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- Industrial Nuclear Company, Inc.: See—
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- Inglis, Mary C.: See—
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- Bergeron, David L.; and Stephens, Geoffrey B., 4,314,267, Cl. 357-43.000.
- Briska, Marian; Metzger, Gert; and Thiel, Klaus P., 4,313,773, Cl. 148-188.000.
- Brown, Earl T.; and Cavill, Barry R., 4,313,683, Cl. 400-225.000.
- Demke, Kent R.; Dwire, Jerold D.; Ko, Michael A.; and Mumola, Joanne L., 4,314,244, Cl. 340-731.000.
- Gonzales, Frank, Jr.; and Sobon, Joseph, 4,313,900, Cl. 264-61.000.
- Haynes, Munro K., 4,314,289, Cl. 360-77.000.
- International Flavors & Fragrances Inc.: See—
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- International Minerals & Chemical Corp.: See—
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- International Refining Equipment: See—
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- International Shoe Machine Corporation: See—
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- International Telephone and Telegraph Corporation: See—
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- INTERx Research Corp.: See—
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- Ishida, Torao: See—
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- Ishiki, Minoru: See—
Oizumi, Masayuki; Goto, Masana; Ishiki, Minoru; and Uozumi, Shoji, 4,314,002, Cl. 428-414.000.
- Ishizawa, Shizuo: See—
Kunii, Kazuya; Tsutsumi, Saburo; and Ishizawa, Shizuo, 4,313,410, Cl. 123-432.000.
- Isoard, Bernard: See—
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- Isobe, Teruo: See—
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- Italiana S.p.A. Indesit Industria Elettrodomestici: See—
Belisomi, Pietro, 4,314,375, Cl. 455-158.000.
- Itek Corporation: See—
Milamed, Robert L., 4,313,749, Cl. 65-43.000.
- Ito, Katsuo; and Yoshimura, Kazunori, to Murata Manufacturing Co., Ltd. Fixing structure of electronic component, 4,314,220, Cl. 336-65.000.
- Ito, Sadayoshi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Water preventing structure in a drum-in-disc brake, 4,313,528, Cl. 188-218.00A.
- Ito, Toshio; Matsuo, Hiromasa; Hirayama, Yoshio; and Takahashi, Nobuyoshi, to Mitsubishi Denki Kabushiki Kaisha. Water producing air conditioning system, 4,313,312, Cl. 62-271.000.
- Itoh, Akira. Apparatus for applying a mixture of air and vapor to the face or hair, 4,314,138, Cl. 219-276.000.
- ITT Industries, Inc.: See—
Berisch, Volker, 4,313,642, Cl. 303-6.00C.
- Gille, Gunther; Goertler, Horst; Prohaska, Hans; and Rachner, Horst, 4,314,186, Cl. 318-434.000.
- Pickel, Hajo, 4,313,527, Cl. 188-73.320.
- IVAC Corporation: See—
Georgi, Heinz W., 4,313,445, Cl. 128-680.000.
- Ivanov, Alexei I.: See—
Gotovtseva, Ljubov A.; Konkova, Maia B.; Garbuz, Tatyana F.; Bunin, Oleg A.; Osminin, Evgeny A.; Zabavina, Nina A.; Ivanov, Alexei I.; Snopov, Vladimir P.; and Batkov, Alexandr I., 4,313,235, Cl. 8-149.100.
- Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, to Nissan Motor Company, Limited. Downshift valve in hydraulic transmission control system, 4,313,354, Cl. 74-869.000.
- Iwasaki Tsushinki Kabushiki Kaisha: See—
Sekiguchi, Koichi; and Yamamoto, Kazuyuki, 4,314,109, Cl. 179-99.00M.
- Iwasawa, Teruo: See—
Nakajima, Yoshio; Takayama, Shuichi; Tsuboshima, Kosaku; Iwasawa, Teruo; and Yamazaki, Masafumi, 4,314,150, Cl. 250-201.000.
- Iwata, Kazuhide: See—
Shibayama, Shigeki; Iwata, Kazuhide; and Okuda, Nobuo, 4,314,333, Cl. 364-200.000.
- Iwatani, Shiro, to Mitsubishi Denki Kabushiki Kaisha. Hybrid thick film integrated circuit heat dissipating and grounding assembly, 4,314,270, Cl. 357-75.000.
- Jackson, Francis B.: See—
Mabery, Thomas L.; and Jackson, Francis B., 4,314,130, Cl. 219-58.000.
- Jackson, Frederick P.; and Newell, Brian, to Prestige Group Limited. The. Pressure cooker relief valve and pressure cookers incorporating such assemblies, 4,313,371, Cl. 99-337.000.
- Jackson, William J. Unloader for storage bins, 4,313,705, Cl. 414-312.000.
- Jacobs, Cornelis A. J.; Schellen, Johannes A. T.; and Kuus, Gijsbert, to U.S. Philips Corporation. Method vapor discharge lamp having specific range of xenon pressures, 4,314,175, Cl. 313-174.000.
- Jaeschke, Harold R.: See—
Boyle, Daniel J.; and Jaeschke, Harold R., 4,313,556, Cl. 229-38.000.
- James, Larry R., to Allis-Chalmers Corporation. Adjustable mount for a belt idler pulley, 4,313,729, Cl. 474-135.000.
- Janome Sewing Machine Co. Ltd.: See—
Hanyu, Susumu; Morimoto, Shyuzo; and Sano, Yasuro, 4,313,389, Cl. 112-158.00A.
- Jansen, Arie: See—
Hendriks, Petrus F. A. M.; Jansen, Arie; van den Berg, Willem B.; and Hoek, Cornelis, 4,313,918, Cl. 423-310.000.
- Jansen, Pierre G.; Kessels, Jozef L. W.; and Waumans, Benny L. A., to U.S. Philips Corporation. Data buffer memory of the first-in, first-out type comprising a fixed input and a variable output, 4,314,361, Cl. 365-221.000.
- Janssen, Manfred; Austermann, Karl; and Schmidt, Volker, to Mannesmann Aktiengesellschaft. Providing cardan and universal joint-type shafts with gearing, 4,313,328, Cl. 72-276.000.
- Janssen Pharmaceutica, N.V.: See—
Heeres, Jan; and Mostmans, Joseph H., 4,313,953, Cl. 424-269.000.
- Janssen, Sylvain; Tourret, Jean; Zarudiansky, Alain; and Allesch, Roland, to Schlumberger Technology Corp. Borehole logging tool cryostat, 4,313,317, Cl. 62-514.00R.
- Japan Synthetic Rubber Co., Ltd.: See—
Shimokawa, Shin-ichi; and Yamamoto, Yuji, 4,314,041, Cl. 525-53.000.
- Teramoto, Toshio; Ijuin, Noriaki; and Kotani, Teizo, 4,313,865, Cl. 260-31.40R.
- Jeffries, John A.; and Ruch, Mark H., to Texas Instruments Incorporated. Fluid-insulated universal flexible acoustic coupler muff system, 4,314,099, Cl. 179-1.00C.
- Jenaer, Glaswerk, Schott & Gen.: See—
Juras, Karl-Heinz, 4,313,746, Cl. 65-25.400.
- Jensen, Kenneth D., to Midland-Ross Corporation. Hydraulic brake booster pressure limiter, 4,313,454, Cl. 137-101.000.
- Jere B. Ford, Inc.: See—
Ford, Jere B., Jr., 4,313,780, Cl. 156-523.000.
- Jersey Nuclear-Avco Isotopes, Inc.: See—
Everett, Patrick N., 4,314,210, Cl. 372-18.000.
- JH Industries, Inc.: See—
Johnson, Dwight N., 4,313,460, Cl. 137-489.000.
- Johnson, Dwight N., 4,313,469, Cl. 137-637.000.
- Johns Hopkins University, The: See—
Feldman, Charles; Charles, Harry K.; and Satkiewicz, Frank G., 4,313,254, Cl. 29-572.000.
- Johns, Robert K.; Deist, Donald W.; and Houston, Owen M., to Dasibi Environmental Corporation. Method and apparatus for generating selected gas concentrations, 4,314,344, Cl. 364-500.000.
- Johnson, Don R., to Harris & Thrush Manufacturing Company. Latch for module builder, 4,313,631, Cl. 292-201.000.
- Johnson, Dwight N., to JH Industries, Inc. Pilot valve, 4,313,460, Cl. 137-489.000.
- Johnson, Dwight N., to JH Industries, Inc. Faucet assembly with pinch valves, 4,313,469, Cl. 137-637.000.
- Johnson, Harlan B.; and Chamberlin, Ronald D., to PPG Industries, Inc. Fixed bed oxygen depolarized cathode chlor-alkali cell, 4,313,813, Cl. 204-263.000.
- Johnson, James S., Jr.; and Westmoreland, Clyde G., to United States of America. Energy. Sacrificial adsorbate for surfactants utilized in chemical floods of enhanced oil recovery operations, 4,313,500, Cl. 166-273.000.
- Johnson, Robert L.; and Gooch, Ralph M., to Dow Chemical Company. The. Reduced volatility of a halogenated phenol in wood, 4,313,977, Cl. 427-342.000.
- Johnson, Thomas A.: See—
Ford, Michael E.; and Johnson, Thomas A., 4,314,083, Cl. 564-479.000.
- Johnson, Wayne D. Septic tank drainage conduit structures, 4,313,692, Cl. 405-43.000.
- Jonasson, Bertil. Stabilizing device, 4,313,285, Cl. 51-135.00R.
- Jones, Asberry B., to Texaco Inc. Articulated, energy converting structure, 4,313,716, Cl. 417-331.000.
- Jones, Michael A.: See—
Gavin, Derek G.; and Jones, Michael A., 4,313,852, Cl. 252-439.000.
- Jones, Robert A., Jr.; Marcinkowsky, Arthur E.; and Keller, George E., II, to Union Carbide Corporation. Process for the purification of non-reacting gases, 4,313,916, Cl. 423-226.000.

Jones, Wallace R.; Haas, John F.; Krieger, Paul A.; and Frappier, David E., to Exello Specialty Company, The. Method of masking a workpiece for painting. 4,313,970, Cl. 427-56.100.

Joy Manufacturing Company, See—
Exley, Vern R., 4,313,643, Cl. 303-71.000.

Joyce, Samuel F., III; Morgan, Albert W.; Touchette, Norman W.; and Vanderlinde, William, to Monsanto Company. Reaction products of metal oxides and salts with phosphorus compounds. 4,313,761, Cl. 106-18.190.

Juffa, Richard, See—
Vente, Paul; Juffa, Richard; Seidenschur, Dieter; and Knipp, Ulrich, 4,313,482, Cl. 152-330.00R.

Juras, Karl-Heinz, to Jenaer, Glaswerk, Schott & Gen. Process for making formed glass from plate glass. 4,313,746, Cl. 65-25.400.

Just, Friedrich E., See—
Childs, Eric G.; and Just, Friedrich E., 4,313,496, Cl. 166-55.000.

Jutras, Mario. Air cushion vehicle. 4,313,512, Cl. 180-117.000.

Jyojiki, Masao, See—
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Kabushiki Kaisha Sankyo Seiki Seisakusho, See—
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Kabushiki Kaisha Sato Kenkyusho, See—
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Kabushiki Kaisha Tatebe Seishudo, See—
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Kabushiki Kaisha Tokai Rika Denki Seisakusho, See—
Kobayashi, Mitsuo, 4,314,111, Cl. 200-4.000.

Nishimura, Yuji; and Kubota, Tatsushi, 4,313,621, Cl. 280-804.000.

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Kondo, Iwao; and Shioda, Toshiyuki, 4,313,486, Cl. 164-38.000.

Kahn, Marvin L.; and Eapen, Kutikandathil E., to Rich Products Corporation. Intermediate-moisture frozen foods. 4,313,967, Cl. 426-327.000.

Kaiser, Roman; and Lamparsky, Dietmar, to Givaudan Corporation. Perfume compositions containing oxygenated ionone derivatives. 4,313,856, Cl. 252-522.00R.

Kaizuka, Takanoli, See—
Suzuki, Yoshihisa; Kaizuka, Takanoli; Hanyu, Yoshiaki; Otake, Mituyoshi; and Hidano, Yoichi, 4,313,989, Cl. 428-64.000.

Kakagawa, Kamuyuki; Uchida, Minoru; and Oka, Kimiaki, to Otsuka Pharmaceutical Co., Ltd. Platelet aggregation inhibiting 2-oxyindoles, their compositions and method of use. 4,313,947, Cl. 424-248.540.

Kali-Chemie Pharma GmbH, See—
Wischniewski, Martin; Feicho, Lutz; and Althaus, Werner, 4,313,930, Cl. 424-32.000.

Kalishman, Calvin. Air filter. 4,313,740, Cl. 55-131.000.

Kallenberger, Robert H.; and Anderson, John E., to Phillips Petroleum Company. Apparatus for producing carbon black. 4,313,723, Cl. 432-37.000.

Kanatani, Frank N., to United States of America, Health, Education and Welfare. Steel wire pressure aesthesiometer. 4,313,446, Cl. 128-744.000.

Kanbe, Junichiro, See—
Takahashi, Tohru; Toyono, Tsutomu; Kanbe, Junichiro; Nakamura, Shunji; and Tamura, Yasuyuki, 4,314,017, Cl. 430-109.000.

Kanebo Ltd., See—
Honda, Keiichi; and Nishijima, Yasushi, 4,313,888, Cl. 260-404.000.

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Kanemitsu, Yukio, to Goshi Kaisha Kanemitsu Doko Yosetsu-sho. Method for manufacturing poly-V pulleys. 4,313,323, Cl. 72-84.000.

Kansas Jack, Inc., See—
Eck, Leonard F., 4,313,335, Cl. 72-457.000.

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Kao Soap Co., Ltd., See—
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Kashperko, Vyacheslav A., See—
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Kasner, Gerald C., See—
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Kato, Makoto; and Hazue, Masaaki, to Nihon Medi-Physics Co., Ltd. Composition for labeling of red blood cells with radioactive technique. 4,313,928, Cl. 424-1.500.

Kato, Tetuo; Uemura, Tamio; and Kodama, Yoshiki, to Tokico Ltd. Hydraulic damper. 4,313,529, Cl. 188-299.000.

Kato, Yukio; Hotta, Atsuo; and Isobe, Teruo, to Hitachi, Ltd. Semiconductor memory device. 4,314,359, Cl. 365-179.000.

Kaun, Thomas D.; and Eshman, Paul F., to United States of America, Energy. Method for manufacturing an electrochemical cell. 4,313,259, Cl. 29-623.200.

Kawada, Shigeki; and Ishida, Hiroshi. Protective system for inverter circuit used in driving AC motors. 4,314,191, Cl. 318-802.000.

Kawada, Tohsuke, See—
Asai, Koichi; and Kawada, Tohsuke, 4,313,251, Cl. 29-564.600.

Kawaguchi, Hiroshi, See—
Miyaki, Takeo; Tenmyo, Osamu; Konishi, Masataka; and Kawaguchi, Hiroshi, 4,314,028, Cl. 435-77.000.

Kawai Musical Instruments Mfg. Co., Ltd., See—
Deutsch, Ralph, 4,313,361, Cl. 84-1.010.

Kawai, Yoichi; Sasagawa, Katsuyoshi; Maki, Masami; Ueda, Hozumi; and Miyamoto, Masayoshi, to Mitsui Toatsu Chemicals, Inc. Polypropylene composition containing a 1,3,2,4-di(alkylbenzylidene) sorbitol. 4,314,039, Cl. 525-1.000.

Kawamoto, Mutsumi, See—
Miki, Nobuaki; Kawamoto, Mutsumi; Amano, Hiroyuki; Hida, Tsuneo; and Yoshida, Tsuyoshi, 4,314,340, Cl. 364-424.100.

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Kawasaki, Atsushi; and Munakata, Yukio, to Pioneer Electronic Corporation. Fader controlling variable resistor. 4,314,229, Cl. 338-160.000.

Kawase, Akira; Takouchi, Masao; Tsuji, Yoshio; Mitsumeri, Sadao; and Miyazaki, Susumu, to Tokyo Gas Co. Ltd.; and Hitachi Seisakusho Co., Ltd. Forced air unit. 4,313,493, Cl. 165-122.000.

Kawasumi, Kenichi; and Nariaki, Kenji. Arc discharge lamp starting device. 4,314,181, Cl. 315-289.000.

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Keller Corporation, The, See—
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Keller, George E., II, See—
Jones, Robert A., Jr.; Marcinkowsky, Arthur E.; and Keller, George E., II, 4,313,916, Cl. 423-226.000.

Keller, Robert J., III; Fox, Brian G.; and Korec, Benjamin A., to KEL-WIN Manufacturing Co., Inc. Anti-scald apparatus for a tub and shower single control faucet. 4,313,350, Cl. 74-526.000.

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Kemp, David M., See—
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Kendall, James M., Jr., See—
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Kennedy, Melvin, See—
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Kenny, Andrew A., to Eaton Corporation. Temperature control system and thermally responsive electro-vacuum relay therefor. 4,313,561, Cl. 237-12.30A.

Kenyon, William E., to Schlumberger Limited. Method of generating subsurface characteristics models. 4,314,339, Cl. 364-422.000.

Kern, John M., See—
Cole, Edward H., Jr.; Kern, John M.; and Wyckoff, James A., 4,313,730, Cl. 474-201.000.

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Jansen, Pierre G.; Kessels, Jozef L. W.; and Waumans, Benny L. A., 4,314,361, Cl. 365-221.000.

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Fahrenholtz, Kenneth E.; Guthrie, Robert W.; Kierstead, Richard W.; and Tilley, Jefferson W., 4,314,085, Cl. 568-644.000.

Kikuchi, Shoji, See—
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Kildahl, Nicholas K.; and Fotis, Peter, to Standard Oil Company (Indiana). Catalyst for the polymerization of alpha-olefins. 4,313,850, Cl. 252-429.00B.

Kim, Chong Y.; and Sternberg, Moshe M., to Miles Laboratories, Inc. Production of low cholesterol casein. 4,313,962, Cl. 426-35.000.

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Kimura, Tomohiko, See—
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Kimura, Tsutomu; and Miyoshi, Hitoshi, to Fuji Photo Film Co., Ltd. Form combining and recording device. 4,314,357, Cl. 364-900.000.

Kincaid, Charles M., See—
Bemis, Lester E.; Kincaid, Charles M.; and White, Hugh L., 4,313,767, Cl. 134-1.000.

Kindig, Alan L.; and Wesseldyk, Albert J., to General Electric Company. Methods and apparatus for use in making electrical interconnections. 4,313,258, Cl. 29-596.000.

Kine, Benjamin B., See—
Hughes, Kathleen A.; Kine, Benjamin B.; and Swift, Graham, 4,314,044, Cl. 260-29.60M.

King, Gilbert D., administrator, See—
King, Gilbert T., deceased; and King, Gilbert D., administrator, 4,313,632, Cl. 294-19.00A.

King, Gilbert T., deceased; and King, Gilbert D., administrator. Golf ball retriever. 4,313,632, Cl. 294-19.00A.

King, Patrick D., to Flo-Con Systems, Inc. Shroud support and method for shroud engagement with teeming valve. 4,313,596, Cl. 266-207.000.

Kingston, Katherine A., to Dennison Manufacturing Company. Heat transfer labeling. 4,313,994, Cl. 428-200.000.

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Moore, Eric R.; Heilman, Marlin S.; and Kinney, Philip C., 4,314,095, Cl. 174-84.00C.

Kircher, Morton S., to Olin Corporation. Membrane electrode pack cells designed for medium pressure operation. 4,313,812, Cl. 204-253.000.

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Skatsche, Othmar; Fachbach, Heinz; Thien, Gerhard; Kirchweiger, Karl; Greier, Josef; and List, Hans, 4,313,405, Cl. 123-195.00C.

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Kondo, Sadao; and Kishi, Hiroyasu, 4,314,377, Cl. 455-223.000.

Kishimoto, Yasushi, See—
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Arimura, Hirofumi; Nagai, Masanori; Yamauchi, Takeshi; Kitagawa, Tsutomu; and Suyama, Tadakazu, 4,313,938, Cl. 424-180.000.

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Kivela, Gary G., to Sperry Corporation. Aircraft automatic pilot with automatic emergency descent control apparatus. 4,314,341, Cl. 364-433.000.

Kiwala, Jacob, See—
Trenkle, Robert W.; Mookherjee, Braja D.; Schmitt, Frederick L.; Vock, Manfred H.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,313,842, Cl. 252-174.110.

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Klaas, Jeffrey M.; Reed, Paul A.; and Rimawi, Isam, to Texas Instruments, Incorporated. Power down sequence for electrically programmable memory. 4,314,362, Cl. 365-227.000.

Klawitter, Ronald R., to Steven Manufacturing Company. Floatable toy. 4,313,277, Cl. 46-95.000.

Kleemann, Axel; Leuchtenberger, Wolfgang; Martens, Jurgen; and Weigel, Horst, to Degussa Aktiengesellschaft. Process for the production of 3-cyanopropionamide. 4,313,894, Cl. 260-465.400.

Klein, Erich; and Rojahn, Willi, to Dragoco Gerberding & Co. GmbH. Fixative for perfume compositions. 4,313,855, Cl. 252-522.00R.

Klein, Richard F. Fluid balancing system for tank vehicle. 4,313,566, Cl. 239-172.000.

Klein, Robert R., See—
Lundberg, Robert D.; Makowski, Henry S.; O'Brien, Dennis; and Klein, Robert R., 4,313,862, Cl. 260-29.65Q.

Klenk, Herbert; Wirthwein, Rolf; Siekmann, Gerd; and Schwerdtel, Wulf, to Degussa AG; and Bayer Aktiengesellschaft. Process for the manufacture of very pure epsilon-caprolactone. 4,313,879, Cl. 260-343.000.

Klevtsov, Alexandr N., See—
Fesenko, Evgeny G.; Dantsiger, Alla Y.; Filipiev, Viktor S.; Razumovskaya, Olga N.; Klevtsov, Alexandr N.; Lebedev, Vladimir N.; Grineva, Ljudmila D.; Rogach, Tatyana V.; Feronov, Anatoly D.; Akbaeva, Galina M.; Cheptsov, Evgeny I.; Panich, Anatoly E.; Lisitsina, Ljudmila G.; Lavrikova, Svetlana A.; Ochirov, Vasily A.; Dudkina, Svetlana I.; Nevsky, Alexandr N.; Aleshin, Vladimir A.; Kupriyanov, Mikhail F.; Baljunis, Evgeny S.; Mordanov, Boris P.; Zhitomirsky, Grigory A.; Feldman, Naum B.; Smazhevskaya, Ekaterina G.; and Devlikanova, Ravi-lyia U., 4,313,839, Cl. 252-62.900.

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Klostermeier, Werner, See—
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- Lipschut, Paul, to Neiman S.A. Vehicle safety lock, 4,313,519, Cl. 180-270.000.
- Lisiecki, Robert E., to Ex-Cell-O Corporation. Container with extensible pouring spout, 4,313,553, Cl. 229-17.00G.
- Lisitsina, Ljudmila G.: See—
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- Lissau, Frederic, to Sloan Valve Company. Flow control, 4,313,471, Cl. 138-45.000.
- List, Hans: See—
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- Litovitz, Theodore A.: See—
- Macedo, Pedro B.; and Litovitz, Theodore A., 4,313,748, Cl. 65-30.100.
- Littlefield, John B., to AMSTED Industries Incorporated. Composition friction element for a railroad brake shoe, 4,313,869, Cl. 260-38.000.
- Litton Systems, Inc.: See—
- Wing, Thomas; and Germain, Lloyd M., 4,314,174, Cl. 310-315.000.
- Lively, Mark O., III: See—
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- Locker, Jan A. K., to Machinefabriek A. Wijnveen B.V.; and Coöperatieve Landbouw aan- en verkoopcombinatie, B.A. "C.L.C.". Sieve device for separating a mixture of particulate material in components of different sizes, 4,313,823, Cl. 209-369.000.
- Loeschen, Lester L., to Kwik-Mount Corporation. Shelf bracket, 4,313,587, Cl. 248-217.200.
- Lohr, S. Warren, to Xerox Corporation. Stack tray for sheet separator, 4,313,599, Cl. 271-166.000.
- Lois, Lambros. Apparatus for improving the performance of a rotational wind energy conversion system, 4,313,713, Cl. 416-135.000.
- Lorenzo, Roberto; and Wolf, Frank J., to Xerox Corporation. Laser hardening of steel work pieces, 4,313,771, Cl. 148-14.000.

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Lucas Industries Limited: See—
Farr, Glyn P. R., 4,313,526, Cl. 188-72.400.
Williams, Malcolm; Southgate, John P.; and Woodhouse, Richard G., 4,314,305, Cl. 361-154.000.

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Sahrbacker, Edward V., 4,314,170, Cl. 310-68.00R.

Lucido, Donald R., to Siemens Medical Laboratories, Inc. Electron applicator for a linear accelerator. 4,314,158, Cl. 250-505.000.

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Ludwig, Walter; and Schmid, Franziska, deceased (by Schmid, Hans, executor), to Carl Walther GmbH. Firing pin safety device for hand firearms. 4,313,274, Cl. 42-70.00F.

Lulejian, Donald A.; Faure, Alphonse W.; and Fijalkowski, Eugene F., to CSS International Corporation. Electronically controlled robot for handling glassware. 4,313,750, Cl. 65-160.000.

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Lund, Richard B., to Ciba-Geigy Corporation. Process for production of dicyanopiperazine. 4,314,062, Cl. 544-402.000.

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Lundgren, Bror F., to Societe d'Assistance Technique pour Produits Nestle S.A. Device for rolling up pieces of material. 4,313,719, Cl. 425-335.000.

Lunel, Jean: See—
Florent, Jean; Lunel, Jean; Mancy, Denise; and Vuillemin, Bernard, 4,313,936, Cl. 424-117.000.

Luscher, Jacob, to Ebauches S.A. Integrated shift register. 4,314,161, Cl. 307-221.00C.

Luttringer, Jean P.: See—
Zurbuchen, Jacques; Lauton, Alain; and Luttringer, Jean P., 4,313,733, Cl. 8-582.000.

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Campagne, Constant J. V. L., 4,313,960, Cl. 426-17.000.

Luzzign, Vladimir I.: See—
Chachin, Viktor N.; Kolos, Vladimir K.; Botyan, Viktor V.; Luzzign, Vladimir I.; and Kashperko, Vyacheslav A., 4,313,334, Cl. 72-453.100.

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Lyon, Floyd A.; Yale, William H.; and Lyon, Donald, 4,313,419, Cl. 126-421.000.

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Maa, Peter S.: See—
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Engels, Mathijs M. J., 4,313,509, Cl. 177-50.000.

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Macedo, Pedro B.; and Litovitz, Theodore A. Method for producing a strengthened glass structural member. 4,313,748, Cl. 65-30.100.

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Madsen, Borge S., to South African Inventions Development Corp. Method of stress grading timber length. 4,313,348, Cl. 73-852.000.

Maeda, Kenichi, to Nippon Aluminum Mfg. Co., Ltd. The Metallic pressure vessel with thin wall. 4,313,545, Cl. 220-1.0BC.

Maeda, Shuichi: See—
Imahori, Seichi; Himeno, Kiyoshi; and Maeda, Shuichi, 4,313,731, Cl. 8-451.000.

Maerfeld, Charles, to Thomson-CSF. Reversible electroacoustic transducer device having a constant directivity characteristic over a wide frequency band. 4,314,098, Cl. 179-1.0MF.

Magnotta, Frank A., to Dennison Manufacturing Company. Chemically-resistant adhesives and labels. 4,313,986, Cl. 428-40.000.

Mahdjuri, Faramarz S. Solar collector with heat pipe. 4,313,423, Cl. 126-433.000.

Maier, Martin, to Klockner-Humboldt-Deutz AG Zweigniederlassung Fahr. Blade mounting for a rotary mower. 4,313,297, Cl. 56-295.000.

Mairy, Bernard, to Centre de Recherches Metallurgiques-Centrum voor Research in de Metallurgie. Method of improving operation of continuous casting nozzle. 4,313,975, Cl. 427-236.000.

Major, Emery. Fluid control apparatus. 4,313,464, Cl. 137-544.000.

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Kawai, Yoichi; Sasagawa, Katsuyoshi; Maki, Masami; Ueda, Hozumi; and Miyamoto, Masayoshi, 4,314,039, Cl. 525-1.000.

Makino, Niro, to Nippondenso Co. Ltd. Centrifugal rpm governor for fuel-injected internal combustion engines. 4,313,409, Cl. 123-373.000.

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Yunoki, Shigeto; and Makizono, Masataka, 4,313,390, Cl. 114-74.00R.

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Malagnoux, Roger; and Grehal, Pierre, to Societe d'Exploitation des Etablissements Pierre Grehal. Pliers for positioning clips forming

connecting rings between a wire netting and support wires. 4,313,333, Cl. 72-410.000.

Malinowski, Hans; and Pielsticker, Klaus P., to Schloemann-Siemag Aktiengesellschaft. Straightening machine for metal plate and strip. 4,313,322, Cl. 72-164.000.

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Hoey, George B.; Murphy, George P.; Wiegert, Philip E.; and Woods, James W., 4,314,055, Cl. 536-53.000.

Malloy, Anthony J.: See—
Frelin, Frank J.; Kelly, Timm L.; and Malloy, Anthony J., 4,313,769, Cl. 148-6.270.

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Boodman, Leon; and Malone, James P., 4,314,160, Cl. 290-55.000.

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Takazawa, Eiichi, 4,313,647, Cl. 350-164.000.

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Simon, Klaus, 4,313,615, Cl. 280-432.000.

Mancy, Denise: See—
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Mann, Arnold; and Stier, Bernhard, to VDO Adolf Schindling AG. Device for the control of the traveling speed of a motor vehicle. 4,313,515, Cl. 180-179.000.

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Janssen, Manfred; Austermann, Karl; and Schmidt, Volker, 4,313,328, Cl. 72-276.000.

Manning, George H.: See—
Riccio, Pasquale R.; and Manning, George H., 4,314,294, Cl. 360-96.600.

Manu-Tronics, Inc.: See—
Hestad, Alfred M.; Tentler, Michael; and Rose, Levi L., 4,314,107, Cl. 179-81.00R.

Marc, H.: See—
Kossel, Horst K., 4,313,404, Cl. 123-58.0BB.

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Jones, Robert A., Jr.; Marcinkowsky, Arthur E.; and Keller, George E., II, 4,313,916, Cl. 423-226.000.

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Humphries, John M.; Baxter, Ivor R.; and Fripp, David G. F., 4,314,153, Cl. 250-231.0SE.

Marcy Gymnasium Equipment Co.: See—
Sulivan, James P., 4,313,602, Cl. 272-73.000.

Marek, Alois, to BBC Brown, Boveri & Company Limited. Method and apparatus for detection of magnetization. 4,314,200, Cl. 324-117.00R.

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Klumb, Ralph H.; Margotta, Kenneth V.; and Shendy, Divakar S., 4,313,793, Cl. 376-260.000.

Markley, Joseph M.: See—
Markley, Myron D.; and Markley, Joseph M., 4,313,595, Cl. 251-369.000.

Markley, Myron D.; and Markley, Joseph M. Mounting base for motor operated valve. 4,313,595, Cl. 251-369.000.

Markovs, Robert A., to BASF Wyandotte Corporation. Graft polyol RIM system possessing excellent thermal properties. 4,314,038, Cl. 521-167.000.

Markum, Donnie D. Apparatus for motivating animals to move. 4,313,397, Cl. 119-29.000.

Marro, Michael; and Monin, John, to Dynamic Instrument Corporation. Power measuring apparatus. 4,314,201, Cl. 324-127.000.

Martenas, Wayne B., to Sperry Corporation. Constant float attachment apparatus. 4,313,294, Cl. 56-15.800.

Martens, Jurgen: See—
Kleemann, Axel; Leuchtenberger, Wolfgang; Martens, Jurgen; and Weigel, Horst, 4,313,894, Cl. 260-465.400.

Marti, Ulrich: See—
Feier, Markus; Frey, Raymond; and Marti, Ulrich, 4,314,346, Cl. 364-555.000.

Martin, Dianne L. Tracheotomy and endotracheal tube retainers. 4,313,437, Cl. 128-207.170.

Martin, Lawrence L.; and Worm, Manfred, to Hoechst-Roussel Pharmaceuticals Inc. (Arylmethyl)phenyl-aminocyclohexanols, cyclohexenes and intermediates thereof. 4,313,959, Cl. 424-330.000.

Martin Marietta Corporation: See—
Leighou, Robert O.; and Meeks, Leighton A., 4,314,355, Cl. 364-900.000.

Martin, Paul F.: See—
Earing, Mason H.; Martin, Paul F.; and Petschke, Glenn H., 4,313,858, Cl. 260-18.0TN.

Martineau, Bernard, to Compagnie Industrielle des Telecommunications Cit-Alcatel. Apparatus for reproducing an image of variable tone density. 4,314,261, Cl. 346-108.000.

Martinez Apeztegui, Juan; and Odrizola Espinosa de los Monteros, Ignacio. Prefabricated spatial structure. 4,313,687, Cl. 403-171.000.

Martinez de Pinillos, Joaquin V.; and Fowkes, Robert L., to Air Products and Chemicals, Inc. Synthesis of lower alkyl amines. 4,314,084, Cl. 564-480.000.

Martner, Samuel T.; and Arnold, Maurice E., Jr., to Standard Oil Company (Indiana). Distributed charge for seismic prospecting. 4,313,380, Cl. 181-116.000.

Maruyama, Eiichi: See—
Yamamoto, Hideaki; Taniguchi, Akio; Horigome, Shinkichi; Saito, Susumu; Mori, Yoshiaki; and Maruyama, Eiichi, 4,314,014, Cl. 430-57.000.

Marx, Erich: See—
Muller, Rudolf; Kuckertz, Hans; and Marx, Erich, 4,313,724, Cl. 432-217.000.

Maryland Cup Corporation: See—
Weinstein, David, 4,313,965, Cl. 426-139.000.

Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft: See—
Hagin, Faust, 4,313,351, Cl. 74-687.000.
Heeren, Hermann; and Kraetschmer, Liselotte, 4,313,490, Cl. 165-82.000.
Muller, Eckart, 4,313,407, Cl. 123-276.000.

Mascioli, Rocco L.: See—
Beitchman, Burton D.; and Mascioli, Rocco L., 4,314,037, Cl. 521-125.000.

Massey, Lester G.; Brabets, Robert I.; and Abel, William A., to Consolidated Natural Gas Service. Method for separating undesired components from coal by an explosion type comminution process. 4,313,737, Cl. 44-1.00C.

Massingill, John L., to Dow Chemical Company, The. Process for preparing liquid epoxy resins. 4,313,886, Cl. 260-348.150.

Masuda, Senichi; and Sugita, Naoki. Electric dust collector. 4,313,741, Cl. 55-138.000.

Mathe, George L.: See—
Nichols, Walter A.; and Mathe, George L., 4,313,339, Cl. 73-56.000.

Mathews, Lester R.: See—
Pitman, Donald G., 4,313,455, Cl. 137-119.000.

Mathieu, Julien C.: See—
Holden, Homer N.; Kleykamp, Donald L.; Moore, William F.; and Mathieu, Julien C., 4,313,384, Cl. 105-225.000.

Matsuda, Motonobu: See—
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Matsui, Toshikazu: See—
Matsumoto, Shoji; Matsui, Toshikazu; Ikeda, Toshimitsu; Kozuka, Nobuhiko; Nishihama, Hitoshi; and Aizawa, Tatsuo, 4,314,018, Cl. 430-125.000.

Matsuki, Shigeru: See—
Kitamura, Kumppei; Matsuki, Shigeru; and Tanabe, Kozo, 4,313,934, Cl. 424-85.000.

Matsumoto, Shin-ichiro: See—
Morita, Shiro; Sawai, Masanobu; Matsumoto, Shin-ichiro; and Sudo, Tadami, 4,313,929, Cl. 424-12.000.

Matsumoto, Shoji; Matsui, Toshikazu; Ikeda, Toshimitsu; Kozuka, Nobuhiko; Nishihama, Hitoshi; and Aizawa, Tatsuo, to Mita Industrial Company, Ltd. Cleaning process for an electrostatic copying apparatus. 4,314,018, Cl. 430-125.000.

Matsunaga, Kenichi: See—
Yoshikumi, Chikao; Ohmura, Yoshio; Hirose, Fumio; Ikuzawa, Masanori; Matsunaga, Kenichi; Fujii, Takayoshi; Ohhara, Minoru; and Ando, Takao, 4,313,939, Cl. 424-180.000.

Matsuoka, Hiromasa: See—
Ito, Toshio; Matsuoka, Hiromasa; Hirayama, Yoshio; and Takahashi, Nobuyoshi, 4,313,312, Cl. 62-271.000.

Matsuoka, Tomizo; Nitta, Tsuneharu; and Hayakawa, Shigeru, to Matsushita Electric Industrial Co., Ltd. Low-energy-electron-exciting fluorescent display device. 4,314,177, Cl. 313-497.000.

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Abe, Atsushi; Ogawa, Hisahito; Nishikawa, Masahiro; Sekido, Satoshi; and Hayakawa, Shigeru, 4,313,338, Cl. 73-23.000.
Hayami, Masaaki; and Torikoshi, Seiko, 4,314,058, Cl. 542-455.000.
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Idemoto, Noboru; Yamada, Minoru; Tashiro, Mamoru; and Matsushita, Sachio, 4,313,808, Cl. 204-180.00P.

Mattel, Inc.: See—
Bernstein, William L.; and Del Principe, Robert M., 4,314,336, Cl. 364-411.000.

Matthews, John C.; and Couch, Robert W., to Fusion Systems Corporation. Method and apparatus for providing low gloss and gloss controlled radiation-cured coatings. 4,313,969, Cl. 427-44.000.

Matthews, John W., to Laser Products Corporation. Laser beam fire-arm aim assisting methods and apparatus. 4,313,272, Cl. 42-1.00A.

Matthews, John W.; and Fraer, Michael J., to Laser Products Corporation. Firearms and laser beam aim assisting methods and apparatus. 4,313,273, Cl. 42-1.00A.

Matzner, Markus: See—
Berger, Mitchell H.; Matzner, Markus; and Tibbitt, James M., 4,314,051, Cl. 528-179.000.

Maurer, Werner, to Karl M. Reich Maschinenfabrik GmbH, Firma. Apparatus for driving fasteners. 4,313,552, Cl. 227-109.000.

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Nassry, Assadullah; Maxwell, Jerrold F.; and Compton, John W., 4,313,836, Cl. 252-32.70E.

Mayer, Jerome F.; and Miller, Stephen J., to Chevron Research Company. Hydrocarbon conversion catalyst and process using said catalyst. 4,313,817, Cl. 208-89.000.

Mayer, Steven T.; and Milner, Ronald E., to Atari, Inc. Apparatus for producing a plurality of audio sound effects. 4,314,236, Cl. 340-384.00E.

Maykemper, Alfred; Schorradi, Gerhard; and Werth, Gunter, to Hermann Hemscheidt Maschinenfabrik GmbH & Co. Hydraulic shield-type support. 4,313,698, Cl. 405-296.000.

Mazzei, Michael E.: See—
Filipi, Thomas J.; and Mazzei, Michael E., 4,313,906, Cl. 422-69.000.

McAlister, Robert J. Solar air collector. 4,313,429, Cl. 126-445.000.

McAlister, Roy E. Heat exchanger. 4,313,427, Cl. 126-441.000.

McCartney, Clifford A., to Ingersoll-Rand Company. Earth structure stabilizing method, and a friction rock stabilizer and an axial extension therefor. 4,313,695, Cl. 405-259.000.

McClellan, Elton: See—
Boldt, Donald M.; and McClellan, Elton, 4,313,386, Cl. 110-104.00R.

McClure, Richard J.: See—
French, William W.; Lemke, James U.; and McClure, Richard J., 4,314,298, Cl. 360-121.000.

McConnell, Bobby L.: See—
Teague, Edward W.; Graham, Louis A.; and McConnell, Bobby L., 4,313,732, Cl. 8-541.000.

McCord, James W. Vapor generating and recovering apparatus. 4,313,311, Cl. 62-197.000.

McCormick, James L. Polystyrene vehicle body protector system. 4,313,987, Cl. 428-40.000.

McCue, John P., to SBR Lab, Inc. Blood preservation anticoagulant solution. 4,314,025, Cl. 435-2.000.

McDonald, Emory W., to Montgomery Elevator Company. Car door safety interlock. 4,313,525, Cl. 187-57.000.

McEntee, John F., to Acurex Solar Corporation. Collapsible structural assembly especially suitable as a solar concentrator. 4,313,422, Cl. 126-426.000.

McFiggans, Robert B.: See—
Lowe, Lynnwood; and McFiggans, Robert B., 4,314,102, Cl. 179-2.00A.

McGlory, Joseph J. Laminated insulation. 4,313,993, Cl. 428-178.000.

McGraw-Edison Company: See—
Kristofek, Paul J., 4,314,223, Cl. 337-113.000.

McMurry, Carl H.; Naum, Robert G.; and Forsyth, Paul F., to Kennecott Corporation. Method for manufacture of neutron absorbing article. 4,313,973, Cl. 427-205.000.

McMurry, David R., to Rolls Royce Limited; and Renishaw Electrical Limited. Method and apparatus for use in co-ordinate measuring machines. 4,313,263, Cl. 33-174.00L.

McNally, Frank X., to National Mine Corporation. Apparatus for the detection of a combustible gas. 4,313,907, Cl. 422-97.000.

McNeir, Ridge W.; and Head, Claude D., III, to Texas Instruments Incorporated. Unsafe machines without safe positions. 4,314,342, Cl. 364-468.000.

McWilliams, Rose M. Method and apparatus for enumerative display and disposal of surgical sponges. 4,313,292, Cl. 53-474.000.

Mead Corporation, The: See—
Bok, Dennis E.; Brown, Mark E.; Hahn, Steven R.; Huliba, David A.; and Wysinski, Thomas M., 4,314,264, Cl. 346-140.00R.

Davis, James W., 4,314,159, Cl. 250-561.000.
Donahue, John W.; and Gottman, James F., 4,314,258, Cl. 346-75.000.

Medtronic, Inc.: See—
Stokes, Kenneth B., 4,313,448, Cl. 128-785.000.

Meeks, Leighton A.: See—
Leighou, Robert O.; and Meeks, Leighton A., 4,314,355, Cl. 364-900.000.

Mellard, George K. Self-actuating variable rate water pipe bleeder. 4,313,452, Cl. 137-62.000.

Mercer, Scott A.: See—
Graef, Harry T.; Mercer, Scott A.; Hill, Jeffrey A.; and Leontas, Spiro, 4,313,601, Cl. 271-207.000.

Merk & Co., Inc.: See—
Baird, John K.; Sandford, Paul A.; and Shim, Jaewon L., 4,313,765, Cl. 106-197.00C.

Bodor, Nicolae S., 4,313,889, Cl. 260-404.000.

Merrick Scale Mfg. Company: See—
La Plante, Donald W.; Fairchild, Arthur; and Rebucci, Eugene L., 4,314,241, Cl. 340-603.000.

Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung: See—
Frank, Frank, 4,313,431, Cl. 128-7.000.

Metsarinta, Maija-Leena: See—
Tuovinen, Frans H.; Honkala, Risto J.; and Metsarinta, Maija-Leena, 4,313,849, Cl. 252-421.000.

Metzger, Gert: See—
Briska, Manan; Metzger, Gert; and Thiel, Klaus P., 4,313,773, Cl. 148-188.000.

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Meyer, Leonard J.: See—
Larkin, Mark E.; and Meyer, Leonard J., 4,313,904, Cl. 264-515.000.

MFE Corporation: See—
Riccio, Pasquale R.; and Manning, George H., 4,314,294, Cl. 360-96.600.

Michaelson, Robert C.: See—
Austin, Richard G.; and Michaelson, Robert C., 4,314,088, Cl. 568-860.000.

Michelet, Daniel: See—
Soula, Gerard; and Michelet, Daniel, 4,314,086, Cl. 568-652.000.

Midland-Ross Corporation: See—
Jensen, Kenneth D., 4,313,454, Cl. 137-101.000.

Mihara, Teruyoshi: See—
Oguro, Takeshi; Mihara, Teruyoshi; Tominaga, Tamotsu; and Takeuchi, Masami, 4,314,226, Cl. 338-4.000.

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Miki, Nobuaki; Kawamoto, Mutsumi; Amano, Hiroyuki; Hida, Tsuneo; and Yoshida, Tsuyoshi, to Aisin-Warner Kabushiki Kaisha. Control of drive train noises during a shift operation of an automatic, variable speed transmission. 4,314,340, Cl. 364-424.100.

Milamed, Robert L., to Itek Corporation. Method for making light-weight mirror facesheets. 4,313,749, Cl. 65-43.000.

Miles Laboratories, Inc.: See—
Kim, Chong Y.; and Sternberg, Moshe M., 4,313,962, Cl. 426-35.000.

Miller, Arthur F.: See—
Gaylor, V. Frances; Greene, Janice L.; Miller, Arthur F.; and Pichler, Marty A., 4,313,803, Cl. 204-74.000.

Miller, Franklin H., Sr. Alignment and coupling of vehicles. 4,313,264, Cl. 33-264.000.

Miller, Stephen J.: See—
Mayer, Jerome F.; and Miller, Stephen J., 4,313,817, Cl. 208-89.000.

Miller, Walter E., Jr., to United States of America, Army. Optical beam scanner. 4,313,651, Cl. 350-355.000.

Millhimes, Wayne L.; and Sheesley, Wilmer L., to AMP Incorporated. Power distribution system. 4,313,646, Cl. 339-156.000.

Milner, Ronald E.: See—
Mayer, Steven T.; and Milner, Ronald E., 4,314,236, Cl. 340-384.000.

Mims, Bruce L., to Branson Ultrasonics Corporation. Ultrasonic seaming apparatus. 4,313,778, Cl. 156-358.000.

Minnesota Mining and Manufacturing Company: See—
Fisch, Richard S., 4,314,022, Cl. 430-326.000.

Kosher, Robert J.; and Bany, Stephen W., 4,313,988, Cl. 428-40.000.

Stevens, John; Huizinga, John S.; and Newman, Stephen, 4,313,978, Cl. 427-384.000.

Watts, Ronald E., 4,313,932, Cl. 424-62.000.

Minolta Camera Kabushiki Kaisha: See—
Matsui, Toru; Matsuda, Motonobu; Ueda, Hiroshi; Nanba, Yasuhiro; and Kuramoto, Yoshio, 4,313,654, Cl. 354-25.000.

Minoura, Kazuo; Kiyohara, Takehiko; and Uchiyama, Haruo, to Canon Kabushiki Kaisha. Two-dimensional scanning device having compensation for scanned image strain. 4,314,154, Cl. 250-235.000.

Mirowski, Mieczyslaw: See—
Moore, Eric R.; Heilman, Marlin S.; and Kinney, Philip C., 4,314,095, Cl. 174-84.000.

Misson, William W.; Studley, Clarence K.; Oliver, Bernard M.; and Liljenwall, Edward T., to Hewlett-Packard Company. Keyboard having switches with tactile feedback. 4,314,112, Cl. 200-5.00A.

Misumi, Akira: See—
Sunahara, Kazuo; and Misumi, Akira, 4,313,854, Cl. 252-516.000.

Mita Industrial Company, Ltd.: See—
Matsumoto, Shoji; Matsui, Toshikazu; Ikeda, Toshimitsu; Kozuka, Nobuhiko; Nishihama, Hitoshi; and Aizawa, Tatsuo, 4,314,018, Cl. 430-125.000.

Mitchell, L. E., Jr. Cotton stripper. 4,313,296, Cl. 56-34.000.

Miteo Corporation: See—
Gorchev, Dimitar; and Ingard, Karl U., 4,313,522, Cl. 181-224.000.

Mitsubishi Chemical Industries Limited: See—
Imahori, Seiichi; Himeno, Kiyoshi; and Maeda, Shuichi, 4,313,731, Cl. 8-451.000.

Morita, Shiro; Sawai, Masanobu; Matsumoto, Shin-ichiro; and Sudo, Tadami, 4,313,929, Cl. 424-12.000.

Mitsubishi Denki Kabushiki Kaisha: See—
Ito, Toshio; Matsuoka, Hiromasa; Hirayama, Yoshio; and Takahashi, Nobuyoshi, 4,313,312, Cl. 62-271.000.

Iwatani, Shiro, 4,314,270, Cl. 357-75.000.

Mitsubishi Jukogyo Kabushiki Kaishi: See—
Shiraishi, Yoshihiro; and Ukawa, Naohiko, 4,314,345, Cl. 364-500.000.

Mitsubishi Rayon Co., Ltd.: See—
Handa, Ryoji; Yoshida, Norimasa; Hosoda, Jun; and Furuno, Akihisa, 4,313,863, Cl. 260-29.60E.

Sato, Hiroshi; Shigeta, Sadaaki; and Uchida, Hiroyuki, 4,313,844, Cl. 252-193.000.

Mitsui Toatsu Chemicals, Inc.: See—
Kawai, Yoichi; Sasagawa, Katsuyoshi; Maki, Masami; Ueda, Hozumi; and Miyamoto, Masayoshi, 4,314,039, Cl. 525-1.000.

Mitsumeri, Sadao: See—
Kawase, Akira; Takouchi, Masao; Tsuji, Yoshio; Mitsumeri, Sadao; and Miyazaki, Susumu, 4,313,493, Cl. 165-122.000.

Miura, Hideo, to Toyo Seikan Kaisha, Ltd. Adjusting method and apparatus for a cylindrical article peripheral surface coating machine. 4,313,982, Cl. 427-428.000.

Miwa, Naoto: See—
Niwa, Hitoshi; Miwa, Naoto; Suzuki, Masatoshi; and Duki, Masami, 4,313,810, Cl. 204-195.005.

Miyagawa, Tuiyoshi; and Hibari, Eiko, to Laurel Bank Machine Co., Ltd. Multi-function type sheet counting machine. 4,314,147, Cl. 235-92.05B.

Miyaji, Yoshimori; Fujiki, Hirokazu; and Takahashi, Fumio, to Tokyo Shibaura Denki Kabushiki Kaisha. Adjusting device for color television camera apparatus. 4,314,272, Cl. 358-10.000.

Miyaki, Takeo; Tenmyo, Osamu; Konishi, Masataka; and Kawaguchi, Hiroshi, to Bristol-Myers Company. Fermentation process for producing tallsomycin compounds. 4,314,028, Cl. 435-77.000.

Miyamoto, Masayoshi: See—
Kawai, Yoichi; Sasagawa, Katsuyoshi; Maki, Masami; Ueda, Hozumi; and Miyamoto, Masayoshi, 4,314,039, Cl. 525-1.000.

Miyasaka, Kiyoshi: See—
Higuchi, Mitsuo; and Miyasaka, Kiyoshi, 4,314,360, Cl. 365-203.000.

Miyazaki, Susumu: See—
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Miyoshi, Hitoshi: See—
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Miyoshi, Takeo, to Toyota Jidosha Kogyo Kabushiki Kaisha. Fuel vaporization promoting device for an internal combustion engine. 4,313,413, Cl. 123-549.000.

Mobay Chemical Corporation: See—
Lim, In C., 4,313,873, Cl. 260-18.0TN.

Mobil Oil Corporation: See—
Garwood, William E.; Voltz, Sterling E.; and Wu, Ellen L., 4,313,821, Cl. 208-245.000.

Guenther, Robert O.; and Huffhines, Donald F., 4,313,392, Cl. 114-244.000.

Mode, Paul, to Nycoll Company. Method of manufacturing a metallic retaining ring for a tube. 4,313,331, Cl. 72-368.000.

Modern-Aire Ventilating, Inc.: See—
White, Ralph H., 4,313,562, Cl. 237-55.000.

Mogaki, Katsuo: See—
Uchida, Takashi; Sasaki, Takashi; Kikuchi, Shoji; Mogaki, Katsuo; Taguchi, Masahiko; and Takada, Syun, 4,314,011, Cl. 430-17.000.

Mogle, Rodman A.: See—
Barnes, Norman S.; and Mogle, Rodman A., 4,313,262, Cl. 29-840.000.

Mojonnier, Harry G.: See—
Skoli, Sigmund P.; Ore, William C.; Kemp, David M.; and Mojonier, Harry G., 4,313,370, Cl. 99-323.100.

Molinari, Franco: See—
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Molitor Industries, Inc.: See—
Molitor, Victor D., 4,313,491, Cl. 165-83.000.

Molitor, Victor D., to Molitor Industries, Inc. Coiled heat exchanger. 4,313,491, Cl. 165-83.000.

Mollenauer, Linn F., to Bell Telephone Laboratories, Incorporated. Servo-controlled optical length of mode-locked lasers. 4,314,211, Cl. 372-32.000.

Molloy, Bryan B.; and Schmiel, Klaus K., to Eli Lilly and Company. Aryloxyphenylpropylamines. 4,313,896, Cl. 260-501.180.

Molloy, Bryan B.; and Schmiel, Klaus K., to Eli Lilly and Company. Aryloxyphenylpropylamines. 4,314,081, Cl. 564-347.000.

Molteni, Luigi; Tenconi, Franco; and Tagliabue, Renato. 7-Chloro-2,3-dihydro-5-phenyl-1-propargyl-1H-1,4-benzodiazepine-2-one, and a pharmaceutical composition thereof. 4,313,943, Cl. 424-244.000.

Monin, John: See—
Marro, Michael; and Monin, John, 4,314,201, Cl. 324-127.000.

Monn, Walter. Regulator for an internal combustion engine. 4,313,401, Cl. 123-414.000.

Monsanto Company: See—
Joyce, Samuel F., III; Morgan, Albert W.; Touchette, Norman W.; and Vanderlinde, William, 4,313,761, Cl. 106-18.190.

Renshaw, James T., 4,313,866, Cl. 260-31.80H.

Sullivan, Alfred B.; and Wise, Raleigh W., 4,313,892, Cl. 260-453.0RW.

Walsh, Robert J., 4,313,284, Cl. 51-131.400.

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Montgomery Elevator Company: See—
McDonald, Emory W., 4,313,525, Cl. 187-57.000.

Mookherjee, Braja D.: See—
Trenkle, Robert W.; Mookherjee, Braja D.; Schmitt, Frederick L.; Vock, Manfred H.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,313,842, Cl. 252-174.110.

Moore, Eric R.; Heilman, Marlin S.; and Kinney, Philip C., to Mirowski, Mieczyslaw. Device and method for making electrical contact. 4,314,095, Cl. 174-84.00C.

Moore, Luther L. Wood brick. 4,313,775, Cl. 156-196.000.

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Holden, Homer N.; Kleykamp, Donald L.; Moore, William F.; and Mathieu, Julien C., 4,313,384, Cl. 105-225.000.

Moran, Thomas F.; Powers, James C.; and Lively, Mark O., III, to Georgia Tech Research Institute. Low pressure tritiation of molecules. 4,313,911, Cl. 422-159.000.

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Mordanov, Boris P.: See—
Fesenko, Evgeny G.; Dantsiger, Alla Y.; Filipiev, Viktor S.; Razumovskaya, Olga N.; Klevtsov, Alexandr N.; Lebedev, Vladimir N.; Grineva, Ljudmila D.; Rogach, Tatyana V.; Feronov, Anatoly D.; Akbaeva, Galina M.; Cheptsov, Evgeny I.; Panich, Anatoly E.; Lisitsina, Ljudmila G.; Lavrikova, Svetlana A.; Ochirov, Vasily A.; Dudkina, Svetlana I.; Nevsky, Alexandr N.; Aleshin, Vladimir A.; Kupriyanov, Mikhail F.; Baljunis, Evgeny S.; Mordanov, Boris P.; Zhitomirsky, Grigory A.; Feldman, Naum B.; Smazhevskaya, Ekaterina G.; and Devlikanova, Raviya U., 4,313,839, Cl. 252-62.900.

Morgan, Albert W.: See—
Joyce, Samuel F., III; Morgan, Albert W.; Touchette, Norman W.; and Vanderlinde, William, 4,313,761, Cl. 106-18.190.

Mori, Yoshiaki: See—
Yamamoto, Hideaki; Taniguchi, Akio; Horigome, Shinkichi; Saito, Susumu; Mori, Yoshiaki; and Maruyama, Eiichi, 4,314,014, Cl. 430-57.000.

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Lentz, James A.; and Moriconi, Joseph H., 4,314,006, Cl. 428-494.000.

Morikawa, Teruo; and Murata, Shinji, to Canon Kabushiki Kaisha. Lens assembly. 4,313,649, Cl. 350-252.000.

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Morris, Wayne A.: See—
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Mortl, Michael C.: See—
Fleckenstein, Andrew J.; and Mortl, Michael C., 4,313,825, Cl. 210-89.000.

Mortonson, Robert W., to Motorola, Inc. Field coil fault detector for automotive alternator battery charging systems. 4,314,193, Cl. 322-28.000.

Mosburger, Hans, to BHS-Bayerische Berg- Hutten- und Salzwerke Aktiengesellschaft. Sheet stacking method and apparatus. 4,313,600, Cl. 271-203.000.

Mosher, Carol W.: See—
Acton, Edward M.; and Mosher, Carol W., 4,314,054, Cl. 536-17.00A.

Mostmans, Joseph H.: See—
Heeres, Jan; and Mostmans, Joseph H., 4,313,953, Cl. 424-269.000.

Motonami, Masanao: See—
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Motorola Inc.: See—
Attwood, Stanley W.; and Stilwell, James H., 4,314,206, Cl. 329-50.000.

Brown, Leland T., 4,314,196, Cl. 323-315.000.

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Petersen, Clifford W.; Bednar, John M.; Hocker, Edwin J., Jr.; Gauger, David H.; and Henderson, James M., 4,314,365, Cl. 367-82.000.

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Bitsch, Rainer; Diessner, Armin; and Muller, Bruno, 4,314,303, Cl. 361-120.000.

Muller, Eckart, to Maschinenfabrik Augsburg-Nürnberg Aktiengesellschaft. Injection nozzle for air-compressing direct injection internal combustion engines. 4,313,407, Cl. 123-276.000.

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Boden, Heinrich; Muller, Heinz; and Sowade, Bernd, 4,313,909, Cl. 422-133.000.

Muller, Herbert: See—
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Nullin, Francis J.: See—
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Munakata, Yukio: See—
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Munday, Peter J., to Racal Group Services Limited. Frequency adjusting methods and systems. 4,314,208, Cl. 331-1.00A.

Muntjanoff, John R.; and Lanchantin, Charles E., Jr., to Caterpillar Tractor Co. Self adjusting actuator system. 4,313,633, Cl. 294-88.000.

Muramatsu, Tadao; and Ichihashi, Yasuhiko, to Toyota Jidosha Kogyo Kabushiki Kaisha. Camber adjusting device in strut type suspension system. 4,313,617, Cl. 280-661.000.

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Murayama, Nachiro; and Sakagami, Teruo, to Kureha Kagaku Kogyo Kabushiki Kaisha. Crosslinked polyvinyl alcohol gel. 4,314,032, Cl. 521-52.000.

Murdock, Keith C.; Damiani, Martin R.; and Durr, Frederick E. Certain 3,6-bis-(heteroaminoalkoxy) acridines. 4,314,061, Cl. 544-80.000.

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Musa, Fuad H.: See—
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Myers, Bert R., Jr., to Lakehurst Galleries, Ltd. Micro-wave powered distillation unit. 4,313,798, Cl. 202-234.000.

Myint, U. Hla, to Dow Chemical Company, The. Apparatus for evaluating the impact resistance of synthetic resinous products. 4,313,337, Cl. 73-12.000.

Mylander, Gerald D. Automatic fill-stop valve. 4,313,459, Cl. 137-416.000.

Nagai, Masanori: See—
Arimura, Hirofumu; Nagai, Masanori; Yamauchi, Takeshi; Kitagawa, Tsutomu; and Suyama, Tadakazu, 4,313,938, Cl. 424-180.000.

Nagai, Shigeo, to Nissin Kogyo Kabushiki Kaisha. Clutch-brake device for cutting machines. 4,313,293, Cl. 56-11.300.

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Nakaido, Shigeo: See—
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Nakamura, Etsumi; Suzuki, Takashi; Yanagida, Tadasu; and Yamamura, Minehiko, to Tanabe Seiyaku Co., Ltd. Purification of penicillin derivative. 4,313,875, Cl. 260-239.100.

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Nakamura, Masahiro: See—
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Namiki, Ryoichi, to Ricoh Company, Ltd. Method of forming a roll protective layer. 4,313,981, Cl. 427-409.000.

Nanba, Yasuhiro: See—
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Nassry, Assadullah; Maxwell, Jerrold F.; and Compton, John W., to BASF Wyandotte Corporation. Water-based hydraulic fluid and metalworking lubricant. 4,313,836, Cl. 252-32.70E.

Nath, Narikottile G.: See—
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National Instrument Company, Inc.: See—
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- Naum, Robert G.: See—
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- Neal, Jesse R., Jr.; and Bleile, Henry R., to United States of America, Navy. Non-photochemically reactive antifouling paint. 4,313,860, Cl. 260-27.00R.
- Nedelec, Lucien; Frechet, Daniel; and Dumont, Claude, to Roussel Uclaf. Cycloheptindoles, compositions and use. 4,313,944, Cl. 424-248.400.
- Nei, Koichi: See—
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- Neiman S.A.: See—
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- Nelson, Daniel L. Rock extractor apparatus and method. 4,313,502, Cl. 171-63.000.
- Nelson, Dennis I. Stringing device for retaining fish. 4,313,549, Cl. 224-103.000.
- Nelson, Edward L., to Burroughs Corporation. Keyswitch having contacts mounted on cantilever beams. 4,314,113, Cl. 200-5.00R.
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- Neptune Glenfield Limited: See—
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- Newell, Brian: See—
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- Newkirk, David D.: See—
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- Newman, Ritchey O.; Rieke, James K.; and Wright, Donald R., to Dow Chemical Company, The. Formable metal-plastic-metal structural laminates. 4,313,996, Cl. 428-215.000.
- Newman, Stephen: See—
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- Nichols, Walter A.; and Mathe, George L., to Philip Morris Incorporated. Rheometer and rheological measuring method. 4,313,339, Cl. 73-56.000.
- Nickell, Larry C.: See—
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- Niedermeyer, William P. Solar energy collector. 4,313,426, Cl. 126-438.000.
- Nihon Medi-Physics Co., Ltd.: See—
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- Nikiforov, Igor G.: See—
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- Nippon Kogaku K.K.: See—
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- Nippon Petroleum Refining Company Limited: See—
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- Nippon Soken, Inc.: See—
Yamaguchi, Hiroaki; Hattori, Tadashi; and Ootsuka, Yoshinori, 4,313,341, Cl. 73-862.330.
- Nippon Telegraph & Telephone Public Corporation: See—
Sekiguchi, Koichi; and Yamamoto, Kazuyuki, 4,314,109, Cl. 179-99.00M.
- Nippondenso Co. Ltd.: See—
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- Niwa, Hitoshi; Miwa, Naoto; Suzuki, Masatoshi; and Ouki, Masami, 4,313,810, Cl. 204-195.00S.
- Nishihama, Hitoshi: See—
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- Nishijima, Yasushi: See—
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- Nishikawa, Masahiro: See—
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- Nishimiya, Torazo, to Hitachi, Ltd. Solenoid valve for controlling flow of fluid. 4,313,590, Cl. 251-129.000.
- Nishimura, Yuji; and Kubota, Tatsushi, to Toyota Jidosha Kogyo Kabushiki Kaisha; and Kabushiki Kaisha Tokai Rika Denki Seisakusho. Seatbelt system. 4,313,621, Cl. 280-804.000.
- Nissan Motor Company: See—
Moriyama, Akinobu; Inoue, Mitsumasa; Saito, Masaaki; and Kawamura, Yoshihisa, 4,313,411, Cl. 123-445.000.
- Nissan Motor Company, Limited: See—
Fukunaga, Yukio, 4,313,584, Cl. 248-27.300.
- Hosaka, Akio; and Asano, Masaharu, 4,313,412, Cl. 123-480.000.
- Iizuka, Haruhiko; and Sugawara, Fukashi, 4,313,406, Cl. 123-198.00F.
- Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, 4,313,354, Cl. 74-869.000.
- Kunii, Kazuya; Tsutsumi, Saburo; and Ishizawa, Shizuo, 4,313,410, Cl. 123-432.000.
- Oguro, Takeshi; Mihara, Teruyoshi; Tominaga, Tamotsu; and Takeuchi, Masami, 4,314,226, Cl. 338-4.000.
- Shinzawa, Motohiro, 4,313,415, Cl. 123-569.000.
- Tominaga, Tamotsu; and Mihara, Teruyoshi, 4,314,225, Cl. 338-4.000.
- Tsunoda, Masakazu, 4,314,232, Cl. 340-52.00F.
- Tsuruta, Mitsuo; and Haga, Hachiro, 4,313,369, Cl. 98-115.05B.
- Nissin Kogyo Kabushiki Kaisha: See—
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- Nitta, Tsuneharu: See—
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- Matsuoka, Tomizo; Nitta, Tsuneharu; and Hayakawa, Shigeru, 4,314,178, Cl. 313-497.000.
- Nitto Chemical Industry Co. Ltd.: See—
Handa, Ryoji; Yoshida, Norimasa; Hosoda, Jun; and Furuno, Akihisa, 4,313,863, Cl. 260-29.60E.
- Niwa, Hitoshi; Miwa, Naoto; Suzuki, Masatoshi; and Ouki, Masami, to Nippondenso Co., Ltd. Oxygen concentration sensing apparatus. 4,313,810, Cl. 204-195.00S.
- Nix, Robert J., to Signode Corporation. All electric friction fusion strapping tool. 4,313,779, Cl. 156-361.000.
- Noddings, John; and Borton, Roland K., to Associated Engineering Limited. Electrical storage circuit with temperature independent FET output. 4,314,165, Cl. 307-310.000.
- Nomura, Yasushi: See—
Yamashita, Katsuji; and Nomura, Yasushi, 4,313,735, Cl. 23-230.00R.
- Norman, Robert W., Jr.: See—
Porter, Marion G.; Norman, Robert W., Jr.; and Ryan, Charles P., 4,314,331, Cl. 364-200.000.
- Norman, Stanley R. C.: See—
Tin, Kam B.; and Norman, Stanley R. C., 4,314,164, Cl. 307-243.000.
- North, Steven F.; and Sprow, Robert B., to Western Electric Company, Inc. Printing apparatus. 4,313,394, Cl. 118-323.000.
- Northern Telecom Limited: See—
Read, Clifford D., 4,314,309, Cl. 361-331.000.
- Zuber, Bretislav P.; and Pereira, Munidas C., 4,313,579, Cl. 242-163.000.
- Norton, James F.: See—
Antoniw, Walter W.; Silagy, Richard J.; and Norton, James F., 4,313,594, Cl. 251-357.000.
- Notelteirs, Victor R., to U.S. Philips Corporation. Halogen incandescent lamp. 4,314,176, Cl. 313-185.000.
- Novicky, Nick N., to Tsuetaki, George F. Oxygen-permeable contact lens compositions, methods, and articles of manufacture. 4,314,068, Cl. 556-440.000.
- Nugent, Henry M.: See—
Pelton, Robert H.; Allen, Lawrence H.; and Nugent, Henry M., 4,313,790, Cl. 162-163.000.
- Nycoil Company: See—
Mode, Paul, 4,313,331, Cl. 72-368.000.
- Nygaard, Sven, to Eskofot, A/S. Method of automatically adjusting a picture reproducing apparatus. 4,313,676, Cl. 355-56.000.
- Oak Industries: See—
Larson, Willis A., 4,314,114, Cl. 200-5.00A.
- Oberstar, Helen E.: See—
Barbuscio, Frank D.; Hunter, LeRoy; Hourihan, Joseph C.; Inglis, Mary C.; Oberstar, Helen E.; and Saad, Hosny, 4,313,393, Cl. 116-200.000.
- O'Brien, David F.; Whitesides, Thomas H.; and Klingbiel, Richard T., to Eastman Kodak Company. Photographic element having a layer of lipid compound. 4,314,021, Cl. 430-270.000.
- O'Brien, Dennis: See—
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- Occidental Chemical Company: See—
Richards, Thomas E.; Harvey, James P.; and Daigle, Michael A., 4,313,919, Cl. 423-321.00R.

- Occidental Research Corporation: See—
Salisbury, Winfield W., 4,314,180, Cl. 376-130.000.
- Ochirov, Vasily A.: See—
Fesenko, Evgeny G.; Dantsiger, Alla Y.; Filipiev, Viktor S.; Razumovskaya, Olga N.; Klevtsov, Alexandr N.; Lebedev, Vladimir N.; Grineva, Ljudmila D.; Rogach, Tatyana V.; Feronov, Anatoly D.; Akbaeva, Galina M.; Cheptsov, Evgeny I.; Panich, Anatoly E.; Lisitsina, Ljudmila G.; Lavrikova, Svetlana A.; Ochirov, Vasily A.; Dudkina, Svetlana I.; Nevsky, Alexandr N.; Aleshin, Vladimir A.; Kupriyanov, Mikhail F.; Baljunis, Evgeny S.; Mordanov, Boris P.; Zhitomirsky, Grigory A.; Feldman, Naum B.; Smazhevskaya, Ekaterina G.; and Devlikanova, Ravi-lyia U., 4,313,839, Cl. 252-62.900.
- O'Connell, Thomas L. Drill cutter bit. 4,313,506, Cl. 175-410.000.
- O'Connor, Joseph M., to Peerless of America, Inc. Extrusion die for forming multi-passage tubular members. 4,313,327, Cl. 72-265.000.
- Oda, Yasutaka; and Hamaoka, Hiromi, to Tokyo Shibaura Denki Kabushiki Kaisha. Self-compensating device for a magnetic disc apparatus. 4,314,291, Cl. 360-78.000.
- Odar, Joseph, to B. F. Goodrich Company, The. Polymerization process for cis-1,4-polybutadiene using aliphatic solvents and an aromatic polymerization regulator. 4,314,045, Cl. 526-93.000.
- Oder, Robin R.: See—
Tsai, Shirley C.; Graham, Richard H.; and Oder, Robin R., 4,313,499, Cl. 166-248.000.
- Odono, Giovanni; and Buchs, Willy. Portable electronic alarm device. 4,314,239, Cl. 340-556.000.
- Odrizola Espinosa de los Monteros, Ignacio: See—
Martinez Apeztegui, Juan; and Odrizola Espinosa de los Monteros, Ignacio, 4,313,687, Cl. 403-171.000.
- Oehr, Klaus H., to B.C. Research Council. Process for preparing ceric sulphate. 4,313,804, Cl. 204-93.000.
- Ogawa, Hisahito: See—
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- Ogawa, Hisashi: See—
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- Oglesby, Lloyd S.: See—
Crackel, Lawrence E.; and Oglesby, Lloyd S., 4,313,425, Cl. 126-438.000.
- Oguro, Takeshi; Mihara, Teruyoshi; Tominaga, Tamotsu; and Takeuchi, Masami, to Nissan Motor Company, Limited. Pressure sensor. 4,314,226, Cl. 338-4.000.
- Ohara, Minoru: See—
Yoshikumi, Chikao; Ohmura, Yoshio; Hirose, Fumio; Ikuzawa, Masanori; Matsunaga, Kenichi; Fujii, Takayoshi; Ohhara, Minoru; and Ando, Takao, 4,313,939, Cl. 424-180.000.
- Ohkita, Masao; and Yamashita, Hitoshi, to Alps Electric Co., Ltd. Switch having a coil spring and method of assembling. 4,314,118, Cl. 200-16.00F.
- Ohlson, Kjell F. Rear light unit for lorries. 4,314,315, Cl. 362-80.000.
- Ohmura, Yoshio: See—
Yoshikumi, Chikao; Ohmura, Yoshio; Hirose, Fumio; Ikuzawa, Masanori; Matsunaga, Kenichi; Fujii, Takayoshi; Ohhara, Minoru; and Ando, Takao, 4,313,939, Cl. 424-180.000.
- Ohta, Kazuro, to Nippon Petroleum Refining Company Limited. Method of defoaming amine solutions. 4,313,917, Cl. 423-228.000.
- Ohta, Masafumi; Hashimoto, Mitsuru; and Tsutsui, Kyoji, to Ricoh Co., Ltd. Electrophotographic element having a bisazo photoconductor. 4,314,016, Cl. 430-59.000.
- Ohta, Masafumi: See—
Hashimoto, Mitsuru; Sakai, Kiyoshi; Ohta, Masafumi; Kozima, Akio; Sasaki, Masami; and Tsutsui, Kyoji, 4,314,015, Cl. 430-58.000.
- Ohtake Works Company, Ltd.: See—
Ohtake, Yukio; and Nakamura, Masahiro, 4,314,029, Cl. 435-291.000.
- Ohtake, Yukio; and Nakamura, Masahiro, to Ohtake Works Company, Ltd. Apparatus for automatically measuring changes in amount of gas. 4,314,029, Cl. 435-291.000.
- Ohtsuka, Kunio: See—
Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, 4,313,354, Cl. 74-869.000.
- Oiry, Joel; and Imbach, Jean-Louis, to Agence Nationale de Valorisation de la Recherche (ANVAR). Cystamine derivatives suitable for use as medicaments. 4,314,076, Cl. 564-33.000.
- Oizumi, Masayuki; Goto, Masana; Ishiki, Minoru; and Uozumi, Shoji, to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha. Insulating laminates comprising alternating fiber reinforced resin layers and unreinforced resin layers. 4,314,002, Cl. 428-414.000.
- Oka, Kimiaki: See—
Kakagawa, Kamuyuki; Uchida, Minoru; and Oka, Kimiaki, 4,313,947, Cl. 424-248.540.
- Okado, Chihiro; Morishita, Takashi; and Hasegawa, Koki, to Tokyo Shibaura Denki Kabushiki Kaisha. Device for controlling the commutating angle of an inverter device. 4,314,189, Cl. 318-732.000.
- Okajima, Shinpei, to Shimano Industrial Company Limited. Pedal for a bicycle. 4,313,352, Cl. 74-594.400.
- Okamoto, Atsuki: See—
Takahashi, Masashi; and Okamoto, Atsuki, 4,313,770, Cl. 148-12.00C.
- Okamura, Shigeru: See—
Tazaki, Shigemitsu; Okamura, Shigeru; and Kyogoku, Hiroshi, 4,313,684, Cl. 400-322.000.
- Okubo, Shigeo. Flexural vibration sensor with magnetic field generating and sensing. 4,314,202, Cl. 324-207.000.
- Okuda, Nobuo: See—
Shibayama, Shigeki; Iwata, Kazuhide; and Okuda, Nobuo, 4,314,333, Cl. 364-200.000.
- Olin Corporation: See—
Brown, William D.; and Whitman, Hobart A., III, 4,314,142, Cl. 219-384.000.
- Kircher, Morton S., 4,313,812, Cl. 204-253.000.
- Oliver, Bernard M.: See—
Misson, William W.; Studley, Clarence K.; Oliver, Bernard M.; and Liljenwall, Edward T., 4,314,112, Cl. 200-5.00A.
- Olofsson, Hans K., to Alfa-Laval AB. Milking plant. 4,313,396, Cl. 119-14.440.
- Olsen, John H., to Flow Industries, Inc. High pressure cutting nozzle with on-off capability. 4,313,570, Cl. 239-583.000.
- Olympus Optical Company Limited: See—
Nakajima, Yoshio; Takayama, Shuichi; Tsuboshima, Kosaku; Iwasawa, Teruo; and Yamazaki, Masafumi, 4,314,150, Cl. 250-201.000.
- Suzuki, Takeomi; and Aoki, Masahiro, 4,314,151, Cl. 250-204.000.
- Omodei-Sale, Amedeo: See—
Guzzi, Umberto; Omodei-Sale, Amedeo; and Galliani, Giulio, 4,313,950, Cl. 424-258.000.
- Ondetti, Miguel A.; and Ryono, Denis E., to E. R. Squibb & Sons, Inc. Hypotensive imidazole substituted mercapto-1-oxopropyl-L-prolines. 4,313,948, Cl. 424-273.00R.
- O'Neill, John F.: See—
Ruether, Peter G.; Vachon, Patrick A.; and O'Neill, John F., 4,314,100, Cl. 179-1.05C.
- O'Neill, John J., Jr.: See—
Benyon, Carl W., Jr.; and O'Neill, John J., Jr., 4,313,809, Cl. 204-192.00C.
- Ono Pharmaceutical Co. Ltd.: See—
Wakatsuka, Hirohisa; Hayashi, Masaki; and Konishi, Yoshitaka, 4,313,954, Cl. 424-274.000.
- Onoe, Morio. Radar reflector with variable electric reflectivity. 4,314,249, Cl. 343-18.00D.
- Ootsuka, Yoshinori: See—
Yamaguchi, Hiroaki; Hattori, Tadashi; and Ootsuka, Yoshinori, 4,313,341, Cl. 73-862.330.
- Ore, William C.: See—
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- Osborne, Edward L., to Westvaco Corporation. Produce container. 4,313,547, Cl. 220-416.000.
- Osminin, Evgeny A.: See—
Gotovtseva, Ljubov A.; Konkova, Maia B.; Garbuz, Tatyana F.; Bunin, Oleg A.; Osminin, Evgeny A.; Zabavina, Nina A.; Ivanov, Alexei I.; Snopov, Vladimir P.; and Batkov, Alexandr I., 4,313,235, Cl. 8-149.100.
- Osmose Wood Preserving Co. of America, Inc.: See—
Leach, Robert M., 4,313,976, Cl. 427-297.000.
- Ostendorf, Hermann, to Deutsche Babcock Aktiengesellschaft. Steam generator. 4,313,398, Cl. 122-4.00D.
- Ostkamp, Willi; and Paschedag, Theodor, to Westfalia Separator AG. Fully jacketed helical centrifuge. 4,313,559, Cl. 233-7.000.
- Ostlie, L. David. Multiple angle single stage scrubber. 4,313,742, Cl. 55-241.000.
- Otake, Mituyoshi: See—
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- Otsuka Pharmaceutical Co., Ltd.: See—
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- Oude Elberink, Bernard H. M.; Damhuis, Gerardus J. M.; and Alink, Han, to Hollandse Signaalapparaten B.V. Degarbler for an interrogator-transponder system. 4,314,247, Cl. 343-6.51C.
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- Outboard Marine Corporation: See—
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- Outokumpu Oy: See—
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- Owens-Corning Fiberglass Corporation: See—
Perkins, Richard A., 4,313,799, Cl. 204-1.00T.
- Oyama, Tsutomu. Method for producing long-lasting analgesic effects of β -endorphin. 4,313,937, Cl. 424-177.000.
- Paaren, Herbert E.: See—
DeLuca, Hector F.; Schnoes, Heinrich K.; Paaren, Herbert E.; and Frank, Helen, 4,313,942, Cl. 424-236.000.
- Paitich, Ronald M.; and Briglia, Donald D. Method and means for vacuum gauging. 4,314,205, Cl. 324-460.000.
- Pako Corporation: See—
Larson, Louis A.; and Euteneuer, Charles L., 4,313,669, Cl. 354-354.000.
- Stewart, James F., 4,313,677, Cl. 355-76.000.
- Panek, Peter; Gutsche, Walter; and Woditsch, Peter, to Bayer Aktiengesellschaft. Production of hydrolyzable titanil sulphate solution. 4,313,913, Cl. 423-82.000.
- Panich, Anatoly E.: See—
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- Anatoly D.; Akbaeva, Galina M.; Cheptsov, Evgeny I.; Panich, Anatoly E.; Lisitsina, Ljudmila G.; Lavrikova, Svetlana A.; Ochirov, Vasily A.; Dudkina, Svetlana I.; Nevsky, Alexander N.; Aleshin, Vladimir A.; Kupriyanov, Mikhail F.; Baljunis, Evgeny S.; Mordanov, Boris P.; Zhitomirsky, Grigory A.; Feldman, Naum B.; Smazhevskaya, Ekaterina G.; and Devlikanova, Ravi-lyia U., 4,313,839, Cl. 252-62.900.
- Papazizos, Christos: See—
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- Paraskevopoulos, Demetris E.: See—
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- Parazader, Stephen. Guideway units for elevated guideways, 4,313,383, Cl. 104-124.000.
- Parekh, Bhupendra K.: See—
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- Parks, Richard E.: See—
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- Parlman, Robert M.; and Burns, Lyle D., to Phillips Petroleum Co. Substituted dihydro oxazines as hydrocarbon antioxidants, 4,313,738, Cl. 44-63.000.
- Pasarella, Nunzio R., to American Cyanamid Company. Granular pesti-cidal compositions of decreased dermal toxicity and methods for preparing the same, 4,313,940, Cl. 424-215.000.
- Paschedag, Theodor: See—
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- Patel, Kishor J., to Dynex/Rivett Inc. Servo valve, 4,313,468, Cl. 137-625.610.
- Patent Development of N.C.: See—
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- Paterson, Malcolm M., to Raytheon Company. Multi-size materials separator, 4,313,543, Cl. 209-212.000.
- Pathfinder Graphic Associates, Inc.: See—
Etchell, Gordon; and Frank, Cyril W., 4,313,378, Cl. 101-415.100.
- Paulson, Gary R., to Hewlett-Packard Company. Spiral data cartridge carousel and positioning mechanism, 4,314,293, Cl. 360-92.000.
- Paulus, Philippe A., to Centre de Recherches Metallurgiques-Centrum voor Research in de Metallurgie. Continuous heat-treatment process for steel strip, 4,313,772, Cl. 148-142.000.
- Payer, Wolfgang: See—
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- Pearson, John, to Eaton-Leonard Corporation. Reversible bending machine, 4,313,324, Cl. 72-149.000.
- Peerless of America, Inc.: See—
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- Pelton, Robert H.; Allen, Lawrence H.; and Nugent, Henry M., to Pulp and Paper Research Institute of Canada. Additives for increased retention and pitch control in paper manufacture, 4,313,790, Cl. 162-163.000.
- Penick, Ib: See—
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- Penny, William A.; and Slater, Robert A. C., to City University, The; and Worshipful Company of Pewterers, The. Rotary forging machine, 4,313,332, Cl. 72-406.000.
- Penrod, Bruce M.: See—
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- Pereira, Munidas C.: See—
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- Perez, Raul E.: See—
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- Perkin-Elmer Corporation, The: See—
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- Perkins, Richard A., to Owens-Corning Fiberglass Corporation. Oxygen sensor and method for determining the oxygen activity in molten glass, 4,313,799, Cl. 204-1.00T.
- Pesa, Frederick A.; and Haase, Thomas A., to Standard Oil Company. Carbonylation of olefinically unsaturated compounds, 4,313,893, Cl. 260-465.400.
- Peters, Hartmut, to Hauni-Werke Korber & Co. KG. Rotary support for rolls of convoluted webs and means for damping its natural frequency oscillations, 4,313,577, Cl. 242-66.000.
- Petersen, Clifford W.; Bednar, John M.; Hocker, Edwin J., Jr.; Gauger, David H.; and Henderson, James M., to Exxon Production Research Company; and Motorola, Inc. Acoustic transmitter and method to produce essentially longitudinal, acoustic waves, 4,314,365, Cl. 367-82.000.
- Peterson, James J.; and Taylor, Glenn N., to Kendall Company, The. Collection bag, 4,313,447, Cl. 128-766.000.
- Petrov, Vyacheslav V.; and Krjuchin, Andrei A. Radiation-sensitive material and method for recording information on radiation-sensitive material, 4,314,256, Cl. 346-1.100.
- Petschke, Glenn H.: See—
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- Petitbone Corporation: See—
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- Pezzi, Louis D., to Perkin-Elmer Corporation, The. Multilevel priority arbiter, 4,314,335, Cl. 364-200.000.
- Pfau, Jean; and Wavre, Alain, to Ateliers des Charmilles S.A. Process and apparatus for electrical discharge machining by means of a wire electrode, 4,314,133, Cl. 219-69.00M.
- Pfleiderer, Hans-Joerg: See—
Knauer, Karl; and Pfleiderer, Hans-Joerg, 4,314,163, Cl. 307-221.00D.
- Phelps, Clifford R. Well pump theft alarm, 4,314,243, Cl. 340-686.000.
- Phelps Dodge Industries, Inc.: See—
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- Phillion, Richard E.: See—
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- Philip Morris Incorporated: See—
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- Phillips Petroleum Co.: See—
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- Cooper, William T., 4,313,920, Cl. 423-449.000.
- Farha, Floyd E., Jr.; and Gardner, Lloyd E., 4,313,820, Cl. 208-213.000.
- Kallenberger, Robert H.; and Anderson, John E., 4,313,723, Cl. 432-37.000.
- Parlman, Robert M.; and Burns, Lyle D., 4,313,738, Cl. 44-63.000.
- Photowatt International, Inc.: See—
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- Pichler, Marty A.: See—
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- Pickel, Hajo, to ITT Industries, Inc. Brake shoe securing arrangement, 4,313,527, Cl. 188-73.320.
- Pielsticker, Klaus P.: See—
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- Pierburg Luftfahrtgeräte Union GmbH: See—
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- Pierro, Joseph J.: See—
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- Pieters, Wim J. M.: See—
Sherwood, Rexford D.; Baker, Rees T. K.; Derouane, Eric G.; and Pieters, Wim J. M., 4,313,853, Cl. 252-445.000.
- Pike, Daniel E., to Neptune AirPol, Inc. Process for removal of sulfur dioxide from gas streams, 4,313,924, Cl. 423-242.000.
- Pilgram, Kurt H., to Shell Oil Company. N-Cyclopropyl-N-(fluoro-phenyl)-N-acylureas and their herbicidal use, 4,313,755, Cl. 71-120.000.
- Pinternagel, Werner. Transistor amplifier, 4,314,207, Cl. 330-110.000.
- Pioneer Electronic Corporation: See—
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- Pitman, Donald G., to Mathews, Lester R. Fluid routing device, 4,313,455, Cl. 137-119.000.
- Pitney Bowes Inc.: See—
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- Pittman, Earle S.: See—
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- Pittsburgh-Des Moines Corporation: See—
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- Pivar, Stuart, to American Microcar, Inc. Lightweight electrically driven three-wheeled vehicle with low center of gravity and light-weight superstructure including improved braking system, 4,313,517, Cl. 180-216.000.
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- Planteline, Pierre, to Thomson-CSF. Shaft position sensor for an internal combustion engine equipped with an electronic ignition system, 4,313,414, Cl. 123-643.000.
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- Plasko, Emil R., to Emerson Electric Company. Thermally actuatable electrical switch construction and method of making the same, 4,314,224, Cl. 337-408.000.
- Plessey Handel und Investments AG: See—
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- Plow, Robert J.; and Rader, Jerry C., to Reliance Electric Company. Three phase regulated supply with ripple current regulation, 4,314,322, Cl. 363-46.000.
- Pneumo Corporation: See—
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- Poeschl, Guenter, to Lamm, Helmut. Solar heated building, 4,313,420, Cl. 126-429.000.
- Pogany, Stefano A.: See—
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- Pointing, Roy A. W.; and Rucklidge, Richard A., to W. Darlington & Sons Limited. Mushroom growing, 4,313,278, Cl. 47-1.100.
- Polaroid Corporation: See—
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- Gold, Nicholas, 4,313,667, Cl. 354-303.000.
- Pontelin, Jaakko. Firewood chopper, 4,313,480, Cl. 144-193.00R.

- Poppendiek, Heinz F., to United States of America, Energy. Method and apparatus for determining vertical heat flux of geothermal field, 4,313,342, Cl. 73-154.000.
- Porter, Marion G.; Norman, Robert W., Jr.; and Ryan, Charles P., to Honeywell Information Systems Inc. Cache unit information replacement apparatus, 4,314,331, Cl. 364-200.000.
- Porter, Ronald, to Grootcon (U.K.) Limited. Arc welding cupro nickel parts, 4,314,132, Cl. 219-61.000.
- Posnikoff, Fred. Device for limiting lateral canting of road vehicles, 4,313,620, Cl. 280-718.000.
- Postel, Michel; and Bouron, Jean-Pierre, to Thomson-CSF. Curve-generating device for visual display of symbols on a cathode-ray screen, 4,314,351, Cl. 364-720.000.
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- PPG Industries, Inc.: See—
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- Johnson, Harlan B.; and Chamberlin, Ronald D., 4,313,813, Cl. 204-263.000.
- Sickles, James E.; and Chang, Wen-Hsuan, 4,313,968, Cl. 427-27.000.
- Stoneberg, Richard L., 4,314,004, Cl. 428-421.000.
- Viggall, Jeffrey S., 4,313,722, Cl. 432-1.000.
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- Prasad, Keni K., to Deere & Company. Variable speed drive clutch, 4,313,728, Cl. 474-14.000.
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- Prestige Group Limited, The: See—
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- Pritchard, Dalton H.; and Schroeder, Alfred C., to RCA Corporation. Input-weighted transversal filter TV ghost eliminator, 4,314,277, Cl. 358-167.000.
- Procter & Gamble Company, The: See—
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- LaHann, Thomas R., 4,313,958, Cl. 424-324.000.
- Produits Chimiques de la Montagne Noire: See—
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- Proffer, Charles L. Container cap with neck abutting retractable applicator, 4,313,686, Cl. 401-127.000.
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- Pulp and Paper Research Institute of Canada: See—
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- Q-Dot, Inc.: See—
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- R. Alkan & Cie: See—
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- R. Hagga & Soner Aktiebolag: See—
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- Raab, Frederick H., to Austin Company, The. Remote object position and orientation locator, 4,314,251, Cl. 343-112.00R.
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- Rado, Theodore A., to Kerr-McGee Corporation. Process for recovering deashing solvent from insoluble coal products, 4,313,819, Cl. 208-177.000.
- Ragaly, Istvar: See—
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- Raghu, Sivaraman; Hoffmann, Arthur K.; and Singh, Balwant, to American Cyanamid Co. Synthesis of tetramisole, levamisole and their derivatives, 4,314,066, Cl. 548-320.000.
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- Ragle, Herbert U., to Burroughs Corporation. Di-bit recording technique and associated servo indicia, 4,314,290, Cl. 360-77.000.
- Raines, Kenneth, to Burron Medical Inc. Additive cap and package therefor, 4,313,539, Cl. 206-461.000.
- Ralph McKay Limited: See—
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- Raybould, Derek, to Institut Cerac S.A. Wear resistant aluminium alloy, 4,313,759, Cl. 75-249.000.
- Raychem Corporation: See—
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- Horsma, David A., 4,314,145, Cl. 219-553.000.
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- Raytheon Company: See—
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- RCA Corporation: See—
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- Benyon, Carl W., Jr.; and O'Neill, John J., Jr., 4,313,809, Cl. 204-192.00C.
- Bismarck, Otto H., 4,314,166, Cl. 307-475.000.
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- Recognition Equipment Incorporated: See—
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- Redaelli, Claudio, to Benomelli S.p.A. Extractive process for preparing apigenin, 4,313,880, Cl. 260-345.200.
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- Reichelderfer, Richard F.: See—
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- Reliable Electric Company: See—
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- Reliance Electric Company: See—
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- Renishaw Electrical Limited: See—
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- Rennco Incorporated: See—
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- Renshaw, James T., to Monsanto Company. Plasticizers for vinyl chloride polymers, 4,313,866, Cl. 260-31.80H.
- Repa Feinstanzwerk GmbH: See—
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- Resch, Reinhard, to Daimler-Benz Aktiengesellschaft. Brake force booster, especially for motor vehicles, 4,313,303, Cl. 60-556.000.

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Segal, David. Fracture fixation, 4,313,434, Cl. 128-92.0BC.

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Knauer, Karl; and Pfeiderer, Hans-Joerg, 4,314,163, Cl. 307-221.00D.

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Fesenko, Evgeny G.; Dantsiger, Alla Y.; Filipiev, Viktor S.; Razumovskaya, Olga N.; Klevtsov, Alexandr N.; Lebedev, Vladimir N.; Grineva, Ljudmila D.; Rogach, Tatyana V.; Feronov, Anatoly D.; Akbaeva, Galina M.; Cheptsov, Evgeny I.; Panich, Anatoly E.; Lisitsina, Ljudmila G.; Lavrikova, Svetlana A.; Ochirov, Vasily A.; Dudkina, Svetlana I.; Nevsky, Alexandr N.; Aleshin, Vladimir A.; Kupriyanov, Mikhail F.; Baljunis, Evgeny S.; Mordanov, Boris P.; Zhitomirsky, Grigory A.; Feldman, Naum B.; Smazhevskaya, Ekaterina G.; and Devlikanova, Ravi-lya U., 4,313,839, Cl. 252-62.900.

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Smith, Eric L. Driven rotary toothbrush, 4,313,237, Cl. 15-23.000.

Smith, Jerold B. Magnetron solvent recovery system, 4,313,786, Cl. 159-22.000.

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Bauer, Werner R.; and Smith, William N., 4,314,122, Cl. 200-72.00A.

Smith, William V., to Lectrolarm Custom Systems, Inc. Video camera multifunction control system, 4,314,278, Cl. 358-210.000.

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Zardi, Umberto; and Lagana, Vincenzo, 4,314,077, Cl. 564-70.000.

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Gotovtseva, Ljubov A.; Konkova, Maia B.; Garbuz, Tatyana F.; Bunin, Oleg A.; Osminin, Evgeny A.; Zabavina, Nina A.; Ivanov, Alexei I.; Snopov, Vladimir P.; and Batkov, Alexandr I., 4,313,235, Cl. 8-149.100.

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Gonzales, Frank, Jr.; and Sobon, Joseph, 4,313,900, Cl. 264-61.000.

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Societe Anonyme Fileca: See—
Van Meenen, Pierre, 4,313,298, Cl. 57-3.000.

Societe Civile Promeyrat-Casteilla: See—
Promeyrat, Maurice, 4,313,368, Cl. 92-159.000.

Societe d'Assistance Technique pour Produits Nestle S.A.: See—
Lundgren, Bror F., 4,313,719, Cl. 425-335.000.

Societe d'Etude et de Construction d'Appareils de Precision: See—
Lallemand, Jacques, 4,314,148, Cl. 235-92.05B.

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Malagnoux, Roger; and Grehal, Pierre, 4,313,333, Cl. 72-410.000.

Societe Generale pour l'Emballage: See—
Barton, James L., 4,313,747, Cl. 65-27.000.

Societe Nationale Industrielle Aerospaciale: See—
Collette, Hubert, 4,313,580, Cl. 244-3.130.

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Sokolowski, Bronislaw. Tool for replacement of golf club grip, 4,313,250, Cl. 29-235.000.

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Rogers, William E., 4,314,198, Cl. 323-351.000.

Someya, Sinzo: See—
Takahashi, Ryohei; Fujikawa, Kanichi; Yokomichi, Isao; Someya, Sinzo; and Sakashita, Nobuyuki, 4,314,069, Cl. 560-62.000.

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Tooyama, Akira; and Hosono, Takashi, 4,314,179, Cl. 315-12.0ND.

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Soo Hoo, Wayne J. Land vehicle, 4,313,511, Cl. 180-21.000.

- Sorensen, Ejner V.: See—
Vangsted, Arne; and Sorensen, Ejner V., 4,314,141, Cl. 219-348.000.
- Soula, Gerard; and Michelet, Daniel, to Rhone-Poulenc Industries. Preparation of aliphatic/aromatic ethers. 4,314,086, Cl. 568-652.000.
- South African Inventions Development Corp.: See—
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- Southgate, John P.: See—
Williams, Malcolm; Southgate, John P.; and Woodhouse, Richard G., 4,314,305, Cl. 361-154.000.
- Sowade, Bernd: See—
Boden, Heinrich; Muller, Heinz; and Sowade, Bernd, 4,313,909, Cl. 422-133.000.
- Sowerby, Brian D., to Australian Atomic Energy Commission. Method and apparatus for elemental analysis employing combination of neutron inelastic scattering and γ ray scattering. 4,314,155, Cl. 250-253.000.
- Spectra-Physics, Inc.: See—
Tomlinson, Barrett L., 4,314,343, Cl. 364-498.000.
- Speigel, Alan B.; and Zurich, Robert P. Process of cleaning unwanted films. 4,313,841, Cl. 252-170.000.
- Spencer Wright Industries, Inc.: See—
Biggs, Aubrey H.; Slattery, Ian; and Workman, Jack G., 4,313,388, Cl. 112-79.00R.
- Sperry Corporation: See—
Kivela, Gary G., 4,314,341, Cl. 364-433.000.
- Martenas, Wayne B., 4,313,294, Cl. 56-15.800.
- Voigt, Henry K., 4,314,188, Cl. 318-721.000.
- Sperzel, Wolfgang: See—
Thomas, Friedrich W.; Sperzel, Wolfgang; and Petzoldt, Jurgen, 4,314,182, Cl. 315-307.000.
- Spieccens, Camil P.: See—
Stalemark, Ragnar F., 4,314,101, Cl. 179-2.00A.
- Spiewok, Leonhard, to Escher Wyss Limited. Centrifuge screen. 4,313,992, Cl. 428-136.000.
- Spitz, Jerold B. Method and apparatus for projector support. 4,313,665, Cl. 354-293.000.
- Spofford, Walter R.: See—
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- Sprow, Robert B.: See—
North, Steven F.; and Sprow, Robert B., 4,313,394, Cl. 118-323.000.
- Spurr, Robert, to Emhart Industries, Inc. Parison transfer means. 4,313,720, Cl. 425-526.000.
- Srdoch, Rudolph R., to Westinghouse Electric Corp. Mounting bracket for bracing peripheral connecting rings for dynamoelectric machines' stator windings. 4,314,173, Cl. 310-260.000.
- SRI International: See—
Acton, Edward M.; and Mosher, Carol W., 4,314,054, Cl. 536-17.00A.
- Staat, Karl-Hans; and Zacharias, Theodor, to Kocks Technik GmbH & Co. Push benches. 4,313,325, Cl. 72-208.000.
- Stahl, Horst; and Wachs, Walter, to Siemens Aktiengesellschaft. Push-button switch, particularly for keyboards of typewriters and similar devices. 4,313,685, Cl. 400-479.000.
- Stahr, Henry M., to Iowa State University Research Foundation, Inc. Method of detecting mold toxin infected grains. 4,314,027, Cl. 435-34.000.
- Staker, William C.: See—
Lehnhoff, Richard N.; and Staker, William C., 4,313,402, Cl. 123-41.120.
- Stalemark, Ragnar F., to Spieccens, Camil P. Remote supervising apparatus. 4,314,101, Cl. 179-2.00A.
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Alford, Harvey E.; and Frazier, David, 4,313,835, Cl. 252-8.55D.
- Gaylor, V. Frances; Greene, Janice L.; Miller, Arthur F.; and Pichler, Marty A., 4,313,803, Cl. 204-74.000.
- Pesa, Frederick A.; and Haase, Thomas A., 4,313,893, Cl. 260-465.400.
- Shaw, Wilfrid G.; Kuch, Philip L.; and Paparizos, Christos, 4,314,075, Cl. 562-599.000.
- Standard Oil Company (Indiana): See—
Hanson, Robert B., 4,313,866, Cl. 260-37.00N.
- Kildahl, Nicholas K.; and Fotis, Peter, 4,313,850, Cl. 252-429.00B.
- Lin, Chi-Hung; and Leung, Linus K., 4,314,053, Cl. 528-483.000.
- Martner, Samuel T.; and Arnold, Maurice E., Jr., 4,313,380, Cl. 181-116.000.
- Throne, James L.; and Graves, Richard E., Jr., 4,314,036, Cl. 521-99.000.
- Stanley, Priscilla B.: See—
Chu, Nan S.; Clinton, Nye A.; Cupper, Robert A.; Wolf, Philip F.; and Stanley, Priscilla B., 4,313,890, Cl. 260-410.600.
- Steele, James R., to Dynamic Air Inc. Quick mount high pressure booster valves. 4,313,699, Cl. 406-93.000.
- Stemme, Otto; and Wagensonner, Eduard, to Agfa-Gevaert AG. Electrooptic diaphragm and circuit operative for causing the diaphragm to open up stepwise and then close to terminate exposure. 4,313,663, Cl. 354-271.000.
- Stepanek, Robert M., to Pettibone Corporation. Caps for hammermill rotors secured by individually-removable paired pin assemblies. 4,313,575, Cl. 241-194.000.
- Stephan Pask & Cie, Societe Anonyme: See—
Focant, Jean, 4,313,565, Cl. 239-132.300.
- Stephen, John F.: See—
Kruse, Walter M.; and Stephen, John F., 4,314,078, Cl. 564-99.000.
- Stephens, Geoffrey B.: See—
Bergeron, David L.; and Stephens, Geoffrey B., 4,314,267, Cl. 357-43.000.
- Sterling Drug Inc.: See—
Leshner, George Y.; and Philion, Richard E., 4,313,951, Cl. 424-263.000.
- Wesseler, Eugene P., 4,314,001, Cl. 428-393.000.
- Sternberg, Moshe M.: See—
Kim, Chong Y.; and Sternberg, Moshe M., 4,313,962, Cl. 426-35.000.
- Steven Manufacturing Company: See—
Klawitter, Ronald R., 4,313,277, Cl. 46-95.000.
- Stevens, John; Huizinga, John S.; and Newman, Stephen, to Minnesota Mining and Manufacturing Company. Antistatic compositions and treatment. 4,313,978, Cl. 427-384.000.
- Stewart, James F., to Pako Corporation. Neghold assembly for photographic printer. 4,313,677, Cl. 355-76.000.
- Stewart, John M., to Santerra Industries Ltd. Toilet. 4,313,234, Cl. 4-449.000.
- Steyr-Daimler-Puch Aktiengesellschaft: See—
Ledwinka, Erich; and Cvetnic, Milan, 4,313,518, Cl. 180-233.000.
- Stier, Bernhard: See—
Mann, Arnold; and Stier, Bernhard, 4,313,515, Cl. 180-179.000.
- Stiles, Jack L. Control system for environmental units. 4,313,560, Cl. 236-46.00R.
- Stilwell, James H.: See—
Attwood, Stanley W.; and Stilwell, James H., 4,314,206, Cl. 329-50.000.
- Stockman, Richard F., to Air Preheater Company, Inc. The. Turn-down indicator for rotary regenerative heat exchanger. 4,313,489, Cl. 165-9.000.
- Stokely, John E., to Texaco Inc. Seismic signal processing machine and method for noise removal. 4,314,347, Cl. 364-574.000.
- Stokes, Kenneth B., to Medtronic, Inc. Myocardial sutureless lead. 4,313,448, Cl. 128-785.000.
- Stokes, W. Fred; Bradford, Fahey S.; and Strobel, Nancy S. Competition game machine. 4,313,605, Cl. 273-85.00C.
- Stoll, James W.: See—
Castro, Anthony J.; and Stoll, James W., 4,314,040, Cl. 525-6.000.
- Stolley, Ronald M.: See—
Hansen, Loren F.; and Stolley, Ronald M., 4,313,295, Cl. 56-15.800.
- Stoneberg, Richard L., to PPG Industries, Inc. Fluorocarbon resin coated substrates and methods of making. 4,314,004, Cl. 428-421.000.
- Storage Technology Corporation: See—
Ruether, Peter G.; Vachon, Patrick A.; and O'Neill, John F., 4,314,100, Cl. 179-1.05C.
- Stout, David M., to American Hospital Supply Corporation. Derivatives of 2-amino-6,7-dihydroxytetrahydro naphthalene (ADTN). 4,314,082, Cl. 564-381.000.
- Strobel, Nancy S.: See—
Stokes, W. Fred; Bradford, Fahey S.; and Strobel, Nancy S., 4,313,605, Cl. 273-85.00C.
- Strow, Lawrence E.: See—
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- "Studiecentrum voor Kernenergie," "S.C.K.": See—
de Mevergnies, Marcel N.; and Fettweis, Paul, 4,313,807, Cl. 204-157.10R.
- Studley, Clarence K.: See—
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- Stuttard, Ivan, to Associated Electrical Industries Limited. Apparatus for the manufacture of mineral insulated cables. 4,313,247, Cl. 29-33.00F.
- Suau, Jean; and Frawley, William, to Schlumberger Limited. Method of generating subsurface characteristic models. 4,314,338, Cl. 364-422.000.
- Sudo, Tadimitsu: See—
Morita, Shiro; Sawai, Masanobu; Matsumoto, Shin-ichiro; and Sudo, Tadimitsu, 4,313,929, Cl. 424-12.000.
- Sugano, Kazuhiko: See—
Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, 4,313,354, Cl. 74-869.000.
- Sugasawa, Fukashi: See—
Iizuka, Haruhiko; and Sugawara, Fukashi, 4,313,406, Cl. 123-198.00F.
- Sugatsune Industrial Co. Ltd.: See—
Tsuneki, Ken, 4,313,239, Cl. 16-236.000.
- Suggitt, Robert M.: See—
Crone, John M., Jr.; and Suggitt, Robert M., 4,314,091, Cl. 585-486.000.
- Sugita, Naoki: See—
Masuda, Senichi; and Sugita, Naoki, 4,313,741, Cl. 55-138.000.
- Sugiura, Yoji; Date, Nobuaki; Suzuki, Ryoichi; and Saito, Syuichiro, to Canon Kabushiki Kaisha. Camera having electromagnetic drive source. 4,313,658, Cl. 354-152.000.
- Sullivan, Alfred B.; and Wise, Raleigh W., to Monsanto Company. N-(Sulfonyl) phthalamides. 4,313,892, Cl. 260-453.00R.W.
- Sullivan, James P., to Marcy Gymnasium Equipment Co. Cycle-type exerciser. 4,313,602, Cl. 272-73.000.
- Sumitomo Chemical Company, Limited: See—
Imai, Shozaburo; Suzuki, Haruo; Asai, Kuniaki; and Ueno, Katsuji, 4,313,870, Cl. 260-40.00R.
- Sumitomo Electric Industries, Ltd.: See—
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- Sumitomo Kinzoku Kogyo Kabushiki Kaisha: See—
Hashio, Moriki; and Kimura, Tomohiko, 4,313,487, Cl. 164-436.000.
- Sumitomo Metal Industries, Ltd.: See—
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- Takahashi, Masashi; and Okamoto, Atsuki, 4,313,770, Cl. 148-12.00C.
- Sunahara, Kazuo; and Misumi, Akira, to Hitachi, Ltd. Oxide-coated cathode for electron tube. 4,313,854, Cl. 252-516.000.
- Sundstrom, Hans-Gunnar. Book holder. 4,313,623, Cl. 281-15.00B.
- Suyama, Takakazu: See—
Arimura, Hirofumi; Nagai, Masanori; Yamauchi, Takeshi; Kitagawa, Tsutomu; and Suyama, Takakazu, 4,313,938, Cl. 424-180.000.
- Suzuki, Haruo: See—
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- Suzuki, Ichiro; Ogawa, Hisashi; and Motonami, Masanao, to Toyota Jidosha Kogyo Kabushiki Kaisha. Passive seatbelt system. 4,313,622, Cl. 280-804.000.
- Suzuki, Masatoshi: See—
Niwa, Hitoshi; Miwa, Naoto; Suzuki, Masatoshi; and Ouki, Masami, 4,313,810, Cl. 204-195.00S.
- Suzuki, Ryoichi: See—
Saito, Syuichiro; Suzuki, Ryoichi; and Uchiyama, Takashi, 4,313,659, Cl. 354-234.000.
- Sugiura, Yoji; Date, Nobuaki; Suzuki, Ryoichi; and Saito, Syuichiro, 4,313,658, Cl. 354-152.000.
- Suzuki, Sadao; Ichizawa, Yoshiyuki; and Seki, Nobuichi, to Yoshino Kogyosha Co., Ltd. Device for unloading bottle-shaped containers. 4,313,534, Cl. 198-484.000.
- Suzuki, Takashi: See—
Nakamura, Etsumi; Suzuki, Takashi; Yanagida, Tadasu; and Yamamura, Minehiko, 4,313,875, Cl. 260-239.100.
- Suzuki, Takeomi; and Aoki, Masahiro, to Olympus Optical Company Ltd. Focus detection by accumulation of a given number of the largest absolute difference magnitudes between adjacent photocells in an array. 4,314,151, Cl. 250-204.000.
- Suzuki, Yoshihisa; Kaizuka, Takanoli; Hanyu, Yoshiaki; Otake, Mituyoshi; and Hidano, Yoichi, to Hitachi, Ltd. Magnetic recording medium. 4,313,989, Cl. 428-64.000.
- Suzuki, Yukitomo, to Helan Iron Works, Ltd. Wood working router. 4,313,478, Cl. 144-1.00A.
- Swaim, Robert J.: See—
Buckley, John D.; Swaim, Robert J.; and Fox, Robert L., 4,313,777, Cl. 156-272.000.
- Swanson, Douglas: See—
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- Swanson-Erie Corporation: See—
Yeo, Norman H.; and Swanson, Douglas, 4,313,260, Cl. 29-792.000.
- Sweetheart Plastics, Inc.: See—
Brown, Gaylord W., 4,313,358, Cl. 83-97.000.
- Swift, Graham: See—
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- Swiss Aluminium Ltd.: See—
Blanc, Jean M., 4,313,811, Cl. 204-243.00M.
- Switzer, Robert D. Cartridge loader. 4,313,275, Cl. 42-89.000.
- Swope, Jack G.; and Weiss, Harry C., to Rennco Incorporated. Imprinter. 4,313,376, Cl. 101-27.000.
- Syntex (U.S.A.) Inc.: See—
Becker, Ronald K.; and Korb, Donald R., 4,313,355, Cl. 82-1.00C.
- Syrer, Johannes L. M., to Shell Oil Company. 2-[2-(2,2-Dihalovinyl)-3,3-dimethylcyclopropyl]ethylenediacetates. 4,314,072, Cl. 560-231.000.
- Szucs, Stephen S., to American Cyanamid Company. Polysubstituted butanoic acids, esters and derivatives thereof utilizing the same as herbicides. 4,313,754, Cl. 71-94.000.
- T. Y. Lin International: See—
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- Tachikawa Spring Co., Ltd.: See—
Urai, Muneharu; Abe, Tadafumi; Haraguchi, Youichiro; and Hayaishi, Koji, 4,313,776, Cl. 156-220.000.
- Tadiran Israel Electronics Industries Ltd.: See—
Vardi, Isai; Kimchi, Yigal; and Ben-Dror, Jonathan, 4,313,316, Cl. 62-475.000.
- Tagliabue, Renato: See—
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- Taguchi, Masahiko: See—
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- Takada, Syun: See—
Uchida, Takashi; Sasaki, Takashi; Kikuchi, Shoji; Mogaki, Katsuo; Taguchi, Masahiko; and Takada, Syun, 4,314,011, Cl. 430-17.000.
- Takahara, Sigeki: See—
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- Takahashi, Fumio: See—
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- Takahashi, Kenji: See—
Yano, Kensaku; and Takahashi, Kenji, 4,313,648, Cl. 350-166.000.
- Takahashi, Masashi; and Okamoto, Atsuki, to Sumitomo Metal Industries, Ltd. Method of producing cold rolled steel strip having improved press formability and bake-hardenability. 4,313,770, Cl. 148-12.00C.
- Takahashi, Nobuyoshi: See—
Ito, Toshio; Matsuoka, Hiromasa; Hirayama, Yoshio; and Takahashi, Nobuyoshi, 4,313,312, Cl. 62-271.000.
- Takahashi, Ryohei; Fujikawa, Kanichi; Yokomichi, Isao; Someya, Sinzo; and Sakashita, Nobuyuki, to Ishihara Sangyo Kaisha, Ltd. Herbicidal compound, herbicidal composition containing the same, and method of use thereof. 4,314,069, Cl. 560-62.000.
- Takahashi, Tohru; Toyono, Tsutomu; Kanbe, Junichiro; Nakamura, Shunji; and Tamura, Yasuyuki, to Canon Kabushiki Kaisha. Developer without carrier powder having an improved triboelectric charging property. 4,314,017, Cl. 430-109.000.
- Takahashi, Yoshiyuki: See—
Kobayashi, Isao; Akimoto, Hideo; Takahashi, Yoshiyuki; Hibiya, Tokio; and Hata, Masayuki, 4,313,343, Cl. 73-290.00V.
- Takayama, Shuichi: See—
Kakijima, Yoshiro; Takayama, Shuichi; Tsuboshima, Kosaku; Iwasawa, Teruo; and Yamazaki, Masafumi, 4,314,150, Cl. 250-201.000.
- Takazawa, Eiichi, to Mamiya Koki Kabushiki Kaisha. Nonreflective coating. 4,313,647, Cl. 350-164.000.
- Takeda Chemical Industries, Ltd.: See—
Goto, Jugo; and Doura, Fumihiko, 4,314,042, Cl. 525-59.000.
- Takeda, Kuniharu, to Kabushiki Kaisha Sankyo Seiki Seisakusho. Controller for lapping photography of cinecamera. 4,313,653, Cl. 352-91.00C.
- Takeuchi, Masami: See—
Oguro, Takeshi; Mihara, Teruyoshi; Tominaga, Tamotsu; and Takeuchi, Masami, 4,314,226, Cl. 338-4.000.
- Takouchi, Masao: See—
Kawase, Akira; Takouchi, Masao; Tsuji, Yoshio; Mitsumori, Sadao; and Miyazaki, Susumu, 4,313,493, Cl. 165-122.000.
- Talon, Inc.: See—
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- Tam, Johann, to Silicon Valley Group, Inc. The. Method and apparatus for drying wafers. 4,313,266, Cl. 34-8.000.
- Tamayo, Abel C. Insulator for foldable elements of dipole TV antennas. 4,314,254, Cl. 343-809.000.
- Tamura, Akira: See—
Kobayashi, Kyoji; Kosaka, Takaichi; Takahara, Sigeki; and Tamura, Akira, 4,313,310, Cl. 62-175.000.
- Tamura, Masayuki: See—
Kojima, Gen; Tamura, Masayuki; and Hisasue, Michio, 4,314,043, Cl. 525-102.000.
- Tamura, Yasuyuki: See—
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- Tanabe, Kozo: See—
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- Tanabe Seiyaku Co., Ltd.: See—
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- Tanaka, Junzo: See—
Yoshimura, Hirofumi; Tanaka, Junzo; and Ikeda, Nobuo, 4,314,126, Cl. 219-10.55R.
- Taniguchi, Akio: See—
Yamamoto, Hideaki; Taniguchi, Akio; Horigome, Shinkichi; Saito, Susumu; Mori, Yoshiaki; and Maruyama, Eiichi, 4,314,014, Cl. 430-57.000.
- Tanji, Shigeo; Wakatsuki, Noboru; and Tominaga, Hideaki, to Fujitsu Limited. Surface acoustic wave filter device with equalization of stray coupling. 4,314,215, Cl. 333-193.000.
- Tanno, Kiyohiko: See—
Tokunaga, Kazuyoshi; Anzai, Masayasu; Hoshi, Nobuyoshi; and Tanno, Kiyohiko, 4,314,257, Cl. 346-74.400.
- Tashiro, Mamoru: See—
Idemoto, Noboru; Yamada, Minoru; Tashiro, Mamoru; and Matsu-shita, Sachio, 4,313,808, Cl. 204-180.00P.
- Tassi, Lamberto; Tosarelli, Gianni; and Ballestrazzi, Aris, to Sitma - Societa Italiana Macchine Automatiche S.p.A. Machine for packaging various articles between two juxtaposed plastics material sheets. 4,313,288, Cl. 53-74.000.
- Tatevosian, Ruben A.: See—
Rogov, Viktor F.; Nikiforov, Igor G.; Tatevosian, Ruben A.; Titov, Mikhail Y.; and Lipatov, Nikolai K., 4,313,574, Cl. 241-78.000.
- Taylor, Glenn N.: See—
Peterson, James J.; and Taylor, Glenn N., 4,313,447, Cl. 128-766.000.
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- Satou, Hiroshi; and Yahagi, Tadao, 4,314,221, Cl. 336-83.000.
- Teague, Edward W.; Graham, Louis A.; and McConnell, Bobby L., to Burlington Industries, Inc. Process for improving washfastness of indigo-dyed fabrics. 4,313,732, Cl. 8-541.000.
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- Teichert, Allen L., to Robertshaw Controls Company. Thermostat anticipator improvements. 4,314,222, Cl. 337-107.000.
- Teledyne Industries, Inc.: See—
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- Temple, Victor A. K., to Electric Power Research Institute, Inc. Thyristor with voltage breakover current control separated from main emitter by current limit region. 4,314,266, Cl. 357-38.000.
- Tenconi, Franco: See—
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- Tenmyo, Osamu: See—
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- Tenneco West, Inc.: See—
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- Tentler, Michael: See—
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- Teramoto, Toshio; Ijuin, Noriaki; and Kotani, Teizo, to Japan Synthetic Rubber Co., Ltd. Instant-setting adhesive composition. 4,313,865, Cl. 260-31.40R.
- Terry, D. A. Automobile snow assembly. 4,313,516, Cl. 180-185.000.
- Terry, John V.; Terry, Raymond M.; and Atkins, Ian A., to Terry, John Victor; and Terry, Raymond Michael. Adjustable lamps. 4,314,319, Cl. 362-287.000.
- Terry, John Victor: See—
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- Terry, Melvin D. Self regulating air bearing. 4,313,513, Cl. 180-124.000.
- Terry, Raymond M.: See—
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- Tesch, Allen R.: See—
Williams, Stanley A.; and Tesch, Allen R., 4,314,139, Cl. 219-285.000.
- Texaco Inc.: See—
Crone, John M., Jr.; and Suggitt, Robert M., 4,314,091, Cl. 585-486.000.
- Jones, Asberry B., 4,313,716, Cl. 417-331.000.
- Stokely, John E., 4,314,347, Cl. 364-574.000.
- Texas Instruments Incorporated: See—
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- Jeffries, John A.; and Ruch, Mark H., 4,314,099, Cl. 179-1.00C.
- Klaas, Jeffrey M.; Reed, Paul A.; and Rimawi, Isam, 4,314,362, Cl. 365-227.000.
- McNeir, Ridge W.; and Head, Claude D., III, 4,314,342, Cl. 364-468.000.
- Textron, Inc.: See—
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- Theilen, Rolf, to Triumph-Adler Aktiengesellschaft fur Buround Informationstechnik. Final positioning vibration damping device for type disc typewriters. 4,313,682, Cl. 400-144.300.
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- Thien, Gerhard: See—
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- Thigpen, Ben B.; and Hebert, Joel J., to Western Geophysical Company of America. Marine seismic cable handler. 4,314,363, Cl. 367-16.000.
- Thir, Basil; Newkirk, David D.; Eisenstein, Stephen E.; and Langdon, William K., to BASF Wyandotte Corporation. Fiber lubricants yielding low residues upon oxidation. 4,314,000, Cl. 428-265.000.
- Thomas, Friedrich W.; Sperzel, Wolfgang; and Petzoldt, Jergen, to Leybold-Heraeus GmbH. System for controlling the power of a high-voltage electron beam generator. 4,314,182, Cl. 315-307.000.
- Thomas, Mark W. Universal check valve assembly. 4,313,456, Cl. 137-269.000.
- Thompson, Stanley C. Reinforced metal shell golf club head, with keel. 4,313,607, Cl. 273-167.00H.
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- Heuze, Philippe; and Lambert, Pierre, 4,314,183, Cl. 315-389.000.
- Llabres, Raymond; Antoine, Robert; Lacotte, Jean P.; and Marchi, Charles, 4,313,718, Cl. 425-290.000.
- Maerfeld, Charles, 4,314,098, Cl. 179-1.0MF.
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- Oda, Yasutaka; and Hamaoka, Hiromi, 4,314,291, Cl. 360-78.000.
- Okado, Chihiro; Morishita, Takashi; and Hasegawa, Koki, 4,314,189, Cl. 318-732.000.
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- Shiraogawa, Yukio; and Aoyagi, Keizo, 4,314,332, Cl. 364-200.000.
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- Torok, Julius J. Mold with exterior heat conducting elements. 4,313,751, Cl. 65-267.000.
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- Touchette, Norman W.: See—
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- Nishimura, Yuji; and Kubota, Tatsushi, 4,313,621, Cl. 280-804.000.
- Suzuki, Ichiro; Ogawa, Hisashi; and Motonami, Masanao, 4,313,622, Cl. 280-804.000.
- Tracor, Inc.: See—
Wallace, David W., 4,313,379, Cl. 102-217.000.
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Fowler, Clarence W.; and Penrod, Bruce M., 4,314,378, Cl. 455-291.000.
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- Transit Systems Technology, Inc.: See—
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- Transworld Drilling Company: See—
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- Trihey, John M., to Vulcan Australia Limited. Solar heating apparatus for swimming pools. 4,313,421, Cl. 126-415.000.
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- Daughton, John W.; Gillett, Kenneth; Nelson, Frank; and Wilczek, Stephen P., 4,314,334, Cl. 364-200.000.
- Fischbeck, Kenneth H.; Wright, Allen T.; Bain, Lee L.; and Paraskopoulos, Demetris E., 4,314,282, Cl. 358-286.000.
- Grammatica, Steven J., 4,314,012, Cl. 430-31.000.
- Kramer, Charles J., 4,314,283, Cl. 358-294.000.
- Lentz, James A.; and Moriconi, Joseph H., 4,314,006, Cl. 428-494.000.
- Lohr, S. Warren, 4,313,599, Cl. 271-166.000.
- Lorenzo, Roberto; and Wolf, Frank J., 4,313,771, Cl. 148-14.000.
- Reilly, Charles M., 4,314,262, Cl. 346-135.100.
- Schroeder, Russell G., II; and Ward, Joseph W., 4,313,672, Cl. 355-14.00R.
- Wartinger, Raymond C.; Braswell, Charles D.; Buchalter, Neal S.; Daughton, John W.; and Ellis, Robert G., 4,313,673, Cl. 355-14.00R.
- Wiggins, Douglas G.; and Elie, Pierre, Jr., 4,314,281, Cl. 358-280.000.
- Xicor, Inc.: See—
Simko, Richard T., 4,314,265, Cl. 357-23.000.
- Yahagi, Tadao: See—
Satou, Hiroshi; and Yahagi, Tadao, 4,314,221, Cl. 336-83.000.
- Yale, William H.: See—
Lyon, Floyd A.; Yale, William H.; and Lyon, Donald, 4,313,419, Cl. 126-421.000.
- Yamada, Minoru: See—
Idemoto, Noboru; Yamada, Minoru; Tashiro, Mamoru; and Matsushita, Sachio, 4,313,808, Cl. 204-180.00P.
- Yamada, Mitsuhiro: See—
Atoji, Hitomi; and Yamada, Mitsuhiro, 4,314,274, Cl. 358-80.000.
- Yamaguchi, Hiroaki; Hattori, Tadashi; and Ootsuka, Yoshinori, to Nippon Soken, Inc. Torque detecting system for internal combustion engine. 4,313,341, Cl. 73-862.330.
- Yamaguchi, Yoshiharu, to Yoshida Kogyo, K.K. Stringer tape for slide fasteners. 4,313,245, Cl. 24-205.16R.
- Yamakoshi, Yukinari: See—
Yamaura, Mitsuru; and Yamakoshi, Yukinari, 4,314,199, Cl. 324-52.000.
- Yamamichi, Masayoshi, to Canon Kabushiki Kaisha. Electromagnetic release device for camera. 4,313,661, Cl. 354-235.000.
- Yamamoto, Hideaki; Tanguchi, Akio; Horigome, Shinkichi; Saito, Susumu; Mori, Yoshiaki; and Maruyama, Eiichi, to Hitachi, Ltd. Electrophotographic plate and process for preparation thereof. 4,314,014, Cl. 430-57.000.
- Yamamoto, Kazuyuki: See—
Sekiguchi, Koichi; and Yamamoto, Kazuyuki, 4,314,109, Cl. 179-99.00M.
- Yamamoto, Yuji: See—
Shimokawa, Shin-ichi; and Yamamoto, Yuji, 4,314,041, Cl. 525-53.000.
- Yamamura, Minehiko: See—
Nakamura, Etsumi; Suzuki, Takashi; Yanagida, Tadasu; and Yamamura, Minehiko, 4,313,875, Cl. 260-239.100.
- Yamashita, Hitoshi: See—
Ohkita, Masao; and Yamashita, Hitoshi, 4,314,118, Cl. 200-16.00F.
- Yamashita, Katsuji; and Nomura, Yasushi, to Hitachi, Ltd. Automatic chemical analyzing method and apparatus. 4,313,735, Cl. 23-230.00R.

- Yamashita, Michio: See—
Komori, Tadaaki; Yamashita, Michio; Iguchi, Eiko; Kohsaka, Masanobu; Aoki, Hatsu; and Imanaka, Hiroshi, 4,313,935, Cl. 424-115.000.
- Yamashita-Shinnihon Steamship Co., Ltd.: See—
Yunoki, Shigeto; and Makizono, Masataka, 4,313,390, Cl. 114-74.00R.
- Yamauchi, Takeshi: See—
Arimura, Hirofumi; Nagai, Masanori; Yamauchi, Takeshi; Kitagawa, Tsutomu; and Suyama, Tadakazu, 4,313,938, Cl. 424-180.000.
- Yamaura, Mitsuru; and Yamakoshi, Yukinari, to Tokyo Shibaura Denki Kabushiki Kaisha. Method for locating a fault point on a transmission line. 4,314,199, Cl. 324-52.000.
- Yamazaki, Ikue. Acidic two-bath type composition for permanent waving of hair and for treatment of hair and scalp. 4,313,933, Cl. 424-72.000.
- Yamazaki, Masafumi: See—
Nakajima, Yoshio; Takayama, Shuichi; Tsuboshima, Kosaku; Iwasawa, Teruo; and Yamazaki, Masafumi, 4,314,150, Cl. 250-201.000.
- Yanagida, Tadasu: See—
Nakamura, Etsumi; Suzuki, Takashi; Yanagida, Tadasu; and Yamamura, Minehiko, 4,313,875, Cl. 260-239.100.
- Yang, Yue-Chyow: See—
Lin, Tung-Yen; Yang, Yue-Chyow; and Chow, Philip Y., 4,313,902, Cl. 264-228.000.
- Yano, Kensaku; and Takahashi, Kenji, to Tokyo Shibaura Denki Kabushiki Kaisha. Patterned multi-layer structure and manufacturing method. 4,313,648, Cl. 350-166.000.
- Yargici, Zekeriya, to American Hoist & Derrick Company. Lubrication and bearing structure for concentric, independently rotating drum and vibratory shaft. 4,313,691, Cl. 404-117.000.
- Yasuda, Shinichi, to Kao Soap Co., Ltd. Polyester resin composition. 4,314,049, Cl. 528-128.000.
- Yeo, Norman H.; and Swanson, Douglas, to Swanson-Erie Corporation. Assembly machine. 4,313,260, Cl. 29-792.000.
- Yigdall, Jeffrey S., to PPG Industries, Inc. Fluid shielded burner tip for use with a glass melting furnace. 4,313,722, Cl. 432-1.000.
- Yoda, Makoto: See—
Ueno, Hiroshi; Imai, Masafumi; Inaba, Naomi; Yoda, Makoto; and Wada, Shozo, 4,314,046, Cl. 526-125.000.
- Yokomichi, Isao: See—
Takahashi, Ryohei; Fujikawa, Kanichi; Yokomichi, Isao; Someya, Sinzo; and Sakashita, Nobuyuki, 4,314,069, Cl. 560-62.000.
- Yoshida, Hajime, to Hajime Industries, Ltd. Matrix array camera. 4,314,279, Cl. 358-212.000.
- Yoshida Kogyo, K.K.: See—
Yamaguchi, Yoshiharu, 4,313,245, Cl. 24-205.16R.
- Yoshida, Norimasa: See—
Handa, Ryoji; Yoshida, Norimasa; Hosoda, Jun; and Furuno, Akihisa, 4,313,863, Cl. 260-29.60E.
- Yoshida, Tsuyoshi: See—
Miki, Nobuaki; Kawamoto, Mutsumi; Amano, Hiroyuki; Hida, Tsuneo; and Yoshida, Tsuyoshi, 4,314,340, Cl. 364-424.100.
- Yoshikumi, Chikao; Ohmura, Yoshio; Hirose, Fumio; Ikuzawa, Masanori; Matsunaga, Kenichi; Fujii, Takayoshi; Ohhara, Minoru; and Ando, Takao, to Kureha Kagaku Kogyo Kabushiki Kaisha. Pharmaceutical composition containing para-aminobenzoic acid-N-L-rhamnoside as an active ingredient. 4,313,939, Cl. 424-180.000.
- Yoshimura, Hirofumi; Tanaka, Junzo; and Ikeda, Nobuo, to Matsushita Electric Industrial Co., Ltd. Microwave heating apparatus with cooling conduit. 4,314,126, Cl. 219-10.55R.
- Yoshimura, Kazunori: See—
Ito, Katsuo; and Yoshimura, Kazunori, 4,314,220, Cl. 336-65.000.
- Yoshino Kogyosho Co., Ltd.: See—
Suzuki, Sadao; Ichizawa, Yoshiyuki; and Seki, Nobuichi, 4,313,534, Cl. 198-484.000.
- Yoshioka, Takakazu; and Kurozumi, Masayuki, to Nippon Electric Co., Ltd. Integrated circuit with shielded lead patterns. 4,314,268, Cl. 357-48.000.
- Young, Hartley F., to Ralph McKay Limited. Rail fastener. 4,313,563, Cl. 238-349.000.
- Yunoki, Shigeto; and Makizono, Masataka, to Yamashita-Shinnihon Steamship Co., Ltd. Tanker construction. 4,313,390, Cl. 114-74.00R.
- Zabavina, Nina A.: See—
Gotovtseva, Ljubov A.; Konkova, Maia B.; Garbuz, Tatyana F.; Bunin, Oleg A.; Osmirin, Evgeny A.; Zabavina, Nina A.; Ivanov, Alexei I.; Snopov, Vladimir P.; and Batkov, Alexandr I., 4,313,235, Cl. 8-149.100.
- Zacharias, Theodor: See—
Staat, Karl-Hans; and Zacharias, Theodor, 4,313,325, Cl. 72-208.000.
- Zahnradfabrik Friedrichshafen, A.G.: See—
Lang, Armin, 4,313,467, Cl. 137-625.300.
- Zardi, Umberto; and Lagana, Vincenzo, to Snamprogetti S.p.A. Method for the production of urea and purification of water. 4,314,077, Cl. 564-70.000.
- Zarudiansky, Alain: See—
Janssen, Sylvain; Tourret, Jean; Zarudiansky, Alain; and Allesch, Roland, 4,313,317, Cl. 62-514.00R.
- Zaucha, Thomas J.: See—
Chasin, David G.; and Zaucha, Thomas J., 4,313,847, Cl. 252-356.000.
- Zengel, Hans; Bergfeld, Manfred; and Klostermeier, Werner, to Akzona Incorporated. Process for the preparation of nitrosobenzene. 4,314,089, Cl. 568-949.000.
- Zhitomirsky, Grigory A.: See—
Fesenko, Evgeny G.; Dantsiger, Alla Y.; Filipiev, Viktor S.; Razumovskaya, Olga N.; Klevisov, Alexandr N.; Lebedev, Vladimir N.; Grineva, Ljudmila D.; Rogach, Tatyana V.; Feronov, Anatoly D.; Akbaeva, Galina M.; Cheptsov, Evgeny I.; Panich, Anatoly E.; Lisitsina, Ljudmila G.; Lavrikova, Svetlana A.; Ochirov, Vasily A.; Dudkina, Svetlana I.; Nevsky, Alexandr N.; Aleshin, Vladimir A.; Kupriyanov, Mikhail F.; Baljunis, Evgeny S.; Mordanov, Boris P.; Zhitomirsky, Grigory A.; Feldman, Naum B.; Smazhevskaya, Ekaterina G.; and Devlikanova, Ravi-lya U., 4,313,839, Cl. 252-62.900.
- Zierden Company: See—
Zierden, Frank P.; and Zierden, Peter F., 4,313,624, Cl. 285-14.000.
- Zierden, Frank P.; and Zierden, Peter F., to Zierden Company. Swivel cartridge. 4,313,624, Cl. 285-14.000.
- Zierden, Peter F.: See—
Zierden, Frank P.; and Zierden, Peter F., 4,313,624, Cl. 285-14.000.
- Zinser Textilmaschinen Gesellschaft mit beschränkter Haftung: See—
Gunkinger, Siegfried; Weeger, Hans-Peter; Kriechbaum, Kurt; and Igel, Wolfgang, 4,313,299, Cl. 57-267.000.
- Zivic, John A.: See—
Britner, George F.; and Zivic, John A., 4,313,430, Cl. 126-446.000.
- Zuber, Bretislav P.; and Pereira, Munidas C., to Northern Telecom Limited. Twistless payout package of filamentary material. 4,313,579, Cl. 242-163.000.
- Zurbuchen, Jacques; Louton, Alain; and Luttringer, Jean P., to Ciba-Geigy Corporation. Assistant mixture for the dyeing or fluorescent brightening. 4,313,733, Cl. 8-582.000.
- Zurich, Robert P.: See—
Speigel, Alan B.; and Zurich, Robert P., 4,313,841, Cl. 252-170.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 2ND DAY OF FEBRUARY, 1982

NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Cotton, Incorporated: See—
Swidler, Ronald; and Wilson, Katherine W., Re. 30,860, Cl. 8-116.400.
Ford, Eric H., to Lumenition Limited. Ignition systems for internal combustion engines. Re. 30,858, Cl. 123-651.000.
Greigg, Edwin E.: See—
Tyler, Tracy B., Re. 30,857, Cl. 30-43.500.
Harvey, Leslie E.; and Spiva, Stephan D. Bowling practice device. Re. 30,859, Cl. 273-54.00D.
Lumenition Limited: See—
Ford, Eric H., Re. 30,858, Cl. 123-651.000.

Spiva, Stephan D.: See—
Harvey, Leslie E.; and Spiva, Stephan D., Re. 30,859, Cl. 273-54.00D.
Swidler, Ronald; and Wilson, Katherine W., to Cotton, Incorporated. Process for treating cellulosic material with formaldehyde in liquid phase and sulfur dioxide. Re. 30,860, Cl. 8-116.400.
Tyler, Tracy B., to Greigg, Edwin E., a part interest. Rotary dry shaver with tiltable shear plates. Re. 30,857, Cl. 30-43.500.
Wilson, Katherine W.: See—
Swidler, Ronald; and Wilson, Katherine W., Re. 30,860, Cl. 8-116.400.

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American District Telegraph Company: See—
Guscott, John K.; and Zaccari, Gianfranco D., 262,869, Cl. D10-106.000.
Ansel, Pierre, to SEB. Cottage cheese making appliance. 262,857, 2-2-82, Cl. D7-96.000.
Armstrong, John C.: See—
Palson, Richard C.; and Armstrong, John C., 262,906, Cl. D23-150.000.
Baldwin Piano & Organ Company: See—
Kimble, Thomas E., 262,888, Cl. D17-6.000.
Barnsdale, Arthur D. Insert for fixing or fastening purposes. 262,863, 2-2-82, Cl. D8-385.000.
Baruffa, Olindo, to Mefina S.A. Ironing press. 262,885, 2-2-82, Cl. D32-9.000.
Becker, Robert W.; and Bradshaw, Keith L. Articulated vehicle or the like. 262,903, 2-2-82, Cl. D21-135.000.
Beranek, Ernst, to Eduard Friebe Gesellschaft m.b.H. Handle for a brush. 262,840, 2-2-82, Cl. D4-35.000.
Boyer, David C.: See—
Schavilje, John N.; and Boyer, David C., 262,864, Cl. D8-385.000.
Bradshaw, Keith L.: See—
Becker, Robert W.; and Bradshaw, Keith L., 262,903, Cl. D21-135.000.
Bruce Plastics, Inc.: See—
Szabo, Bela G., 262,895, Cl. D20-27.000.
Buffington, James R. Clothes pocket straightener. 262,837, 2-2-82, Cl. D2-378.000.
Carbajales Santa Eulalia, Javier B.: See—
Carbajales Santa Eulalia, Jesus A.; and Carbajales Santa Eulalia, Javier B., 262,870, Cl. D11-158.000.
Carbajales Santa Eulalia, Jesus A.; and Carbajales Santa Eulalia, Javier B., to John J. Madison Company, Inc. Figurine of a beaver. 262,870, 2-2-82, Cl. D11-158.000.
Chaiken, Mary E. Dual desk unit. 262,846, 2-2-82, Cl. D6-157.000.
Chamberlain, Edward; Leon, Nicholas M.; and Sharp, Michael H., to International Business Machines Corporation. Video data display terminal. 262,878, 2-2-82, Cl. D14-113.000.
Coca-Cola Company, The: See—
Fessler, Herman S., 262,884, Cl. D15-7.000.
Commisso, Nicholas D., to Mobil Oil Corporation. Packaging for food container or the like. 262,866, 2-2-82, Cl. D9-347.000.
Cornelius Company, The: See—
Fessler, Herman S., 262,884, Cl. D15-7.000.
Dabbs, Allen D. Shuffle pool table game board. 262,896, 2-2-82, Cl. D21-7.000.
Daenen, Robert H. C. M.; and De Coster, Pieter K. J., to Dart Industries Inc. Storage box or the like. 262,839, 2-2-82, Cl. D3-74.000.
Dart Industries Inc.: See—
Daenen, Robert H. C. M.; and De Coster, Pieter K. J., 262,839, Cl. D3-74.000.
De Coster, Pieter K. J.: See—
Daenen, Robert H. C. M.; and De Coster, Pieter K. J., 262,839, Cl. D3-74.000.
Dietz, Henry G. Bathing suit. 262,835, 2-2-82, Cl. D2-42.000.
Dietz, Henry G. Bathing suit. 262,836, 2-2-82, Cl. D2-42.000.
Dowse, Bruce, to Dowse Designs Pty Limited. Cabinet. 262,848, 2-2-82, Cl. D6-167.000.
Dowse Designs Pty Limited: See—
Dowse, Bruce, 262,848, Cl. D6-167.000.

Droll Yankees, Inc.: See—
Kilham, Peter, 262,917, Cl. D30-14.000.
Duarte, Gabriel H. Toy castle. 262,902, 2-2-82, Cl. D21-114.000.
Eduard Friebe Gesellschaft m.b.H.: See—
Beranek, Ernst, 262,840, Cl. D4-35.000.
Fabriques Reunies de Lampes Electriques: See—
Lecordier, Jean, 262,865, Cl. D9-345.000.
Fessler, Herman S., to Coca-Cola Company, The; and Cornelius Company, The. Fluid pump or similar article. 262,884, 2-2-82, Cl. D15-7.000.
Fiat Veicoli Industriali S.p.A.: See—
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Franchi, Aldo; Tessarollo, Severino; and Pesenti, Luigi, to International Standard Electric Corporation. Telephone answering device. 262,875, 2-2-82, Cl. D14-4.000.
Fujitsu Limited: See—
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Gitkin, Merrill J., to Jencraft Corporation. Woven window blind. 262,851, 2-2-82, Cl. D6-205.000.
Glass, Henry P., to Westerlo House, Inc. Candle holder. 262,913, 2-2-82, Cl. D26-13.000.
Goettner, Michael K.; and Plummer, James E., to Owens-Illinois, Inc. Combined bottle and stopper. 262,867, 2-2-82, Cl. D9-378.000.
Goldeen, Donald D. Gameboard. 262,897, 2-2-82, Cl. D21-33.000.
Goodin, John W.; Grambush, Douglas H.; Halsted, Milton J.; and Kumagai, Katsuo, to Fujitsu Limited. Computer control terminal. 262,882, 2-2-82, Cl. D14-103.000.
Goodyear Tire & Rubber Company, The: See—
Mendiola, Joseph V.; Jansen, Lawrence G.; and Norton, Robert B., 262,874, Cl. D12-141.000.
Grambush, Douglas H.: See—
Goodin, John W.; Grambush, Douglas H.; Halsted, Milton J.; and Kumagai, Katsuo, 262,882, Cl. D14-103.000.
Grethey, Albert K.: See—
Moore, Walter E.; and Grethey, Albert K., 262,894, Cl. D20-4.000.
Guscott, John K.; and Zaccari, Gianfranco D., to American District Telegraph Company. Infrared intrusion detector. 262,869, 2-2-82, Cl. D10-106.000.
Haller, John L. Rectangular curved slide spa. 262,909, 2-2-82, Cl. D24-38.000.
Halsted, Milton J.: See—
Goodin, John W.; Grambush, Douglas H.; Halsted, Milton J.; and Kumagai, Katsuo, 262,882, Cl. D14-103.000.
Hayden, M. Dean, Jr. Jacket-type coaster. 262,853, 2-2-82, Cl. D7-45.000.
Hayden, M. Dean, Jr. Jacket-type coaster. 262,854, 2-2-82, Cl. D7-45.000.
Heiko, Burton S. Mathematical aid. 262,892, 2-2-82, Cl. D19-64.000.
Hodges, Marvin P. Viewing screen and supporting structure. 262,881, 2-2-82, Cl. D14-84.000.
Ichikawa, Shinpei, to Texas Instruments Incorporated. Case for printing calculator or the like. 262,890, 2-2-82, Cl. D18-7.000.
Igloo Corporation: See—
MacTavish, James A.; and McGowan, Ronald C., 262,856, Cl. D7-77.000.
Illinois Tool Works Inc.: See—
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Jencraft Corporation: See—
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John J. Madison Company, Inc.: See—
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Keller, Huey T., to Vaughan Furniture Company, Inc. Party table. 262,845, 2-2-82, Cl. D6-146.000.
Keller, Huey T., to Vaughan Furniture Company, Inc. Credenza. 262,847, 2-2-82, Cl. D6-159.000.
Kendall Company, The: See—
Steigerwald, Carl J.; and Layton, Terry N., 262,910, Cl. D24-51.000.
Kilham, Peter, to Droll Yankees, Inc. Bird feeder. 262,917, 2-2-82, Cl. D30-14.000.
Kimble, Thomas E., to Baldwin Piano & Organ Company. Organ. 262,888, 2-2-82, Cl. D17-6.000.
Koshino, Shinji, to Nihon Seimitsu Sokki Co., Ltd. Pulse counter, or similar article. 262,907, 2-2-82, Cl. D24-17.000.
Kristofek, Paul J., to McGraw-Edison Company. Lens for luminaire. 262,914, 2-2-82, Cl. D26-135.000.
Kroll, Frederick H. Toy writing slate. 262,899, 2-2-82, Cl. D21-59.000.
Kumagai, Katsuo: See—
Goodin, John W.; Grambush, Douglas H.; Halsted, Milton J.; and Kumagai, Katsuo, 262,882, Cl. D14-103.000.
Layton, Terry N.: See—
Steigerwald, Carl J.; and Layton, Terry N., 262,910, Cl. D24-51.000.
Lecordier, Jean, to Fabriques Reunies de Lampes Electriques. Packaging form for electric lamps. 262,865, 2-2-82, Cl. D9-345.000.
Lee, Sonny J. S. Fireplace grate. 262,861, 2-2-82, Cl. D7-207.000.
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Les Industries Provinciales LTEE: See—
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Loiseau, Bernard, to SEB. Domestic appliance for grating, slivering and slicing. 262,860, 2-2-82, Cl. D7-153.000.
Lorardo, Frank. Dice game board. 262,898, 2-2-82, Cl. D21-41.000.
Lytle, Charlotte E. Glue gun holder. 262,862, 2-2-82, Cl. D8-71.000.
MacTavish, James A.; and McGowan, Ronald C., to Igloo Corporation. Insulated jug. 262,856, 2-2-82, Cl. D7-77.000.
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Markwood, Carl C.; and Markwood, Marie K., 262,904, Cl. D21-234.000.
Marshall, Eric J. Telephone. 262,879, 2-2-82, Cl. D14-53.000.
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Martin, Robert A., to Metcor Manufacturing. Desk accessory receptacle. 262,893, 2-2-82, Cl. D19-92.000.
Matsui, Hidetoshi. Kinetic sculpture. 262,900, 2-2-82, Cl. D21-102.000.
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Mefina S.A.: See—
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Miller, John F. Three wheel trolley. 262,919, 2-2-82, Cl. D34-35.000.
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Moore, Walter E.; and Grethey, Albert K., to UMC Industries, Inc. Vending machine cabinet. 262,894, 2-2-82, Cl. D20-4.000.
Morey, Clinton H. Holder for towel or the like. 262,842, 2-2-82, Cl. D6-102.000.
Morin, Andre, to Les Industries Provinciales LTEE. Cruet for vinegar, oil or the like. 262,855, 2-2-82, Cl. D7-59.000.
Nast, Richard. Transparent storage envelope for flexible, magnetic computer discs. 262,891, 2-2-82, Cl. D19-33.000.
Nihon Seimitsu Sokki Co., Ltd.: See—
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Okajima, Shinpei, to Shimano Industrial Company, Limited. Pedal for bicycles. 262,873, 2-2-82, Cl. D12-125.000.

Owens-Illinois, Inc.: See—
Goettner, Michael K.; and Plummer, James E., 262,867, Cl. D9-378.000.
Palson, Richard C.; and Armstrong, John C., to Pharmasol Corporation. The. Room deodorant dispenser. 262,906, 2-2-82, Cl. D23-150.000.
Perkins, Jeffrey M. Support rack for a western saddle or the like. 262,918, 2-2-82, Cl. D30-45.000.
Pesco, Manny N. Hand-held body massager. 262,908, 2-2-82, Cl. D24-36.000.
Pesenti, Luigi: See—
Franchi, Aldo; Tessarollo, Severino; and Pesenti, Luigi, 262,875, Cl. D14-4.000.
Pharmasol Corporation, The: See—
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Phillips, Maurice L. Storage rack for a holstered handgun. 262,843, 2-2-82, Cl. D6-114.000.
Pittway Corporation: See—
Westphal, Donald J., 262,868, Cl. D10-106.000.
Plummer, James E.: See—
Goettner, Michael K.; and Plummer, James E., 262,867, Cl. D9-378.000.
Fondunavac, Bozo. Guitar. 262,889, 2-2-82, Cl. D17-19.000.
Powell, John W., III. Manual full web stretch-wrap pallet wrapper. 262,887, 2-2-82, Cl. D15-145.000.
Powers, Ronald H. Automobile. 262,871, 2-2-82, Cl. D12-85.000.
Price, George W. E. Head and neck rest. 262,850, 2-2-82, Cl. D6-200.000.
Produtos Eletricos Corona Ltda.: See—
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Rader, Gladys C. Button spacer. 262,838, 2-2-82, Cl. D3-18.000.
Recognition Equipment Incorporated: See—
Sanner, Medford D., 262,883, Cl. D14-116.000.
Richardson, Breck J. Cabinet bar. 262,844, 2-2-82, Cl. D6-144.000.
Russell, James E., to Universal Food Fork Corporation. Food fork. 262,859, 2-2-82, Cl. D7-151.000.
Ryosei Co., Ltd.: See—
Yoshimura, Tadashi, 262,886, Cl. D34-21.000.
Sanner, Medford D., to Recognition Equipment Incorporated. Hand held reader. 262,883, 2-2-82, Cl. D14-116.000.
Schavilje, John N.; and Boyer, David C., to Illinois Tool Works Inc. Screw anchor. 262,864, 2-2-82, Cl. D8-385.000.
Schoenig, Darrell A. Adjustable table. 262,849, 2-2-82, Cl. D6-178.000.
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Shames, Sidney J.; and Shames, Harold, 262,841, Cl. D6-92.000.
Shames, Sidney J.; and Shames, Harold. Bathroom accessory support for attachment to a frame. 262,841, 2-2-82, Cl. D6-92.000.
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Okajima, Shinpei, 262,873, Cl. D12-125.000.
Steigerwald, Carl J.; and Layton, Terry N., to Kendall Company, The. Midstream collection housing. 262,910, 2-2-82, Cl. D24-51.000.
Szabo, Bela G., to Bruce Plastics, Inc. Luggage tag. 262,895, 2-2-82, Cl. D20-27.000.
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Yoshizawa, Keiichi, 262,877, Cl. D14-11.000.
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Therien, Charles: See—
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Tihonovich, Walter. Comb. 262,915, 2-2-82, Cl. D28-30.000.
Tihonovich, Walter. Comb. 262,916, 2-2-82, Cl. D28-30.000.
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Moore, Walter E.; and Grethey, Albert K., 262,894, Cl. D20-4.000.
U.S. Philips Corporation: See—
van de Ven, Peter H. J., 262,880, Cl. D14-73.000.
Universal Food Fork Corporation: See—
Russell, James E., 262,859, Cl. D7-151.000.
van de Ven, Peter H. J., to U.S. Philips Corporation. Clock radio. 262,880, 2-2-82, Cl. D14-73.000.
Vaughan Furniture Company, Inc.: See—
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Keller, Huey T., 262,847, Cl. D6-159.000.

LIST OF DESIGN PATENTEES

Vukadinovic, Dragan. Puzzle or similar article. 262,901, 2-2-82, Cl. D21-107.000.
 Wallenwein, Hans K. Hanger for carpet displays. 262,852, 2-2-82, Cl. D6-252.000.
 Weddell, Lloyd A. Leg rest. 262,911, 2-2-82, Cl. D24-64.000.
 Westerlo House, Inc.: See—
 Glass, Henry P., 262,913, Cl. D26-13.000.
 Westphal, Donald J., to Pittway Corporation. Housing for a fire and smoke detector. 262,868, 2-2-82, Cl. D10-106.000.

Yoshimura, Tadashi, to Ryosei Co., Ltd. Dust and mist collector. 262,886, 2-2-82, Cl. D34-21.000.
 Yoshizawa, Keiichi, to TDK Electronics Co., Ltd. Cassette tape. 262,876, 2-2-82, Cl. D14-11.000.
 Yoshizawa, Keiichi, to TDK Electronics Co., Ltd. Cassette tape. 262,877, 2-2-82, Cl. D14-11.000.
 Zaccai, Gianfranco D.: See—
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LIST OF PLANT PATENTEES

Columbia & Okanogan Nursery, Inc.: See—
 Harvey, Richard A., 4,820, Cl. 34.000.
 Ecke, Paul, Jr., to Paul Ecke Ranch. Poinsettia named V-10 Pink. 4,821, 2-2-82, Cl. 86.000.
 Green, Lester, to Wells & Wade Fruit Co., Inc. Early coloring spur-type red delicious apple tree. 4,819, 2-2-82, Cl. 35.000.

Harvey, Richard A., to Columbia & Okanogan Nursery, Inc. Apple tree. 4,820, 2-2-82, Cl. 34.000.
 Ecke, Paul, Jr.: See—
 Wells & Wade Fruit Co., Inc.: See—
 Green, Lester, 4,819, Cl. 35.000.

LIST OF DEFENSIVE PUBLICATIONS

APPLICANTS TO WHOM

DEFENSIVE PUBLICATIONS WERE ISSUED ON THE 2ND DAY OF FEBRUARY, 1982

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O. G. 687.

Robinson, James D. Light-weight base for a bed. T101,501, 2-2-82, Cl. 5-186.00R.

CLASSIFICATION OF PATENTS

ISSUED FEBRUARY 2, 1982

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2	63	4,313,738	CLASS 72	124	4,313,383	663	4,313,444	163	4,313,790	
84	4,313,229	CLASS 46	84	4,313,323	CLASS 105	680	4,313,445	CLASS 164		
322	4,313,230	16	4,313,276	149	4,313,324	744	4,313,446	38	4,313,486	
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1.4	4,313,231	CLASS 47	208	4,313,325	785	4,313,448	448	4,313,488		
1.91	4,313,232	230	4,313,326	1.12	4,313,760	CLASS 130	27 T	4,313,449	CLASS 165	
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321	4,313,233	29	4,313,279	276	4,313,328	85	4,313,762	82	4,313,490	
449	4,313,234	CLASS 49	290	4,313,329	88	4,313,763	5 R	4,313,450	83	
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116.4	Re.30,860	280	4,313,331	368	4,313,765	197 C	4,313,767	122	4,313,492	
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451	4,313,731	CLASS 51	453.1	4,313,334	CLASS 108	1	4,313,452	CLASS 166		
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582	4,313,733	131.4	4,313,284	458	4,313,386	62	4,313,454	55	4,313,496	
CLASS 9	220	135 R	4,313,285	CLASS 73	12	4,313,387	74	4,313,455	124	4,313,497
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23	4,313,237	84	4,313,289	61.4	4,313,390	269	4,313,458	273	4,313,500	
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230 R	4,313,736	241	4,313,741	526	4,313,397	599	4,313,465	382	4,313,504	
230 R	4,313,735	275	4,313,742	594.4	4,313,398	614.17	4,313,466	CLASS 173		
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205.13 R	4,313,243	15.8	4,313,294	868	4,313,400	625.61	4,313,468	CLASS 174		
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230 AT	4,313,246	295	4,313,297	CLASS 75	14.44	4,313,396	821	4,313,470	73 R	4,314,093
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33 F	4,313,247	267	4,313,299	130 R	4,313,398	370.2	4,313,472	84 C	4,314,095	
121 EU	4,314,135	CLASS 57	3	4,313,756	4 D	4,313,399	432	4,313,473	CLASS 175	
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159 B	4,313,249	39.02	4,313,300	130 R	31 R	4,313,400	CLASS 140	4,313,474	CLASS 177	
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564.6	4,313,251	547 R	4,313,302	CLASS 82	53 B	4,313,403	18	4,313,476	25	4,313,508
568	4,313,252	556	4,313,303	CLASS 83	58 BB	4,313,404	59	4,313,477	50	4,313,509
571	4,313,253	567	4,313,304	37	195 C	4,313,405	301	4,313,477	165	4,313,510
572	4,313,254	547 R	4,313,305	81	198 F	4,313,406	CLASS 144	19	4,314,096	
576 B	4,313,255	556	4,313,306	157	373	4,313,407	1 A	4,313,478	22.08	4,314,097
579	4,313,256	564.8	4,313,307	CLASS 84	373	4,313,408	3 D	4,313,479	CLASS 179	
592 R	4,313,257	648	4,313,308	1.01	414	4,313,409	193 R	4,313,480	1 C	4,314,099
596	4,313,258	648	4,313,309	1.21	445	4,313,410	209 B	4,313,481	1 MF	4,314,098
623.2	4,313,259	CLASS 62	51	4,313,360	480	4,313,411	CLASS 148	1.5	1 SC	4,314,100
792	4,313,260	79	4,313,306	480	549	4,313,412	1.5	4,313,768	2 A	4,314,102
798	4,313,261	126	4,313,308	549	569	4,313,413	6.27	4,313,769	14	4,314,103
840	4,313,262	175	4,313,309	643	651	4,313,414	12 C	4,313,770	142	4,314,104
CLASS 30	43.5	197	4,313,311	CLASS 89	39 E	4,313,416	14	4,313,771	188	4,313,773
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174 L	4,313,263	278	4,313,313	CLASS 90	287	4,313,418	416	4,313,483	416	4,313,483
264	4,313,264	324.1	4,313,314	CLASS 91	415	4,313,421	CLASS 156	73.1	73.1	4,313,774
CLASS 34	5	475	4,313,315	CLASS 92	421	4,313,419	196	4,313,775	196	4,313,775
8	4,313,265	514 R	4,313,317	CLASS 93	422	4,313,428	220	4,313,776	220	4,313,776
108	4,313,266	23.6	4,313,318	CLASS 94	426	4,313,422	272	4,313,777	272	4,313,777
CLASS 38	25.4	CLASS 64	4,313,318	CLASS 95	429	4,313,420	358	4,313,778	358	4,313,778
12	4,313,268	CLASS 65	4,313,318	CLASS 96	433	4,313,424	361	4,313,779	361	4,313,779
143	4,313,269	4.21	4,313,744	CLASS 97	438	4,313,426	523	4,313,780	523	4,313,780
124.1	4,313,270	21.4	4,313,745	CLASS 98	441	4,313,427	530	4,313,781	530	4,313,781
304	4,313,271	25.4	4,313,746	CLASS 99	446	4,313,429	628	4,313,782	628	4,313,782
1 A	4,313,272	27	4,313,747	CLASS 100	446	4,313,430	643	4,313,783	643	4,313,783
70 F	4,313,273	30.1	4,313,748	CLASS 101	7	4,313,431	CLASS 159	6 W	6 W	4,313,784
89	4,313,275	43	4,313,749	CLASS 102	37	4,313,432	4,313,785	4,313,785	4,313,785	4,313,785
CLASS 44	1 C	160	4,313,750	CLASS 103	80 H	4,313,433	4,313,786	4,313,786	4,313,786	4,313,786
		267	4,313,751	CLASS 104	92 BC	4,313,434	4,313,787	4,313,787	4,313,787	4,313,787
		34	4,313,752	CLASS 105	105	4,313,435	CLASS 160	121 R	121 R	4,313,484
		134	4,313,753	CLASS 106	203.12	4,313,436	CLASS 162	328	328	4,313,485
		159	4,313,754	CLASS 107	207.17	4,313,437	CLASS 166	31	31	4,313,788
		27	4,313,755	CLASS 108	207.21	4,313,438	CLASS 168	152	152	4,313,789
		61	4,313,756	CLASS 109	214 F	4,313,439	CLASS 170	4,313,790	4,313,790	4,313,790
		94	4,313,757	CLASS 110	218 R	4,313,440	CLASS 172	4,313,791	4,313,791	4,313,791
		120	4,313,758	CLASS 111	419 PG	4,313,441	CLASS 174	4,313,792	4,313,792	4,313,792
			4,313,759	CLASS 112	642	4,313,442	CLASS 176	4,313,793	4,313,793	4,313,793
			4,313,760	CLASS 113		4,313,443	CLASS 178	4,313,794	4,313,794	4,313,794
			4,313,761	CLASS 114		4,313,444	CLASS 180	4,313,795	4,313,795	4,313,795
			4,313,762	CLASS 115		4,313,445	CLASS 182	4,313,796	4,313,796	4,313,796
			4,313,763	CLASS 116		4,313,446	CLASS 184	4,313,797	4,313,797	4,313,797
			4,313,764	CLASS 117		4,313,447	CLASS 186	4,313,798	4,313,798	4,313,798
			4,313,765	CLASS 118		4,313,448	CLASS 188	4,313,799	4,313,799	4,313,799
			4,313,766	CLASS 119		4,313,449	CLASS 190	4,313,800	4,313,800	4,313,800
			4,313,767	CLASS 120		4,313,450	CLASS 192	4,313,801	4,313,801	4,313,801
			4,313,768	CLASS 121		4,313,451	CLASS 194	4,313,802	4,313,802	4,313,802
			4,313,769	CLASS 122		4,313,452	CLASS 196	4,313,803	4,313,803	4,313,803
			4,313,770	CLASS 123		4,313,453	CLASS 198	4,313,804	4,313,804	4,313,804
			4,313,771	CLASS 124		4,313,454	CLASS 200	4,313,805	4,313,805	4,313,805
			4,313,772	CLASS 125		4,313,455	CLASS 202	4,313,806	4,313,806	4,313,806
			4,313,773	CLASS 126		4,313,456	CLASS 204	4,313,807	4,313,807	4,313,807
			4,313,774	CLASS 127		4,313,457	CLASS 206	4,313,808	4,313,808	4,313,808
			4,313,775	CLASS 128		4,313,458	CLASS 208	4,313,809	4,313,809	4,313,809
			4,313,776	CLASS 129		4,313,459	CLASS 210	4,313,810	4,313,810	4,313,810
			4,313,777	CLASS 130		4,313,460	CLASS 212	4,313,811	4,313,811	4,313,811
			4,313,778	CLASS 131		4,313,461	CLASS 214	4,313,812	4,313,812	4,313,812
			4,313,779	CLASS 132		4,313,462	CLASS 216	4,313,813	4,313,813	4,313,813
			4,313,780	CLASS 133		4,313,463	CLASS 218	4,313,814	4,313,814	4,313,814
			4,313,781	CLASS 134		4,313,464	CLASS 220	4,313,815	4,313,815	4,313,815
			4,313,782	CLASS 135		4,313,465	CLASS 222	4,313,816	4,313,816	4,313,816
			4,313,783	CLASS 136		4,313,466	CLASS 224	4,313,817	4,313,817	4,313,817
			4,313,784	CLASS 137		4,313,467	CLASS 226	4,313,818	4,313,818	4,313,818
			4,313,785	CLASS 138		4,313,468	CLASS 228	4,313,819	4,313,819	4,313,819
			4,313,786	CLASS 139		4,313,469	CLASS 230	4,313,820	4,313,820	4,313,820
			4,313,787	CLASS 140		4,313,470	CLASS 232	4,313,821	4,313,821	4,313,821
			4,313,788	CLASS 141		4,313,471	CLASS 234	4,313,822	4,313,822	4,313,822
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CLASSIFICATION OF PATENTS

73.32	4,313.527	528	4,314.144	60	4,313.838	432	4,313.615	262	4,314.203	237	4,313.661
218 A	4,313.528	553	4,314.145	62.9	4,313.839	446 B	4,313.616	316	4,314.204	271	4,313.662
299	4,313.529			78.5	4,313.840	610	4,313.614	460	4,314.205	288	4,313.663
CLASS 192		CLASS 220		170	4,313.841	661	4,313.617	CLASS 329		293	4,313.664
41 S	4,313.530	1 BC	4,313.545	174.11	4,313.842	668	4,313.618	50	4,314.206	299	4,313.665
58 B	4,313.531	716	4,313.546	188.3 CL	4,313.843	691	4,313.619	CLASS 330		303	4,313.666
113 B	4,313.532		4,313.547	193	4,313.844	718	4,313.620	CLASS 331		319	4,313.667
	4,313.533	CLASS 224		301.32	4,313.846	804	4,313.621	110	4,314.207	354	4,313.668
				356	4,313.847		4,313.622	CLASS 332			
CLASS 198		36	4,313.548	418	4,313.848	CLASS 281		CLASS 333		CLASS 355	
484	4,313.534	103	4,313.549	421	4,313.849	15 B	4,313.623	1 A	4,314.208	3 R	4,313.671
766	4,313.535	CLASS 226		429 B	4,313.850	CLASS 285		3	4,314.209	14 D	4,313.672
781	4,313.536	194	4,313.550	431 R	4,313.851	CLASS 290		CLASS 334		14 R	4,313.673
CLASS 200		196	4,313.551	439	4,313.852	14	4,313.624	CLASS 335			
4	4,314.111			445	4,313.853	55	4,313.625	20	4,314.212	15	4,313.674
5 A	4,314.112	CLASS 227		516	4,313.854	86	4,313.626	141	4,314.214	40	4,313.675
	4,314.114	109	4,313.552	522 R	4,313.855	114	4,313.627	182	4,314.213	56	4,313.676
	4,314.115	CLASS 229		630	4,313.856	115	4,313.628	193	4,314.215	76	4,313.677
	4,314.116	17 G	4,313.553	CLASS 260		242	4,313.629	198	4,314.216	CLASS 356	
	4,314.117	28 R	4,313.554	13	4,313.857	CLASS 289		CLASS 336		2	4,313.678
5 R	4,314.113	35	4,313.555	18 PF	4,313.859	1.5	4,313.630	188	4,314.217	244	4,313.679
16 F	4,314.118	38	4,313.556	18 TN	4,313.858	CLASS 290		210	4,314.218	CLASS 357	
47	4,314.119	68 R	4,313.557		4,313.873	55	4,314.160	295	4,314.219	23	4,314.261
61 45 R	4,314.120	72	4,313.558	27 R	4,313.860	CLASS 292		CLASS 337		38	4,314.262
67 G	4,314.121	CLASS 233		29.6 E	4,313.863	CLASS 294		65	4,314.220	43	4,314.263
72 A	4,314.122	7	4,313.559	29.6 H	4,313.861	201	4,313.631	83	4,314.221	48	4,314.264
289	4,314.123	CLASS 235		29.6 M	4,314.044	CLASS 300		107	4,314.222	51	4,314.265
328	4,314.124	92 EA	4,314.146	29.6 SQ	4,313.862	19 A	4,313.632	113	4,314.223	75	4,314.270
CLASS 202		92 SB	4,314.147	30.6 R	4,313.864	88	4,313.633	408	4,314.224	76	4,314.271
234	4,313.798		4,314.148	31.4 R	4,313.865	166	4,313.634	CLASS 338		CLASS 358	
CLASS 204		96	4,314.149	33.6 AQ	4,313.867	CLASS 296		4	4,314.225	11	4,314.272
1 T	4,313.799	CLASS 236		37 N	4,313.868	1 S	4,313.635	14	4,314.226	80	4,314.273
15	4,313.800	46 R	4,313.560	40 R	4,313.869	100	4,313.636	99	4,314.227	113	4,314.274
9	4,313.801	CLASS 237		112 B	4,313.871	CLASS 297		160	4,314.229	125	4,314.275
28	4,313.802	12.3 A	4,313.561	152	4,313.872	284	4,313.637	314	4,314.230	210	4,314.276
74	4,313.803	55	4,313.562	207	4,313.874	366	4,313.639	328	4,314.231	212	4,314.277
93	4,313.804	CLASS 238		239.1	4,313.875	374	4,313.640	CLASS 339		255	4,314.278
98	4,313.805	349	4,313.563	239.3 R	4,313.876	453	4,313.643	103 M	4,313.645	286	4,314.279
147	4,313.806	CLASS 239		333	4,313.877	3	4,313.641	156 R	4,313.646	294	4,314.280
157.1 R	4,313.807	110	4,313.564	340.7	4,313.878	6 C	4,313.642	CLASS 340		CLASS 360	
180 P	4,313.808	132.3	4,313.565	343	4,313.879	71	4,313.643	52 F	4,314.232	10	4,314.281
192 C	4,313.809	172	4,313.566	345.9 R	4,313.880	CLASS 307		347 AD	4,314.235	33	4,314.282
195 S	4,313.810	265.33	4,313.567	347.2	4,313.881	221 C	4,314.161	384 E	4,314.236	40	4,314.283
243 M	4,313.811	333	4,313.568	348.15	4,313.882	221 D	4,314.162	502	4,314.237	51	4,314.284
253	4,313.812	583	4,313.569	367	4,313.883	243	4,314.163	525	4,314.238	65	4,314.285
263	4,313.813	595	4,313.570	404	4,313.884	310	4,314.165	556	4,314.239	77	4,314.286
290 F	4,313.814	588	4,313.571	410.6	4,313.885	475	4,314.166	573	4,314.240	78	4,314.287
298	4,313.815	595	4,313.572	448 AD	4,313.886	540	4,314.167	603	4,314.241	78	4,314.288
CLASS 206		CLASS 241		453 RW	4,313.887	CLASS 308		617	4,314.242	86	4,314.289
77.1	4,313.537			465.4	4,313.888	233	4,313.644	686	4,314.243	92	4,314.290
455	4,313.538	CLASS 242		501.15	4,313.889	CLASS 310		731	4,314.244	96.6	4,314.291
461	4,313.539	18 PW	4,313.576	501.18	4,313.890	13	4,314.168	812	4,314.245	106	4,314.292
588	4,313.540	66	4,313.577	CLASS 261		46	4,314.169	825.02	4,314.233	109	4,314.293
611	4,313.541	149	4,313.578	64 D	4,313.891	68 R	4,314.170	825.36	4,314.234	113	4,314.294
	4,313.542	163	4,313.579	93	4,313.892	219	4,314.171	CLASS 343		121	4,314.295
CLASS 208		CLASS 244		CLASS 264		248	4,314.172	6 R	4,314.246	130.33	4,314.296
10	4,313.816	3.13	4,313.580	40.1	4,313.893	260	4,314.173	6.5 LC	4,314.247	CLASS 361	
89	4,313.817	110 B	4,313.581	61	4,313.894	315	4,314.174	18 D	4,314.248	13	4,314.300
108	4,313.818	137 R	4,313.582	127	4,313.900	CLASS 313		18 E	4,314.249	65	4,314.301
177	4,313.819	CLASS 246		228	4,313.901	174	4,314.175	100 SA	4,314.250	119	4,314.302
213	4,313.820	169 A	4,313.583	232.1	4,313.902	185	4,314.176	112 R	4,314.251	120	4,314.303
245	4,313.821	CLASS 248		515	4,313.903	497	4,314.177	113 R	4,314.252	124	4,314.304
CLASS 209		CLASS 250		532	4,313.904	CLASS 315		709	4,314.253	154	4,314.305
212	4,313.543	201	4,314.150	CLASS 266		12 ND	4,314.179	869	4,314.254	182	4,314.306
233	4,313.822	204	4,314.151	207	4,313.596	289	4,314.181	909	4,314.255	212	4,314.307
369	4,313.823	214 A	4,314.152	CLASS 269		389	4,314.182	1.1	4,314.256	331	4,314.308
CLASS 210		231 SE	4,314.153	51	4,313.597	408	4,314.183	74.4	4,314.257	386	4,314.309
86	4,313.824	235	4,314.154	CLASS 271		CLASS 318		75	4,314.258	400	4,314.310
89	4,313.825	253	4,314.155	124	4,313.598	85	4,314.184	76 L	4,314.260	433	4,314.311
114	4,313.826	281	4,314.156	166	4,313.599	434	4,314.185	108	4,314.261	CLASS 362	
136	4,313.827	287	4,314.157	203	4,313.600	611	4,314.186	135.1	4,314.262	32	4,314.312
198.2	4,313.828	290	4,314.158	207	4,313.601	721	4,314.187	140 R	4,314.263	80	4,314.313
242.3	4,313.829	327	4,314.159	CLASS 272		732	4,314.188	CLASS 350		189	4,314.314
639	4,313.830	357	4,313.594	73	4,313.602	798	4,314.189	164	4,313.647	240	4,314.315
646	4,313.831	369	4,313.595	146	4,313.603	802	4,314.191	166	4,313.648	287	4,314.316
663	4,313.832	CLASS 251		CLASS 273		CLASS 322		252	4,313.649	342	4,314.317
	4,313.833	201	4,314.150	32 A	4,313.604	2 R	4,314.192	263	4,313.650	CLASS 363	
CLASS 211		204	4,314.151	54 D	Re.30.859	28	4,314.193	355	4,313.651	10	4,314.32
181	4,313.544	214 A	4,314.152	85 C	4,313.605	89	4,314.194	CLASS 351		46	4,314.321
CLASS 219		231 SE	4,314.153	89	4,313.606	90	4,314.195	106	4,313.652	71	4,314.322
8.5	4,314.125	235	4,314.154	167 H	4,313.607	CLASS 323		91 C	4,313.653	90	4,314.323
10.55 B	4,314.128	253	4,314.155	CLASS 277		315	4,314.196	CLASS 354		98	4,314.324
10.55 F	4,314.127	281	4,314.156	27	4,313.608	324	4,314.197	25	4,313.654	127	4,314.325
10.55 R	4,314.126	327	4,313.593	34.3	4,313.609	351	4,314.198	29	4,313.655	141	4,314.326
58	4,314.129	357	4,313.594	CLASS 280		52	4,314.199	53	4,313.656	192	4,314.327
	4,314.130	369	4,313.595	11.28	4,313.610	117 R	4,314.200	152	4,313.657	200	4,314.328
61	4,314.131	385 C	4,313.834	63	4,313.611	127	4,314.201	234	4,313.658	CLASS 364	
69 M	4,314.132	39.7 E	4,313.836	79.1 A	4,313.612	207	4,314.202	235	4,313.659	141	4,314.329
121 EW	4,314.134	42.5	4,313.837		4,313.613	CLASS 324		29	4,313.660	192	4,314.330
146.23	4,314.136					52	4,314.203	53	4,313.661	200	4,314.331
222	4,314.137					117 R	4,314.200	152	4,313.662	CLASS 365	
276	4,314.138					127	4,314.201	234	4,313.663	CLASS 366	
285	4,314.139					207	4,314.202	235	4,313.664	CLASS 367	
300	4,314.140					52	4,314.199	152	4,313.665	CLASS 368	
348	4,314.141					117 R	4,314.200	234	4,313.666	CLASS 369	
384	4,314.142					127	4,314.201	234	4,313.667	CLASS 370	
497	4,314.143					207	4,314.202	235	4,313.668	CLASS 371	

411	4,314,336		147	4,313,910	139	4,313,965	326	4,314,022	128	4,314,049
414	4,314,337		159	4,313,911	250	4,313,966	389	4,314,033	140	4,314,050
422	4,314,338	144 2	267	4,313,912	327	4,313,967	564	4,314,074	179	4,314,051
	4,314,339	144 3							287	4,314,052
424	4,314,340	225		CLASS 423		CLASS 427		CLASS 431	483	4,314,053
433	4,314,341	322	58	4,313,914	27	4,313,968	265	4,313,721		
468	4,314,342	479	82	4,313,913	44	4,313,969			CLASS 536	
498	4,314,343		167	4,313,915	56 1	4,313,970			17 A	4,314,054
500	4,314,344		226	4,313,916	84	4,313,971	1	4,313,722	53	4,314,055
	4,314,345	127	228	4,313,917	113	4,313,972	37	4,313,723	63	4,314,056
555	4,314,346		242	4,313,924	205	4,313,973	217	4,313,724		
574	4,314,347		263	4,313,925	209	4,313,974			CLASS 542	
604	4,314,348	171	310	4,313,918	236	4,313,975			401	4,314,057
716	4,314,349	189	321 R	4,313,919	297	4,313,976	126	4,313,725	455	4,314,058
720	4,314,351		449	4,313,920	342	4,313,977				
740	4,314,350	73	456	4,313,921	384	4,313,978			CLASS 544	
900	4,314,328	114	458 R	4,313,922	387	4,313,979	42	4,313,726	27	4,314,059
	4,314,352	117	628	4,313,923	402	4,313,980	174	4,313,727	80	4,314,061
	4,314,353			CLASS 424	405	4,313,981			171	4,314,060
	4,314,354				428	4,313,982	2	4,314,025	402	4,314,062
	4,314,355	43	1	4,313,926	435	4,313,983	7	4,314,026		
	4,314,356	121	1 5	4,313,927			34	4,314,027	CLASS 546	
	4,314,357	168		4,313,928		CLASS 428	77	4,314,028	298	4,314,063
CLASS 365		259		4,313,929	13	4,313,984	291	4,314,029	317	4,314,064
19	4,314,358	261		4,313,930	31	4,313,985	296	4,314,030		CLASS 548
179	4,314,359	296		4,313,931	40	4,313,986				
203	4,314,360			4,313,932		4,313,987			CLASS 455	222
221	4,314,361			4,313,933		4,313,988	68	4,314,372	320	4,314,065
227	4,314,362	93		4,313,934	64	4,313,989	73	4,314,373		4,314,066
		156		4,313,935	85	4,313,990	108	4,314,374		4,314,067
CLASS 366				4,313,936	117	4,313,991	158	4,314,375	CLASS 556	
337	4,313,680			4,313,937	131	4,313,992	212	4,314,376	440	4,314,068
				4,313,938	136	4,313,993	223	4,314,377		
CLASS 367		52		4,313,939	178	4,313,994	291	4,314,378	CLASS 560	
16	4,314,363	94		4,313,940	200	4,313,995				4,314,069
43	4,314,364			4,313,941	201	4,313,996			CLASS 474	62
82	4,314,365			4,313,942	215	4,313,997	14	4,313,728	64	4,314,070
		115		4,313,943	220	4,313,998	135	4,313,729	127	4,314,071
CLASS 369		199		4,313,944	222	4,313,999	201	4,313,730	231	4,314,072

CLASSIFICATION OF DESIGNS

D2—	42	262.835		100	262.850		262.864		53	262.879	D20—	4	262.894	36	262.908		
		262.836		205	262.851	D9—	345	262.865	73	262.880		27	262.895	38	262.909		
	378	262.837		252	262.852		347	262.866	84	262.881	D21—	7	262.896	51	262.910		
D3—	18	262.838	D7—	45	262.853		378	262.867	103	262.882		33	262.897	64	262.911		
	74	262.839			262.854	D10—	106	262.868	113	262.878		41	262.898	D25—	23	262.912	
D4—	35	262.840		59	262.855			262.869	116	262.883		59	262.899	D26—	13	262.913	
D6—	92	262.841		77	262.856	D11—	158	262.870	D15—	7	262.884	102	262.900		135	262.914	
	102	262.842		96	262.857	D12—	85	262.871		145	262.887	107	262.901	D28—	30	262.915	
	114	262.843		107	262.858		99	262.872	D17—	6	262.888	114	262.902			262.916	
	144	262.844		151	262.859		125	262.873		19	262.889	135	262.903	D30—	14	262.917	
	146	262.845		153	262.860		141	262.874	D18—	7	262.890	234	262.904			262.918	
	157	262.846		207	262.861	D14—	4	262.875	D19—	33	262.891		35	262.905	D32—	45	262.919
	159	262.847															
	167	262.848	D8—	71	262.862		11	262.876		64	262.892	D23—	150	262.906	D34—	21	262.920
	178	262.849		385	262.863			262.877		92	262.893	D24—	17	262.907		25	262.921

CLASSIFICATION OF PLANTS

P.	34	4,820	35	4,819	86	4,821				
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DEFENSIVE PUBLICATIONS APPLICATIONS
[Notice of Dec. 16, 1969, 869 O.G. 6877]

[illegible]

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PATENTS

01 : 4,313,242	4,313,567	4,314,222	11 : 4,314,078	4,313,596	4,313,692
4,313,613	4,313,581	4,314,227	4,313,254	4,313,729	
4,313,651	4,313,585	4,314,228	4,313,633	4,313,889	
4,314,062	4,313,597	4,314,230	4,313,232	4,313,311	
04 : 4,313,427	4,313,602	4,314,231	4,313,286	4,313,275	
4,313,455	4,313,607	4,314,236	4,313,291	4,313,417	
4,313,523	4,313,610	4,314,245	4,313,372	4,313,705	
4,313,537	4,313,652	4,314,253	4,313,403	4,313,762	
4,313,618	4,313,679	4,314,255	4,313,444	4,313,767	
4,313,707	4,313,680	4,314,260	4,313,767	4,313,716	
4,313,964	4,313,717	4,314,262	4,313,603	4,313,779	
4,314,116	4,313,726	4,314,265	4,313,641	4,313,868	
4,314,180	4,313,745	4,314,268	4,313,683	4,313,869	
4,314,196	4,313,745	4,314,288	4,313,736	4,313,884	
4,314,206	4,313,752	4,314,290	4,313,768	4,313,895	
4,314,289	4,313,755	4,314,296	4,313,812	4,313,904	
4,314,331	4,313,765	4,314,298	4,313,824	4,313,946	
4,314,341	4,313,783	4,314,324	4,313,833	4,313,963	
06 : Re.30,859	4,313,784	4,314,336	4,313,919	4,313,966	
Re.30,860	4,313,789	4,314,343	4,313,956	4,314,036	
4,313,230	4,313,794	4,314,344	4,314,040	4,313,713	
4,313,233	4,313,795	4,314,356	4,314,169	4,313,748	
4,313,253	4,313,801	4,314,376	4,314,254	4,313,774	
4,313,266	4,313,815	4,313,292	4,314,373	4,313,792	
4,313,272	4,313,817	4,313,308	4,314,071	4,313,830	
4,313,273	4,313,828	4,313,425	4,314,080	4,313,965	
4,313,281	4,313,848	4,313,484	4,314,082	4,313,969	
4,313,287	4,313,857	4,313,491	4,314,107	4,314,034	
4,313,304	4,313,860	4,313,549	4,314,114	4,314,243	
4,313,324	4,313,878	4,313,706	4,314,117	4,314,276	
4,313,342	4,313,902	4,313,914	4,313,897	4,314,121	
4,313,360	4,313,923	4,314,096	4,313,911	4,314,143	
4,313,361	4,313,995	4,314,100	4,314,092	4,314,193	
4,313,374	4,313,997	4,314,355	4,314,308	4,314,212	
4,313,416	4,314,008	4,313,650	4,314,223	4,313,279	
4,313,422	4,314,025	4,314,293	4,314,280	4,313,355	
4,313,428	4,314,054	4,313,301	4,314,302	4,313,391	
4,313,432	4,314,087	4,313,321	4,314,304	4,313,404	
4,313,443	4,314,094	4,313,327	4,314,350	4,313,434	
4,313,445	4,314,103	4,313,370	4,313,320	4,313,522	
4,313,456	4,314,104	4,313,378	4,313,387	4,313,558	
4,313,459	4,314,112	4,313,447	4,313,396	4,313,667	
4,313,460	4,314,120	4,313,451	4,314,081	4,313,739	
4,313,461	4,314,128	4,313,471	4,314,273	4,313,740	
4,313,462	4,314,145	4,313,501	4,314,312	4,313,749	
4,313,464	4,314,156	4,313,503	4,313,507	4,313,850	
4,313,469	4,314,157	4,313,504	4,313,575	4,313,972	
4,313,505	4,314,158	4,313,511	4,314,027	4,313,986	
4,313,520	4,314,174	4,313,516	4,314,252	4,313,994	
4,313,524	4,314,184	4,313,525	4,313,335	4,314,197	
4,313,548	4,314,202	4,313,555	4,313,336	4,314,210	
4,313,562	4,314,205	4,313,557	4,313,433	4,314,259	
4,313,566	4,314,209	4,313,847	4,313,547	4,313,258	

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4,313,261	4,313,393	4,313,757	4,313,835	4,313,725	4,313,805
4,313,283	4,313,435	4,313,758	4,313,892	4,313,750	4,313,816
4,313,358	4,313,477	4,313,771	4,313,893	4,313,769	4,313,886
4,313,364	4,313,598	4,313,781	4,313,899	4,313,788	4,313,887
4,313,376	4,313,611	4,313,838	4,313,912	4,313,806	4,314,090
4,313,453	4,313,696	4,313,853	4,313,958	4,313,827	4,314,099
4,313,454	4,313,754	4,313,858	4,313,970	4,313,873	4,314,129
4,313,553	4,313,764	4,313,864	4,313,987	4,313,907	4,314,159
4,313,625	4,313,782	4,313,871	4,314,001	4,313,968	4,314,198
4,313,632	4,313,809	4,313,890	4,314,010	4,313,993	4,314,244
4,313,638	4,313,821	4,313,900	4,314,045	4,314,004	4,314,275
4,313,688	4,313,842	4,313,951	4,314,060	4,314,037	4,314,282
4,313,715	4,313,859	4,313,961	4,314,075	4,314,044	4,314,339
4,313,760	4,313,862	4,313,967	4,314,144	4,314,050	4,314,342
4,313,836	4,313,867	4,313,973	4,314,170	4,314,067	4,314,347
4,313,837	4,313,885	4,313,976	4,314,195	4,314,083	4,314,348
4,313,877	4,313,901	4,313,979	4,314,224	4,314,084	4,314,352
4,313,881	4,313,906	4,313,999	4,314,258	4,314,097	4,314,353
4,313,882	4,313,908	4,314,006	4,314,264	4,314,127	4,314,362
4,313,883	4,313,924	4,314,012	4,314,317	4,314,127	4,314,363
4,313,977	4,313,940	4,314,019	4,314,322	4,314,136	4,314,364
4,313,996	4,313,948	4,314,020	4,314,349	4,314,173	4,314,365
4,314,000	4,313,955	4,314,021	4,313,276	4,314,234	4,314,378
4,314,038	4,313,959	4,314,031	4,313,380	4,313,495	4,314,383
27 : 4,314,134	4,313,971	4,314,047	4,313,495	4,314,237	4,314,251
4,313,271	4,314,051	4,314,061	4,313,521	4,314,306	4,314,267
4,313,442	4,314,070	4,314,091	4,313,639	4,314,374	4,314,241
4,313,448	4,314,074	4,314,110	4,313,694	4,313,229	4,313,243
4,313,554	4,314,085	4,314,160	4,313,723	4,313,589	4,313,339
4,313,669	4,314,088	4,314,171	4,313,738	4,313,400	4,313,350
4,313,677	4,314,166	4,314,188	4,313,798	4,313,605	4,313,578
4,313,691	4,314,211	4,314,201	4,313,819	4,314,192	4,313,635
4,313,699	4,314,241	4,314,266	4,313,820	4,314,313	4,313,640
4,313,742	4,314,277	4,314,281	4,313,834	4,313,314	4,313,678
4,313,978	4,314,327	4,314,283	4,313,920	4,313,388	4,313,777
4,313,988	4,314,335	4,314,316	4,313,921	4,313,424	4,313,791
4,314,022	4,314,358	4,314,318	4,314,057	4,313,457	4,313,797
28 : 4,313,395	4,313,257	4,314,320	4,313,371	4,313,500	4,313,841
4,313,686	4,313,262	4,314,330	4,313,418	4,313,727	4,313,949
29 : 4,313,277	4,313,267	4,314,334	4,313,429	4,313,780	4,314,190
4,313,284	4,313,300	4,313,357	4,313,535	4,313,925	4,313,367
4,313,591	4,313,309	4,313,384	4,313,743	4,314,056	4,313,439
4,313,628	4,313,313	4,313,572	4,314,233	4,314,130	4,313,452
4,313,761	4,313,362	4,313,732	4,314,244	4,313,294	4,313,513
4,313,866	4,313,419	4,314,142	4,313,294	4,313,307	4,313,570
4,314,055	4,313,438	4,314,285	4,313,307	4,313,379	4,313,612
4,314,093	4,313,440	4,313,238	4,313,345	4,313,392	4,313,845
31 : 4,313,295	4,313,489	4,313,329	4,313,347	4,313,392	4,313,861
32 : 4,313,775	4,313,492	4,313,402	4,313,366	4,313,397	4,313,903
4,313,775	4,313,510	4,313,506	4,313,399	4,313,437	4,313,916
33 : 4,313,485	4,313,517	4,313,573	4,313,539	4,313,458	4,313,949
4,313,543	4,313,543	4,313,594	4,313,540	4,313,541	4,313,961
4,313,568	4,313,583	4,313,601	4,313,541	4,313,541	4,313,961
4,314,248	4,313,599	4,313,629	4,313,586	4,313,597	4,313,968
4,314,263	4,313,670	4,313,708	4,313,643	4,313,502	4,313,533
34 : 4,314,294	4,313,672	4,313,737	4,313,646	4,313,560	4,313,556
4,313,264	4,313,673	4,313,751	4,313,668	4,313,616	4,313,624
4,313,265	4,313,702	4,313,799	4,313,695	4,313,631	4,313,728
4,313,319	4,313,730	4,313,803	4,313,697	4,313,636	4,313,825
4,313,331	4,313,756	4,313,813	4,313,722	4,313,714	4,313,942

DESIGN PATENTS

04 : 262,842	262,918	262,910	27 : 262,884	37 : 262,844	44 : 262,917
262,908	262,849	262,913	29 : 262,894	262,845	47 : 262,891
262,871	262,915	262,914	34 : 262,851	262,847	48 : 262,856
262,882	262,916	21 : 262,888	36 : 262,835	262,903	262,859
262,889	262,837	22 : 262,896	262,836	39 : 262,867	262,883
262,893	262,862	24 : 262,846	262,841	262,874	262,890
262,897	262,881	25 : 262,850	262,866	262,901	262,890
262,902	262,887	262,869	262,892	262,911	262,853
262,904	262,864	262,906	262,898	262,838	262,854
262,909	262,868	26 : 262,919	262,899	262,895	262,843

PLANT PATENTS

06 : 4,821	53 : 4,819	4,820			
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OFFICIAL GAZETTE of the UNITED STATES PATENT and TRADEMARK OFFICE

February 9, 1982

Volume 1015

Number 2

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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT, consult Chapter 1800 of the Manual of Patent Examining Procedure and notices 90-95 in the consolidated listing of notices appearing in the Official Gazette of Jan. 6, 1981.

The PCT fees in effect after May 19, 1981 are as follows:

Transmittal fee	\$ 35.00
Search fee	300.00
International Basic Fee (for the first 30 sheets of an international application)	215.00
Basic Supplemental Fee (for each sheet over 30)	4.00
International Designation Fee (for each State for which a national patent is sought, or group of States for which the same regional patent is sought)	50.00

RENE D. TEGTMEYER,
Assistant Commissioner
for Patents.

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

3,890,543, Re. S.N. 315,175, Filed Oct. 26, 1981, Cl. 361/56, LOW VOLTAGE SURGE PROTECTION NETWORK, Gaylord D. Jonassen, Owner of Record: TII Industries, Inc., Copiague, N.Y., Attorney or Agent: Martin Sachs, Ex. Gp.: 212

4,111,712, Re. S.N. 315,340, Filed Oct. 26, 1981, Cl. 106/120, HIGH DENSITY ASBESTOS-FREE THERMORITE THERMAL INSULATION CONTAINING WOLLASTONITE, Walter G. Pusch, Owner of Record: Johns-Manville Corp., Jefferson Colo., Attorney or Agent: Robert M. Krome, et al., Ex. Gp.: 142

4,172,963, Re. S.N. 316,010, Filed Oct. 28, 1981, Cl. 178/22, CHECKER AND AUTOMATIC SYNCHRONIZER FOR CODING EQUIPMENT, Harold P. Belcher, Owner of Record: A.C.F. Industries, Inc., New York, N.Y., Attorney or Agent: Eugene N. Riddle, Ex. Gp.: 222

REQUESTS FOR REEXAMINATION FILED

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

3,340,800, Reexam. No. 90/000,135, Requested: Jan. 4, 1982, Cl. 101/56, DUAL ROLLER PLATENS IN ADDRESS PRINTING MACHINES, John H. Gruver, et al., Owner of Record: Addressograph Multigraph Corp., Chicago, Ill., Attorney or Agent: Robert Curfiss, Ex. Gp.: 330, Requester: Edward S. Irons, Washington, D.C.

3,802,788, Reexam. No. 90/000,137, Requested: Jan. 7, 1982, Cl. 401/94, STYLOGRAPHIC PEN CAP, Wil-

liam E. Danjczek, Owner of Record: Koh-I-Noor Rapidograph, Inc., Bloomsbury, N.J., Attorney or Agent: David H. Semmes, Ex. Gp.: 337, Requester: Alvin & Co., Inc., Bloomfield, Conn.

4,295,004, Reexam. No. 90/000,133, Requested: Dec. 28, 1981, Cl. 174/87, WIRE CONNECTOR, William C. Dauser, Jr., Owner of Record: Lloyd A. Heneveld, Dauser Trust IV, Attorney or Agent: Price, Heneveld, et al., Ex. Gp.: 210, Requester: Lloyd A. Heneveld, Grand Rapids, Mich.

COMMISSIONER ORDERED REEXAMINATION

Notice under 37 CFR 1.11(c). The orders for reexamination listed below are open to inspection by the general public in the indicated Examining Group. Copies of the Orders and other related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed. 37 CFR 1.248(a)(5) and 1.525(b).

4,251,727, Reexam. No. 90/000,136, Ordered Jan. 11, 1982, Cl. 250/343, GAS DETECTION, David R. Piercy, Owner of Record: J. & S. Sieger, Ltd., Dorset, England, Attorney or Agent: Birch, Steward, et al., Ex. Gp.: 250

Closing of Patent and Trademark Office on Thursday, Jan. 14, 1982

In view of the fact that Federal and District of Columbia government offices in the Washington, D.C. metropolitan area, including the Patent and Trademark Office, were officially closed on Jan. 14, 1982, the Patent and Trademark Office will consider Jan. 14, 1982, a "holiday within the District of Columbia" under 35 U.S.C. §21. Any action or fee due that day will be considered as timely for the purposes of, e.g., 35 U.S.C. §§119, 133 and 151, if the action is taken, or fee paid, on Jan. 15, 1982.

GERALD J. MOSSINGHOFF,
Commissioner of Patents
and Trademarks.

Compressed Work Week

The Office of Personnel Management has completed a study on compressed work schedules and has recommended that Congress enact permanent legislation authorizing use of alternative work schedules in the Federal Government. The authority for the program expires on Mar. 28, 1982.

The U.S. Patent and Trademark Office has been participating in this program, on an experimental basis, for nearly two years. Most of the Office's examiners and other employees are permitted to participate under one of two options:

1. 4/10 plan-Work ten hours four days a week and choose Monday, Wednesday, or Friday as a day off each week. The day selected can be changed only with supervisory approval.
2. 5/4-9 plan-Work nine hours for eight continuous days, eight hours on the ninth day, and choose Mon-

FEBRUARY 9, 1982

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day, Wednesday, or Friday as a day off once every two weeks. Again, the day off can only be changed with supervisory approval.

All employees must be on duty Tuesdays and Thursdays.

The U.S. Patent and Trademark Office is interested in considering any comments or recommendations you may have about the program in order to make the proper decision concerning the continuation, revision, or termination of alternative work schedules should the Congress enact legislation authorizing its continuation.

Please send any comments or recommendations you may have, no later than Mar. 2, 1982, to:

Commissioner of Patents and Trademarks
U.S. Patent and Trademark Office
Washington, D.C. 20231

GERALD J. MOSSINGHOFF,
Commissioner of Patents
and Trademarks.

Jan. 21, 1982.

Public Access to Computerized Patent Search Data Bases.

The PTO, in cooperation with Intellectual Property Owners, Inc. (IPO), has arranged for the placement of computer terminals in the Public Search room which access the Pergamon Video Patsearch System. This patent searching tool enables the computerized searching of front page and abstract data contained in all patents issued during the past eleven years. In addition, video searching of selected drawings in these patents is also available by computer search for display on viewing screens. The computer searching service is available to the general public in the Public Search Room for a fee related to the cost of each search. The new service was initiated on Dec. 4, 1981 in a ceremony attended by Senator Charles McC. Mathias, Jr., Commissioner Gerald Mossinghoff, and former Commissioner Donald Banner who is now president of IPO.

RICHARD J. SHAKMAN,
Assistant Commissioner
for Administration.

Dec. 8, 1981.

Government-Owned Inventions

Notice of Availability for Licensing

The inventions listed below are owned by agencies of the U.S. Government and are available for licensing in the U.S. in accordance with 35 U.S.C. 207 to achieve expeditious commercialization of results of federally funded research and development. Foreign patents are filed on selected inventions to extend market coverage for U.S. companies and may also be available for licensing.

Technical and licensing information on specific inventions may be obtained by writing to:

Office of Government Inventions and Patents
U.S. Department of Commerce
P.O. Box 1423
Springfield, Va. 22151

Please cite the number and title of inventions of interest.

DOUGLAS J. CAMPION
Office of Government Inventions and Patents
National Technical Information Service
U.S. Department of Commerce

SN 6-294,096, Enhancement of Color Quality of Lumber During Drying. Filed Sept. 18, 1981 by the Dept. of Agriculture. Inventor: Howard Rosen.

SN 6-302,008, Process for Modifying Cellulosic Fabrics for Improved Heat Transfer Printing. Filed Sept. 15, 1981 by Dept. of Agriculture. Inventor: Eugene Blanchard.

SN 6-272,842, Zwitterion Compounds as Catalysts in Easy-Care Finishing. Filed by Dept. of Agriculture on June 12, 1981. Inventor: Robert M. Reinhardt.

SN 6-276,768, Bromine-Containing 2,4-Diaminotriazines. Filed June 24, 1981 by the Department of Agriculture. Inventor: Leon H. Chance.

SN 6-294,095, New Surface in Cellulosic Fibers by Use of Radiofrequency Plasma of Ammonia. Filed Aug. 19, 1981 by the Dept. of Agriculture. Inventor: Truman L. Ward.

SN 6-290,540, Method for Sampling Flying Insect Populations Using Low-Frequency Sound Detecting & Ranging in Conjunction with a Biologically Active Chemical/Pheromone. Filed Aug. 6, 1981 by Department of Agriculture. Inventor: D. E. Hendricks.

SN 6-308,350, Antimicrobial Glycolic Acid Derivatives. Filed Oct. 5, 1981 by the Department of Agriculture. Inventor: August V. Bailey.

SN 6-311,587, Apparatus for Continuous Injection of Chemically-Impregnated Filament. Filed Oct. 15, 1981 by the Department of Agriculture. Inventor: Jim E. Dale.

SN 6-308,743, Antimicrobial Glycolic Acid Derivatives. Filed by Department of Agriculture on Oct. 5, 1981. Inventor: August V. Bailey.

SN 6-311,702, Apparatus to Extract Dust and Fine Trash from Opened Cotton. Filed Oct. 15, 1981 by the Department of Agriculture. Inventor: Charles Shephard.

SN 6-302,007, Textile Finishing Agents from Reaction Products of Carbamates and Glutaraldehyde. Filed Sept. 15, 1981 by Dept. of Agriculture. Inventor: John G. Frick.

SN 6-294,203, Nondenaturing Zwitterionic Detergents for Membrane Biochemistry. Filed Aug. 26, 1980 by Dept. of Health and Human Services. Inventor: Leonard Hjelmeland.

SN 6-180,373, Nitroimidazoles of Low Toxicity and High Activity as Radio-sensitizers of Hypoxic Tumor Cells. Filed Aug. 2, 1980 by Dept. of Health & Human Services. Inventor: W. W. Lee.

PATENT NOTICES

Certificates of Correction for the Week of Feb. 9, 1982

PP. 4,793,	4,275,958	4,293,029	4,298,816
Re. 30,730	4,276,306	4,293,290	4,298,960
Des. 259,059	4,277,597	4,293,354	4,298,962
Des. 261,000	4,278,668	4,293,609	4,299,199
Des. 261,496	4,279,731	4,293,628	4,299,401
4,070,462	4,279,922	4,293,711	4,299,464
4,165,208	4,281,167	4,293,712	4,299,510
4,180,626	4,281,233	4,293,741	4,299,544
4,190,723	4,282,072	4,293,875	4,299,565
4,193,933	4,282,192	4,294,284	4,299,651
4,195,667	4,282,839	4,294,386	4,299,696
4,197,827	4,283,278	4,294,491	4,299,809
4,223,778	4,284,697	4,294,730	4,299,822
4,224,516	4,285,122	4,294,733	4,299,833
4,230,397	4,285,331	4,294,822	4,299,854
4,232,812	4,285,836	4,294,847	4,299,929
4,237,924	4,285,935	4,294,895	4,299,976
4,239,465	4,286,547	4,294,978	4,300,030
4,244,729	4,287,466	4,295,491	4,300,104
4,251,236	4,287,872	4,295,569	4,300,474
4,251,267	4,288,560	4,295,686	4,300,800
4,255,660	4,288,583	4,295,985	4,300,844
4,255,667	4,288,606	4,296,033	4,300,938
4,258,077	4,289,022	4,296,173	4,301,054
4,259,720	4,289,558	4,296,193	4,301,314
4,261,985	4,290,097	4,296,246	4,301,474
4,262,542	4,290,495	4,296,472	4,301,501
4,263,323	4,290,734	4,297,187	4,301,505
4,265,911	4,290,766	4,297,475	4,301,906
4,265,965	4,291,173	4,297,645	4,302,126
4,269,932	4,291,323	4,297,938	4,302,163
4,270,608	4,291,783	4,298,036	4,302,551
4,270,657	4,291,859	4,298,231	4,302,630
4,271,411	4,292,156	4,298,287	4,302,653
4,271,424	4,292,208	4,298,307	4,303,095
4,273,935	4,292,439	4,298,424	4,303,221
4,274,954	4,292,785	4,298,509	4,303,619
4,275,174	4,292,898	4,298,561	

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Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

These patent collections are open to public use and each of the patent depository libraries, in addition, offers the publications of the patent classification system (e.g. The Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions, etc.) and provides technical staff assistance in their use to aid the public in gaining effective access to information contained in patents. With one exception, as noted in the

table following, the collections are organized in patent number sequence.

Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

State	Name of Library	Telephone Contact
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	Sacramento: California State Library	(916) 322-4572
	Sunnyvale: Patent Information Clearinghouse*	(408) 738-5580
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Delaware	Newark: University of Delaware	(302) 738-2238
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Minnesota	Minneapolis Public Library & Information Center	(612) 372-6552
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 214, 215
Nebraska	Lincoln: University of Nebraska-Lincoln, Engineering Library	(402) 472-3411
New Hampshire	Durham: University of New Hampshire Library	(603) 862-1777
New Jersey	Newark Public Library	(201) 733-7814
New York	Albany: New York State Library	(518) 474-5125
	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 930-0850
North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
Ohio	Cincinnati & Hamilton County, Public Library of	(513) 369-6936
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 255-7055 Ext. 212
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1321**
	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3138
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
Rhode Island	Providence Public Library	(401) 521-7722 Ext. 226
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1015 OG 13

PATENT EXAMINING CORPS
RENE D. TEGTMEYER, Assistant Commissioner
WILLIAM FELDMAN, Deputy Assistant Commissioner
CONDITION OF PATENT APPLICATIONS AS OF December 26, 1981

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director	6-23-80
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal- lurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director	12-06-79
Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director	3-02-81
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthetics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director	11-14-80
Coating; Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170— R. F. WHITE, Director	10-06-80
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufact- ure; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director	5-20-80
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director	6-19-80
Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Op- tics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy; Rocket Fuels; Special, Fuel, Explosive and Thermic Composi- tions; Thermal and Photoelectric Batteries.	
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—VACANT	8-07-80
Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240— A. L. SMITH, Director	12-07-79
Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling.	
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director	10-02-79
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	
DESIGN, GROUP 290—KENNETH L. CAGE, Director	4-02-80
Industrial Arts; Household, Personal and Fine Arts.	
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director	7-01-80
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprin- kling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Apparatuses; Brakes; Railways and Railway Equipment.	
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director	6-17-80
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding; Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330— R. E. AEGERTER, Director	3-17-80
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Infor- mation Dissemination.	
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director	10-22-79
Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Genera- tion and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350— G. M. FORLENZA, Director	3-17-80
Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscel- laneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	

Expiration of patents: The patents within the range of numbers indicated below expire during December 1981, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

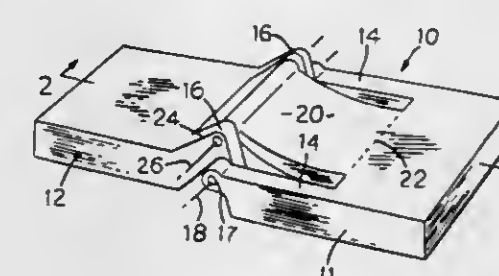
Patents Numbers 3,158,867 to 3,163,864, inclusive
Plant Patents Numbers 2,455 to 2,464 inclusive

REISSUES

FEBRUARY 9, 1982

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 30,861
BIASED HINGES
Alois A. Krawagna, Toronto, Canada, assignor to Westhem
Corporation Limited, Toronto, Canada
Original No. 3,720,979, dated Mar. 20, 1973, Ser. No. 744,268,
Jun. 17, 1968. Continuation-in-part of Ser. No. 689,390, Dec.
11, 1967. Application for reissue Aug. 29, 1979, Ser. No.
70,869
Int. Cl.³ E05D 7/00
U.S. Cl. 16—293 15 Claims



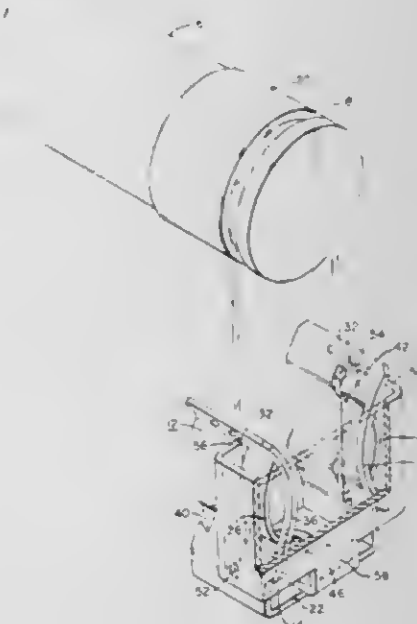
6. A snap-hinge comprising:
a first hinge member,
a second hinge member hinged to said first hinge member about a first hinge line,
a curved resilient connecting link of uniform cross-section, the link being joined at one end integrally to said first hinge member at a second hinge line and joined at the other end integrally to said second hinge member at a third hinge line, the link being curved and said ends of substantially uniform cross-section intermediate its ends, the resilient connection link tending resiliently to maintain its two ends apart at a given spacing, said second hinge line being spaced at an invariable distance from said first hinge line, said third hinge line being spaced at an invariable distance from said first hinge line, the snap-hinge having a first position and a second position, in each of which stress in the connecting link is at a minimum, the snap-hinge being at rest in each of said positions, a small departure from either of which increases the stress in the connecting link, which tends to restore the snap-hinge to the respective position, the connecting link being capable of resilient deformation between its one end and its other end when the distance between the ends changes, the snap-hinge being adapted to articulate between said first-mentioned position and said second position in such a way that the connecting link is resiliently deformed in positions intermediate said first-mentioned position and said second position when the distance between the ends of the link changes, the maximum deformation of said connecting link representing a state of unstable equilibrium for the snap-hinge, departure from which in either direction causes said connecting link to urge the snap-hinge further in that direction to return the snap-hinge to one of said positions.

Re. 30,862
REJECTION-TYPE FUSE CLIP
Stephen A. Mrenna, Beaver, and Zelko J. Kruzic, New Brighton,
both of Pa., assignors to Westinghouse Electric Corp., Pitts-
burgh, Pa.
Original No. 3,984,801, dated Oct. 5, 1976, Ser. No. 617,618,
Sep. 29, 1975. Application for reissue Jun. 12, 1978, Ser. No.
914,464

Int. Cl.³ H01C 1/02 3 Claims
U.S. Cl. 339—258 R
2. [The fuse clip according to claim 1 wherein said rejection member includes] A fuse clip for use with cylindrical cartridge fuses of the type having two end terminals, one of said end terminals having an annular groove therein wherein the diameter of said

end at the location of said groove is smaller than the diameter of the remainder of said terminal, said fuse clip permitting the insertion of only those end terminals having said annular groove, said fuse clip comprising:

a main body member including spaced, generally parallel flexible clamping arms having opposing contact surfaces for engaging opposite sides of said end terminal, said clamping arms having aligned slots therein, said body member including a base connecting said clamping arms; and
a rejection member comprising a back portion and a pair of spaced, generally parallel rigid holding arms extending outwardly from said back portion in a generally C-shaped configuration, each of said holding arms having an inward exten-



sion extending toward the other of said holding arms and generally parallel to said back portion, said inward extensions being positioned in said clamping arm slots, said inward extensions being spaced apart a distance greater than the diameter of said end terminal at the location of said annular groove and a distance less than the diameter of the remainder of said end terminal, whereby said cartridge fuse can be inserted into said fuse clip when said annular groove is positioned between said inward extensions. Said rejection member including a mounting member extending outwardly from said back portion generally at right angles to said back portion and said holding arms, said mounting member being positioned adjacent to, and secured to, said main body member base.

Re. 30,863

METHOD FOR CRUCIBLE-FREE ZONE MEETING OF SEMICONDUCTOR CRYSTAL RODS

Wolfgang Keller, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

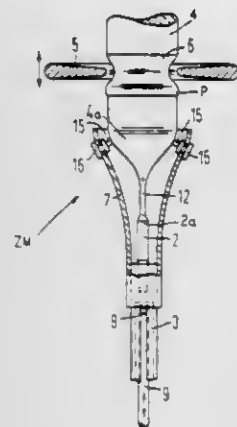
Original No. 3,996,096, dated Dec. 7, 1976, Ser. No. 638,261, Dec. 8, 1975. Division of Ser. No. 580,585, May 27, 1975, Pat. No. 3,988,197, which is a division of Ser. No. 525,641, Nov. 20, 1974, Pat. No. 3,923,468. Application for reissue Mar. 17, 1977, Ser. No. 778,587

Claims priority, application Fed. Rep. of Germany, Nov. 22, 1973, 2358300

Int. Cl.³ C30B 13/30

U.S. Cl. 156—620

2 Claims



1. A method of crucible-free zone melt processing of a semiconductor crystal rod comprising:

arranging a semiconductor crystal rod within a crucible-free zone melt environment with a seed crystal attached to a lower end thereof;

generating a melt zone at the juncture of said seed crystal and said rod and controllably moving said melt zone away from said juncture through said rod to a select point thereon;

uniformly supporting said lower end of said rod by axially upwardly moving a hollow funnel-shaped casing from a position below said juncture between the seed crystal and the rod to a position surrounding the lower end of said rod, said casing having relatively low melting pure metal inserts attached at the upper periphery of said funnel-shaped casing, said inserts melting upon contact with the still-hot lower end of the rod as such rod is traversed by said melt zone so as to form a eutectic mixture with the material of said rod and then solidifying to form a solid

connection between said casing and the lower end of said rod; and
controllably moving said melt zone from said select point through the remaining portion of said rod.

Re. 30,864

PROCESS FOR ELECTROLYSIS IN A MEMBRANE CELL EMPLOYING PRESSURE ACTUATED UNIFORM SPACING

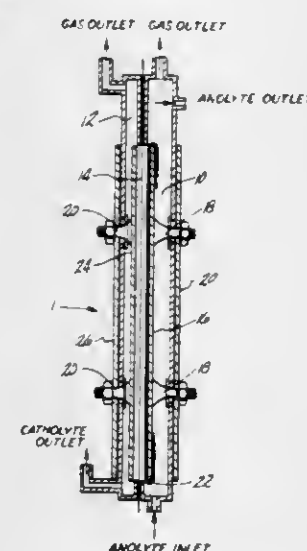
David D. Justice, Cleveland, Tenn.; Byung K. Ahn, Pittsburgh, Pa., and Ronald L. Dotson, Cleveland, Tenn., assignors to Olin Corporation, New Haven, Conn.

Original No. 4,105,514, dated Aug. 8, 1978, Ser. No. 810,135, Jun. 27, 1977. Application for reissue Aug. 7, 1979, Ser. No. 64,651

Int. Cl.³ C25B 1/34, 13/00

U.S. Cl. 204—98

27 Claims



1. A process for electrolysis in an electrolytic cell comprising an anode compartment containing a foraminous anode and an anolyte solution, a cathode compartment containing a foraminous metal cathode and a catholyte solution, a hydraulically impermeable membrane separating said anode compartment from said cathode compartment, spacing means interposed between said anode and said hydraulically impermeable membrane to space apart said anode from said hydraulically impermeable membrane, wherein the process comprises providing a positive pressure differential between said cathode compartment and said anode compartment to maintain contact between said hydraulically impermeable membrane and said spacing means to provide uniform spacing between said anode and said hydraulically impermeable membrane, said positive differential pressure being sufficient to maintain said membrane against said spacing means.

PLANT PATENTS

GRANTED FEBRUARY 9, 1982

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

4,822

ROSE PLANT

Dorothy J. S. Bailey, Bakersfield, Calif., assignor to San Joaquin Rose Co., McFarland, Calif.

Filed Sep. 9, 1980, Ser. No. 185,448

Int. Cl.³ A01H 5/00

U.S. Cl. Plt.—22

1 Claim

1. A new and distinct variety of rose plant of the floribunda class, substantially as shown and described, characterized particularly by many petaled flowers borne in large sprays which begin as shell pink buds and mature to signal red blooms displayed on a vigorous plant with abundant foliage.

4,823

PLUM TREE

Frederic W. Anderson, 826 W. 22nd St., Merced, Calif. 95340

Filed Sep. 22, 1980, Ser. No. 189,208

Int. Cl.³ A01H 5/03

U.S. Cl. Plt.—38

1 Claim

1. A new and distinct variety of plum tree, substantially as illustrated and described, characterized, in comparison to the Red Beaut, by more consistent production of fruit, and which fruit is slightly larger in size and ripens about one week later.

PATENTS

GRANTED FEB. 9, 1982

ERRATA

For CLASS	See PATENT NO.
501-088	4,314,852
376-128	4,314,879
376-146	4,314,880
376-245	4,314,881
376-235	4,314,882
376-381	4,314,883
376-441	4,314,884
376-327	4,314,885
372-035	4,315,225
372-045	4,315,226

PATENTS

GRANTED FEBRUARY 9, 1982

GENERAL AND MECHANICAL

4,314,379

APPARATUS FOR DISCRIMINATION OF MYOELECTRIC POTENTIAL PATTERNS

Kazuo Tanie, Yokohama, and Susumu Tachi, Tokyo, both of Japan, assignors to Agency of Industrial Science & Technology, Ministry of International Trade & Industry, Tokyo, Japan

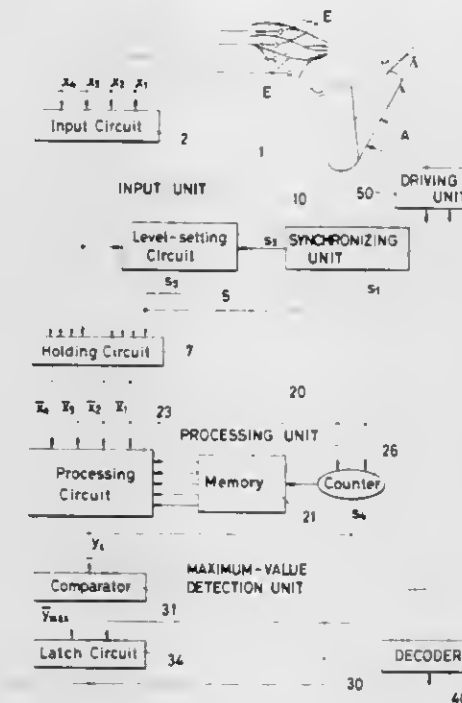
Filed Feb. 20, 1980, Ser. No. 123,096

Claims priority, application Japan, Feb. 26, 1979, 54-21645

Int. Cl.³ A61F 1/00

U.S. Cl. 3-1.1

7 Claims



1. An apparatus for the discrimination of myoelectric potential patterns obtained by m myoelectric potential signals derived from motions of muscles of a body part and transmitted by a plurality of myoelectrodes fastened to the muscles at a like plurality of positions, the myoelectric potential patterns having n categories each one of which is assigned to a different motion produced by the muscles, the apparatus comprising an input unit for rectifying and smoothing the myoelectric

potential signals transmitted by the myoelectrodes, means for summing said potential signals and for comparing the sum of the transmitted myoelectric potential signals with a preset reference level and, when the sum exceeds the reference level, forwarding the individual myoelectric potential signals through an output of the input unit;

a processing unit formed of a group of memories having stored therein the weight coefficients determined on the basis of the average myoelectric potential patterns obtained in advance with prescribed modes of motions of the muscles and a processing circuit for performing one by one arithmetic operations on the actual myoelectric potential signals (s) received from the output of said input unit, wherein denotes actual input patterns, and the weight coefficients (a) from the memories in accordance with linear discriminant functions expressed by the following formulas to issue values (y) successively:

$$\begin{aligned} y_1 &= a_{1,1}x_1^a + a_{1,2}x_2^a + \dots + a_{1,m}x_m^a + a_{1,m+1} \\ y_2 &= a_{2,1}x_1^a + a_{2,2}x_2^a + \dots + a_{2,m}x_m^a + a_{2,m+1} \\ &\vdots \\ y_n &= a_{n,1}x_1^a + a_{n,2}x_2^a + \dots + a_{n,m}x_m^a + a_{n,m+1} \end{aligned}$$

wherein n is the number of the categories of the modes of

the motions and m is the number of the myoelectric potential signals;
a maximum-value detection unit for latching the signal of the maximum value singled out of the values received from the processing unit and issuing, as output, the signal of the category number corresponding to the maximum-value signal; and
a synchronizing unit for synchronizing the operation of the input unit, processing unit and maximum-value detection unit.

4,314,380

ARTIFICIAL BONE

Teruo Miyata; Taicbiro Akiyama, both of Tokyo, and Masayasu Furuse, Sagami-hara, all of Japan, assignors to Koken Co., Ltd., Tokyo, Japan

Filed Sep. 26, 1980, Ser. No. 191,258

Int. Cl.³ A61F 1/24, 1/00

U.S. Cl. 3-1.9

13 Claims

1. As an article of manufacture, an artificial bone comprising a core of porous, organic-free hydroxyapatite obtained from chemically-treated, burned, baked animal bone, said hydroxyapatite being impregnated and coated with atelocollagen.

4,314,381

HIP JOINT PROSTHESIS

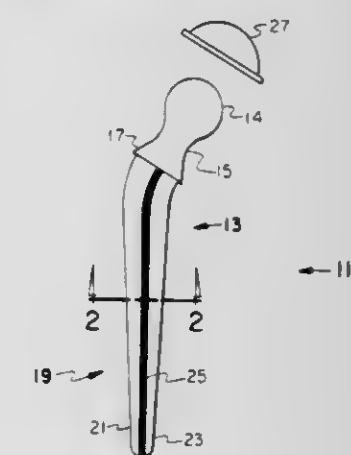
James B. Koeneman, Erie, Pa., assignor to Lord Corporation, Erie, Pa.

Filed Jun. 25, 1980, Ser. No. 162,845

Int. Cl.³ A61F 1/24

U.S. Cl. 3-1.912

15 Claims



1. A joint prosthesis for replacement of the hip joint in a human body comprising:

an acetabulum prosthesis formed in a hemispherical cup for attachment to the acetabulum cavity of the pelvis; and
a femoral head prosthesis having a sphere at one end moveable within said cup of said acetabulum prosthesis, and having a stem at the other end shaped for insertion into the medullary canal of the femur, said stem being formed of at least one section of resilient elastomeric material disposed between and attaching to at least two spaced apart outer sections of rigid material, said section of resilient elastomeric material having at least a portion of its volume located as an innermost core part of said stem.

4,314,382

HINGE FOR TOILET SEAT AND LID

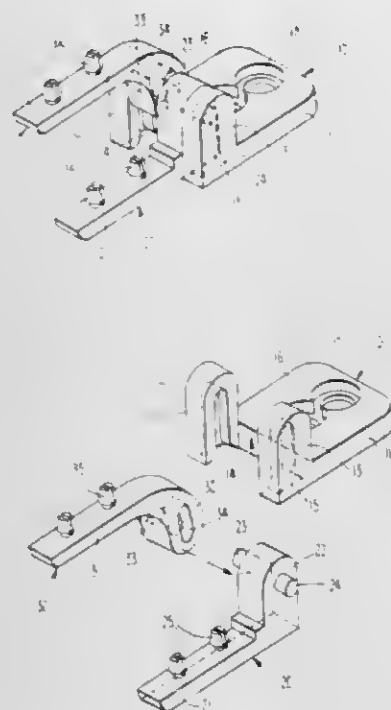
Milton Ginsburg, 1201 Sandringham Rd., Bala Cynwyd, Pa. 19004, and William J. Lux, Holland, Pa., assignors to Milton Ginsburg, Bala Cynwyd, Pa.

Filed Aug. 8, 1980, Ser. No. 176,285

Int. Cl.³ A47K 13/12

U.S. Cl. 4—236

3 Claims



1. A hinge for a toilet seat and lid, said hinge comprising:
 - a. a bowl leaf;
 - b. a seat leaf;
 - c. a lid leaf;
 - d. said bowl leaf having
 - d-1 a base;
 - d-2 a pair of spaced-apart socket portions extending upwardly from the forward end of said base;
 - e. said seat leaf having
 - e-1 an elongated base;
 - e-2 at least two split compressible studs projecting upwardly from a forward end of said base;
 - e-3 a hinge-pin support extending upwardly from the rearward end of said base;
 - e-4 a pair of hinge pins extending laterally in opposing directions from said hinge-pin support;
 - f. said lid leaf having:
 - f-1 an elongated base;
 - f-2 at least two split compressible studs projecting upwardly from a forward portion of said base;
 - f-3 a hinge-pin support extending downwardly from the rearward end of said base.

4,314,383

AUTOMOBILE FUSE PULLER AND COMBINATION CIRCUIT TESTER

Harry Epstein, Seaford, N.Y., assignor to Kastar, Inc., Bellrose, N.Y.

Filed Feb. 25, 1980, Ser. No. 123,928

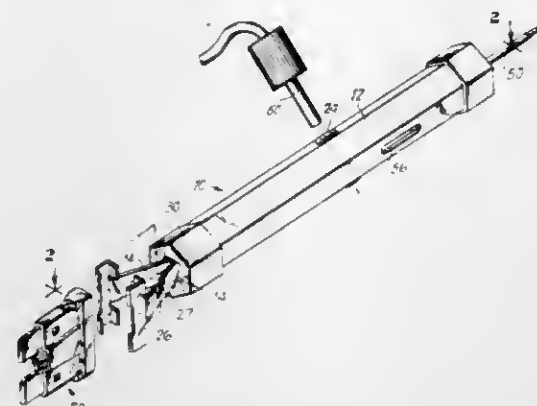
Int. Cl.³ B25F 1/00; B25B 27/14; G01R 19/16

U.S. Cl. 7—170

7 Claims

1. An improved fuse pulling apparatus comprising an elongated housing, a pair of complementary jaws slidably mounted within said housing and extending partially outwardly thereof, means for urging the jaws towards one another as the jaws are moved into the housing, means for urging the jaws to rotate as the jaws are moved into the housing, and means for locking the jaws in a closed position such that forward movement without manual rotation of the device would cause the jaws to lock onto a fuse, said means for urging the jaws toward one another includes a plate having a substantially rectangular opening through which said pair of complementary jaws are disposed,

said means for urging the jaws to rotate include a cap disposed over said plate having an aperture through which said complementary jaws are disposed, and portions which extend inwardly of the opening in said plate, and said means for locking



the jaws in a closed position includes at least one notch in each said jaw of a thickness slightly greater than that of said plate whereby each of said jaws may be disposed onto the edge of said plate when said notches are brought into adjacent position therewith.

4,314,384

WATER SKI CONSTRUCTED WITH INTERLOCKING FLANGED SHELLS

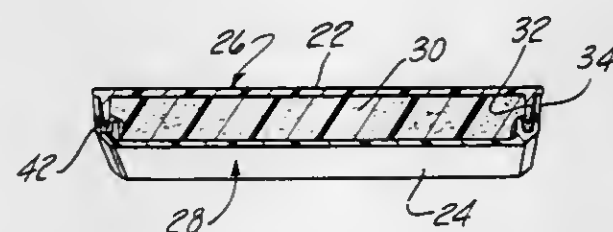
Harold R. Weinhaus, Southfield, Mich., assignor to The Budd Company, Troy, Mich.

Filed Aug. 8, 1980, Ser. No. 176,612

Int. Cl.³ A63C 5/00

U.S. Cl. 9—310 A

8 Claims



1. A ski comprising: a rigid molded upper shell forming a deck portion having a continuous depending flange adjacent the perimeter for reinforcing the rigidity of said upper shell and integral therewith, a rigid molded lower shell having a bottom portion having a first continuous upwardly projecting flange extending around the entire perimeter of said lower shell complementary to the surface of said depending flange for reinforcing the rigidity of said lower shell and said first flange having an outer surface coextensive with the outer edge of said upper shell, an adhesive between said depending and said first upwardly projecting flanges around the entire perimeter of said shells to bond said shells together with said deck and bottom portions in spaced relationship to each other and said lower shell having a second upwardly projecting flange spaced from said first upwardly projecting flange and forming a trough therewith, said trough being spaced from said depending flange for receiving excess adhesive from between said depending flange and said first upwardly projecting flange and preventing the excess adhesive from flowing into the main cavity between said shells.

4,314,385

CARPET CLEANING SYSTEM

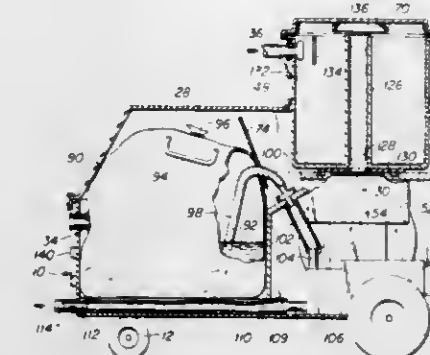
James M. Wimsatt, and Patrick E. Lynch, Jr., both of Carson City, Nev., assignors to WLN Products, Reno, Nev.

Filed Jun. 26, 1980, Ser. No. 163,036

Int. Cl.³ A47L 7/00

U.S. Cl. 15—321

12 Claims



1. A carpet cleaning system convertible between a vacuuming configuration and a liquid cleaning configuration, said system comprising:

- a canister including a motor compartment and a chamber partially overlying the motor compartment in communication therewith through an aperture in the top of the motor compartment and having a bag-receiving cavity, said canister further including an upwardly opening hatch for access to the chamber above the motor compartment, and means for providing access to the bag-receiving cavity;
- a vacuum hose connection penetrating the bag-receiving cavity of the chamber;
- an air pump located in the motor compartment and having an input side communicating with the chamber through the aperture in the top of the motor compartment;
- a liquid pump located in the motor compartment and having an input side communicating with an input fitting inside the chamber and an output side communicating with an output fitting on the exterior of the canister;
- an air tight dome engaged with the hatch when the system is in the vacuuming configuration;
- a recovery tank including a liquid cleaning hose connection penetrating the tank and a central vertical pipe communicating with a hole in the base of the tank, said tank being inserted in the hatch when the system is in the liquid cleaning configuration so that the hole is aligned with the aperture in the top of the motor compartment;
- a filter bag inserted in the bag-receiving cavity when the system is in the vacuuming configuration, said filter bag being connected to the vacuuming hose connection;
- a solution bag inserted to the bag-receiving cavity when the system is in the liquid cleaning configuration, said solution bag being connected to the input fitting of the liquid pump;
- a cleaning solution dispensing tube attached to the output fitting of the liquid pump when the system is in the liquid cleaning configuration to dispense a cleaning solution pumped from the solution bag; and
- a hose and wand assembly attached to the vacuuming hose connection when the system is in the vacuuming configuration so that the air pump draws air through the hose and wand into the filter bag and out through the walls of the bag to provide a vacuuming action, said hose and wand assembly being attached to the liquid cleaning hose connection in the liquid cleaning configuration so that air drawn from the tank through the vertical pipe by the air pump provides suction to draw the dispensed cleaning solution through the hose and wand and into the recovery tank.

4,314,386

METHOD OF MEAT TENDERIZING

Thomas C. Easthope, 41 Kootenay Crescent, Scarborough, Ontario, and Robert R. Martin, 608 Brock St., South, Whitby, Ontario, both of Canada

Filed Nov. 20, 1978, Ser. No. 957,431

Int. Cl.³ A22C 9/00

U.S. Cl. 17—51

1 Claim



1. A method of tenderizing meat in the form of a carcass in the state of primary flaccidity, free of rigor mortis and free of any form of mutilation, other than the point of injection, comprising the steps of injecting wine under pressure into a major artery while blood in the arteries and veins is allowed to drain via a major vein, after an intra-vascular pressure has been obtained, under pressure of the injected wine thus replacing blood in all blood vessels of the animal's carcass, resulting in a complete penetration of wine in all body areas previously supplied by blood and then allowing the carcass to stand at 38° F. until the wine has reacted on the tissue resulting in a thorough tenderizing of the meat.

4,314,387

DIRT SEPARATOR

Walter Löffler, Neubulach, Fed. Rep. of Germany, assignor to Hollingsworth GmbH, Neubulach, Fed. Rep. of Germany

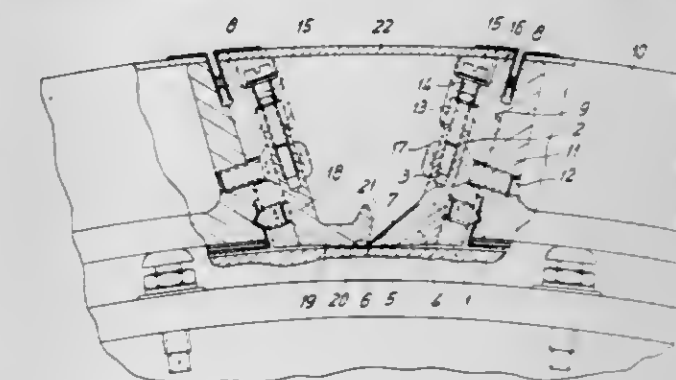
Filed Oct. 17, 1979, Ser. No. 85,811

Claims priority, application Fed. Rep. of Germany, Oct. 23, 1978, 2846109

Int. Cl.³ D01G 15/32

U.S. Cl. 19—98

9 Claims



1. A dirt separator for cards having a cylinder with clothing and fixedly mounted carding segments cooperating therewith, comprising: a knife blade having a blade edge arranged against the direction of rotation of the cylinder at a narrow interval from its clothing adjoining a carding segment, said knife blade having adjustment means for adjusting the interval between the knife blade and the clothing of the cylinder, a collecting rail having a substantially flat base surface running parallel to the surface of the cylinder; said knife blade being preceded in the direction of rotation by said flat base surface of said collecting rail, said collecting rail having radial adjustability, said dirt separator being arranged at the outlet end of a carding flat.

4,314,388

ROLLER DRIVE FOR DRAW FRAME

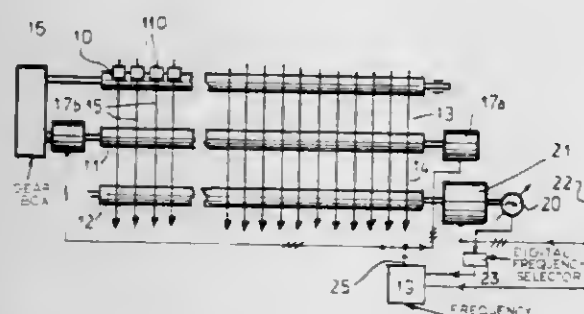
Max Hartmannsgruber, Kirchheim, and Horst Wolf, Albershausen, both of Fed. Rep. of Germany, assignors to Zinser Textilmaschinen GmbH, Ebersbach, Fed. Rep. of Germany
Filed Mar. 24, 1980, Ser. No. 132,809

Claims priority, application Fed. Rep. of Germany, Mar. 23, 1979, 2911379

Int. Cl.³ D01H 1/22

U.S. Cl. 19—293

9 Claims



1. A fiber-drawing assembly comprising:
 - a plurality of cascaded drawing stages each including an elongate driven roller and a set of coating counterrollers; drive means for simultaneously rotating said driven rollers at different but mutually correlated speeds, said drive means including at least one pair of synchronous motors positively coupled with opposite ends of the driven roller of one of said drawing stages at axially spaced-apart locations; and
 - a common supply of three-phase current connected to said pair of synchronous motors in a joint energizing circuit for operating same in step with each other, thereby preventing the development of torsional stresses between said locations, said supply including a power line, a solid-state frequency inverter with three phase leads inserted between said power line and said pair of synchronous motors, and a frequency divider of digitally variable step-down ratio inserted between a source of timing signals and said frequency inverter for varying the rhythm of energization of said phase leads.

4,314,389

DOUBLE FOLD OVER JEWELRY CLASP

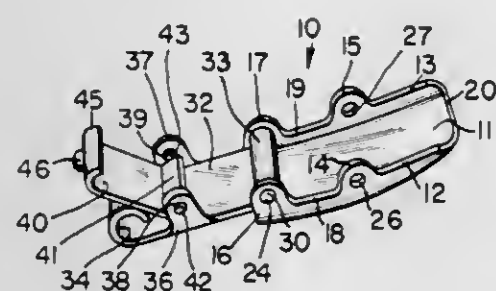
Alfred E. Sauer, Warwick, and Bruno Tassoni, Johnston, both of R.I., assignors to B. A. Ballou & Co., Incorporated, East Providence, R.I.

Filed Oct. 4, 1979, Ser. No. 81,688

Int. Cl.³ A44B 13/00, 21/00

U.S. Cl. 24—376

3 Claims



1. A double fold over jewelry clasp comprising a cover body having means to provide a pintle bearing and oppositely located lock openings, a pintle fastened in said pintle bearing, a clamp plate having a clamp plate bearing on one end and a link eye in the opposite end, means providing hinge pin openings in said clamp plate, said clamp plate bearing being mounted upon said pintle, a lock plate provided with a hinge pin, having catch means, on one end, and a latch hook and finger nail grip on the

other end, said hinge pin mounted in said hinge pin openings, wherein pivoting fold over movement of said clamp plate, forces said hook into engagement with said clamp plate bearing, and pivoting fold over movement of said cover body in a direction opposite to the pivoting fold over movement of said clamp plate, forces said lock openings into engagement with said catch means, and means provided between said lock plate and said clamp plate for the attachment of a chain link, said cover overlying said lock plate to prevent displacement of said latch hook with said clamp plate bearing.

4,314,390

COMPOSITE BURIAL VAULT AND METHOD FOR MAKING SAME

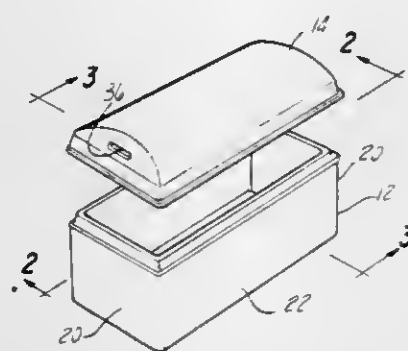
James W. Darby, 2117 Smith St., Danville, Ill. 61832, and David L. Darby, R.R. #1 Box 458-20, Alvin, Ill. 61811

Continuation-in-part of Ser. No. 770,524, Feb. 22, 1977, Pat. No. 4,261,083, which is a division of Ser. No. 522,133, Nov. 8, 1974, Pat. No. 4,060,581. This application Aug. 11, 1980, Ser. No. 177,218

Int. Cl.³ A61G 17/00

U.S. Cl. 27—35

32 Claims



1. A method of forming a composite burial vault comprising the steps:
 - constructing a liner of plastic material;
 - after said liner has been formed, applying an adhesive containing a solvent to at least one surface of said liner to thereby temporarily soften the surface;
 - while said liner is soft and before the adhesive has hardened again, applying a granular material to said surface of said liner, said granular material being applied to substantially all of said surface, whereby when said adhesive has dried, at least a portion of said granular material will be partially embedded into said surface of said liner, whereby said portion of said granular material is both mechanically and adhesively bonded to said surface, the remaining portion of said granular material being adhesively bonded to said liner; and
 - after said liner has dried with said granular material embedded therein, pouring a flowable concrete material into contact with said surface and said granular material and permitting said concrete material to dry whereby said granular material will act as a mechanical bond between said liner and the hardened concrete material.

4,314,391

YARN BULKING JET

Peter Heinen, and Peter Gossens, both of Heinsberg-Oberbruch, Fed. Rep. of Germany, assignors to Akzona Incorporated, Asheville, N.C.

Filed Dec. 26, 1979, Ser. No. 106,771

Claims priority, application Fed. Rep. of Germany, Dec. 27, 1978, 2856290

Int. Cl.³ D02G 1/16

U.S. Cl. 28—273

4 Claims

1. A bulking device for the production of loop yarn, comprising a jet base having an inlet section and outlet section and a blowing chamber intermediate said inlet section and outlet

4,314,393

METHOD OF MANUFACTURING ACOUSTIC SURFACE WAVE DEVICE

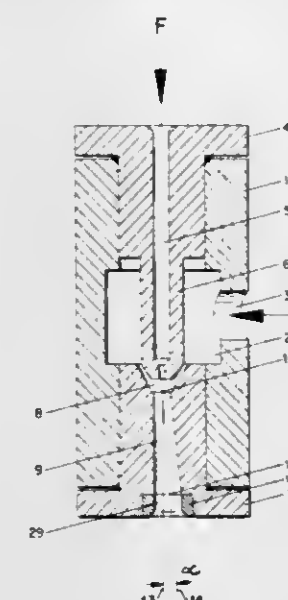
Noboru Wakatsuki, and Ono Masaaki, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Mar. 26, 1980, Ser. No. 133,964

Claims priority, application Japan, Apr. 2, 1979, 54/41963[U] Int. Cl.³ H01L 41/22

U.S. Cl. 29—25.35

17 Claims



insert, followed in order by a diffusor section forming a channel to said blowing chamber the axis of the diffusor section being angularly positioned to the jet axis, the diffusor section having a cylindrical channel segment at the outlet side thereof, the axis of the segment being parallel to but offset from said jet axis.

4,314,392

METHOD OF MAKING A SPARK PLUG ELECTRODE

John S. Waite, Welshpool, Wales, assignor to GKN Floform Limited, Great Britain

Filed Dec. 5, 1979, Ser. No. 100,411

Claims priority, application United Kingdom, Dec. 16, 1978, 48817/78

Int. Cl.³ H01T 13/20

U.S. Cl. 29—25.12

3 Claims



1. A method of making a centre electrode for a spark plug comprising the steps of superposing slugs of first and second metals with faces of the slugs in direct contact at an interface, said first metal having a thermal conductivity higher than that of said second metal and a melting point lower than that of said second metal, said second metal being resistive to the corrosive environment in which the electrode works; heating the superposed slugs in a radiant furnace wherein the superposed slugs are positioned in a pocket in a black body, the slug of said second metal being positioned wholly within the pocket and the slug of said first metal projecting from the pocket, a portion of the slug of said first metal adjacent said interface being heated mainly by conduction of heat from the slug of said second metal across said interface until said portion melts; cooling the slugs so that they are united at said interface and extruding the united slugs to produce an elongated electrode comprising a core of said first metal within a sheath of said second metal.

4,314,394

PHOTOFLASH LAMP CONSTRUCTION AND METHOD OF MAKING SAME

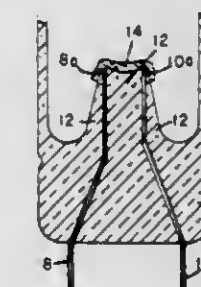
Donald E. Armstrong, Williamsport; Ronald E. Sindlinger, Muncy, and William J. Harvey, Trout Run, all of Pa., assignors to GTE Products Corporation, Stamford, Conn.

Division of Ser. No. 971,775, Dec. 21, 1978. This application Jun. 25, 1980, Ser. No. 162,859

Int. Cl.³ F21K 5/02; H01J 9/24

U.S. Cl. 29—25.16

9 Claims



1. A method of making a photoflash lamp comprising: heating one end of a length of glass tubing to seal it closed; pushing a pair of spaced apart metal lead-in wires through said closed end of the glass tubing while said end of tubing

is in a heated condition, whereby the heated glass thereat is stretched and sealed over said pushed-through lead-in wires to provide a protruding portion of said glass within said tubing which encapsulates the terminations of said lead-in wires within said tubing;

selectively removing only the glass covering the terminations of said lead-in wires within said tubing to expose the bare metal of said terminations;

applying a coating of primer material about the end of said protruding portion of glass within said tubing so as to cover and bridge said bare terminations;

filling said glass tubing with a quantity of filamentary combustible material and a combustion-supporting gas;

tipping off the tubing to provide an hermetically sealed envelope; and

applying a protective coating on the exterior of said envelope.

4,314,395

SURFACE ROLLER

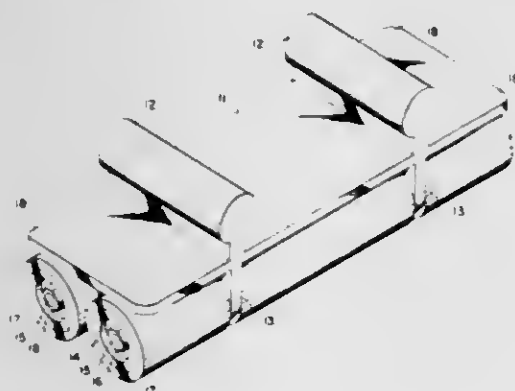
William L. Brock, 6480 W. 60th Ave., Arvada, Colo. 80003

Filed Oct. 31, 1979, Ser. No. 89,814

Int. Cl.³ B21B 27/00

U.S. Cl. 29—110.5

9 Claims



1. A device for applying pressure to a surface, the device comprising:

- a substantially planar elongated base member having an upper face and a lower face;
- a pair of carrier supports each positioned inwardly from an end of the base member at the elongated portion thereof, the carrier supports extending perpendicular from the lower face of the base member;

at least two roller assemblies rotatably carried on the carrier supports, each assembly being journaled around an axis extending in the elongated direction of the base member and parallel to the other axis, and each roller assembly extending between the carrier supports and beyond the carrier supports with the ends of each roller assembly extending at least to the ends of the base member in a cantilevered manner; and

a pair of handle members extending from the upper face of the base member, with each of the handle members being aligned with a support carrier;

whereby the rollers define a plane providing a firm support for the device and extend at least to the edge of the base member to facilitate application of pressure in close quarters and corners, while the handle members transmit force directly to the carrier support and roller assemblies to permit the development of great pressures at the roller assemblies.

4,314,396 SEPARABLE BLADE AGITATOR ASSEMBLY AND DISASSEMBLY METHOD

Ernie J. Nunlist, Peotfield; Howard G. Coleman, Naples, and Edward S. Harrison, Perinton, all of N.Y., assignors to Sybron Corporation, Rochester, N.Y.

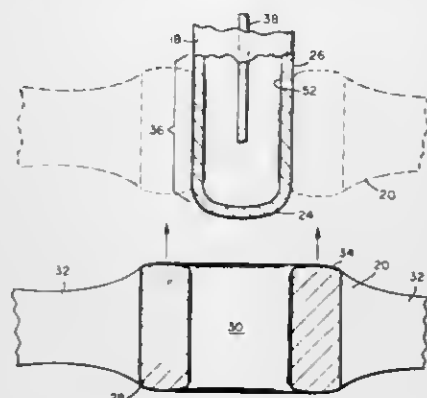
Division of Ser. No. 17,828, Mar. 5, 1979, Pat. No. 4,221,488.

This application Oct. 19, 1979, Ser. No. 88,972

Int. Cl.³ B23P 11/02, 6/00, 15/00

U.S. Cl. 29—156.8 R

3 Claims



2. A method of releasably assembling an impeller having a glass lined bore to a closed end of a hollow glass coated drive shaft in order to provide a gasketless, glass surface-to-glass surface releasable connection therebetween comprising the steps of:

- a. providing a hollow glass coated drive shaft having a closed end;
- b. sizing the outside diameter of said glass coated shaft end and the inside diameter of said glass lined bore to provide an interference fit therebetween of about 0.00025 to 0.00075 inches per inch of diameter, the amount of the interference being selected within a range which is
 - i. sufficiently great enough to transmit a desired torque from said drive shaft to said impeller when said shaft and impeller are equalized in temperature and
 - ii. sufficiently small enough to free said shaft from said bore when said shaft and impeller are at a predetermined differential temperature;
- c. cooling said shaft end internally of said shaft to produce said differential temperature and shrink the outside diameter of said shaft end by an amount sufficient to permit said shaft end to pass through said bore;
- d. moving said impeller relative to said shaft end until said shaft end is located within said bore; and
- e. equalizing the temperature said shaft end and impeller so that the outside diameter of said glass coated shaft end expands into an interference fit engagement with said glass lined bore.

4,314,397

METHOD OF MAKING A SOLAR HEAT EXCHANGER

Patrick F. Goolsby, and George F. Swenck, both of Richmond, Va., assignors to Reynolds Metals Company, Richmond, Va.

Division of Ser. No. 907,711, May 19, 1978, abandoned. This

application May 9, 1980, Ser. No. 148,406

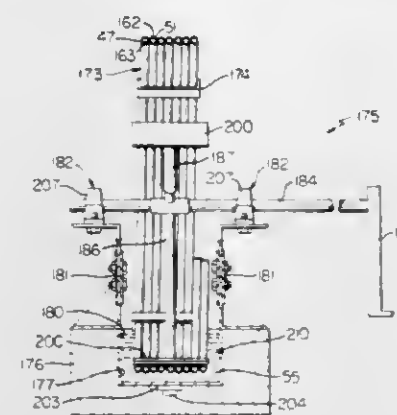
Int. Cl.³ B23P 15/26; B23K 31/02

U.S. Cl. 29—157.3 R

6 Claims

1. A method of making a tubular solar liquid-to-liquid heat exchanger comprising the steps of providing an aluminous, heat conductive tube material, forming said aluminous tube material into a substantially helical coil, providing a nonaluminous, heat conductive tube material, forming said nonaluminous tube material into a substantially helical coil, combining said substantially helical coils into a composite coil, preheating said composite coil to a temperature ranging between 725° F. and 800° F., submerging a circumferential portion of said composite coil in a bath of molten solder, rotating said composite coil about its central axis to submerge the entire composite

coil in said molten solder, and ultrasonically vibrating said composite coil and said molten solder during said rotation of said composite coil therein to provide cavitation and thus



ultrasonic cleaning of said composite coil and thereby assure optimum wetting and tenacious bonding by said solder of immediate adjacent faces of said aluminous and said nonaluminous coils.

4,314,398

METHOD OF MAKING A LOWER LEG PROSTHESES

Torsten L. E. Pettersson, Upsala, Sweden, assignor to Een-Holmgren Ortopediska AB, Sweden

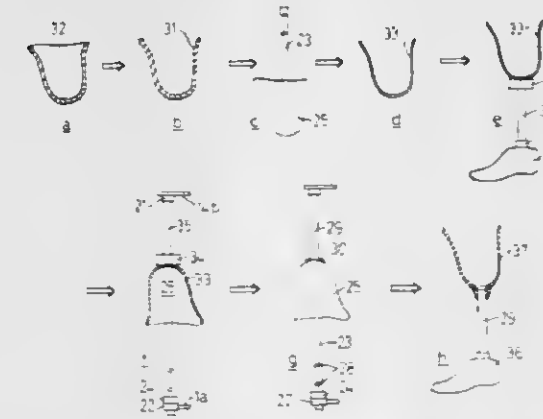
Filed Jul. 26, 1979, Ser. No. 61,037

Claims priority, application Sweden, Jul. 27, 1978, 7808174

Int. Cl.³ B23P 19/00; B23Q 3/00

U.S. Cl. 29—407

5 Claims



1. A method of making a lower leg prosthesis, comprising a prosthesis socket, a prosthesis foot and a connecting member interconnecting said prosthesis socket and said prosthesis foot, said method comprising the steps of:

- (a) forming a temporary prosthesis socket having an inner shape substantially corresponding to the remaining lower leg stump of the amputee to which the prosthesis is to be attached;
- (b) forming a test prosthesis by fixing an adjustable position testing device to said temporary socket and connecting said testing device to said prosthesis foot through a temporary connecting member;
- (c) testing said test prosthesis on the patient and adjusting said testing device so as to obtain a proper individually adjusted alignment of said temporary socket in relation to said prosthesis foot;
- (d) providing a prosthesis socket positive in the temporary socket of said test prosthesis and reproducibly fixing the assembly comprised of the socket positive, the temporary socket, the testing device and at least the temporary connecting member in a support device;
- (e) removing the test prosthesis parts from said support device;
- (f) placing said connecting member adjacent said socket positive in the support device in the aligned relative position reproducibly set in the support device in step (d); and
- (g) forming said prosthesis socket on said socket positive

while simultaneously securing said connecting member to the prosthesis socket in said aligned relationship thereby obtaining an individually aligned lower leg prosthesis.

4,314,399

METHOD OF PRODUCING MOULDS

Lars M. Severinsson, Östra Hyllievägen 99, 216 22 Malmö, Sweden

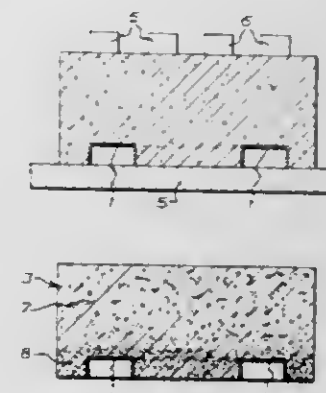
Filed Jan. 24, 1977, Ser. No. 761,729

Claims priority, application Sweden, Jan. 28, 1976, 7600895

Int. Cl.³ B22F 3/24

U.S. Cl. 29—420

1 Claim



1. A method of producing a mold comprising a body of a material having a relatively high strength and heat resistance and a material-shaping surface, which consists of:

- (1) depositing a body of sinterable material of metal powder onto the surface of a pattern, the pattern being of a material capable of resisting a predetermined temperature and having a pattern surface which forms a negative picture of said material-shaping surface;
- (2) forming said material-shaping surface on said body of said sinterable material as a positive picture of said pattern surface, said sinterable material being sinterable at a sintering temperature which is lower than said predetermined temperature and which is capable before it is sintered to be brought into a relatively easily shapable form and which after it is sintered forms a porous sintered body;
- (3) sintering said formed body when still in contact with said pattern surface;
- (4) introducing an infiltrating material of a metal into the side of the porous body opposite to said pattern surface, said infiltrating material which has a melting point lower than said sintering temperature melting and flowing into the pores of said porous body whereby said infiltrating material penetrates into the pores of said surface of the porous body formed in contact with said pattern surface, reaches said pattern surface and is shaped by the pattern surface and wherein said infiltrating material contains a slag and the slag is filtered by the body of the sinterable material and clean infiltrant free of slag reaches the pattern surface;
- (5) cooling said sintered body which contains the infiltrated material and
- (6) separating said body from the pattern surface.

4,314,400

STRAP CUTTER AND METHOD

C. Artbur Davis, Rte. 6, Box 137, Ada, Okla. 74820

Filed Aug. 25, 1980, Ser. No. 181,149

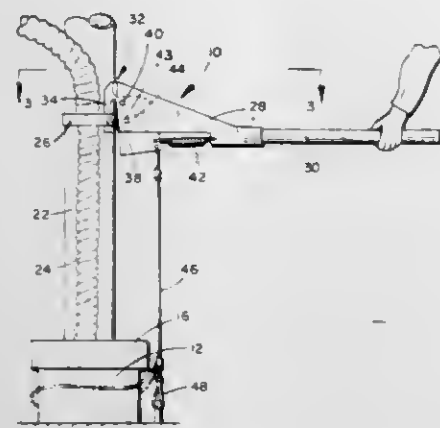
Int. Cl.³ B23P 19/00; B26B 13/00

U.S. Cl. 29—426.4

11 Claims

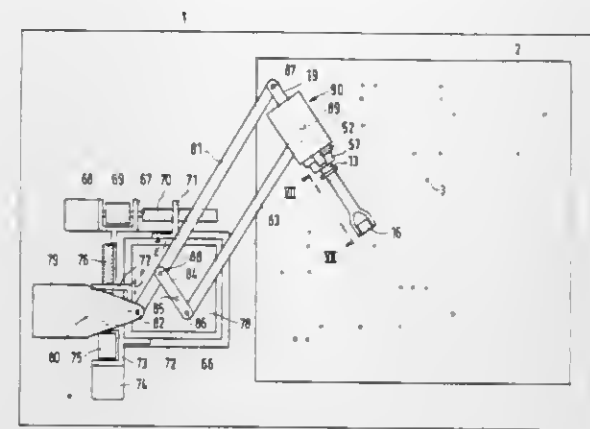
10. The method of cutting straps which strap electric power cable to the side of a pipe string in a well as the pipe string is being pulled from the well comprising the steps of: attaching a movable shear blade to the wellhead; engaging a shear blade behind the strap securing the electric

power cable to the pipe string with the two shear blades in shearing relationship with respect to each other and on opposite sides of the strap to be cut;

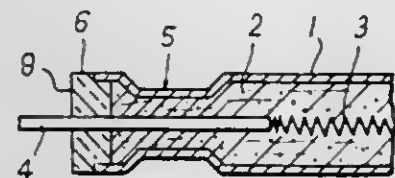


pulling the pipe string and the cable out of the well so that pipe string motion causes relative shear blade motion to cut the strap as the pipe string is raised.

directing light and said slide plate being mounted in said housing, said device further comprising a movable shutter mounted to extend across said optical axis along one side of said slide plate and movable to cover and uncover said slot, said shutter also being rotatable with said slide plate.



4,314,401
SHEATHED HEATING ELEMENT AND SEALING OF SHEATHED ELECTRIC HEATING ELEMENT
Isamu Saku, 3-17-6, Minamigaoka, Nisshin-cho, Aichi-gun, Aichi-ken, Japan
Filed May 14, 1979, Ser. No. 39,040
Claims priority, application Japan, Jan. 29, 1979, 54-8935
Int. Cl.³ H05B 3/00
U.S. Cl. 29-611 9 Claims



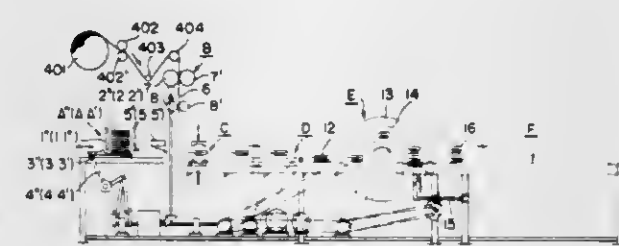
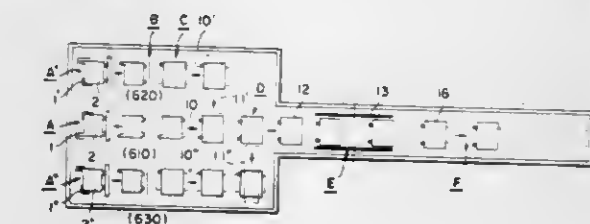
1. A method of sealing an electric heating element having an electric heating wire inside a tubular metal sheath and electrically insulated therefrom by a compacted filler, said method comprising:

impregnating the filler at and in the vicinity of the end of the sheath with an electrically insulative solution; and compressing the sheath in said vicinity such that said electrically insulative solution substantially permeates the interstices within the impregnated filler.

4,314,402
DEVICE FOR ASSEMBLING PRINTED CIRCUIT BOARDS
Alfred Lemmer, Munich, Fed. Rep. of Germany
Filed Aug. 9, 1979, Ser. No. 65,148
Claims priority, application Fed. Rep. of Germany, Aug. 11, 1978, 2835341
Int. Cl.³ H05K 3/30
U.S. Cl. 29-721 19 Claims

1. A device for assembling printing circuit boards, said device comprising a support for a printed circuit board to be assembled, an optical illuminating system for illumination of at least one hole on said circuit board, and mounting means mounting at least a portion of said optical illuminating system to move above said support in a plane parallel thereto to direct light from said optical illuminating system to a selected location on the circuit board, said optical illuminating system comprising a housing, a light source, means directing light from said source along an optical axis, and a slide plate movable transverse to said optical axis, said slide plate being formed with at least one hole and one slot, and said slide plate being rotatable about said optical axis, said light source, said means

4,314,403
MACHINE FOR AUTOMATICALLY STACKING PLATE GROUPS FOR STORAGE BATTERIES
Nobuo Sanekata, Takatsuki, Japan, assignor to Yuasa Battery Company Limited, Takatsuki, Japan
Continuation-in-part of Ser. No. 882,392, Mar. 1, 1978, abandoned. This application Nov. 26, 1979, Ser. No. 97,482
Int. Cl.³ B23P 19/04
U.S. Cl. 29-730 6 Claims

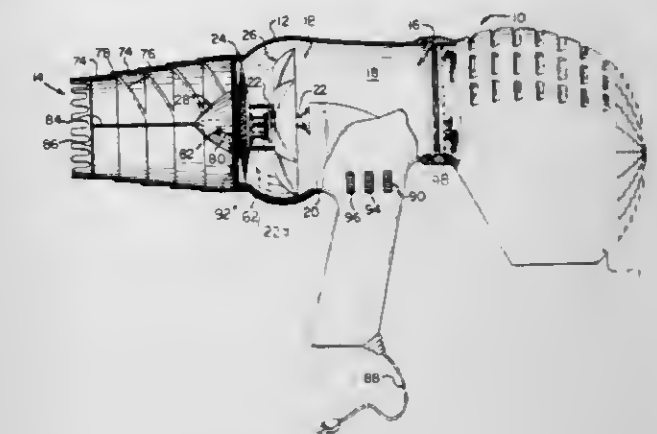


1. A machine for stacking plate groups for storage battery comprising
(a) means for feeding separator material in a vertical direction from above by a pair of transferring rollers,
(b) means disposed below the feeding means for cutting said separator material into separators from a continuous roll with a roll cutter having at least one cutting edge,
(c) plate separating and delivering means disposed below the cutting means for separating and delivering one-by-one plates in a lowermost step from a hopper containing the plates with a separating plate so as to intersect at right angles with the separator transferred vertically from the transferring rollers, whereby the separator is two-folded about a plate and is cut off to predetermined dimensions with the delivered plate, said plate separating means being positioned so as to deliver a plate covered with a separator to a first conveyor line
(d) separator sealing means disposed behind the plate separating and delivering means for sealing the separator covering the plate on the sides,
(e) a transferring element supported adjacent the separator

sealing means for transferring the plate covered with the separator, from said first conveyor line to a second conveyor line, said transferring element comprising chain conveyors and laterally moving elements, said laterally moving elements being movable laterally with respect to said conveyor lines,

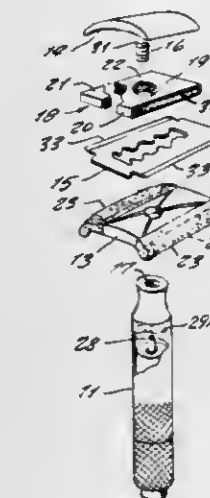
- (f) plate unit composing means disposed behind the transferring element wherein a line for transferring a plate of a different pole from a third conveyor line is provided in parallel with said laterally moving elements so that the covered plate may be transferred to said second conveyor line to be overlapped with the plate of the different pole to form a plate unit, said line for transferring a plate of a different pole being movable in an opposite direction to the direction of movement of said transferring element
(g) plate block composing means and along said second conveyor disposed behind the plate unit composing means for laminating a predetermined number of plate units to be a block, and
(h) conveying means disposed behind the plate block composing means for conveying said block to the next step.

a cutting action to said blade means and an impellor driven by said drive means producing a suction at said inlet, and a conical



element rotatable with said blade means for directing hair to the periphery of said passage for said cutting action.

4,314,404
RAZOR WITH PRE-WETTING OR CAPILLARIZER SYSTEM
Rene A. Ruiz, and George Spector, both of 3615 Woolworth Bldg. 233 Broadway, New York, N.Y. 10007
Filed Feb. 20, 1980, Ser. No. 123,001
Int. Cl.³ B26B 21/00
U.S. Cl. 30-41 3 Claims

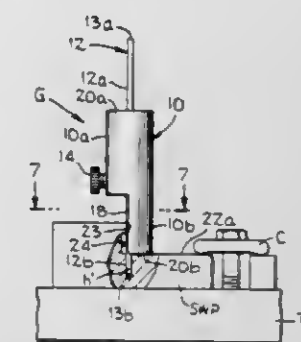


1. A safety razor, comprising in combination, a handle, a head on one end of said handle comprising a pressure plate and a clamp plate with a blade therebetween, a foam rubber pad between said blade and said clamp plate, and a replaceable cartridge in said handle dispensing a pre-wetting agent to said pad, including means for conducting said agent to said pad through said handle and head in further combination with a second pad secured to said pressure plate abutting said blade, underside including a second means for conducting said agent to said second pad.

4,314,405
HAIR CUTTING DEVICE
Du P. Park, 3656 W. Montrose, Chicago, Ill. 60618
Filed Apr. 24, 1980, Ser. No. 143,315
Int. Cl.³ B26B 19/00; A45D 20/00
U.S. Cl. 30-133 17 Claims

1. A suction type hair cutting device comprising a housing defining a passage having an inlet and an outlet, blade means between said inlet and said outlet with drive means imparting

4,314,406
COMBINATION TRANSFER DEPTH GAUGE
Gary D. Barnes, 611 Hermitage St., San Jose, Calif. 95134
Filed Feb. 6, 1980, Ser. No. 119,089
Int. Cl.³ G01B 5/18
U.S. Cl. 33-169 B 3 Claims



1. A transfer gauge for measuring the depth of a bore or the like formed in a workpiece, said gauge being of the type having a single body, a planar measurement reference face at one end of said body, a single depth gauging rod, an elongate guide recess for said rod formed in said body for slidably receiving said gauging rod and means for clamping said gauging rod to said body; the improvement wherein said gauge is capable of directly gauging the depth of a round walled bore from a workpiece face, wherein the workpiece has an upstanding shoulder that projects outwardly from said workpiece face and wherein the shoulder is tangent to a wall of the bore; said guide recess being a round walled longitudinal through-bore formed in said body, said bore being perpendicular to said planar end reference face of the body, one end portion of said body being relieved to provide a shoulder-clearing face that extends parallel to said bore and that intersects said bore along a minor chord of the round wall of the bore so that the wall of said bore encompasses more than 180°; said gauging rod comprising a single length of rod steel wire having an end slidable past said body reference face, the minor segment of the longitudinal extent of the wire that is disposed along said shoulder-clearing face of the body being confined by the wall of said bore but being exposed and projecting past said face, the relationship between said exposed minor segment of the wire and the relieved face of the body being such that a plane tangent to the exposed segment of the wire and tangent to said body at one side of the wire clears the body at the other side of the wire, said clamping means comprising a set-screw threaded into the other, unrelieved end portion of said body.

4,314,407

DRAFTING BOARD STORAGE TRAY

James B. Kawahara, 1721 S. Third St., Apt. B, Alhambra, Calif. 91803

Filed Jan. 14, 1980, Ser. No. 111,572

Int. Cl.³ B43L 7/00

U.S. Cl. 33—444

12 Claims



1. A drafting board tray, for use on a drafting board having a cable mounted slideable straightedge assembly, comprising: a first and a second tray mount; a tray extending between said first and second tray mounts; and each of said first and second tray mounts comprising:

a base; an end piece pivotally adjustably attached to said base and held in a desired pivotal position relative to said base; said piece engaging a respective end of said tray; and a cable guide mounted on said base and adapted to feed a first portion of the cable used for slideably mounting the straightedge assembly to the other of said first and second tray mounts and to receive from said other of said first and second tray mounts a second portion of the cable used for slideably mounting the straightedge assembly, thereby to slideably mount the said base to the drafting board,

said cable guide further comprising:

a first and a second guide wheel rotatably attached to said base; said base having an upper and a lower end and the drafting board having an upper and a lower end; a first passage in said upper end of said base and a second passage in said lower end of said base; a third passage extending through said base; said first portion of the cable entering said base through said first passage from the direction of said upper end of the drafting board, passing over said first guide wheel and through said third passage to said other of said first and second tray mounts; and, said second portion of the cable entering said base through said third passage from the direction of said other of said first and second tray mounts passing over said second guide wheel and passing out of said base through said second passage in the direction of said lower end of the drafting board.

4,314,408

COMBINATION DRAFTING INSTRUMENT INCLUDING ROTATABLE SCALES, COMPASS ASSEMBLY AND STRAIGHT EDGE MAGNIFIER

Dwight E. Shoemaker, 9234 Chatwood Dr., Houston, Tex. 77078

Filed Nov. 26, 1979, Ser. No. 97,128

Int. Cl.³ B43L 7/08

U.S. Cl. 33—494

7 Claims

7. A drafting instrument comprising:

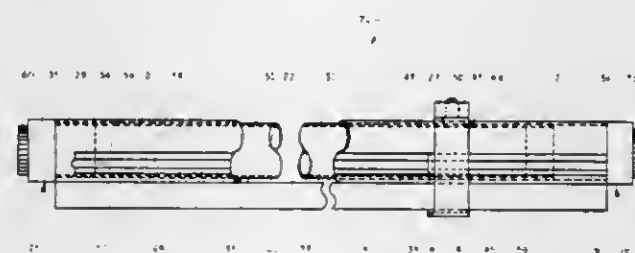
an outer tubular body, said tubular body having a longitudinal axis, said tubular body having inner and outer surfaces, said tubular body having an axially elongated viewing slot communicating between said inner and outer surfaces, said tubular body having a bore extending longitudinally therethrough, said bore being adapted to receive a graph-

ics tube, said tubular body having a guide groove extending longitudinally along said outer surface;

a graphics tube, said graphics tube being adapted to fit within said bore, said graphics tube having a face, said graphics tube having scales on the face of said graphics tube, said scales being viewable through said viewing slot when said graphics tube is rotated to bring the corresponding face of said graphics tube into alignment with said viewing slot, said graphics tube having a first end and a second end;

a straightedge magnifier, said magnifier being connected to said outer surface of said tubular body, said magnifier being adapted to magnify images on a working surface, said magnifier having a straightedge extending substantially parallel with the longitudinal axis of said tubular body, said straightedge being adapted to guide a marking implement in a substantially straight line upon a working surface, said straightedge magnifier having a fixed hairline register means, said register means being aligned with initial graduations upon said scales;

a cursor assembly, said cursor assembly being adaptable to slideably register upon said outer surface of said tubular body, said cursor assembly having a guide shoe, said guide shoe being adapted to register within said guide groove along said outer surface of said tubular body, said cursor assembly having an upper hairline means and a lower



hairline means, said upper hairline means being alignable with a graduation upon said scales through said viewing slot, said lower hairline means being alignable upon a working surface, said cursor assembly being adapted to slide longitudinally along said outer surface of said tubular body;

a first raised knob, said first raised knob being adapted to fit within the first end of said graphics tube; a second raised knob, said second raised knob being adapted to fit within the second end of said graphics tube; and, said tubular body, said graphics tube, said straightedge magnifier, said cursor assembly, said first raised knob and said second raised knob being mutually cooperable to provide a plurality of rotatable scales viewable one at a time through a viewing window, and to provide hairline means which may be aligned simultaneously upon the viewable scale and a working surface while a corresponding image upon the working surface is magnified, said first raised knob and said second raised knob being cooperable to permit rotation of said graphics tube within said tubular body while inhibiting substantial longitudinal movement of said graphics tube with respect to said tubular body when said first raised knob and said second raised knob are inserted into the first and second ends of said graphics tube while said graphics tube is inserted into the bore of said tubular body.

4,314,409

AUTOMATIC LINT SCREEN CLEANER AND STORAGE SYSTEM FOR DRYER

Roger J. Cartier, and Gordon J. Krolzick, both of Benton Township, Berrien County, Mich., assignors to Whirlpool Corporation, Benton Harbor, Mich.

Filed Feb. 6, 1980, Ser. No. 119,194

Int. Cl.³ F26B 11/04

U.S. Cl. 34—82

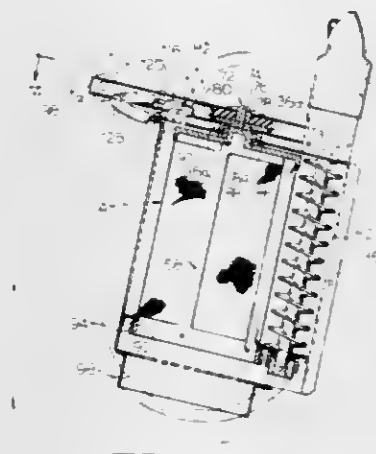
17 Claims

1. In a dryer having a drum for tumbling a clothes load and a blower means for circulating heated air through said clothes

load to an air flow passage, an automatic lint screen cleaner and storage mechanism for separating lint from said circulating air, said mechanism comprising:

a cylindrical rotating lint screen in said air flow passage for collecting lint carried by said air on an outer surface of said lint screen;

a stationary wiper means mounted adjacent to and in fric-



tional contact with said outer surface for separating said collected lint from said screen; and

lint passage means surrounding a portion of said screen for directing said separated lint to a storage container, said lint passage means including a compression means for compressing said lint to require a smaller volume for storage and a transport tube connecting said compression means to said storage container.

4,314,410

ANIMAL DRYER

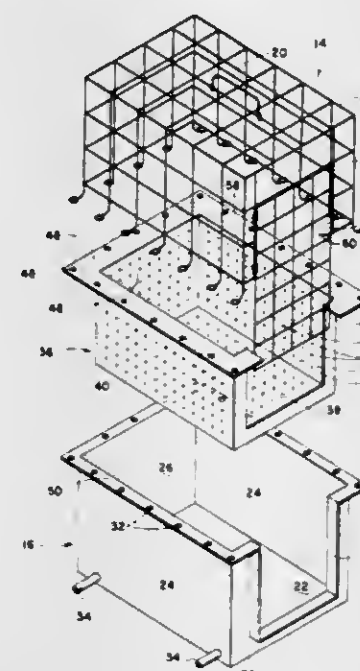
Margaret W. Nichols, Richardson, Tex., assignor to Richard Smarzak and Winifred Wisner, both of Dallas, Tex., a part interest

Filed Jun. 13, 1980, Ser. No. 159,219

Int. Cl.³ F26B 25/06

U.S. Cl. 34—202

21 Claims



1. An apparatus for containing and drying an animal and comprising:

an enclosure for containing the animal, said enclosure having an upper and lower section;

said upper section being of an open cage-like configuration and attached to said lower section;

said lower section having a plurality of opposed side and end walls and having a flooring;

an inner housing disposed within said lower section and in

open communication with the upper section, said inner housing having a plurality of opposed side and end panels and a flooring panel spaced from said end and side walls and said flooring of said lower section to provide a chamber therebetween;

said inner housing having a plurality of spaced holes provided therein;

means provided in said enclosure for permitting entrance and exit of the animal; and

exterior means to force heated air into said chamber and through said holes in said inner housing for circulation therethrough and discharge through the upper section to dry the contained animal.

4,314,411

REMOVABLE, ADJUSTABLE, FOOT-SUPPORTING AND FOOT-POSITIONING, ORTHOPEDIC INSERTS FOR USE IN ATHLETIC FOOTWEAR

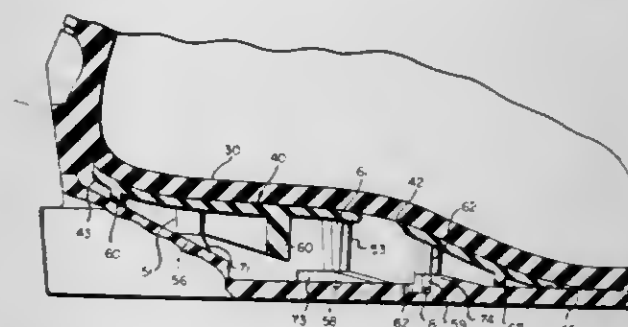
Chris A. Hanson, Boulder, Colo., assignor to Hanson Industries Incorporated, Boulder, Colo.

Filed Mar. 13, 1980, Ser. No. 130,200

Int. Cl.³ A43B 7/14, 5/04

U.S. Cl. 36—81

13 Claims



1. In athletic footwear, the improvement comprising providing in combination with said footwear along desired portions at or near the floor thereof, a removable, adjustable, foot-supporting and foot-positioning, contoured, orthopedic insert for selectively, adjustably, and correctly supporting and positioning bottom regions of the foot, including, but not limited to, the heel and connecting arch region thereof, relative to the floor of the footwear, which, in turn, selectively and correctly supports and positions the leg relative to the footwear, said insert having adjusting means operatively associated therewith for selectively adjusting, varying or controlling its position or distance at a plurality of regions thereof and that of the foot relative to the floor of the footwear, said adjusting means including a respective peg depending from the bottom of said insert at each of said respective regions, and removable spacer members selectively inserted onto and removably retained by a respective peg.

4,314,412

ORTHOPEDIC SHOE

Blair V. Anderson, 1695 Lakeside Dr., Reno, Nev. 89509; Morris Feldman, 528 "B" St., Santa Rosa, Calif. 95401, and Richard Jacoby, 12439 N. 32nd St., Phoenix, Ariz. 85032

Filed Mar. 20, 1980, Ser. No. 132,258

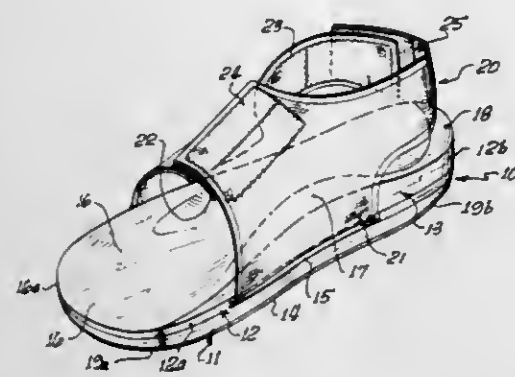
Int. Cl.³ A43B 3/24, 3/14, 13/08

U.S. Cl. 36—100

6 Claims

1. An orthopedic shoe comprising in combination: A rigid platform having an upper and lower surface wherein the said lower surface is essentially flat, but with an upwardly curved portion at its front and at its rear, and wherein the upper surface is so configured as to fit the lower surface of a human foot; at least one removable closure closing at least one opening adjacent the upper surface of said platform; at least one removably adhering flexible means building up a portion of the upper

surface of said platform; foot encompassing strap means extending through a transverse opening in said platform; and



means to fasten said foot encompassing strap about a human foot.

4,314,413 SPORTS SHOE

Adolf Dassler, Kreuzgasse, D-8522 Herzogenaurach, Fed. Rep. of Germany

Continuation of Ser. No. 829,470, Aug. 31, 1977, abandoned.

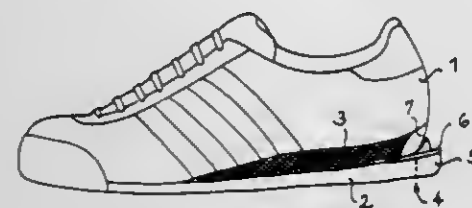
This application Oct. 19, 1979, Ser. No. 86,446

Claims priority, application Fed. Rep. of Germany, Nov. 29, 1976, 2654116; Feb. 17, 1977, 2706645

Int. Cl.³ A43B 5/00, 13/00

U.S. Cl. 36—129

13 Claims



1. In a sports shoe for long distance running on hard tracks, comprising a flexible outsole of resilient plastics material and having a substantially flat profiled tread side, contactable with said track and a shoe upper having a heel end and a lower rim, the improvement comprising an extension of said flexible outsole projecting rearwardly substantially in the plane of the tread beyond said lower rim of the shoe upper at the heel end of the outsole, said extension being resiliently cantilevered and bendable at the heel end along an axis substantially perpendicular to the length of the shoe thereby to flex at said axis in substantially cantilever fashion to form a curved portion of said tread side during use of the shoe when pressure is applied to the bottom of the extension.

4,314,414 TRENCH DIGGING APPARATUS AND BEARING THEREFOR

Joho M. Reynolds, Wirral; Colin E. Gibson, Upton; John S. Seamans, Wirral, all of England, and Anton R. F. van der Steen, Near Ruthin, Wales, assignors to Land and Marine Engineering Limited, Liverpool, England

Filed Sep. 17, 1979, Ser. No. 76,476

Claims priority, application United Kingdom, Nov. 29, 1978, 46574/78

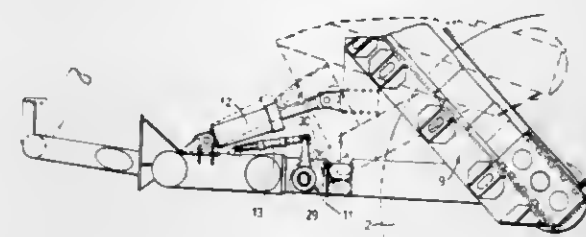
Int. Cl.³ E02F 5/02

U.S. Cl. 37—54

11 Claims

1. A trench digging apparatus comprising a basic framework, a cutter wheel rotatably mounted on a support frame, drive means for rotating the cutter wheel about a substantially horizontal axis, cutting means projecting from the outer periphery of the cutter wheel, said support frame being pivotally mounted and supported on the basic framework by hinge bearing means, said support frame being pivotally controlled by cylinder means connected to said support frame and said

basic framework, said hinge bearing means allowing pivotal movement about an axis extending generally horizontally and transversely of the framework, and a limited amount of movement about a generally vertical axis, each hinge bearing means comprising a shaft having an enlarged diameter centrally lo-



cated cylindrical portion, the cylindrical portion being eccentric with respect to the longitudinal axis of the shaft, end portions of said shaft being rotatably located in the basic framework and a ring member rotatably mounted on said cylindrical portion, the support frame being rotatably mounted on said ring member.

4,314,415 IDENTIFICATION BANDS AND METHODS OF AND APPARATUS FOR MAKING THEM

Kenneth J. De Woskin, University City, Mo., assignor to Belt Corporation, Barnhart, Mo.

Filed Oct. 9, 1979, Ser. No. 82,953

Int. Cl.³ G09F 3/14

U.S. Cl. 40—21 C

20 Claims



1. An identification band comprising a plurality of strips laminated together by pressure-sensitive adhesive, one of the strips constituting an outer strip, an insert underlying the outer strip having pre-printed identification indicia on one face thereof facing the outer strip, the outer strip being transparent at least in part for visibility of the indicia on the insert, one of the strips constituting an inner strip having an exposed face engageable with a wearer of the band, when the band is worn, and extending lengthwise of the adjacent strip but terminating short of the adjacent strip at least in part at one end of the band, said adjacent strip having pressure-sensitive adhesive on one surface thereof constituting an inwardly facing surface by means of which it is laminated to said inner strip, said pressure-sensitive adhesive extending throughout the length of said adjacent strip, said adjacent strip having an inwardly facing surface portion having pressure-sensitive adhesive thereon exposed beyond said inner strip at said one end of the band, said band having release means over the pressure-sensitive adhesive on said portion, whereby, upon removing the release means, the band may be formed into a bracelet with said adjacent strip at said end portion adhered to the outer strip adjacent the other end of the band.

4,314,416 DIAPOSITIVE FRAMES

Johannes Lorsch, An der Bleiche 49, D-4172 Straelen, Fed. Rep. of Germany

Filed Jul. 7, 1980, Ser. No. 166,707

Claims priority, application Fed. Rep. of Germany, Jul. 5, 1979, 2927109

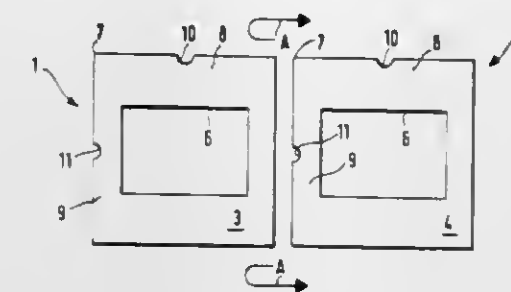
Int. Cl.³ G09F 1/12

U.S. Cl. 40—152

9 Claims

1. A diapositive frame comprising two substantially identical frame halves, each of said frame halves including a rectangular

picture area, each of said frame halves further including two adjacent edge portions having first and second surface indentations in said edge portions, said frame halves capable of fitting together in substantially overlapping position for locating said first surface indentation of one frame half in alignment with



said first surface indentation of the other frame half, whereby rotation of one frame half with respect to the other frame half by 180° around an axis transverse to the frame causes substantial alignment of said second surface indentations with each other.

4,314,417 MOTOR VEHICLE REGISTRATION PLATE HOLDER

James T. Cain, Krugersdorp, South Africa, assignor to JNPC Investments (Proprietary) Limited, Randburg, South Africa

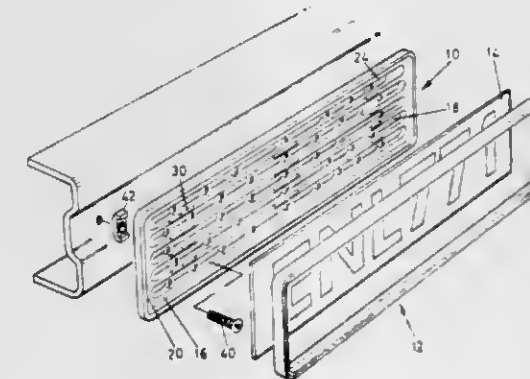
Filed Jul. 19, 1979, Ser. No. 58,807

Claims priority, application South Africa, Jul. 25, 1978, 78/4230

Int. Cl.³ G09F 7/00; B60R 13/10

U.S. Cl. 40—209

4 Claims



1. A motor vehicle registration plate holder including a rectangular backing member which is adapted for attachment to a motor vehicle, and a removable frame member which is made from a plastics material and which is dimensioned to cover the periphery of a registration plate located on the backing member, the frame member including at least one formation which in use of the holder bears on the front face of the plate and at least one locking formation which is by resilient deformation of the frame member engageable with the backing member to lock the registration plate between the frame and backing member, the backing member being made from a resilient plastics material and including integrally molded resilient formations which in use of the holder bias the registration plate into contact with the frame member.

4,314,418 MESSAGE CONTROL UNIT

Robert L. Narens, 8704A Gregory La., Des Plaines, Ill. 60016, and Frank D. Billeck, 456 Chicory La., Buffalo Grove, Ill. 60090

Filed Feb. 7, 1980, Ser. No. 119,556

Int. Cl.³ G09F 3/00

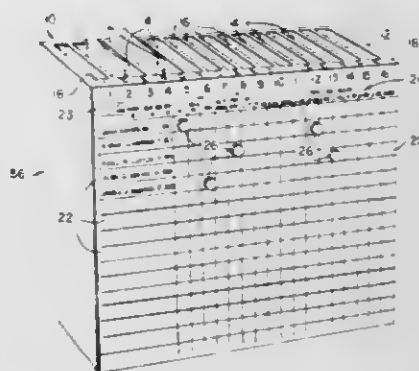
U.S. Cl. 40—358

11 Claims

1. A message control unit for use in an office reception area

or like environment whereby information concerning messages and personnel availability is provided in a coordinated form which is quickly and easily assimilated upon rapid visual inspection, said message control unit comprising:

(a) receptacle means for receiving and storing messages, the top edges of said receptacle means all being situated in one plane and the bottom walls of said receptacle means all being situated in a second plane parallel to said first plane;



(b) first wall means formed integrally with said receptacle means for supporting an attached plate, said attached plate including chart means for organizing and presenting selected information in an orthogonal pattern, said first wall means further including a digital time and date unit;

(c) a pair of second wall means integrally formed with said receptacle means for connecting the sides of said first wall means with said receptacle means; and

(d) third wall means for connecting said pair of second wall means together and with said receptacle means.

4,314,419 RIFLE MAGAZINE DEVICE

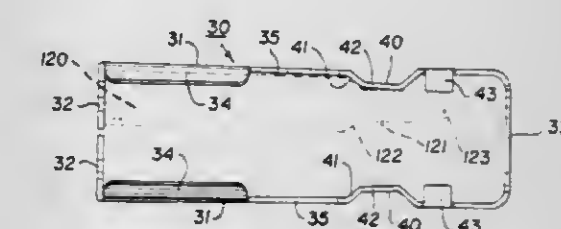
Homer E. Koon, Jr., Carrollton, Tex., assignor to Alpha Arms, Inc., Dallas, Tex.

Filed Dec. 7, 1979, Ser. No. 101,276

Int. Cl.³ F41C 25/02

U.S. Cl. 42—50

7 Claims

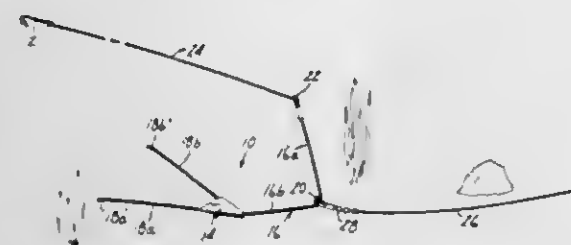


1. A rifle magazine adapted to be mounted in a rifle having a receiver, said magazine being at a position in said rifle opening into said receiver of said rifle and comprising: opposite spaced substantially parallel side walls; a rear end wall secured along opposite side edges with rear end edges of said side walls; a forward end wall parallel with said rear end wall and perpendicular with said side walls secured along opposite side edges with forward end edges of said side walls; a cartridge shell case retainer flange along the top edge of the rear portion of each of said side walls; an internal cartridge case retainer boss across each side wall forward of and perpendicular to said retainer flanges; and an upwardly and forwardly sloping top guide edge surface on each of said side walls along each of said retainer bosses for guiding cartridge cases upwardly and inwardly as said cartridge cases are moved toward said forward wall from said retainer flanges.

4,314,420 FISHING DEVICE

Robert J. Dickinson, 501 S. Wisconsin, and James L. Wagner, 515 E. Fourth, both of Mitchell, S. Dak. 57301
Filed Mar. 21, 1980, Ser. No. 131,932
Int. Cl.³ A01K 85/00
U.S. Cl. 43—42.39

6 Claims

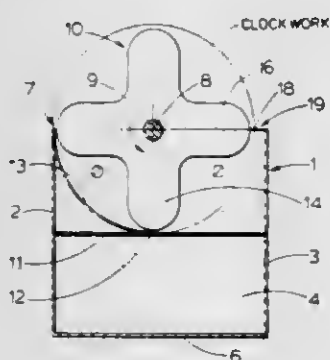


1. A self-righting sinker and lure support comprising: a sinker having a streamlined body with front and rear ends, first and second sides, and a top and a bottom; an L-shaped wire having an upper leg and a lower leg, the upper leg having a first attachment loop at its upper outer end for attachment of a fishing hook assembly and forming at its lower end with the upper end of the lower leg a second attachment loop for attaching a fishing line, the lower leg having its lower outer end embedded in the sinker and extending out of the front end of the sinker, wherein the second attachment loop is positioned above and forward of the front end of the sinker, and wherein the first attachment loop is positioned above and rearward of the second attachment loop; and
- a V-shaped wire bent substantially at its mid-point to form first and second trailing legs having their forward ends embedded in the sinker and extending out of the rear end of the sinker, the first and second trailing legs diverging from one another, the lower outer end of the lower leg of said L-shaped wire having a hook which extends over said V-shaped wire substantially at its mid-point to aid in retaining said V-shaped wire in said sinker despite any pulling force that may be exerted on the trailing legs of the V-shaped wire.

4,314,421 ROTARY INSECT TRAP

Chan W. Cheong, 509 Sin Chew Jit Poh, Keppel Rd., Singapore 2, Singapore
Filed May 13, 1980, Ser. No. 149,396
Claims priority, application Norway, Jun. 5, 1979, 791856
Int. Cl.³ A01M 1/00
U.S. Cl. 43—111

5 Claims



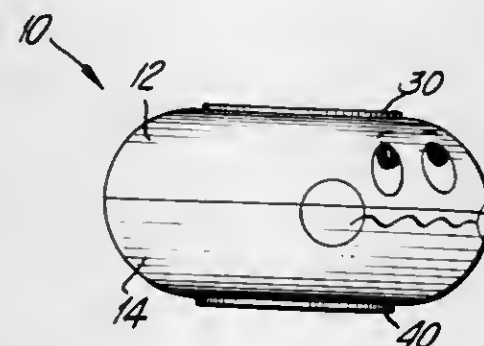
1. An insect trap comprising a housing defining an interior space and an opening which has two opposite parallel sides which are substantially straight and which provides access to the interior space, a rotor mounted in said opening as a closure and having a rotor shaft which is disposed substantially half way between said opposite sides and substantially parallel thereto and also having a plurality of closely-spaced blades fitted on said shaft to rotate therewith, each of said blades having a central region and a plurality of wings radiating from said central region, a plate member attached to the housing at

one of said sides of the opening and extending into said interior space, said plate member being curved about the rotor shaft so that at least one wing of each blade is substantially in contact with the plate member, drive means connected to rotate the rotor, and a comb member mounted on the housing at the other of said two opposite sides of the opening and having a plurality of teeth extending within the opening in interdigitated relationship with said blades for removing material from the blades when the rotor is rotated and thereby preventing insects from escaping from said interior space.

4,314,422 ROLLING TOY

Howard Wexler, 300 E. 40th St., New York, N.Y. 10016
Filed Oct. 28, 1980, Ser. No. 201,433
Int. Cl.³ A63H 15/08
U.S. Cl. 46—134

13 Claims



1. A random motion tumbling toy, comprising:
 - (a) a hollow container
 - (1) radially symmetrical about a longitudinal axis, the container having
 - (2) a generally smooth curved surface which is sufficiently free of depressions, projections and sharp corners to allow the container to pitch or tumble in any plane; with
 - (3) two thin annular discs secured to the exterior surface of opposite ends of the container in planes normal to the longitudinal axis and symmetrically positioned around the longitudinal axis; and
 - (4) the container having a largest diameter which is about 1.8 to 1.9 times as large as the distance between the top and bottom surface of the container measured along the longitudinal axis; and
 - (b) a spherical weight
 - (1) located within the container, having
 - (2) a diameter sufficiently smaller than the distance between the top and bottom surface of the container measured along the longitudinal axis so that the spherical weight can freely move about within the container; and having
 - (3) a mass greater than the mass of the container.

4,314,423 SOUND PRODUCING TOY

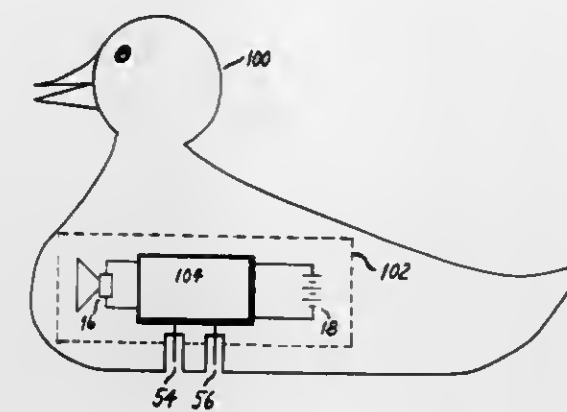
Barry R. Lipsitz, 44 Purdy Rd., E., Norwalk, Conn. 06850, and Kevin O. Dolinar, 317H. Hunting Creek Rd., Canonsburg, Pa. 15317
Filed Jul. 9, 1979, Ser. No. 55,822
Int. Cl.³ A63H 23/10; A01M 31/06; A63H 5/00
U.S. Cl. 46—232

10 Claims

1. A sounding toy comprising: electronic sounding means including an electronic circuit connected to a transducer; means for supporting said sounding means, said support means having a bottom surface and including a watertight container for keeping said sounding means dry while floatedly supported on water; electrical current supplying means located within said container for providing current to said electronic circuit; and a water-activated switch for activating said electronic cir-

cuit to produce a sound when said bottom surface is placed in water and to stop producing said sound when said bottom surface is removed from water,

position of said operating frame to define a substantially continuous seal area adjacent the margins of said lite.

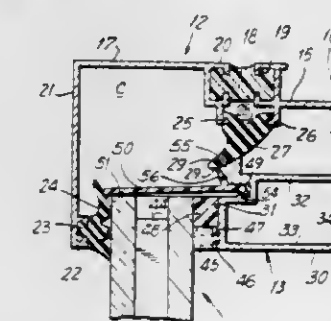


said switch including probe means electrically connected to said current supplying means and protruding in watertight relation through said bottom surface.

4,314,424 THERMAL WINDOW CONSTRUCTION

Stanley J. Gordon, and Henry R. Frambach, both of 175 Sea Cliff Ave., Glen Cove, N.Y. 11542
Filed Dec. 26, 1979, Ser. No. 106,673
Int. Cl.³ E05D 7/00
U.S. Cl. 49—400

20 Claims

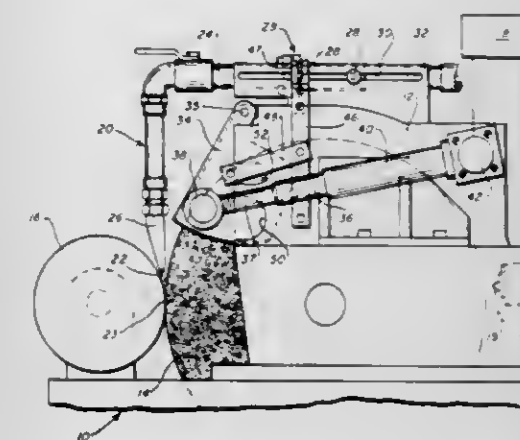


1. A window construction comprising a fixed frame assembly including spaced parallel horizontal and vertical frame components, each said frame component including an inner frame member adapted to be secured to a building opening, an outer frame member exposed to the exterior environment, and a thermal break interposed between said inner and outer members, an operating frame including upper, lower and side profile members disposed in a generally rectangular configuration, one said profile member being pivotally connected to an inner frame component of said fixed frame assembly, said profile members of said operating frame including at the outermost face thereof an outwardly facing glazing surface, a multiple pane sub-assembly secured to said glazing surface of said operating frame, said sub-assembly including a spaced parallel pair of glass lites having spacer means disposed therebetween and bonded to the opposed interior surfaces of said lites adjacent the margins thereof, said sub-assembly being disposed forwardly of all portions of said operating frame, a first seal member mounted on said glazing surface of said operating frame and engaging the inner surface of the innermost of said lites about a continuous contact area inwardly spaced from the marginal edges thereof, said inner surface, first seal member and glazing surface defining together a laterally outwardly open perimetral channel portion accessible in a direction parallel to said panes, said channel being substantially completely filled with a quantity of silicone engaging opposed portions of said lite and said glazing surface, said outer frame member of said fixed frame including a laterally directed perimetral flange portion, flexible seal means interposed between said flange portion and the outer face of said outer glass lite in the closed

4,314,425 COOLANT ASSEMBLY FOR A CYLINDRICAL GRINDING MACHINE

Robert E. Bricker, Waynesboro, and Paul J. Humpleby, Chambersburg, both of Pa., assignors to Litton Industrial Products, Inc., Waynesboro, Pa.
Filed Jul. 10, 1980, Ser. No. 168,457
Int. Cl.³ B24B 55/02
U.S. Cl. 51—267

1 Claim



1. A cylindrical grinding machine having a base for supporting a rotatable workpiece, a wheelhead assembly mounted on said base for horizontal displacement thereon including a grinding wheel for effecting stock removal from the workpiece, housing means for rotatably supporting and guarding said grinding wheel, dresser means including a selectively advanceable dressing tool for dressing the grinding wheel, coolant assembly means including a horizontal member and a vertically downwardly extending nozzle, means for mounting said coolant assembly means on said wheelhead assembly for relative horizontal displacement whereby the vertical orientation of said nozzle will be maintained, means for horizontally slidably displacing said coolant assembly means relative to said housing means as said grinding wheel is reduced in size to continuously maintain said vertically downwardly extending coolant nozzle vertically above the area of said grinding wheel which grindingly engages the workpiece including wheel hood means pivotally mounted to said housing means for shrouding the grinding wheel, means for incrementally pivotally displacing said wheel hood means to maintain said wheel hood means proximate said grinding wheel, first link means pivotally mounted at one end to said housing means and operatively connected to said coolant assembly means at the other end thereof, and second link means pivotally mounted at one end to said wheel hood means and pivotally mounted at the other end to a medial portion of said first link means.

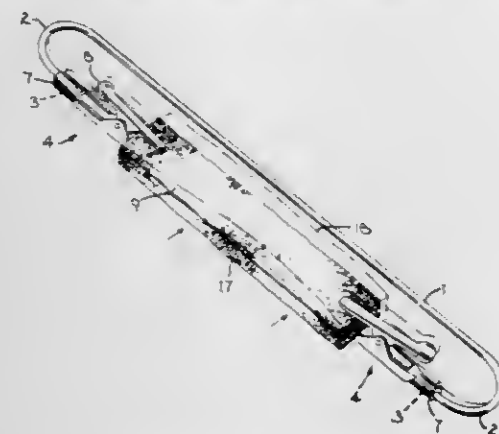
4,314,426 SMOOTHING AND CLEANING OF MOLDED CERAMICS

Jack W. Friend, 3509 W. National Ave., Milwaukee, Wis. 53215
Filed Dec. 23, 1980, Ser. No. 219,539
Int. Cl.³ B24D 15/00
U.S. Cl. 51—393

4 Claims

1. Apparatus for manually smoothing and cleaning semi-hardened ceramic articles prior to firing thereof in a kiln, comprising:

- (a) an elongated body of spring material,
- (b) said body being formed at its ends into reverse bends forming a pair of spaced opposed springable stub legs normally disposed generally parallel to said body,
- (c) fastening devices disposed on the terminus portions of said legs,
- (d) a flexible elongated abrasive pad attached by said fasten-



ing devices between said legs so that the said pad is freely suspended therebetween in taut condition and is disposed in spaced parallelism with said body,

(e) said fastening devices and said stub legs forming means to springingly absorb pressure applied to the said pad when the latter is pressed into engagement with a said ceramic article and a reciprocating smoothing and cleaning movement applied.

4,314,427

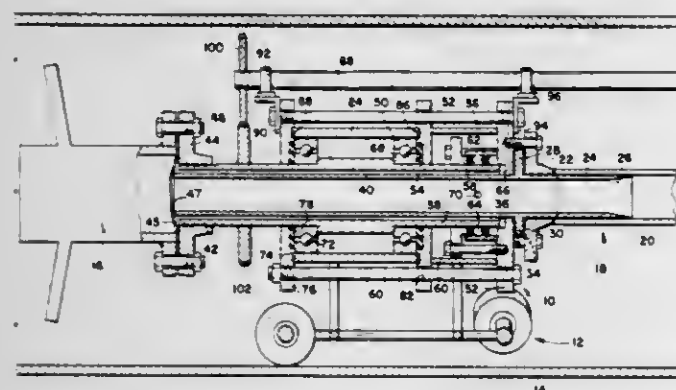
INTERNAL PIPE CLEANING APPARATUS UTILIZING FLUENT ABRASIVE

Woodrow W. Stoltz, P.O. Box 35103, Tulsa, Okla. 74135
Filed Dec. 17, 1979, Ser. No. 104,426

Int. Cl.³ B24C 3/32

U.S. Cl. 51-411

6 Claims



1. An apparatus for cleaning the interior of pipe sections and comprising a rotatable cleaning head, spindle means secured to the cleaning head, said spindle means including a non-rotatable passageway means for directing abrasive materials to the cleaning head for impinging thereof against the inner periphery of the pipe during a cleaning operation, rotatable means supported by the non-rotatable passageway means for transmitting rotation to the cleaning head, seal means interposed between the rotating means and the non-rotating passageway means for precluding leakage therebetween, air pressure sealing means interposed between the passageway means and seal means for precluding contact of the abrasive materials with the seal means, and wherein the rotatable means comprises a sleeve member secured to the cleaning head and concentrically arranged around the outer periphery of the insert means and rotatable with respect thereto, bearing housing means supported by the insert means, sealing means interposed between the sleeve member and bearing housing means for precluding leakage of fluid therebetween, air gap means provided in said bearing housing means and in open communication with the

annulus between the sleeve member and insert means, passageway means provided in said bearing housing means in communication with the air gap means for directing fluid pressure thereto whereby the pressure within the air gap means and annulus is greater than the internal pressure within the insert means during a pipe cleaning operation.

4,314,428

OVERCLADDING STRUCTURE FOR A ROOF

Michael A. J. Bromwell, 32 Ferrestone Rd., Wellingborough, Northamptonshire, England

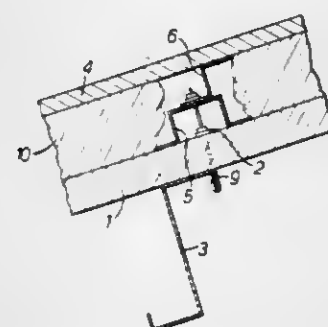
Filed Nov. 13, 1979, Ser. No. 93,732

Claims priority, application United Kingdom, Nov. 17, 1978, 44947/78

Int. Cl.³ E04B 7/00

U.S. Cl. 52-22

5 Claims



1. An overcladding structure for a building roof including an existing roof sheet (1) connected with a plurality of fixed parallel spaced purlins (3) by a plurality of existing fastening means (2), comprising
 - (a) an outer roof sheet (4) arranged in spaced relation above the existing roof sheet;
 - (b) means connecting said outer roof sheet with the building roof, including a plurality of elongate bearer members (6) arranged between the outer and existing roof sheets opposite said purlins, respectively, and first connecting means additional to the existing fastening means, said first connecting means connecting said bearer members with said purlins, respectively; and
 - (c) a mass of thermal insulation material (10) arranged in the space defined between said existing and outer roof sheets, whereby an insulated overcladding roof structure is provided for a building without removing the existing roof sheet.

4,314,429

SIDING HOLDER

Ernest Casteel, c/o George Spector, 3615 Woolworth Bldg., 233 Broadway, and George Spector, 3615 Woolworth Bldg., 233 Broadway, both of New York, N.Y. 10007

Filed Feb. 20, 1980, Ser. No. 123,000

Int. Cl.³ E04F 21/00; E04D 15/00

U.S. Cl. 52-127

3 Claims

1. A siding holder comprising in combination an inverted U-shaped hook and a hanger forming an upward notch, said hook adapted to rest on an upper edge of an already-installed lap siding board, said upward notch adapted to support an uninstalled lap siding wherein said hook and hanger are attached to a longitudinal flat leg extending downwardly of said hook and hanger forming a common wall between said hook and hanger which are disposed adjacent each other on oppo-

site sides of said leg, said hanger and hook having spaced transverse surfaces adapted to abut said lapped sidings, in



further combination with means for varying the spacing of said surfaces.

4,314,430

CORE BUILDING SYSTEM

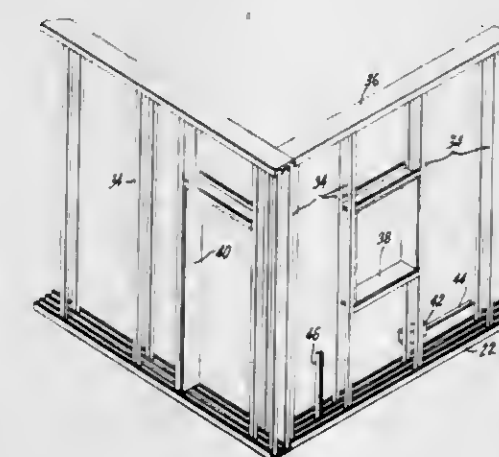
Albert J. Farrington, Phelps St. R.D. 1, Gloversville, N.Y. 12078

Filed May 14, 1979, Ser. No. 38,933

Int. Cl.³ E04B 1/16

U.S. Cl. 52-206

6 Claims



1. A method for the construction of a load-bearing wall comprising the steps of:

- (a) positioning first track means along the lower edge of where said wall is to be placed, said first track means including first and second channel means;
- (b) setting a plurality of upright means into said first and second channel means;
- (c) positioning second track means about the upper edge of where said wall is to be placed, said second track means also including first and second channel means, said plurality of upright means extending between said first and second channel means of said first and second track means;
- (d) positioning form means about said track means;
- (e) pouring concrete between said forms, and;
- (f) setting said concrete.

4,314,431

MORTAR-LESS INTERLOCKING BUILDING BLOCK SYSTEM

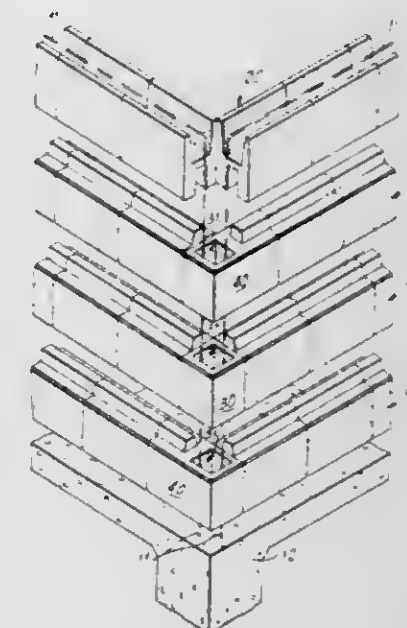
Ernest A. Rabassa, Miami, Fla., assignor to S & M Block System of U.S. Corporation, Miami, Fla.

Filed Dec. 31, 1979, Ser. No. 108,350

Int. Cl.³ E04B 2/00; E06B 1/00

U.S. Cl. 52-259

1 Claim



1. In a mortarless building wall assembly of interlocking wall block members, the combination comprising, a first plurality of standard building blocks, each of which has body portion in the shape of an elongated rectangular prism, each standard building block being integrally formed with a protrusion extending longitudinally and centrally along one side thereof and being formed with slot extending longitudinally and centrally within and along the opposite side thereof, said protrusion and said slot being of complementary interfitting cross-sectional shape to provide for face-to-face interlocking disposition of a first course of said standard blocks with respect to a second course thereof in a wall structure, a second plurality of tie beam blocks, each tie beam block of which has a body portion in the shape of an elongated rectangular prism, each tie beam block being formed with a first concrete forming slot extending longitudinally and centrally along one side thereof and a second slot extending longitudinally and centrally within and along the opposite side thereof, said second slot and said protrusion of said standard building block being of complementary interfitting cross-sectional shape to provide for face-to-face interlocking disposition of a course of said tie beam blocks with respect to the top course of said standard blocks in a wall structure, and a third plurality of column blocks, each of which column blocks has a body portion in the shape of an elongated rectangular prism, each column block being formed with a protrusion extending longitudinally and centrally along one side thereof to a distance of about one-half of said column block length, and being formed with a slot extending longitudinally and centrally within and along the opposite side thereof and substantially coextensive with respect to said column block protrusion, said column block protrusion and slot being of complementary interfitting cross-sectional shape to provide for face-to-face interlocking disposition of a vertical column of said column blocks interspaced with end portions of alternate courses of said standard building blocks and the other one-half of said column block including a through opening extending between said one side and said opposite side thereof and further including a plurality of cube blocks fitted between outwardly projecting end portions of a plurality of vertical column block interspaced with end portions of alternate courses of said standard building blocks, said cube blocks being formed with side-to-side through openings in registry with said through openings of said column blocks when so interspaced

therewith to provide a continuous, internal, vertical void for the reception of concrete for strengthening purposes.

4,314,432

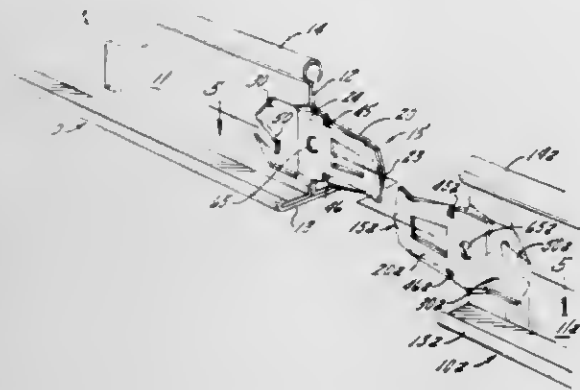
SPLICE FOR BEAM IN SUSPENDED CEILING SYSTEM
Per Rosenbaum, Woodbine, Md., assignor to Roper Corporation, Kankakee, Ill.

Filed Mar. 17, 1980, Ser. No. 130,985

Int. Cl.³ E04B 5/55; F16B 7/22

U.S. Cl. 52—484

7 Claims



1. In a suspended ceiling system, a pair of companion beams joinable end to end in aligned relation, each of the beams having a vertical web and a lower flange at right angles thereto, the beams having identically formed end portions each terminating in a horizontal tongue having a tip and upper and lower edges and anchored at a base portion which is an integral extension of the web, each web having formed therein a window aligned with the adjacent tongue and having a far edge and a near edge, the window having a vertical dimension just slightly greater than the height of the tongue, the window being spaced inwardly from the end of the web so that the near edge of the window defines a marginal portion of the web with the near edge of the window serving in addition as an inwardly spaced locking edge, means at the far edges of the windows for guiding the tongues of the beams simultaneously into their respective windows until the two beams abut one another and until the base portion of each tongue lies against the marginal portion of the companion beam, each marginal portion being offset from the plane of the associated web by an amount equal to substantially one-half of the web thickness to insure that when assembled the webs and flanges are coplanar and in perfect alignment with one another, each of the tongues being notched and bent along its upper and lower edges to form a pair of integral hooks, the hooks being spaced from the end of the web by an amount equal to the inward spacing of the locking edge, each tongue being sufficiently straight with respect to the plane of the web so that the tongue upon being received in the window of the companion beam is bent and bears with resilient lateral force against the far edge of the window causing the hooks to catch behind their locking edges to a predetermined reliable depth while permitting the tongues to be withdrawn from the windows by a withdrawing force applied at an angle with a lateral component in a direction to bendingly stress the tongues for disengagement of the hooks.

4,314,433

ROOF TILE FIXING CLIP

Barry J. Hulcombe, Brisbane, Australia, assignor to Monier Colourtile Pty. Ltd., Darra, Australia

Filed Nov. 7, 1979, Ser. No. 92,043

Claims priority, application Australia, Nov. 13, 1978, PD6736

Int. Cl.³ E04D 1/34

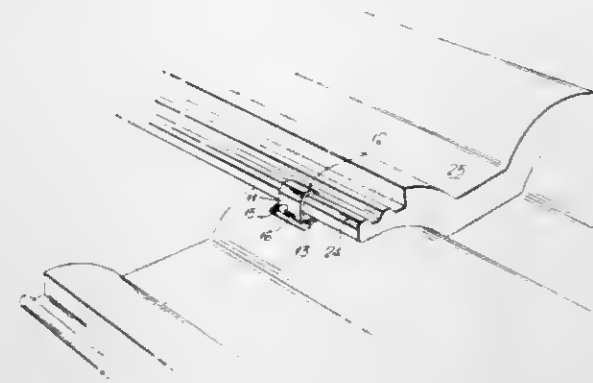
U.S. Cl. 52—521

7 Claims

1. A method of fixing sequentially mounted lower and upper roofing tiles to a roof structure including the steps of:

- laying a lower tile on a tiling batten;
- passing a fastener having a head and a shank through an aperture in the lower tile attaching the lower tile to the

tiling batten, spacing the head of said fastener above the upper face of the lower tile and associating said head with a clip having a body, foot and hook means engaging an upper tile overlapping said lower tile providing, said foot with a slot through which the shank of the fastener is passed when the lower tile is attached to the tiling batten,



communicating said slot with an aperture in the body providing clearance for the passing of the head of the fastener;

- attaching the lower tile to the tiling batten by fastening said fastener to the batten whereby the head of the fastener abuts said slot of said clip; and
- engaging said upper tile with the hook means of said clip.

4,314,434

UTILITY LINE SUPPORT STRUCTURE

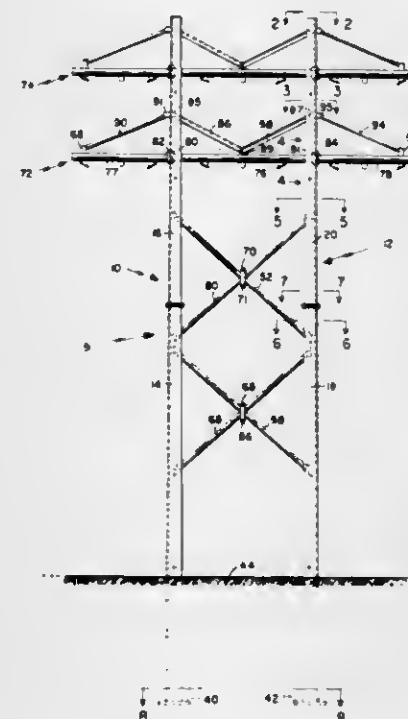
Raymond F. Meisberger, c/o Bruce-Lake Co., Box 550, Coatesville, Pa. 19320

Filed Jul. 7, 1977, Ser. No. 813,677

Int. Cl.³ E04C 3/30

U.S. Cl. 52—721

11 Claims



1. A metal electric power line support structure for supporting electric power transmission lines above the ground comprising:

- a pair of legs extending upwardly with respect to the ground,
- the legs being adapted to be supported on the ground so that upper portions of the legs are in spaced apart relationship, and a cross-arm connected between and extending outwardly from the upper portions of said legs for supporting electric power transmission lines and the like,
- each of said legs comprising a structural element having a web,
- a pair of side walls extending at right angles to said web,

and a pair of inturned flanges extending at right angles to each side wall, said inturned flanges being parallel to the web and having edges defining a slot therebetween so that said legs are generally C-shaped, each of said legs having a web and side walls that are tapered and include a plurality of sections connected in end-to-end relation.

4,314,435

FOLIAGE TRIMMER

Alfred Schmidt, St. Blasien, Fed. Rep. of Germany, assignor to Alfred Schmidt GmbH, St. Blasien, Fed. Rep. of Germany

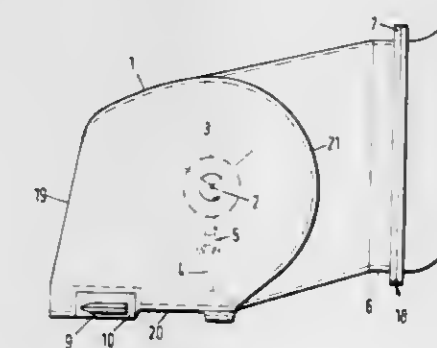
Filed May 28, 1980, Ser. No. 154,118

Claims priority, application Fed. Rep. of Germany, Nov. 24, 1979, 2947511

Int. Cl.³ A01D 55/02, 55/22, 57/00

U.S. Cl. 56—13.3

8 Claims



1. Apparatus for trimming foliage comprising a housing having an opening along its bottom and mounted at the end of a hose connected to a source of suction, a fly-cutter rotatably mounted within said housing and a bar cutter mounted within said opening, and forming the lower front edge of said housing said bar cutter extending parallel to the axis of rotation of said fly-cutter and adjacent to the plane of the bottom of said housing, and a plate mounted to the bottom of said housing to the rear of said bar cutter to enclose said housing and cause the material cut by said bar cutter to be engaged by said fly-cutter and thereby subsequently cut into small pieces.

4,314,436

MOWING MACHINE

Cornelis van der Lely, 7, Brüschelrain, Zug, Switzerland

Continuation of Ser. No. 941,321, Sep. 11, 1978, Pat. No.

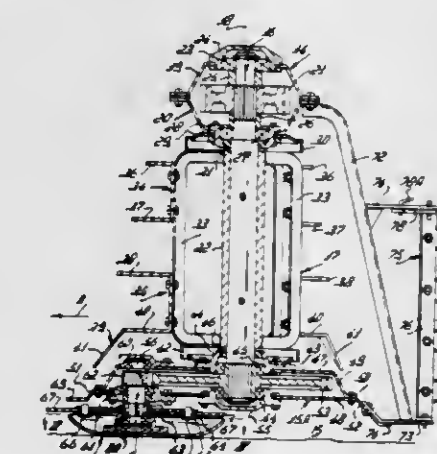
4,233,805. This application Jun. 9, 1980, Ser. No. 157,381

Claims priority, application Netherlands, Sep. 19, 1977, 77.10240

Int. Cl.³ A01D 55/262

U.S. Cl. 56—13.6

6 Claims



1. A mowing machine comprising a frame extending transversely to the intended operational direction of travel of the

machine and a row of mowing elements having shafts mounted for rotation about upwardly extending axes in said frame, said frame having a first frame part extending over said row of mowing elements, at least two rotors situated underneath said first frame part but at a higher level than said mowing elements, said rotors rotating about upwardly extending axes, said first frame part comprising first drive means extending from one of said rotors to another one of said rotors, a second drive means arranged at a lower level than said rotors arranged to drive a plurality of said mowing elements which have their rotary axes spaced a distance from said axes of said rotors, a second frame part interconnecting said shafts on said mowing elements which is arranged at a lower level than said rotors, the axes of said rotors and said mowing element having a fixed relationship.

4,314,437

SPLICING DEVICE

Joachim Rohner, and Heinz Zumfeld, both of Mönchengladbach, Fed. Rep. of Germany, assignors to W. Schlafhorst & Co., Mönchengladbach, Fed. Rep. of Germany

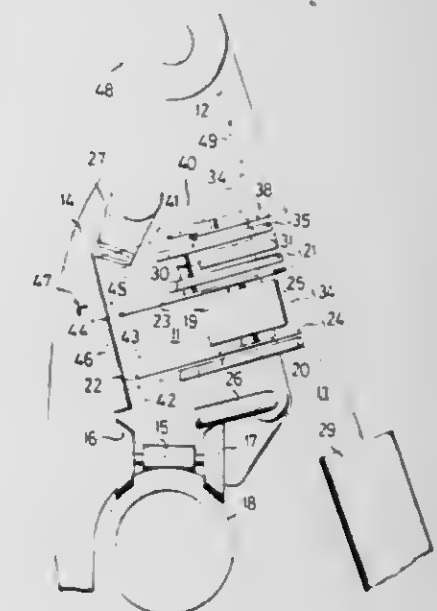
Filed Jan. 24, 1980, Ser. No. 114,883

Claims priority, application Fed. Rep. of Germany, Jan. 26, 1979, 2902988

Int. Cl.³ B65H 69/06

U.S. Cl. 57—22

9 Claims



1. Splicing assembly, comprising a splicing device including a pneumatic thread splicer for joining an upper thread to a lower thread and a testing device for monitoring the tensile strength of the splice.

4,314,438

SPINNING UNIT FOR OPEN-END SPINNING MACHINE

Noriaki Miyamoto; Masao Shiraki, both of Kariya, and Kinpei Mitsuya, Aichi, all of Japan, assignors to Kabushiki Kaisha

Toyota Jidoshokki Seisakusho, Kariya, Japan

Filed Nov. 5, 1979, Ser. No. 91,496

Claims priority, application Japan, Nov. 13, 1978, 53/156538; Nov. 13, 1978, 53/156539

Int. Cl.³ D01H 7/882

U.S. Cl. 57—58.89

3 Claims

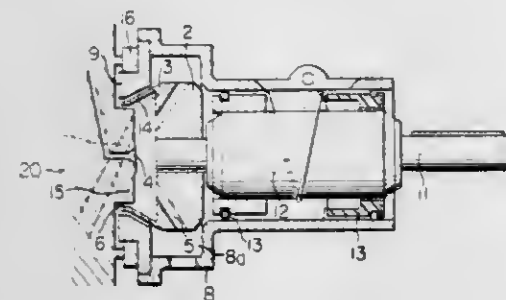
1. A spinning unit for an open end spinning machine, said unit comprising:

- a rotor including a short cylindrical portion defining a large central aperture, a frustoconical portion defining a rotor chamber and having a first end connected to said cylindrical portion, and a bottom portion closing said rotor chamber and connected to a second end of said frustoconical portion, said frustoconical portion diverging from said first end thereof to said second end thereof;

a casing surrounding said rotor and having connected first and second portions, said second portion surrounding said bottom portion of said rotor and defining therewith an annular chamber;

said bottom portion of said rotor having therein air discharge opening means extending from said rotor chamber to said annular chamber for, upon rotation of said rotor, discharging air and accompanying debris from said rotor chamber into said annular chamber, and for thereby creating a negative pressure condition in said rotor chamber and a positive pressure condition in said annular chamber;

said first portion of said casing having an inner surface substantially outwardly surrounding both said cylindrical and



frustoconical portions of said rotor in spaced relation therewith to thereby define therebetween passage means for preventing said debris in said annular chamber from returning to said rotor chamber, said passage means comprising an annular relatively long and narrow bent passage extending between said central aperture of said rotor and said annular chamber, said inner surface of said first portion of said casing comprising at least one diverging surface portion opening into said annular chamber, said surface portion extending toward said annular chamber and diverging away from said frustoconical portion of said rotor; and

stationary means for openably closing said central aperture of said rotor.

4,314,439

DEVICE FOR CHARGING A TEXTILE MACHINE WITH COIL TUBES

Heinz Kamp, Wegberg; Rolf Becker, and Manfred Stops, Monchen-Gladbach, all of Fed. Rep. of Germany, assignors to W. Schalfhorst & Co., Monchen-Gladbach, Fed. Rep. of Germany

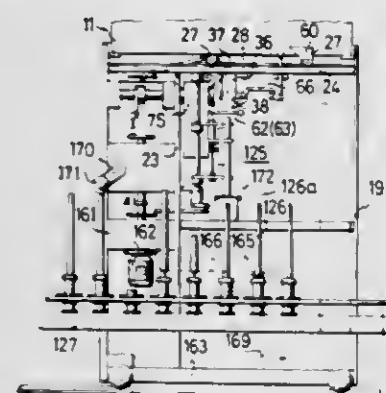
Filed Dec. 21, 1979, Ser. No. 105,959

Claims priority, application Fed. Rep. of Germany, Dec. 23, 1978, 2856027

Int. Cl.³ D01H 9/00, 9/10

U.S. Cl. 57—270

27 Claims



1. Device for loading a textile machine with individual conical coil tubes, comprising a supply container for the individual conical coil tubes having a bottom with an opening formed therein, a chute disposed below said opening formed in the bottom of said supply container, reciprocating slider means including a transport compartment with an open top and bottom formed therein for receiving single coil tubes dropped

through said opening formed in the bottom of said supply container, transporting the single coil tubes horizontally and dropping the single coil tubes into said chute, a feed station disposed below said chute for receiving unsorted conical coil tubes, means for successively slipping individual conical coil tubes onto spindles or creel mandrels of a textile machine, and controlled coil tube turning means for passing on a conical coil tube presented in unsorted condition at said feed station to said slipping on means with tips sorted.

4,314,440

DUST REMOVING MECHANISM IN OPEN-END SPINNING FRAME

Keiji Onoue, Kariya; Takashi Katob, Toyota; Yoshiaki Yoshida, Obbu, and Kazuo Seiki, Kariya, all of Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya, Japan

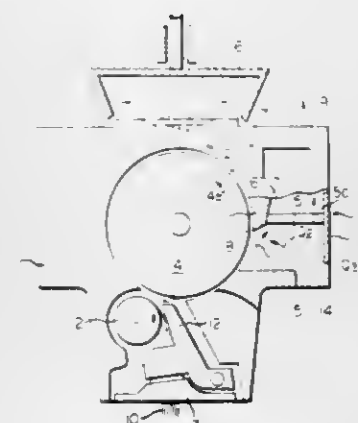
Filed Apr. 9, 1980, Ser. No. 138,519

Claims priority, application Japan, Apr. 11, 1979, 54-42964

Int. Cl.³ D01H 7/888, 11/00

U.S. Cl. 57—301

10 Claims



1. In an open-end spinning unit including a casing having a cylindrical space, a cylindrical opening roller rotatably disposed within said space to open a sliver into individual fibers and deliver the opened fibers into a twisting region, and a dust removing mechanism incorporated in said spinning unit and having a dust removing chamber to receive dust removed from the fibers and discharge it out of said dust removing chamber, said dust removing mechanism comprising a dust removing opening provided in said casing so as to communicate with both said cylindrical space and said dust removing chamber, means partitioning said dust removing chamber into a dust separating zone and a dust discharge promoting zone connected together at a position downstream of said dust removing opening with respect to a direction of rotation of said opening roller, a first and a second air inlet provided in said casing so as to communicate with said dust removing chamber, and an air suction opening provided in said casing so as to communicate with said dust removing chamber, said dust separating zone being in communication with both said dust removing opening and said first air inlet to allow an auxiliary air stream flowing toward and into said dust removing opening to be generated in said dust separating zone, said dust discharge promoting zone being in communication with both said second air inlet and said air suction opening to allow a substantially linear, dust discharging air stream to be generated in said dust discharge promoting zone, said casing having an inclined inner wall spaced from said partitioning means and inclined at a predetermined angle with respect to an axis of said opening roller; the improvement comprising said partitioning means having an inclined end wall surface defining an intermediate passage in conjunction with said inclined inner wall of said casing and which is inclined with respect to the axis of said opening roller at a predetermined angle smaller than said predetermined angle of said inclined inner wall, whereby dust in

said dust separating zone is introduced through said intermediate passage into said dust discharge promoting zone.

4,314,441

GAS TURBINE POWER PLANT CONTROL APPARATUS INCLUDING AN AMBIENT TEMPERATURE RESPONSIVE CONTROL SYSTEM

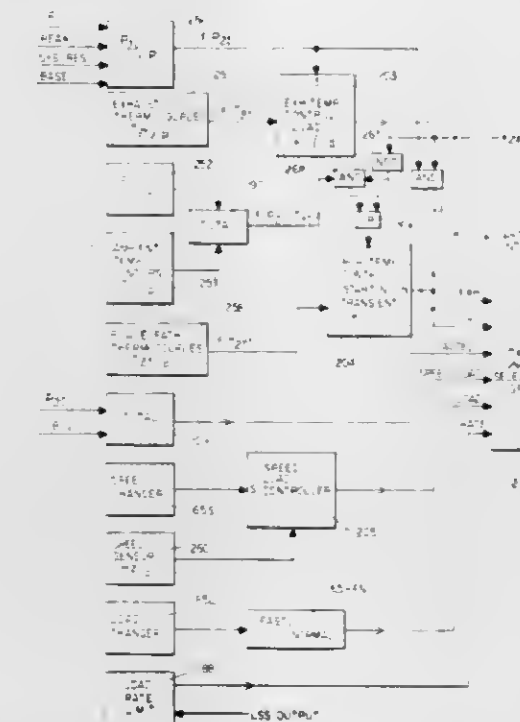
Robert A. Yannone, Aldan, and James J. Shields, Philadelphia, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Continuation of Ser. No. 817,932, Jul. 22, 1977, abandoned. This application Jun. 1, 1979, Ser. No. 44,615

Int. Cl.³ F02C 9/32

U.S. Cl. 60—39.28 R

12 Claims



1. A gas turbine electric power plant comprising:
 - a. a gas turbine having a compressor, and combustion and turbine elements;
 - b. a fuel system for supplying fuel to said gas turbine combustion element;
 - c. means for operating said fuel system under control, to provide a controlled flow of fuel to said combustion element;
 - d. means for generating an actual ambient temperature signal, a blade plate temperature signal and a combustor shell pressure signal, a control system having a plurality of control paths each of which produces a respective control path signal, said plurality including a backup blade path temperature control independent of any surge limit control included in said control system and having means for generating a limit signal as a function of both of said temperature signal generating means and said pressure signal generating means, said control system having means for continuously selecting one of the signals produced by said control paths on a predetermined basis; and
 - e. means for operatively connecting said selected signal to said operating means.

4,314,442

STEAM-COOLED BLADING WITH STEAM THERMAL BARRIER FOR REHEAT GAS TURBINE COMBINED WITH STEAM TURBINE

Ivan G. Rice, P.O. Box 233, Spring, Tex. 77373

Continuation-in-part of Ser. No. 954,838, Oct. 26, 1978. This application Jun. 11, 1979, Ser. No. 47,571

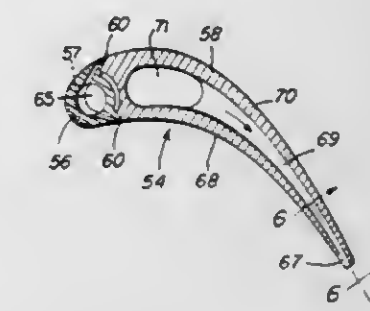
Int. Cl.³ F01B 5/18; F02C 7/16

U.S. Cl. 60—39.05

17 Claims

1. In the production of useful power wherein compressed heated gas is produced for contacting turbine blading for rotating a turbine shaft, and said turbine blading is cooled, the improvement comprising: introducing steam into the interior

of said blading, directing steam from the interior of said blading substantially tangentially onto the exterior surfaces of said blading, the relative velocity of said steam directed onto the surface of said blading being substantially zero with respect to



4,314,443

TURBINE ENGINE CONSTRUCTION

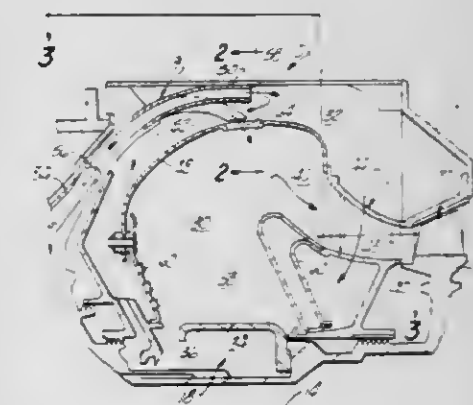
Dennis E. Barbeau, Liberty Center, Ohio, assignor to Teledyne Industries, Inc., Los Angeles, Calif.

Filed Nov. 8, 1978, Ser. No. 958,544

Int. Cl.³ F02C 3/14

U.S. Cl. 60—39.36

5 Claims



1. A turbine engine construction comprising a support housing, a compressor means, combustor means and a turbine expander means within the support housing, said compressor means having a compressed air outlet open to the combustor means and said combustor means having an outlet open to the turbine expander means, a diffuser means for fluidly connecting said compressor means outlet to said combustor means, said diffuser means including ducting means for discharging compressed air from the compressor outlet into the combustor means at at least two discharge planes;

wherein said diffuser means further comprises at least two diffuser tubes, each tube having a first end open to and in registration with the compressor outlet, and each tube having a second end open to the combustor means, said second ends of the tubes being open to the combustor means at different discharge planes in the combustor means;

wherein the discharge plane of at least one tube is angled with respect to the discharge plane of the other tube;

wherein said combustor means further comprises a housing defining a combustion chamber within said combustor housing and a further chamber between said support housing and said combustor housing, at least one of said diffuser tubes exhausting the compressor output into said further chamber and at least one of said diffuser tubes exhausting its compressed air output through an opening in said combustion housing and into the combustion chamber;

said turbine engine including a nozzle between said combustor means and said expander means, wherein said combustor housing is annular in shape and wherein said last mentioned diffuser tube discharges compressed air radially inwardly into said combustion chamber and at a predetermined axial angle with respect to the axis of said combustor housing, the discharge from said last mentioned diffuser tube being directed generally toward the turbine nozzle; and wherein the discharge angle of said last mentioned diffuser tube is substantially aligned in the direction of the discharge angle of the turbine nozzle.

4,314,444

HEATING APPARATUS

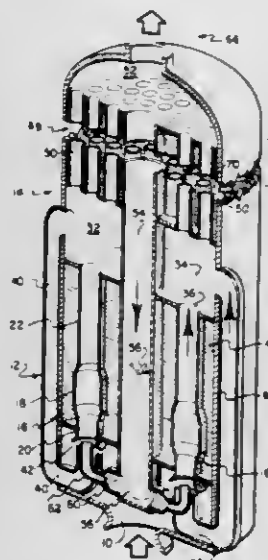
Abbott A. Putnam, and David W. Locklin, both of Columbus, Ohio, assignors to Battelle Memorial Institute, Columbus, Ohio

Filed Jun. 23, 1980, Ser. No. 161,802

Int. Cl.³ F02C 5/11

U.S. Cl. 60—39,77

8 Claims



1. Apparatus for burning a fuel and a combustion-sustaining gas, at least one of which contains nitrogen, and for imparting the heat generated thereby to a heat-transfer medium, comprising

- a first combustion stage including a pulse combustor for burning a mixture of the fuel and the gas, comprising a combustion chamber, aerodynamic valve inlet means, and a resonance-tube outlet means, to operate in a periodic cycle including one phase wherein a major portion of combustion gases is driven out of the combustion chamber through the outlet means and a minor portion is driven out of the combustion chamber so as to produce a backflow through the aerodynamic valve means, and another phase wherein a fresh charge of the combustion-sustaining gas is ingested by the combustor through the aerodynamic valve means,
- means for supplying the combustion-sustaining gas to the aerodynamic valve means and thence to the pulse combustor,
- means for supplying fuel to the pulse combustor so as to provide an excess of fuel in relation to the amount of combustion-sustaining gas ingested by the pulse combustor,
- a second combustion stage including means for receiving the combustion gases from the pulse combustor outlet means and for burning the excess of fuel to produce terminal combustion products,
- means utilizing the backflow for aspirating combustion-sustaining gas and for delivering the aspirated gas to the second stage for burning with the excess of fuel received there,
- intercooling means utilizing a heat-transfer medium for

extracting from the pulse combustor in the first stage a substantial portion of the heat generated therein, means utilizing a heat-transfer medium for extracting most of the heat from the terminal combustion products produced by the second stage so as to produce substantially cooled combustion products, means for recirculating a portion of the cooled combustion products to the pulse combustor so as to dilute the combustion-sustaining gas supplied thereto, and means for exhausting the remainder of the cooled combustion products with only a low content of objectionable compounds formed from the nitrogen in the fuel and the combustion-sustaining gas.

4,314,445

TURBINE ENGINE THRUST BOOSTER

Leon D. Lewis, 28619 Coveridge Dr., Rancho Palos Verdes, Calif. 90274

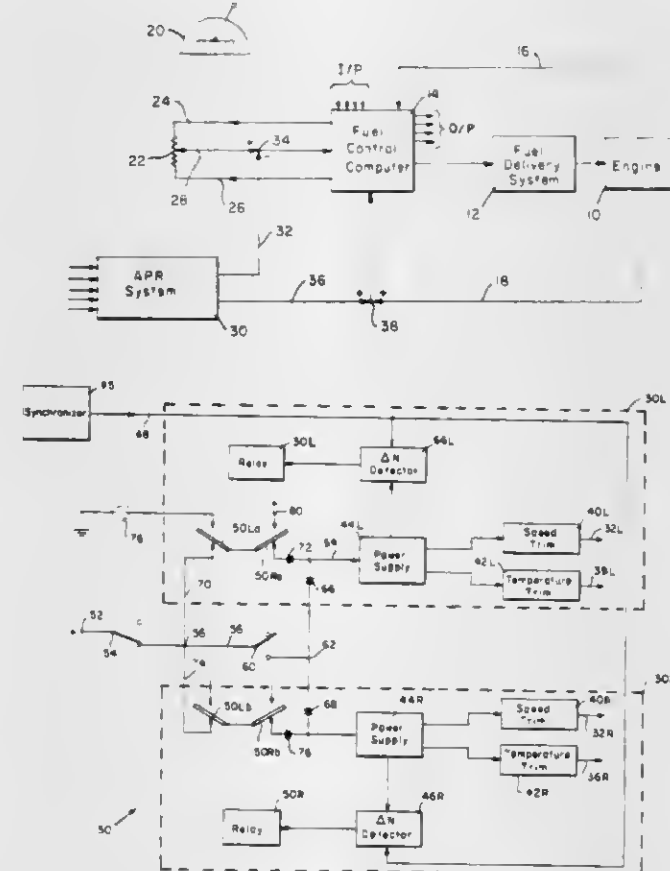
Continuation of Ser. No. 842,751, Oct. 17, 1977, abandoned.

This application Aug. 20, 1979, Ser. No. 68,279

Int. Cl.³ F02K 3/12

U.S. Cl. 60—204

30 Claims



1. In combination:

- an engine having a normal maximum thrust level and emergency maximum thrust level;
- means for controlling engine fuel delivery to adjust engine thrust within a range having an upper limit not greater than said emergency maximum thrust level;
- means for generating engine thrust trim signals for limiting engine thrust to said normal maximum thrust level;
- means for energizing said trim signal generating means;
- means for producing an output signal indicative of engine malfunction; and
- means, responsive to said engine malfunction output signal, for controlling the application of said trim signals to said fuel delivery control, said trim signal application controlling means interposed between said trim signal generating means and said energizing means for selectively disconnecting said trim signal generating means from said energizing means.

4,314,446

EXHAUST SKIMMING

James E. Bull, Denton, Tex., assignor to Texas Woods Instruments, Inc., Red Oak, Tex.

Filed Sep. 26, 1979, Ser. No. 79,175

Int. Cl.³ F02M 25/06

U.S. Cl. 60—279

14 Claims



1. An exhaust gas treatment system for a combustion chamber, comprising
 - an exhaust conduit from a combustion chamber, having a first portion disposed in substantially a straight line;
 - an expansion chamber connected in a straight line with said exhaust conduit first portion, at a first end thereof, and having a second end, opposite said first end;
 - a second substantially straight line portion of said exhaust conduit, connected in a straight line with said expansion chamber second end;
 - said expansion chamber having a cross-sectional area 110% to 200% as large as the cross-sectional area of said exhaust conduit first portion, and at least 110% to 200% of the cross-sectional area of said exhaust conduit second portion;
 - means for defining a plurality of openings in said expansion chamber in first and second series, the first series disposed substantially 180° from the second series along the circumference of said expansion chamber;
 - means for mounting said expansion chamber so that a plane containing said first and second series of openings in said expansion chamber is generally vertical;
 - pick-off conduit means operatively associated with said openings in said expansion chamber and for returning gases passing through said openings from said expansion chamber to said combustion chamber; and
 - filtering means disposed in said conduit means between said expansion chamber and combustion chamber for, at least, separating excess liquid out of the returning gases.

4,314,447

REFRIGERANT MOTOR

Kenneth P. Gray, E. Syracuse, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Filed Jul. 2, 1979, Ser. No. 53,875

Int. Cl.³ F01K 25/00; F01L 25/02

U.S. Cl. 60—671

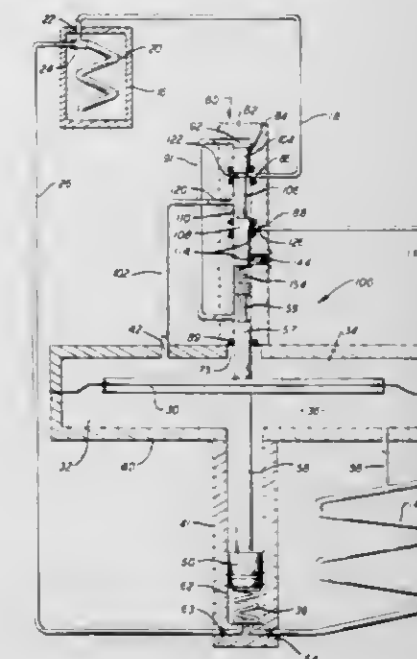
3 Claims

1. A motor adapted to convert energy from a stream of gaseous refrigerant flowing through a closed circuit having a high temperature source and a low temperature sink which comprises:

- a casing defining a chamber;
- a flexible diaphragm dividing the chamber into a driving chamber and an equalizing chamber;
- a rod connected to reciprocate with the diaphragm;
- a port for allowing gaseous refrigerant to flow into and out of the driving chamber;
- a spool valve having a valve casing defining a valve chamber and having:
 - (a) an inlet valve port for the receipt of gaseous refrigerant from the refrigeration circuit;
 - (b) a common valve port for the discharge and receipt of gaseous refrigerant from the entry port of the driving chamber; and
 - (c) An exit port for the discharge of gaseous refrigerant to the refrigeration circuit;
- a spool located within the valve chamber having a spool middle portion which communicates inlet valve port with the common port when the spool is in a first position and

the common port with the exit port when the spool is in a second position;

a valve actuator connected to the diaphragm, said valve actuator having an end which engages the end of the spool to move the spool from the second position to the first position and has a spool portion connected to a pilot line



for allowing gaseous refrigerant to enter a pilot chamber portion of the valve chamber for displacing the spool from the first position to the second position, said spool portion communicating the driving chamber with the pilot chamber through a pilot line; and

a pump connected to the rod for circulating refrigerant within the closed circuit.

4,314,448

THERMODYNAMIC PROCESS FOR EXPLOITING HIGH-TEMPERATURE THERMAL ENERGY

Georg Alefeld, Josef-Raps-Strasse 3, 8000 Munich 40, Fed. Rep. of Germany

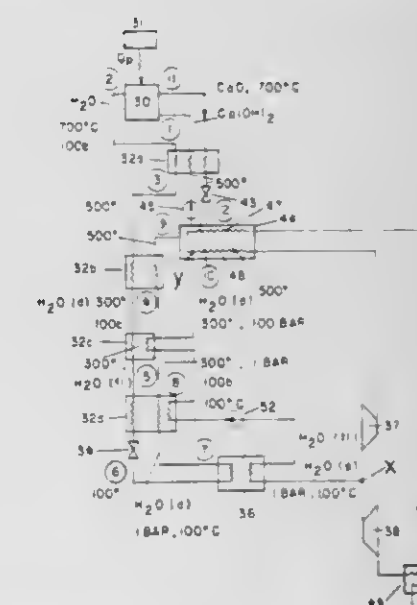
Filed Aug. 14, 1978, Ser. No. 933,578

Claims priority, application Fed. Rep. of Germany, Aug. 17, 1977, 2737059

Int. Cl.³ F01K 21/00, 25/00

U.S. Cl. 60—673

20 Claims



1. A thermodynamic process for raising the efficiency of a thermal power station containing a main section operating on the principle of the Clausius-Rankine process and doing work as well as an additional section operating on the principle of a heat pump, in which the multiple-substance working medium is decomposed by primary heat at a temperature in a first high-

temperature range by this high-temperature thermal energy into a condensed (solid or liquid) first component and a gaseous second component and the resulting gaseous component is transformed into a condensed state, is then returned to the gaseous state and finally again united with the condensed component of the multiple-substance working medium, characterized in that the multiple-substance working medium comprises combinations of $\text{CaO}/\text{H}_2\text{O}$ and metal/hydrogen, where the term metal includes metallic chemical elements and alloys which combine with hydrogen under positive heat of reaction, and that condensation occurs at a temperature in a second temperature range below the first high-temperature range, in that transfer into the gaseous state occurs at a temperature in a third temperature range below the second temperature range, and in that union occurs at a temperature in a fourth temperature range lying between the first and the third temperature ranges but differing from the second temperature range, and in that the amounts of thermal energy released during condensation and union are admitted to the Clausius-Rankine process at essentially the temperature in the second and fourth temperature ranges.

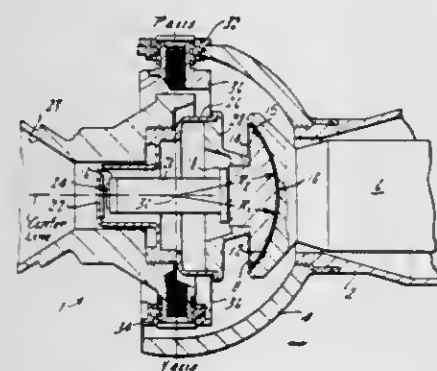
4,314,449

NON-CONTACTING THERMAL ENERGY TRANSFER ASSEMBLY

Elias Reisman, Orange; David S. Goodsell, and Fred S. Masino, both of Costa Mesa, all of Calif., assignors to Ford Aerospace & Communications Corp., Dearborn, Mich.
Division of Ser. No. 966,972, Dec. 6, 1978. This application Aug. 20, 1980, Ser. No. 179,927
Int. Cl.³ F25B 21/02

U.S. Cl. 62—3

5 Claims



1. A radiation detector assembly comprising: a relatively fixed body; a thermoelectric cooler having defined hot and cold conductors; a gimbal assembly attached to said fixed body for mounting said thermoelectric cooler and detector element to provide relative movement about two orthogonal axes; a heat sink mounted within said relatively fixed body; means for transferring heat from said relatively movable hot conductor to said heat sink, which includes: a first low thermal resistivity element mounted on said hot conductor; a second low thermal resistivity element mounted within said body in contact with said heat sink; and a gaseous fluid medium having a low thermal resistivity located between said first and second elements to provide a non-contacting thermal conducting path therebetween.

4,314,450 CRYOGENIC STORAGE DEVICES

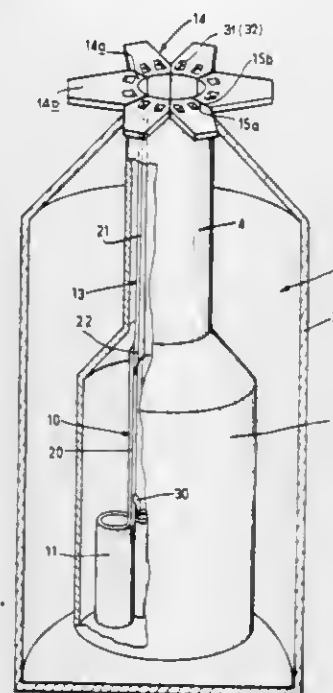
Pierre Pelloux-Gervais, Grenoble, France, assignor to L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procédes Georges Claude, Paris, France

Filed Sep. 4, 1980, Ser. No. 184,186

Claims priority, application France, Sep. 28, 1979, 79 24212
Int. Cl.³ F17C 7/00

U.S. Cl. 62—45

7 Claims



1. In a device for storing material at low temperature, comprising a cryobiological tank having an internal container insulated by a sheath joined to a neck of said internal container, the upper end of said neck forming a rim, a plurality of carrying cases with canisters to accommodate material to be stored at low temperature, each carrying case having a canister rod that extends up from the canister and through said neck and out over said rim and rests on said rim, and a closure plug that fits in said neck to close the tank; the improvement in which each said canister rod has a head that extends radially outwardly and rests on said rim, said heads of said canister rods together covering the supporting area present on said rim.

4,314,451

CONTROLLING TEMPERATURE OF A CRYOGENICALLY REFRIGERATED PRODUCT

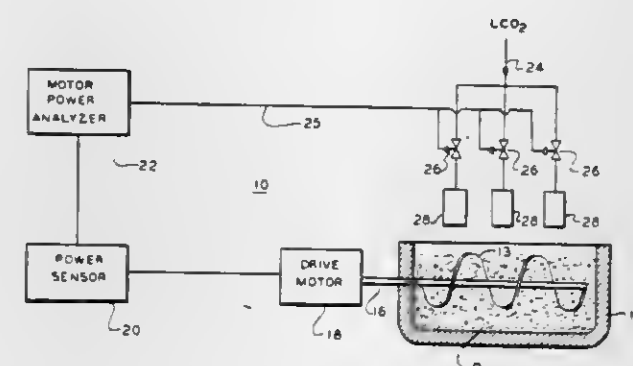
Richard L. Leeds, Metuchen; Jeffrey A. Mootross, Bloomfield, both of N.J., and Richard J. Barbini, Islip Terrace, N.Y., assignors to Airco, Inc., Montvale, N.J.

Filed Oct. 27, 1980, Ser. No. 200,626

Int. Cl.³ F25C 1/18

U.S. Cl. 62—68

7 Claims



1. A method for controlling the temperature to which a product is chilled in a blender having a rotatable impeller adapted to be driven by an electric motor comprising the steps of introducing solid CO_2 into said blender and into contact

with said product; energizing said motor to drive said impeller, thereby mixing said solid CO_2 with said product to chill the same, the improvement comprising the steps of:

- sensing the electrical power drawn by said motor; comparing the sensed power with a predetermined power value and terminating the introduction of solid CO_2 into the blender upon the actual power drawn by said motor reaching said predetermined value.

4,314,452

COMPRESSOR DISCHARGE CONVERTER

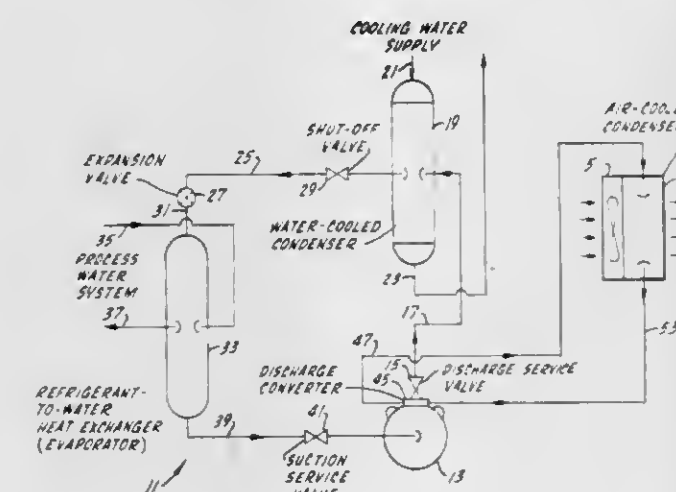
Michael A. Waters, Elk Grove Village, Ill., assignor to Application Engineering Corporation, Elk Grove Village, Ill.

Filed Jul. 28, 1980, Ser. No. 172,956

Int. Cl.³ F25B 45/00, 27/02

U.S. Cl. 62—77

5 Claims



1. In a process fluid chilling system of the kind comprising a compressor, a discharge service valve mounted on the discharge port of the compressor, a condenser and a refrigerant-to-process fluid heat exchanger connected together in the stated sequence by refrigerant conduits, the improvement comprising a compressor discharge converter for connecting a second condenser into the system in series, comprising:

- a housing mountable on the compressor interposed between the compressor outlet and the discharge service valve, the housing comprising first and second separate transfer chambers, each chamber having a central port at the center of the converter and an external port at the periphery of the converter, the central port of the first transfer chamber connecting directly to the compressor discharge port and the central port of the second transfer chamber connecting directly to the discharge service valve,

- the central port of each transfer chamber being connected to the external port of that chamber by a plurality of small tunnel passages thereby affording a thin, flat configuration for the converter;

- and conduit means connecting the external ports of the converter to a second condenser so that the second condenser is connected in the system in series with the first condenser.

4,314,453

ONE AND A HALF BAND REFRIGERATED DISPLAY CASE

Fayez F. Abraham, Niles, Mich., assignor to Tyler Refrigeration Corporation, Niles, Mich.

Continuation-in-part of Ser. No. 60459, Jul. 25, 1979, and Ser. No. 70,882, Aug. 29, 1979. This application Sep. 18, 1979, Ser. No. 76,669

Int. Cl.³ F25D 21/12

U.S. Cl. 62—82

22 Claims

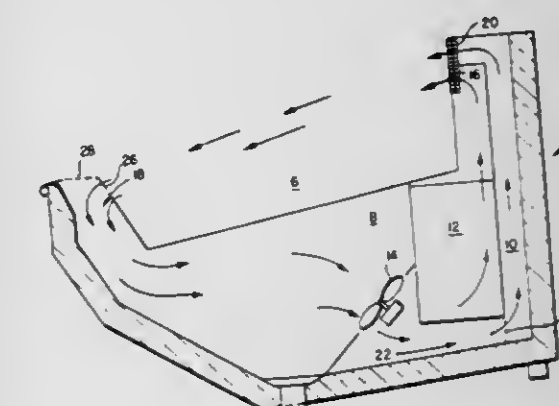
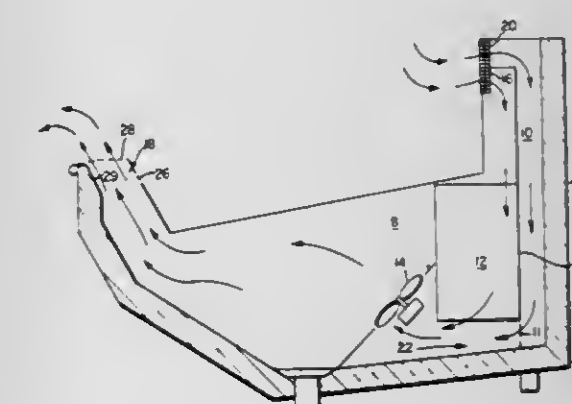
1. A refrigerated display case for displaying refrigerated products, said display case comprising: a cabinet having an interior display space and an access

opening for enabling access to refrigerated products within said display case;

a first air conduit extending around said cabinet so as to have an inlet opening at one end of said access opening and an outlet opening at the other end of said access opening, said inlet and outlet openings being aligned so that air leaving said outlet opening is directed across said access opening and received by said inlet opening;

refrigeration means including an evaporator coil arranged within said first air conduit for refrigerating air passing through said first air conduit;

air circulating means arranged within said first air conduit for circulating air through said first air conduit in a forward direction during a refrigeration cycle of operation so that air is expelled from said outlet opening, travels across said access opening and returns into said first air conduit through said inlet opening and for circulating such air in a reverse direction during a defrost cycle of operation so that air is expelled through said inlet opening;



a second air conduit extending partially around said cabinet in a position lying outwardly of said first air conduit, said second air conduit having an outlet opening arranged adjacent to said outlet opening of said first air conduit and an air inlet opening located so that during a refrigeration cycle of operation such inlet opening receives air passing through said first air conduit before such air passes through said refrigeration means and said inlet opening of said second air conduit being positioned such that a reverse air flow through said second air conduit during a defrost cycle of operation will flow in contact with a portion of said evaporator coil; and

control means for switching between a refrigeration cycle of operation and a defrost cycle of operation and during such defrost cycle of operation temporarily terminating the operation of said refrigeration means and causing said air circulating means to circulate air through said first air conduit in a reverse direction for causing ambient air to be drawn into said outlet openings of said first and second air conduits and circulated through said first and second air conduits.

4,314,454

METHOD OF OPERATING REFRIGERATING MACHINE

Kohji Kamejima; Minoru Kano; Hideki Tanaka, and Toshihiko Fukushima, all of Shimoinayoshi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

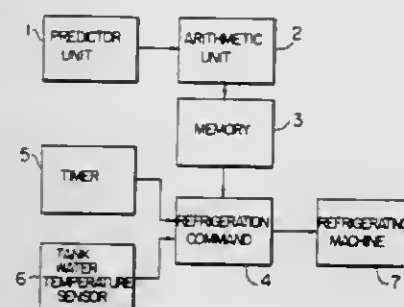
Filed Jul. 1, 1980, Ser. No. 164,945

Claims priority, application Japan, Jul. 4, 1979, 54/83984

Int. Cl.³ F25D 3/00, 17/02

U.S. Cl. 62—98

1 Claim



1. A method of operating a refrigerating machine of a refrigerating and air-conditioning system which includes predicting means for predicting variations in load to be conditioned and weather conditions on a day scheduled for operation of said refrigerating machine, a heat storage tank for storing energy output produced from said refrigerating machine, and means for measuring water temperature of said heat storage tank, said method comprising the steps of determining previously output powers of said refrigerating machine at individual time points within a predetermined operation period for possible values of said water temperature on the basis of predicted values of said load to be conditioned and said weather conditions; storing the thus determined output powers of said refrigerating machine in memory means; retrieving optimum output of said refrigerating machine from those stored in said memory means on the basis of actual water temperature of said heat storage tank at any given one of said individual time points within said operation period; and producing an operation command to said refrigerating machine which corresponds to said retrieved optimum output, wherein when said actual water temperature of said heat storage tank is higher than an upper limit value of said water temperature which is compatible with the load to be conditioned or when said actual water temperature is likely to rise beyond said upper limit value at any given time point, said refrigerating machine is operated under full-load condition, while when said actual water temperature of said heat storage tank is not higher than said upper limit value, said refrigerating machine is so operated that a sum of an integrated value of electric power consumed by said refrigerating machine and associated auxiliary equipments during said operation period and electric power carried over to the next day can be reduced to a minimum.

4,314,455

FREEZE CONCENTRATION APPARATUS AND PROCESS

Gerald E. Eogdahl, Wheaton, Ill., assignor to Chicago Bridge & Iron Company, Oak Brook, Ill.

Filed Jun. 16, 1980, Ser. No. 160,002

Int. Cl.³ B01D 9/04

U.S. Cl. 62—124

10 Claims

1. A freeze concentration apparatus comprising: a cold concentrator tank having upper and lower portions; a conduit means to deliver an aqueous liquid mixture feed stream to the cold concentrator tank; means to feed the liquid mixture from the cold concentrator tank to a freeze exchanger for indirect cooling by heat exchange to a cold fluid to form ice crystals in the liquid mixture; means to feed the liquid mixture containing ice crystals from the freeze exchanger to the cold concentrator tank to

separate an ice slurry in the cold concentrator tank upper portion on top of liquid mixture; conduit means to withdraw liquid mixture from the cold concentrator tank lower portion concentrated by the freezing of water therefrom; means to withdraw an ice slurry from the cold concentrator tank upper portion and deliver it to an ice slurry washer;



means to wash the ice slurry in the washer with water and to collect washed ice and an aqueous mixture; conduit means to remove the aqueous mixture from the washer; and means to remove the washed ice from the washer.

4,314,456

REFRIGERANT CONDENSING SYSTEM

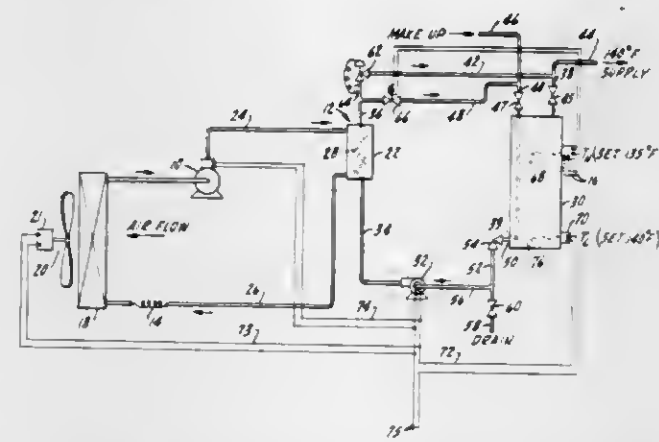
James R. Harnish, York, Pa., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed May 5, 1980, Ser. No. 146,716

Int. Cl.³ F25D 17/00; F25B 27/02

U.S. Cl. 62—181

7 Claims



1. A refrigerant condensing system for heating water including a compressor, a water-cooled condenser, an expansion device, and an evaporator coil, all suitably interconnected to form a closed refrigeration circuit, said system comprising in combination:

said condenser having a chamber with a coil disposed therein in heat exchange relationship, the coil having a water inlet and a water outlet; a storage tank having a substantially un baffled interior chamber, a high temperature inlet connected to its upper part, a lower temperature inlet connected to its bottom part, a hot water supply line, and an outlet; pump means for circulating the water to be heated from the storage tank to the water inlet of the coil; thermostatically-operated valve means operatively connected to the water outlet of the coil for permitting water to flow into the upper part of the tank in response to a pre-selected temperature, said valve means being operative to prevent unrestricted flow of water until the temperature of such water is at or above a predetermined temperature; and

by-pass valve means operatively connected to the water outlet of the coil for by-passing directly the water flow from the high temperature inlet of the tank to the lower temperature inlet when the upper portion of the tank is filled with water of the pre-selected temperature.

4,314,457

ISLAND REFRIGERATED DISPLAY CASE WITH AIR DEFROST

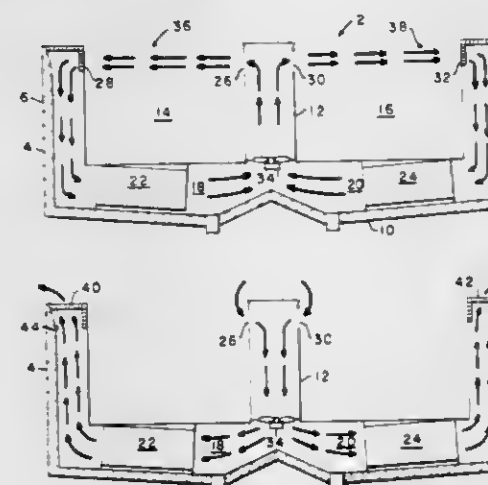
Fayez F. Ibrahim, Niles, Mich., assignor to Tyler Refrigeration Corporation, Niles, Mich.

Continuation-in-part of Ser. No. 11,804, Feb. 14, 1979, Ser. No. 60,459, Jul. 25, 1979, Ser. No. 76,669, Sep. 18, 1979, and Ser. No. 107,261, Dec. 26, 1979. This application May 1, 1980, Ser. No. 145,859

Int. Cl.³ A47F 3/04

U.S. Cl. 62—256

26 Claims



1. An island refrigerated display case comprising: a cabinet having four outer walls and a bottom wall, first and second interior display spaces with a partition wall separating said display spaces, and an access opening associated with each of said display spaces for enabling access to refrigerated products within said display case; a first refrigeration air conduit extending along one of said outer walls, said bottom wall and said partition wall of said cabinet so as to extend around said first interior display space and having an air inlet opening at one end of the associated said access opening and an air outlet opening at the other end of the associated said access opening, said inlet opening and said outlet opening being aligned so that air leaving said outlet opening is directed across said access opening and received by said inlet opening so as to establish a refrigerated air curtain across said access opening; a second refrigeration air curtain extending along the opposite of said outer walls, said bottom wall and said partition wall of said cabinet so as to extend around said second interior display space and having an air inlet opening at one end of the associated said access opening and an air outlet opening at the other end of the associated said access opening, said inlet opening and said outlet opening being aligned so that air leaving said outlet opening is directed across said access opening and received by said inlet opening so as to establish a refrigerated air curtain across said access opening; air circulating means for circulating air through said first refrigeration air conduit and said second refrigeration air conduit; refrigeration means for cooling air flowing through said first and second refrigeration air conduits during a refrigeration cycle operation of said display case; control means for switching said display case between a refrigeration cycle of operation and a defrost cycle of operation and during such defrost cycle of operation temporarily terminating the operation of said refrigeration means and causing ambient air to be drawn into and flow

through said first refrigeration air conduit and said second refrigeration air conduit for causing defrosting of any frost buildup within such conduits; and, means for causing the ambient air during a defrost cycle of operation to be expelled from each of said refrigeration conduits so as to flow up and away from said display case along a path flowing over the outside of an outer wall of said cabinet so that such expelled ambient air is prevented from re-entering said refrigeration conduits.

4,314,458

REFRIGERATED DISPLAY CASE

Conrad Hade, South Salem, and Dale D. Robinson, Spring Valley, both of N.Y., assignors to Dalcon Marketing Inc., Port Chester, N.Y.

Filed Oct. 1, 1980, Ser. No. 192,738

Int. Cl.³ A47F 3/04

U.S. Cl. 62—256

25 Claims



1. A refrigerated display case comprising: (A) an upright vertically oriented rectilinear inner first duct, (B) an upright vertically oriented rectilinear outer second duct, said second duct being disposed about and coaxial with said first duct, so that said first duct defines a central vertical passage for downwards flow of heated air, and so that the annular space between said first duct and said second duct defines an annular vertical passage for upwards flow of cold air, (C) first and second spaced apart juxtaposed horizontal baffles, each baffle extending outwards from attachment to said outer duct, the first baffle being an upper baffle and the second baffle being a lower baffle, (D) a middle horizontal baffle, said middle baffle being disposed between and spaced from said first and second baffles and extending outwards from attachment to said outer duct, (E) said second duct having a first plurality of foramina spaced between the attachment of said first baffle and the attachment of said middle baffle, so as to permit lateral flow of cold air from the annular passage between said first duct and said second duct into and laterally outwards through the passage between said first baffle and said middle baffle, (F) said second duct having a second plurality of foramina spaced between the attachment of said middle baffle and the attachment of said second baffle, so as to permit lateral flow of cold air from the annular passage between said first duct and said second duct into and laterally outwards through the passage between said middle baffle and said second baffle, (G) a first plurality of tubular members, said first plurality of tubular members extending in the annular passage between said first duct and said second duct and above said first baffle, so as to provide a first through passage for warmed air above said first baffle and from external to said second duct to within said first duct, (H) a second plurality of tubular members, said second plurality of tubular members extending in the annular passage between said first duct and said second duct and below

- said second baffle, so as to provide a second through passage for warmed air below said second baffle and from external to said second duct to within said first duct,
- (I) air refrigeration means, said air refrigeration means being disposed below the lower ends of said first and second ducts,
- (J) means to pass warm air downwards through said first duct and from the lower end of said first duct into and through said air refrigeration means, so that the warm air is cooled, and
- (K) means to pass the resulting cold air from said air refrigeration means into and upwards through the annular passage between said first duct and said second duct.

4,314,459

STABLE AND PRECISE CRYOGENIC DEVICE

Jacques Rivoire, 1201 Rue Rocqueturiere, Mas Albine, 34000 Montpellier, France

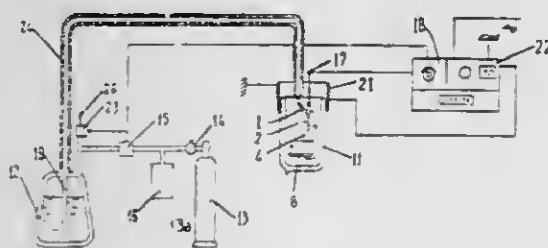
Filed Jun. 27, 1980, Ser. No. 163,798

Claims priority, application France, Jun. 28, 1979, 79 17285

Int. Cl.³ F25D 19/00

U.S. Cl. 62—514 R

13 Claims



1. A cryogenic apparatus comprising:
an open-top insulating receptacle;
a sample support in said receptacle for holding a sample to be subjected to a predetermined low temperature;
evaporating means for vaporizing a liquid cryogen disposed in the region of said support in said receptacle;
means responsive to temperature in said receptacle; and
control means for controlling the feed of said liquid cryogen to said evaporating means in response to said means responsive to temperature to establish said predetermined temperature and maintain the same solely by the control of the supply of said liquid cryogen to said evaporating means, said liquid cryogen being supplied to said evaporating means at a rate sufficient to maintain a pressure of the vaporized cryogen sufficient to exclude moisture-carrying air from said receptacle.

4,314,460

LINKED TORSIONAL MISALIGNMENT COUPLING

Alfred B. Mayfield, c/o William R. Scarborough, 512 Nicollet Mall, #707, Minneapolis, Minn. 55402

Filed May 8, 1979, Ser. No. 37,004

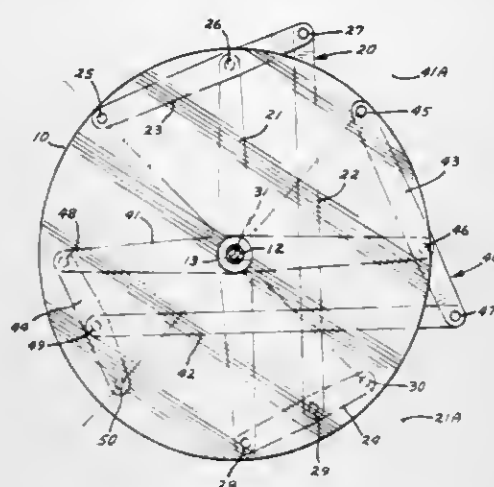
Int. Cl.³ F16D 3/54

U.S. Cl. 64—19

1 Claim

1. A constant velocity flexible coupling comprising, in combination;
adjacently disposed input and output members each mounted upon a rotatable shaft;
at least a pair of linkage means for connection intermediate said input and output members, each of said linkage means including a main bar rotatably disposed on a pin, a first bar connecting one end to said input member, a second bar connecting the other end to said output member, said first bar being connected to a main bar intermediate its ends and said second bar being connected to a main bar at its opposite end and means interconnecting said first and second bar members, said last named means being connected to the opposite end of said first bar member and

intermediate the ends of said second bar member whereby the ends of the first and second bar members connected to



the input and output members are reciprocally operable along a plane intersecting said connections and said pin.

4,314,461

KNITTING MACHINE WITH LATCHLESS NEEDLES COOPERATING WITH EXTERNAL HOOK-TYPE ELEMENTS

Gianni Conti, Largo Liverani 7, Florence, Italy

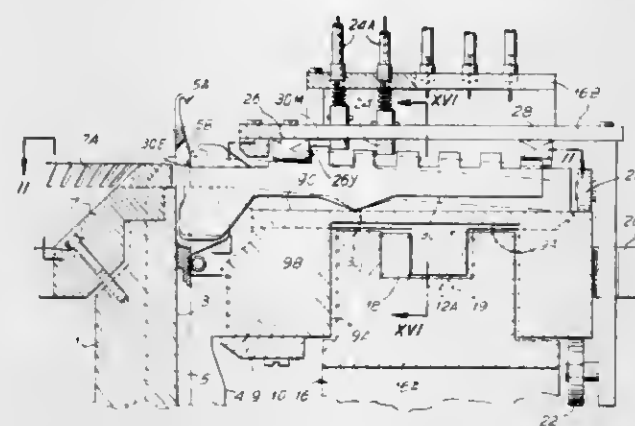
Filed Dec. 14, 1979, Ser. No. 103,485

Claims priority, application Italy, Dec. 21, 1978, 9676 A/78

Int. Cl.³ D04B 9/02, 35/06

U.S. Cl. 66—13

7 Claims



1. In a knitting machine, the improvement comprising latchless needles each having means defining a longitudinal slot therein and a yarn engaging member for engaging a stitch of a yarn, hook-type selector elements slidable generally perpendicular to the needles and movable between raised and lowered positions along the length of the longitudinal slot of the needle, each selector element having a hooked end portion arranged to extend into the said longitudinal slot of an associated needle, and control means selectively operative to move the selector elements generally perpendicularly to the needles and to raise and lower the selector elements so that their hooked end portions can enter the slots in the associated needles, be raised in order to take-up the stitch engaged by the needle and to remove it therefrom, and then be lowered to remove the stitch by lowering the hooked end portion under the plane of formation of the fabric formed by intermeshing loops of the yarn, wherein each of said selector elements comprises butts, and means defining a fulcrum supporting the selector element for sliding movement perpendicularly to its associated needle and supporting the selector element for angular movement between raised and lowered positions, the butts of the selectors cooperating with the control means, and said control means being operable to selectively engage the butts on the selector elements.

4,314,462

METHOD AND APPARATUS FOR GUIDING A FLEXIBLE TUBE BETWEEN ANNULAR AND FLATTENED CROSS SECTION

Jean-Paul Ducol, Les Sauvages; Jacques Mesny, Troyes, and Julien Warret, Saint-Andre-les-Vergers, all of France, assignors to Institut Textile de France and Agence Nationale de Valorisation de la Recherche (ANVAR), both of, France

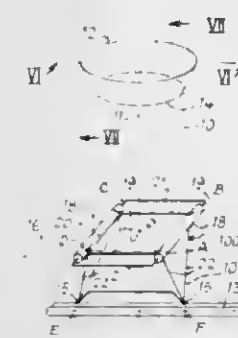
Filed Jan. 25, 1979, Ser. No. 6,518

Claims priority, application France, Feb. 2, 1978, 78 02944; Sep. 19, 1978, 78 26847

Int. Cl.³ D04B 15/88

U.S. Cl. 66—152

19 Claims



1. Method of guiding a tube having a flexible wall and extending between a first transverse plane in which the cross-section of the tube is annular and a second transverse plane in which the cross-section of the tube is linear, comprising the step of guiding a portion of the tube extending between the second plane and a third transverse plane situated between said first and second planes over a guiding means including a first section disposed in said third plane, said first section having a first set of four apices which are arranged within said tube so as to form a rectangular configuration, so that said portion is formed into a surface having side faces extending between a straight edge of said portion coinciding substantially with said linear cross-section of the tube in the second plane and a circumferential base of said portion which is situated opposite said edge and which extends in said third plane parallel to said edge, said base having a perimeter of a dimension substantially double that of the length of said edge, and said side faces being shaped so as to form a rectangle in any cross-sectional plane parallel to said second and third planes, said rectangle formed in any said cross-sectional plane parallel to said second and third planes having a perimeter equal to the perimeter of said circumferential base.

4,314,463

JACQUARD ATTACHMENT FOR WARP KNITTING MACHINES

Rudolf Fuchs, Hofen, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland

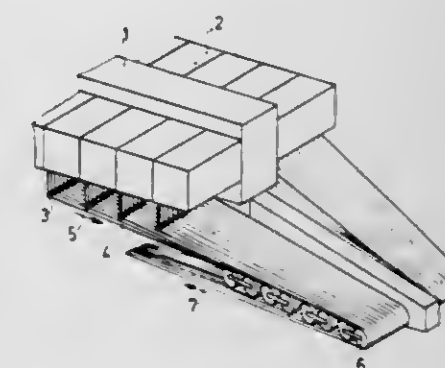
Filed May 14, 1980, Ser. No. 149,680

Claims priority, application Switzerland, May 18, 1979, 4645/79

Int. Cl.³ D04B 23/00, 27/00

U.S. Cl. 66—203

6 Claims



1. A jacquard attachment for a warp knitting machine, said attachment comprising
at least one jacquard box having a plurality of movably mounted control elements and a plurality of harness cords, each said harness cord being connected to a respective control element;
a plurality of deflecting means, each said deflecting means being disposed in spaced relation to said jacquard box for deflecting each said harness cord from a first path extending from a respective control element to said deflecting means into a second path extending from said deflecting means obliquely to said first path, said paths being disposed in overlying spaced relation to each other; and
a plurality of universal bearings, each said bearing having a respective deflecting means journaled thereon.

4,314,464

WET TREATMENT OF TEXTILES

Staffan O. Gran, Baldersplatsen 7, Boras-Schweden, Sweden

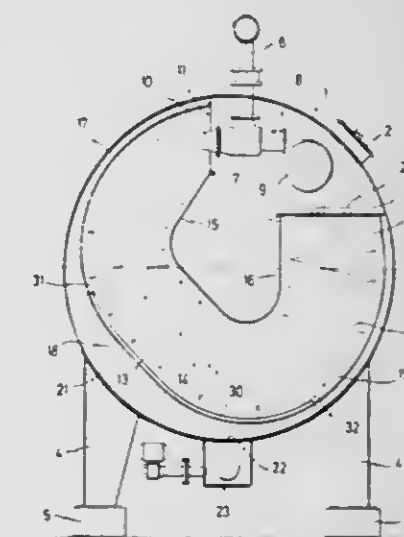
Filed Apr. 11, 1979, Ser. No. 29,672

Claims priority, application Fed. Rep. of Germany, Apr. 18, 1978, 2816808

Int. Cl.³ D06B 3/28

U.S. Cl. 68—178

10 Claims



1. A device for the wet treatment of textiles in endless strip or web form, comprising a closed pressure housing having an interior wall for containing treatment liquid; an outlet located at the lowest point on said housing, and opening through said housing interior wall; an inlet located at an elevated position on said housing and opening through said housing interior wall;

means for externally circulating treatment liquid, connected between said outlet and said inlet; a supply chamber in said housing, said supply chamber having an outer wall spaced from said housing interior wall and having a first portion thereof perforated and a second portion thereof unperforated and rectilinear and a third portion thereof perforated, said second portion being intermediate said first and third portions and being positioned proximate said outlet, said second portion having a rectilinear axis inclined at from 30° to 60° to the horizontal; and means for circulating textiles through said supply chamber and for feeding treatment liquid into said supply chamber first portion, whereby said supply chamber second portion separates said textiles from treatment liquid circulation through said outlet.

4,314,465

PELT FAT REMOVAL APPARATUS

Melville R. Reid, R.R. #6, Guelph, Ontario, Canada (NIH 6J3)

Continuation-in-part of Ser. No. 968,185, Dec. 11, 1978,

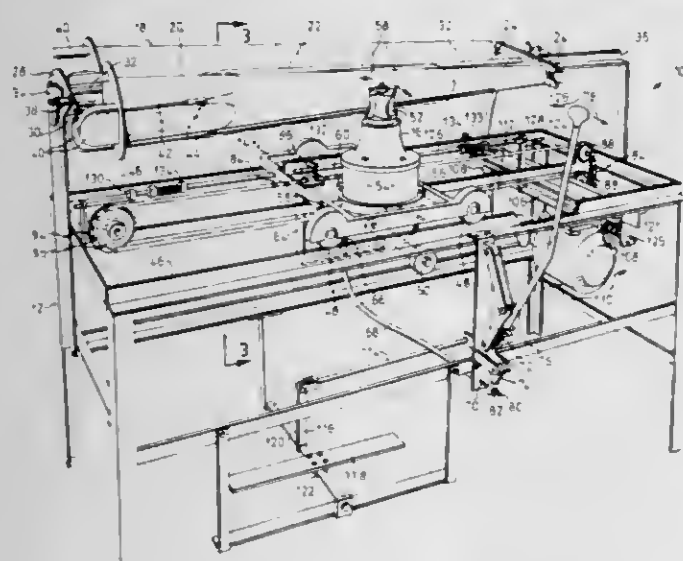
abandoned. This application Jan. 3, 1980, Ser. No. 109,368

Claims priority, application Canada, Aug. 17, 1979, 334043

Int. Cl.³ C14B 17/00

U.S. Cl. 69—40

15 Claims



1. In a machine for removing fat from the inside of an animal pelt, the machine have a rotatable elongate mandril for mounting the pelt inside out thereon, a motor driven pelt engaging cutting head mounted on a dolly on the machine frame for longitudinal movement adjacent to the mandril, and the cutting head being pivotally mounted on the dolly for transverse adjustment of the depth of cut, apparatus for controlling the movement of the cutting head, said apparatus comprising: a control assembly adapted to be connected between the machine frame and the cutting head for pivotal movement of the cutting head relative to the dolly; the control assembly including a longitudinally rigid control member for connection to the cutting head, the control member including a transversely flexible extension portion and a remote end portion; a toggle joint operatively connected to said remote end portion to move the control member longitudinally and thus pivot the cutting head; and a lever operably attached to the toggle joint.

4,314,466

HANDCUFF IMPROVEMENTS

James E. Harris, Gaithersburg, Md., assignor to The United States of America as represented by the Secretary of Commerce, Washington, D.C.

Filed Mar. 3, 1980, Ser. No. 126,591

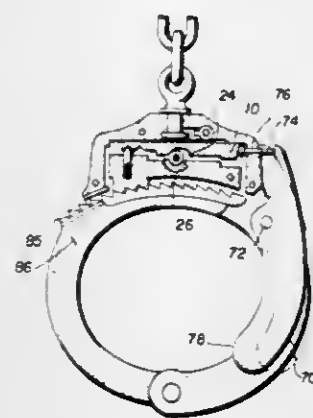
Int. Cl.³ E05B 75/00

U.S. Cl. 70—16

17 Claims

1. A handcuff which may be triple locked, comprising a pair of pivotable arcuate locking arms which are attached to each other at one end of each arm at a pivot means, one of said arms having a lock including a pawl disposed at the other end of the arm and the other of said arms having ratchet teeth disposed at

the other end of the arm for insertion into the lock for engagement with said pawl, said pawl being disposed on part of one side of a latch member, a bolt having a shoulder being disposed in said lock adjacent said latch member and being slidable between an undouble locked position in which said shoulder does not contact said latch member and a double locked position in which said shoulder overlies said latch member and thereby prevents pawl motion, said latch member and said bolt each having shaped portions including respective ledges and



4,314,467

KEY RING WITH POSITIVE LOCKING MEMBER

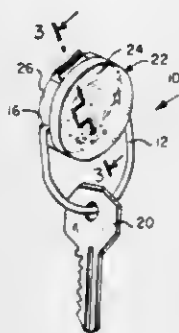
John Arvan, 137 Irving Ave., Port Chester, N.Y. 10573

Filed May 8, 1980, Ser. No. 147,927

Int. Cl.³ A47G 29/10

U.S. Cl. 70—456 R

7 Claims



1. A positive locking key ring comprising:

- (a) a rigid key loop having an opening therein to define loop ends whereby keys or other items having an opening therethrough can be threaded onto the loop;
- (b) a front housing member;
- (c) a back housing member, said back housing member formed with opposed slots disposed to receive the end of said loop;
- (d) interengaging means on said housing members operable to releasably connect said front housing portion to said back housing portion with said portions defining a cavity therebetween; and
- (e) a retaining member sized to substantially fill said cavity and having a pair of aligned grooves formed in a face thereof, said grooves being alignable with said slots and sized to receive the ends of said loop to securely hold the key loop in the housing when the housing portions are connected together.

4,314,468

STAMPING IN LIQUID FEMALE TOOL

Jacques Baril, L'Etang la Ville, and Jean-Yves Gaborieau, Velizy, both of France, assignors to Societe de Vente de l'Aluminium Pechiney, Paris, France

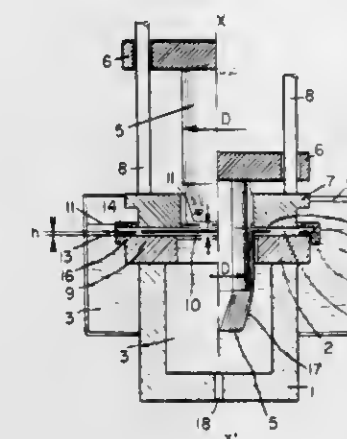
Filed Nov. 29, 1979, Ser. No. 98,559

Claims priority, application France, Dec. 11, 1978, 78 35301

Int. Cl.³ B21D 39/08

U.S. Cl. 72—57

5 Claims



1. In a hydro-mechanical stamping method wherein a liquid-filled pressure chamber is bounded at the top by a stamping ring having an aperture with a section corresponding to the largest section of a punch mounted above the chamber for descent into the chamber to pressurize the liquid therein and to deform a blank, the improvement comprising the steps of:

- (a) maintaining the level of the liquid within the chamber constantly above the stamping ring and above the upper plane of the blank, the blank thereby being submerged within the liquid even prior to initiation of stamping, and
- (b) centering the blank relative to the stamping ring within the liquid and providing circuitous paths between the blank, the stamping ring and structure used to center the blank in order to prevent localized rupture of the blank.

4,314,469

ROLLING MILL

Takashi Kitamura, Yoshiro Sumi, and Akira Matsufuji, all of Kitakyushu, all of Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

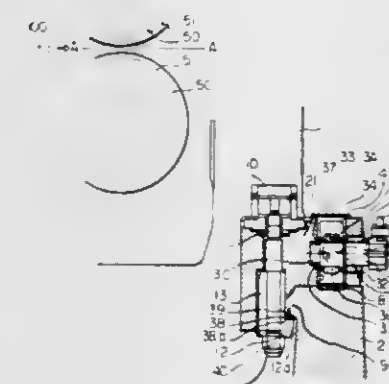
Filed Apr. 30, 1980, Ser. No. 145,386

Claims priority, application Japan, May 4, 1979, 54/54071

Int. Cl.³ B21B 1/14, 31/06, 31/18

U.S. Cl. 72—221

4 Claims



1. A rolling mill comprising a roll stand which supports rolls provided with roll passes for rolling a blank to be rolled which reciprocally moves along a rolling line, said roll stand being supported on a stationary base so as to move in axial directions of the rolls perpendicular to the rolling line, wherein said mill comprises a drive connected to the roll stand for moving the roll stand in said axial directions, and rotatable wheels which are provided in the roll stand and which are selectively brought into contact with the stationary base so as to carry the roll stand on the stationary base; said mill further comprising

rotatable eccentric rods which are provided in the roll stand and which support thereon the rotatable wheels, said eccentric rods being rotated to selectively occupy a non-operational position in which the wheels are separated from the stationary base, and an operational position in which the wheels are brought into contact with the stationary base and the roll stand is separated from the stationary base, so that the wheels can rotate on the stationary base to move the roll stand in said axial directions.

4,314,470

ROLLER DIE WIRE DRAWING DEVICE HAVING A PLURALITY OF ROLLER DIE UNITS

Kelichiro Yoshida, No. 641, Mobara, Mobara City, Chiba Prefecture, 297, Japan

Filed Oct. 22, 1979, Ser. No. 87,303

Claims priority, application Japan, Mar. 15, 1979, 54-30198

Int. Cl.³ B21B 31/00

U.S. Cl. 72—234

10 Claims



1. A wire drawing device comprising:

- at least two roller die units, each of said roller die units having:
 - two rollers, each of said rollers having a radially inwardly extending groove around the circumferential edge thereof;
 - two bearing frames, each of said frames having two threaded holes respectively through opposite ends thereof, said holes in one of said bearing frames being treaded in a direction which is opposite the direction of the threads of said holes in the other of said bearing frames;
 - each of said rollers being respectively rotatably accommodated in one of said bearing frames;
 - at least two externally threaded shanks for being threadably received in said holes;
 - said bearing frames being dimensioned and positioned such that the axes of rotation of said rollers are parallel to one another, said inwardly extending groove of each of said rollers are oppositely aligned with one another thereby defining an aperture for allowing a wire stock to be drawn therethrough, said holes in one of said bearing frames are respectively aligned with said holes in the other of said bearing frames, and said shanks are respectively threadably extended therethrough whereby said bearing frames are attached to and are oppositely aligned with one another; and
 - said shanks being rotatable in one direction to move said rollers toward one another and rotatable in the other direction to move said rollers away from one another;
- at least two housing frame means, wherein each of said housing frame means contains said two bearing frames;
- attaching means for attaching said housing frame means side-to-side; and
- wherein said housing frame means are dimensioned and positioned so that, when they are attached, the axes of

rotation of said rollers contained in adjacent said housing frame means are other than parallel.

4,314,471

METAL EXTRUSION PRESS-BILLET LOADER

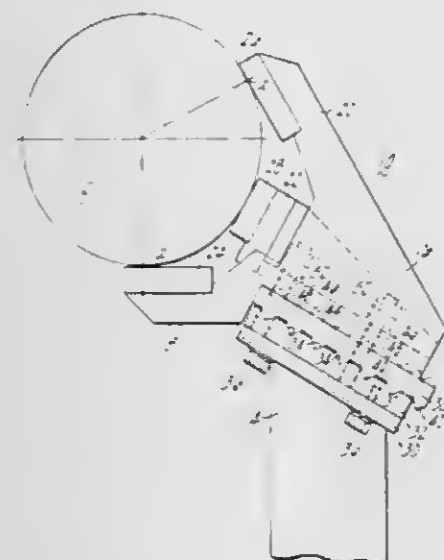
Danil Lukach, Rochester, N.Y., assignor to USM Corporation, Farmington, Conn.

Filed Feb. 11, 1980, Ser. No. 120,537

Int. Cl.³ B21C 33/00

U.S. Cl. 72—270

7 Claims



1. A billet loader of an extrusion press machine for loading billets of varying diameters, comprising:
a loader head mounted on a movable arm to pick-up and discharge a billet into said machine;
said loader head having adjustable means to supportably accommodate serially a plurality of billet diameters therewith; and
said adjustable means comprising at least three supports adjustably arranged with respect to said movable arm, at least one of said supports being movable with respect to the remaining pair of supports through a grooved relationship therebetween, permitting selectable aligned pre-adjusted stepwise carrying capacity to said loader head.

4,314,472

METHOD FOR PRODUCING A MAGNETIC ROTATABLE MEMBER FOR AN ELECTROMAGNETIC CLUTCH

Nobuaki Saegusa; Masakatsu Sakaki, and Genzo Yanai, all of Isesaki, Japan, assignors to Sankyo Electric Company Limited and Yanai Seiko Company Limited, both of Isesaki, Japan

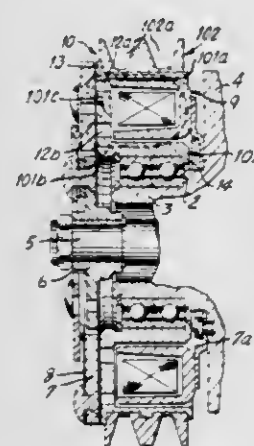
Filed Dec. 18, 1979, Ser. No. 104,768

Claims priority, application Japan, Dec. 21, 1978, 53/158975

Int. Cl.³ B21D 28/00

U.S. Cl. 72—341

3 Claims



1. A method for producing a magnetic rotatable member for an electromagnetic clutch having a cross section of a generally

U-shaped form to define an annular hollow portion in which an electromagnetic coil should be disposed and having a stopper for a bearing means on which the rotatable member should be mounted, which comprises steps of:

- preparing a magnetic circular plate of a predetermined dimension;
- forming an annular blank from said circular plate by press-drawing process which has an outer annular cylindrical portion, an inner annular cylindrical portion, and an axial end annular plate portion connecting said outer and inner cylindrical portions at their axial ends;
- ironing said annular blank at the outer surface of said outer annular cylindrical portion to form a radially projecting annular rim on the outer surface at the axial end so that the axial end surface is arranged with the axial end surface of said axial end annular plate portion;
- cutting away an outer edge portion of said inner annular cylindrical portion at the other axial end to form an annular thin wall portion; and
- press-bending said thin wall portion radially inwardly to form said stopper for the bearing.

4,314,473

METHOD AND APPARATUS FOR TESTING SNUBBERS IN SITU

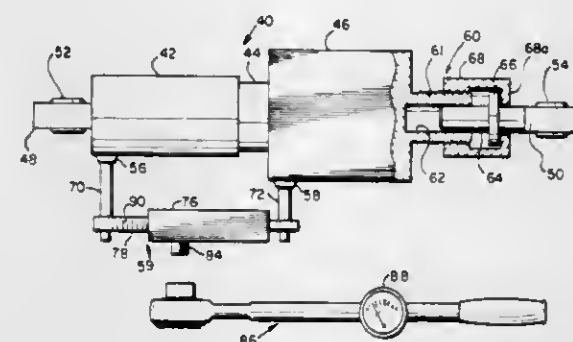
Harry E. Sulzer, Telford, Pa., assignor to Anchor/Darling Industries, Inc., Bala Cynwyd, Pa.

Filed Oct. 15, 1979, Ser. No. 84,985

Int. Cl.³ G01M 19/00

U.S. Cl. 73—11

13 Claims



1. In a method of testing a snubber in situ in a snubber system including a supporting structure, a structure supported by said supporting structure, and a snubber having relatively movable sections and being operatively coupled between said supporting structure and said supported structure; the steps comprising:

- (a) loosening the coupling between said snubber and one of said structures to permit limited movement between the relatively movable sections of said snubber without inducing substantial movement of said supported structure;
- (b) applying a test force within a predetermined high range to the snubber system for a period of time sufficient to cause relative motion of a predetermined magnitude between said relatively movable sections of said snubber; and
- (c) comparing said period of time with a time standard established for said snubber.

4,314,474

CRACK DETECTION BY VAPOR CONDENSATION

Aaron Dermarderosian, Marlboro, Mass., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 29, 1980, Ser. No. 116,516

Int. Cl.³ G01N 25/72, 31/02, 21/88

U.S. Cl. 73—15 FD

9 Claims

1. A method indicating the existence of cracks, fissures and other such faults on a test surface comprising the steps of:

forming an indicating layer over the entire test surface by directing an inert fluorocarbon vapor into contact with the test surface, the relative temperatures of the inert vapor and the test surface being such that the indicating layer forms by the process of condensation; and visually examining said indicating layer at an angle to a light source, the existence of any cracks, fissures and other such faults being indicated in a dull outline conforming to the shape of the fault as a result of the differential reflection of the incident light off of the said indicating layer, faulted regions absorbing comparatively more of said incident light than unfaulted regions.

4,314,475

METHOD FOR CHECKING THERMOCATALYTIC SENSORS OF MINE SAFETY SYSTEMS

Evgeny F. Karpov, prospekt Vernadskogo, 125, kv. 167; Isaak E. Birenberg, Leningradsky prospekt, 9, kv. 25; Boris I. Basso, ulitsa 16 Parkovaya, 49, korpus 1, kv. 58, all of Moscow, and Vladimir V. Popov, Moskovskoi oblasti poselok VUGI, 6, kv. 18, Ljubertsy-4 Moskovskoi oblasti, all of U.S.S.R.

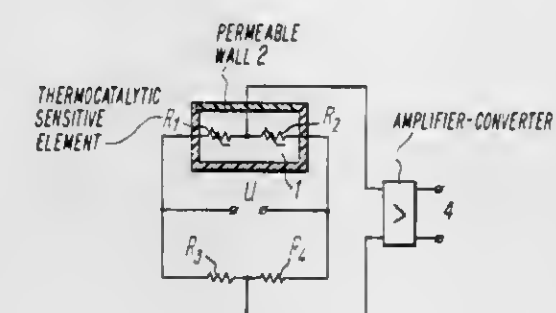
Continuation of Ser. No. 945,919, Sep. 26, 1978, abandoned. This application Jan. 14, 1980, Ser. No. 112,139

Claims priority, application U.S.S.R., Mar. 2, 1978, 2587202

Int. Cl.³ G01N 25/32

U.S. Cl. 73—27 R

1 Claim



1. A method for checking, in a mine environment, a thermocatalytic methane sensor having a gas permeable reaction chamber housing a thermo-catalytic converting element and a supply voltage for controlling the temperature of said thermo-catalytic converting element, comprising the successive steps of:

- reducing the sensor supply voltage to a level at which said thermo-catalytic converting element is cooled to a temperature obviating methane oxidation thereon;
- keeping the sensor at the reduced supply voltage for a time at least equal to a period during which methane concentration in said reaction chamber is levelled out to become equal to that in the mine environment;
- raising the sensor supply voltage, following the levelling out of methane concentration, stepwise to a level at which said thermo-catalytic converting element is heated to a temperature at which methane is oxidized thereon;
- measuring maximum and steady-state output signals provided by the sensor and also the time constant of a transient process during which the methane concentration changes within said reaction chamber and which continues until a dynamic equilibrium is set up between methane oxidizing on said thermo-catalytic converting element and methane penetrating into said reaction chamber from the mine environment;
- determining, after said measurements, efficiency of the thermo-catalytic converting element in methane oxidation, resistance of at least a wall of the reaction chamber to diffusive transfer of methane through its walls, and the sensor error in measuring methane concentration on the basis of the following expressions:

$$\gamma = \frac{S_H - S_Y}{T S_H} V_K$$

where γ is the throughput rate of the thermo-catalytic converting element in m^3/sec ;

S_H and S_Y are the maximum and steady-state values of the output signals of said sensor;

V_K is the volume of the reaction chamber, in cu.m. ;

T is the time constant of the transient process, in seconds;

$$\phi = \frac{S_H T}{S_Y V_K}$$

where ϕ is the resistance of said wall of the reaction chamber to the transfer of methane through its gas-permeable walls, in sec/m^3 ;

$$\Delta C = C - \frac{100 T S_H^2}{K V_K (S_H - S_Y)}$$

wherein ΔC is the absolute error in methane concentration measured by the sensor, in vol.%;

C is the methane concentration corresponding to the signal S_H produced by the sensor, in vol.%;

100 is a coefficient for converting the volume concentration of methane from relative units to percentage points;

K is a coefficient of conversion of methane flow reacting on said thermo-catalytic converting element to an electric signal being measured, $[\text{Bc}/\text{m}^3 \text{ or } \text{Ac}/\text{m}^3]$.

4,314,476

WELL FLUID VELOCITY MEASUREMENT METHOD AND SYSTEM

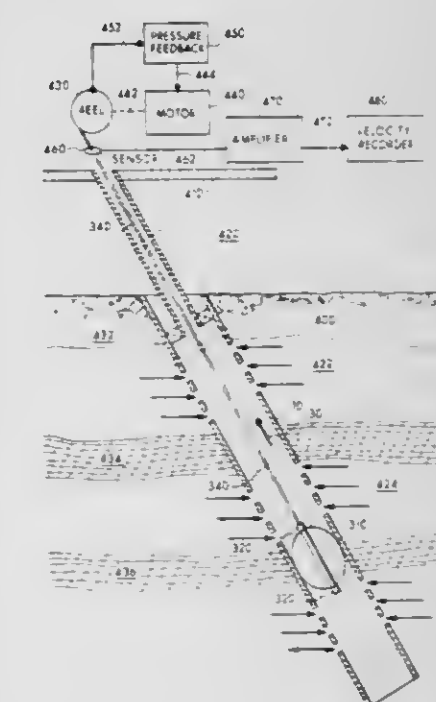
Irvin D. Johnson, Englewood, Colo., assignor to Marathon Oil Company, Findlay, Ohio

Filed May 27, 1980, Ser. No. 153,505

Int. Cl.³ E21B 47/00

U.S. Cl. 73—155

9 Claims



1. An improved method of measuring the velocities of fluids flowing in a well bore hole, wherein the improvement comprises the steps of:

- inserting an unexpanded restrictor (310) carrying a differential environmental condition sensor (320) into the bore hole (10) to a desired depth;
- expanding the restrictor (310) in the bore hole (10) at said

desired depth, said expanded restrictor (310) being capable of substantially minimizing any stirring occurring in said fluids and impeding the flow of said fluids; sensing a differential environmental condition on opposing ends of the restrictor (310) with said sensor (320); pulling (430, 440 and 450) the restrictor (310) at a sufficient velocity upwardly in the bore hole (10) to maintain the sensed differential environmental condition at substantially zero; and measuring (460, 470, and 480) the velocity at which the restrictor (310) is pulled, said measured velocity being substantially equal to the velocity of fluids in the well in the vicinity of said restrictor (310).

4,314,477

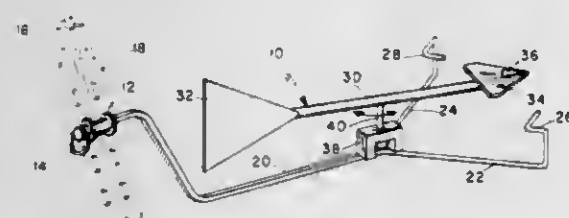
SAILBOAT WIND DIRECTION INDICATOR

Mark E. Yancy, 4004 La Salle St., San Diego, Calif. 92110
Filed Jan. 11, 1980, Ser. No. 111,212

Int. Cl.³ G01P 13/02; G01W 1/00

U.S. Cl. 73—188

4 Claims



1. A sailboat optimum heading indicator comprising: support means for mounting forward of the foremost sail on a sailboat, said support means including a generally Y-shaped frame having a pair of forwardly extending arms and an elongated backward extending body having means defining a journal extending generally horizontally outward at the end thereof for rotatably mounting in a mounting bracket, a vertical pivot bracket at the juncture of the arms with said body, wind direction responsive means mounted on said pivot bracket for pivoting about a vertical axis, the arms of said frame defining indicia means positioned for alignment with said wind direction indicating means when an optimum wind heading is obtained, wherein the mass of said Y-shaped frame is off set below said journal, and, the mass of said frame acts as a pendulum for maintaining said frame substantially level.

4,314,478

CAPACITANCE PROBE FOR HIGH RESISTANCE MATERIALS

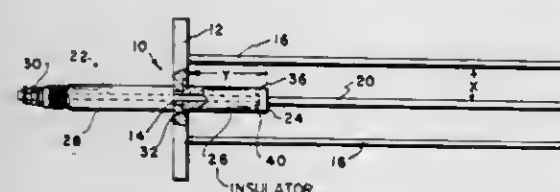
Norman V. Beaman, La Habra, Calif., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Nov. 16, 1979, Ser. No. 94,869

Int. Cl.³ G01F 23/26

U.S. Cl. 73—304 C

6 Claims



1. A capacitance probe for location in a vessel in the path of falling, substantially electrically non-conductive particulate matter to detect collection of such particulate matter to a predetermined level in the vessel, said probe comprising:

an electrically conductive mounting member; at least one elongated, flat sided capacitor blade, said blade being electrically grounded and cantilever mounted at one end to said member; an elongated, flat sided capacitor sensor element arranged in parallel, confronting, spaced apart relation to said blade; means cantilever mounting one end of said sensor element in electrically insulative relationship to said member; and mounting means operative to mount said member to said vessel and horizontally project said blade and said sensor element within said vessel at a predetermined level, with the flat sides thereof vertically oriented whereby said particulate matter can fall freely past said blade and said sensor element without collecting therebetween.

4,314,479

METHOD AND APPARATUS FOR TRANSMITTING AND RECEIVING ELECTROMAGNETICALLY GENERATED AND RECEIVED ULTRASONIC PULSES

Joban Spijkerman, Nyköping, Sweden, assignor to Studsvik Energiteknik AB, Nyköping, Sweden

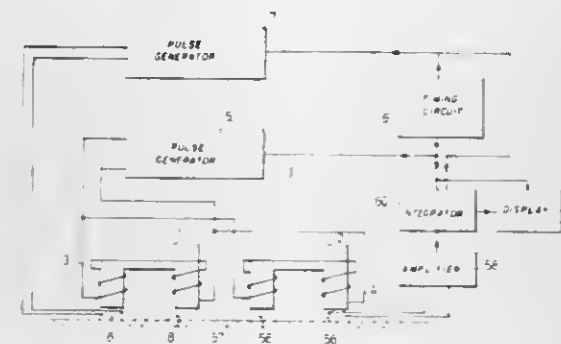
Filed Oct. 31, 1979, Ser. No. 89,983

Claims priority, application Sweden, Nov. 7, 1978, 7811513

Int. Cl.³ G01N 29/04

U.S. Cl. 73—643

12 Claims



1. A method of transmitting and receiving electromagnetically generated and received ultrasonic pulses, especially for non-destructive testing of electrically conductive material, particularly steel with a temperature above the Curie-temperature, comprising the steps of generating one or more magnetic fields by one or more electromagnets (1, 2, 3, 4) where said magnetic field is generated in the form of time-spaced pulses by a first pulse generator (5) and where each magnetic field pulse has a duration that is short as compared with the time interval between two successively occurring magnetic field pulses, characterized in that when the magnetic field or fields increase to at least a pre-selected strength, preferably 50 percent of maximum strength, a series of time-spaced electrical pulses of supersonic frequency are generated by a second pulse generator (7) and are supplied to a transmitter coil (8) within one of the magnetic fields to produce a corresponding number of ultrasonic pulses of well-defined length in said material, that a signal resulting from each ultrasonic pulse is received by a receiver coil (56) within one of said magnetic fields, that the receiver coil is scanned after each electrical pulse for sensing a received signal corresponding to each electrical pulse, that each such received signal is stored in an integrator (60) such that the series of received signals corresponding to said series of electrical pulses is summed up, whereafter the signal summed up in the integrator is emitted to a signal utilization unit (59), and that the last electrical pulse in said series is generated when said magnetic field or fields has decreased to a pre-selected strength, preferably 50 percent of maximum strength.

4,314,480

VENOUS PRESSURE ISOLATOR

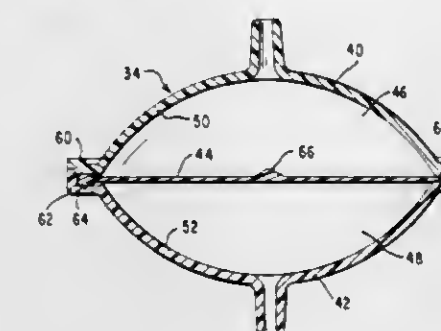
Lawrence F. Becker, Chicago, Ill., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Jul. 14, 1980, Ser. No. 168,471

Int. Cl.³ G01L 7/08

U.S. Cl. 73—706

10 Claims



1. Apparatus for isolating a pressure-sensitive device from blood flowing in an extracorporeal blood system and for transmitting the blood pressure from a blood flow line coupled to the pressure sensing device through the isolating apparatus, including a pressure chamber having an inlet coupled to the blood flow line and an outlet coupled to the pressure sensing device, and a membrane disposed transverse said chamber and surrounded by the chamber to segregate an inlet side of said chamber from an outlet side of said chamber, said membrane being fluid-impermeable and having its outer peripheral portion connected to the surrounding housing, comprising:

said membrane comprising a generally planar member having a thickness that is less than 0.04 inch and having a diameter that is at least twice as great as the intended total deflection distance; the membrane having a Young's modulus of no more than 300 psi and having a modulus at 300 percent elongation of no more than 750 psi; the membrane being positioned within the housing whereby greater pressure on either side of the membrane will cause it to deflect to the other side by stretching.

4,314,481

PIEZOELECTRIC STRAIN TRANSDUCER

Peter Wolfer, Kleinandelfingen; Hans-Rudolf Derrer, Rheinau; Max Vollenweider, Winterthur, and Hans-Conrad Sonderegger, Neftenbach, all of Switzerland, assignors to Kistler Instruments AG, Winterthur, Switzerland

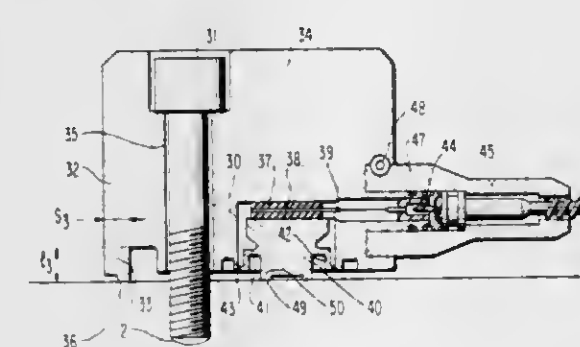
Filed Dec. 20, 1979, Ser. No. 105,703

Claims priority, application Fed. Rep. of Germany, Dec. 22, 1978, 2855746

Int. Cl.³ G01B 7/16; G01L 1/16

U.S. Cl. 73—774

17 Claims



1. Piezoelectric strain transducer for determining the elongation of a measuring section on the surface of a test specimen under cyclic compressive or tensile load, the transducer comprising two spaced bearing surfaces for frictionally engaging the measuring surface section of the test specimen, at least one of the bearing surfaces being connected to at least one adjustable resilient member and at least the other bearing surface being connected to a support member of the transducer forming a support surface for at least one piezoelectric plate means, the piezoelectric plate means being under pre-compression and

arranged for responding solely to shearing forces, a force-transmitting member of the transducer extending from the resilient member to the piezoelectric plate means for bearing upon the upper surface of the piezoelectric plate means, a single screw extending through the transducer between the bearing surfaces for frictionally connecting the transducer to the measuring section, whereby upon a change in length of the measuring section, substantially only a shearing force acts on the piezoelectric plate means corresponding to the strain in the measuring surface section and resulting in the emission of corresponding electric signals from the transducer.

4,314,482

ANALOG-DIGITAL CONTROL DEVICE

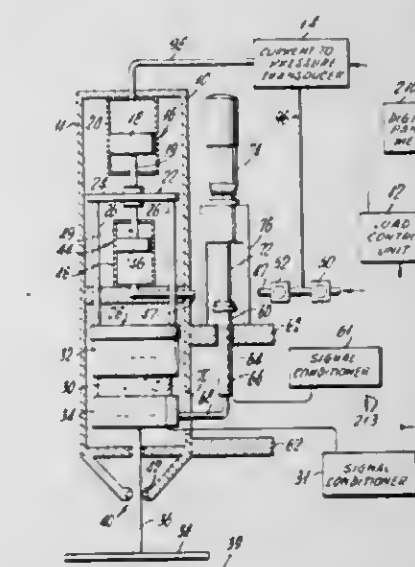
Theodore J. Krainski, Jr., Old Bridge, N.J., assignor to Johnson & Johnson, New Brunswick, N.J.

Filed May 12, 1980, Ser. No. 149,216

Int. Cl.³ G01N 3/00

U.S. Cl. 73—805

18 Claims



1. A control apparatus comprising: multi-channel analog memory means for storing input analog information and having multiple, readily accessible, manually selectable access ports; multi-channel digital memory means for storing input digital information and having multiple, readily accessible, manually selectable access ports; multiplexer means adapted to receive input analog information from said multi-channel analog means and input digital information from said multi-channel digital means and to generate a signal representative of said input analog information in accordance with said input digital information; switching means for switching said multiplexer means from one channel of input to the next in prescribed sequence; and, operational amplifier means for receiving a first signal from said multiplexer means and for receiving a second signal from an external feedback element, and for generating an outlet signal representative of said analog information compensated by said feedback signal to an external component.

4,314,483

MASS RATE OF FLOW METER WITH IMPROVED TEMPERATURE CHARACTERISTICS

John S. Wyler, Andover, Mass., assignor to General Electric Company, Wilmington, Mass.

Filed Oct. 12, 1979, Ser. No. 84,505

Int. Cl.³ G01F 1/80

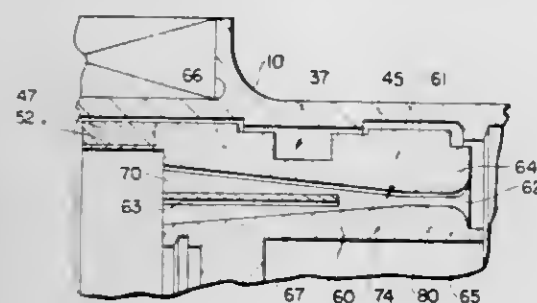
U.S. Cl. 73—861.35

13 Claims

1. In a mass rate of flow meter of the angular momentum type having a housing, a swirl generator for imparting angular

momentum to the measured fluid stream, a rotor downstream from the swirl generator, the rotor being rotated by the fluid from the swirl generator, and a restrained reaction turbine downstream from the rotor that removes angular momentum from the swirling fluid exiting the rotor, the rotor and turbine each being journaled on a shaft and including an inner hub and outer annulus, the improvement comprising at least one tapered, flow-conveying passage in the rotor having a substantially converging inlet section for imparting a uniform flow velocity to incoming fluid from the swirl generator and a substantially diverging outlet section downstream from said converging inlet sections for decreasing the uniform velocity by expanding the outgoing fluid stream.

6. A mass rate of flow meter of the angular momentum type having a housing, a rotating assembly mounted with and spaced from the housing, a swirl generator for imparting angular momentum to the measured fluid stream, said rotating assembly including a rotor element downstream from the swirl generator which is rotated by the fluid from the swirl generator, and a restrained, partially rotatable, reaction turbine element downstream from the rotor that removes angular momentum from the swirling fluid exiting the rotor with the



partial rotational displacement of the turbine being a measure of the mass rate of flow, the rotor and turbine each being journaled on a shaft defining their axis of rotation, the improvement comprising at least one double labyrinth sealing means formed between the housing and one of said rotor or turbine elements for impeding the flow of fluid there between, said housing and said rotating element having cooperating projections and surfaces to define;

- a first pair of interconnected, longitudinal, radially offset passages between the housing and one of said elements;
- a second pair of interconnected, longitudinal, radially offset passages, between said housing and said rotating element and axially displaced from said first pair, one of said longitudinal passages in said second pair being at the same radial distance from the axis of rotation as one of the longitudinal passages in said first pair the passages at the same radial distance being axially interrupted, and the remaining longitudinal passages in each pair being at different radial distances from the axis of rotation whereby the horizontal passages in the double labyrinth seal are located at least at three different radial distances from the axis of rotation to facilitate axial removal and insertion of the rotating assembly.

4,314,484

SELF-COMPENSATING OPTICAL DROP COUNT APPARATUS FOR MEASURING VOLUMETRIC FLUID FLOW

Robert J. Bowman, Salt Lake City, Utah, assignor to University of Utah Research Foundation, Salt Lake City, Utah
Filed Oct. 9, 1979, Ser. No. 83,002
Int. Cl.³ G01F 13/00; A61M 5/00

U.S. Cl. 73-861.41

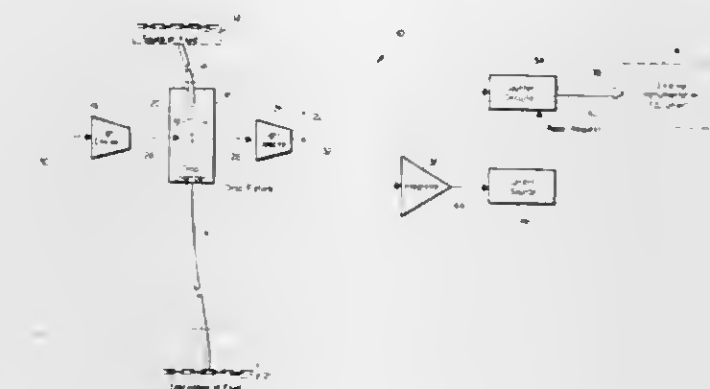
19 Claims

1. A self-compensating optical drop count apparatus for measuring volumetric fluid flow comprising:

- a drop chamber including:
 - a hollow body, having a radiation transmission path therethrough,
 - fluid inlet means coupled to an upper end of said hol-

low body for allowing a fluid to flow into said hollow body,

- drop formation means coupled to said fluid inlet means for causing said fluid to break up into drops of an approximate uniform volume before said fluid passes through said hollow body, said drop formation means being positioned so that said drops pass through said hollow body along a longitudinal drop path that intersects with said radiation transmission path, and
- fluid outlet means coupled to a lower end of said hollow body for allowing said fluid to flow away from said hollow body after passing therethrough;
- a light emitter adapted to continuously emit a directional light beam along said radiation transmission path, said light beam having an intensity that is controlled by an input control signal to said light emitter;
- a light detector optically coupled with said light beam after said light beam has passed through said hollow body along said radiation transmission path, said light detector being adapted to generate an output signal that indicates the presence and intensity of said light beam at said light detector;



- counting means coupled to said output signal of said light detector for counting interruptions that occur in said output signal, said interruptions being caused by said drops of fluid as said drops pass through said hollow body and interrupt said light beam, said counting means including single count protection means for counting only one interruption of a plurality of interruptions occurring in said output signal as a result of one of said drops breaking up into a plurality of smaller drops as it passes through said hollow body, said counting means thus adapted to count the number of drops of said liquid that pass through said chamber, said count, in combination with the approximate known volume of said drops, thus providing a measure of the volumetric flow of said fluid; and
- compensating means coupled to said output signal of said light detector and said input control signal of said light emitter for compensating the intensity of said light beam as emitted from said light emitter so that the intensity of said light beam as detected at said light detector is maintained at an average constant level regardless of any matter that may, on a long-term basis, tend to block said radiation transmission path.

4,314,485

SPEED CONTROL SYSTEMS

Frederick J. Adams, Clevedon, England, assignor to Cam Gears Limited, Hertfordshire, England

Filed Nov. 14, 1979, Ser. No. 94,225

Claims priority, application United Kingdom, Nov. 16, 1978, 44743/78

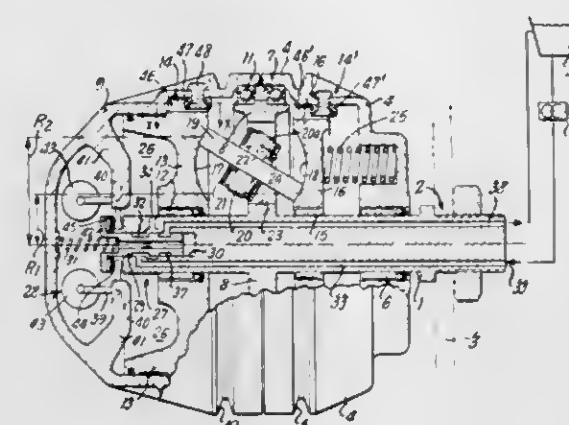
Int. Cl.³ F16H 15/38, 17/06

U.S. Cl. 74-200

15 Claims

1. A speed control system comprising co-axially mounted driven and driving plates having opposed annular grooves co-axial with the plates, said opposed grooves forming a gener-

ally toroidal track, a power transmitting roller mounted and running within the track, said roller being rotatable about an axis which lies substantially in a plane containing the axis of rotation of said driven and driving plates and engaging within each of the opposed grooves so that on rotation of said driving plate in one direction power is transmitted therefrom through the roller to rotate said driven plate in the opposite direction, a system part which is restrained from axial displacement, said driven and driving plates being axially displaceable relative to said system part, a carrier supporting said roller, said carrier being pivotally mounted about an axis which is substantially normal to said plane containing the axis of rotation of said driven and driving plates and offset from the center of said roller so that on axial displacement of said driven and driving plates said carrier can pivot to displace radially relative to the axis of rotation of said driven and driving plates the positions of engagement between the roller and the respective grooves



to effect a change in ratio of angular velocity at which said driving plate is driven relative to said driven plate, means biasing said driven and driving plates toward each other and into engagement with said roller, one of said driven and driving plates being biased towards the other plate and into engagement with said roller by fluid under pressure in an expansible chamber associated with said one of said driving and driven plates, valve means for controlling the admission of fluid to and the exhausting of fluid from said expansible chamber, said valve means being responsive to the speed of rotation of either said driven or driving plate so that said valve means is controlled in accordance with variations in rotational speed of either said driven or driving plate to which it is responsive to cause an adjustment in fluid pressure in the expansible chamber and thereby displacement of said one of said driven and driving plates and a variation in the ratio at which drive is transmitted through the system between said driven and driving plates.

4,314,486

VIBRATION DAMPENING RING

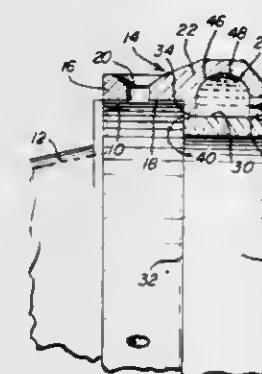
Lowell L. Hellwig, Rte. 4, Box 326, Excelsior Springs, Mo. 64024

Filed Apr. 11, 1980, Ser. No. 139,736

Int. Cl.³ F16F 15/16

U.S. Cl. 74-574

8 Claims



1. A vibration dampening ring for mounting concentrically

on an outer peripheral portion of a high speed rotating component, said ring including an annular mounting flange portion and an annular main body portion formed integrally with and spaced axially relative to said mounting flange portion, said mounting flange portion including means adapted for rigid mounting on and support from said outer peripheral portion, said main body portion including a cylindrical seating surface and having an elongated groove formed in and extending peripherally thereof, said groove opening laterally outwardly through said cylindrical seat surface intermediate the opposite axial ends thereof, and a closure ring defining a cylindrical closure surface supported from said body portion with said closure surface abutting and sealingly secured to said seating surface on opposite sides of said groove closing the latter, said closed groove having movement dampening liquid disposed therein and fluent weight material of a greater specific gravity than said liquid also disposed in said groove.

4,314,487

BRAKING METHOD FOR VEHICLE TRANSMISSION

Karl G. Ahlen, Bromma, Sweden, assignor to S.R.M. Hydromekanik Aktiebolag, Stockholm-Vallingby, Sweden

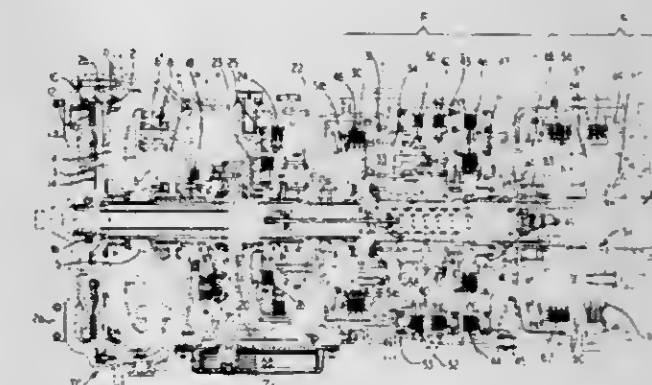
Filed Jan. 15, 1979, Ser. No. 3,526

Claims priority, application United Kingdom, Aug. 18, 1978, 3309/78; Aug. 24, 1978, 34391/78; Nov. 6, 1978, 43313/78; Nov. 6, 1978, 43315/78; Nov. 21, 1978, 45431/78; Nov. 21, 1978, 45432/78

Int. Cl.³ F16H 47/00; B60K 41/12

U.S. Cl. 74-865

18 Claims



1. A method for braking a vehicle with an engine operatively connected to a transmission which comprises a torque converter having a pump member, a guide member and a turbine member, and a multi-step mechanical gear transmission in series with the torque converter, the multi-step transmission being downstream from the torque converter with the turbine member being connected to the input of the said multi-step transmission, and the output of the multi-step transmission being operatively connected to the road wheels of the vehicle, said method comprising driving the turbine member at a higher speed than the pump member with the sole driving connection from the vehicle road wheels to the pump member being via the turbine member through the torque converter, and with the pump member connected to rotate at the same speed as the engine, and regulating the braking effort by controlling the speed of the engine.

4,314,488

HYDRAULIC CONTROL VALVE SYSTEM WITH A PRESSURE REGULATOR FOR A PLANETARY GEAR TRANSMISSION

Walter Lauven, Wohnpark, Fed. Rep. of Germany, assignor to Ford Motor Company, Dearborn, Mich.

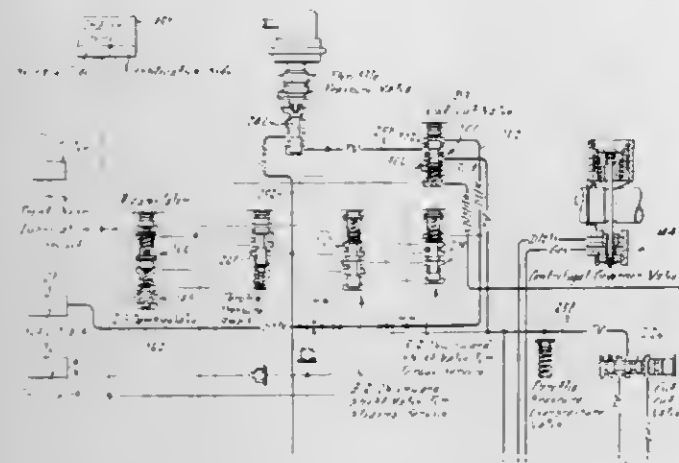
Filed Sep. 14, 1979, Ser. No. 75,456

Claims priority, application Fed. Rep. of Germany, Sep. 23, 1978, 2841526

Int. Cl.³ B60K 41/04, 41/06

U.S. Cl. 74—869

3 Claims



1. A hydraulic control valve system for an epicyclic change-speed gearbox for a motor vehicle comprising a planetary gear train having gear elements that are relatively movable, one with respect to the other, to establish speed ratios, clutches and brakes for controlling the relative motion of said gear elements, a high speed ratio clutch means for effecting a one to one driving condition through said gearbox, a reaction brake adapted to anchor a reaction gear element of said gearbox to establish an underdrive condition, clutch and brake servos for actuating said clutches and brakes, a pressure source comprising a pump driven by a power input element of said gearbox, a control valve circuit connecting said pump to said clutch and brake servos, a pressure regulator valve in said valve system including a pressure amplifier valve, a source of a torque signal that responds to torque input to said gearbox, a source of a speed signal that is proportional in magnitude to the driven speed of a driven member of said gearbox, said amplifier valve being subjected to said signals and a cut-out valve means in said valve system for interrupting communication between said amplifier valve and said torque signal source thereby preventing the transmission of said torque signal to the oil pressure amplifier valve as soon as an upshift into the high speed ratio condition occurs.

4,314,489

SCREWDRIVERS

Aldo Arcangeli, 132 Nelson Ave., Livingston, W. Lothian, Scotland

Filed Nov. 15, 1979, Ser. No. 94,741

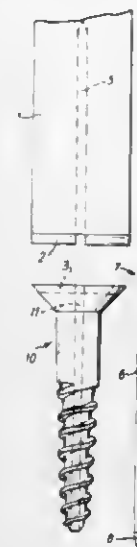
Int. Cl.³ B25B 15/00

U.S. Cl. 81—451

1 Claim

1. In combination, a screwdriver, a screw and a pin, in which the screwdriver has a working end adapted to engage a head of the screw, the screwdriver and screw each having bore means for slidably receiving the pin whereby in use the working end

of the screwdriver is held against lateral movement across the head of the screw and wherein the pin extends through the



screw and moves upwardly into the screwdriver as the screw penetrates a workpiece.

4,314,490

TORQUE WRENCH WITH ALARM INDICATOR

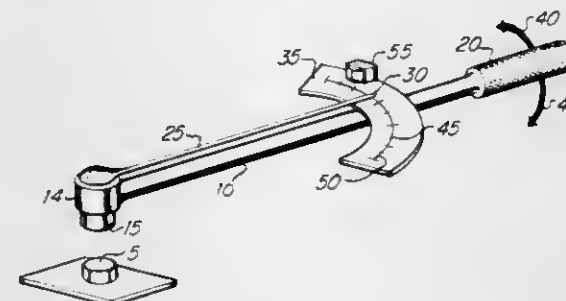
Gregory M. Stone, 11200 Powderhorn, Boise, Id. 83704

Filed Jun. 30, 1980, Ser. No. 164,778

Int. Cl.³ B25B 23/142

U.S. Cl. 81—479

2 Claims



1. A torque wrench comprising:
a mechanical arm having at one end a grip area adapted for the manual application of force to produce torque;
a faceplate affixed to said mechanical arm in the vicinity of said grip for displaying torque calibration marks, said faceplate including a material capable of magnetic attraction;
a pointer arm disposed on said mechanical arm to provide relative motion between said pointer arm and said faceplate affixed to said mechanical arm proportional to said torque; and
alarm means including a magnet for removable magnetic attachment to said faceplate near a selected calibration mark thereon for producing an alarm indication when said pointer arm is coincident with a preselected calibration mark, said alarm means including a battery, an alarm indicator and switch means electrically interconnected to activate said indicator upon contact of said switch means by said pointer.

4,314,491

PORTABLE SPECIAL LATHE FOR FLANGES OF LARGE DIMENSIONS

Willi Hartmann, Hoyerswerda, and Klaus Huth, Hoyerswerda, both of German Democratic Rep., assignors to Veb Gaskombinat Schwarze Pumpe, Schwarze Pumpe, German Democratic Rep.

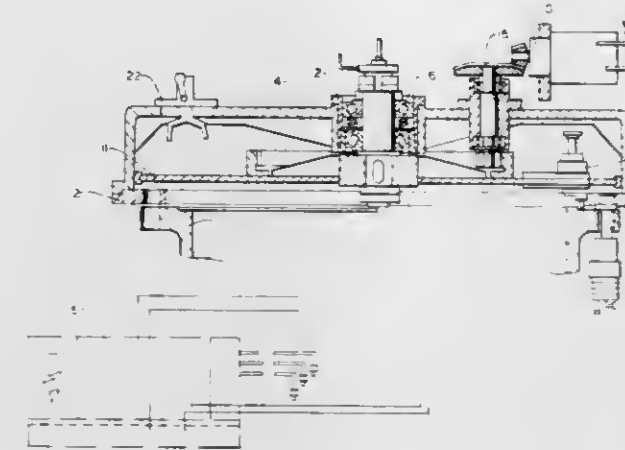
Filed Jun. 7, 1979, Ser. No. 46,497

Claims priority, application German Democratic Rep., Jun. 22, 1978, 206199

Int. Cl.³ B23B 5/00

U.S. Cl. 82—4 R

9 Claims



1. A portable lathe for machining sealing faces on flanges of work pieces having relatively large diameters and not removed from their location, comprising a machine unit and a hydraulic unit; said machine unit including a housing with a centering flange, a main drive, a rotatory turntable operatively connected to said drive, and a tool holder provided with a hydraulic motor; an intermediate flange positioned between the workpiece and said turntable and including a stepped-like flange surface coordinated with said centering flange, said intermediate flange being formed with a plurality of circumferentially distributed threaded holes; and a clamping system for connecting the workpiece to said intermediate flange, said clamping system including a plurality of bolts having external threads threaded into said threaded holes and each formed with a circumferential groove, a plurality of spacers each mounted in the respective groove of the respective bolt, and a plurality of hydraulic clamping cylinders connected to said bolts for adjustably coupling said intermediate flange to the workpiece.

4,314,492

APPARATUS FOR THE OUT-OF-ROUND MACHINING OF WORKPIECES

Otto Feller, Krähwinkel 47 g, D-5653 Leichlingen 1; Manfred Kühl, Baumberger Strasse 17, D-5090 Leverkusen 1, and Heinz Oepen, Brunnenweg 6, D-5609 Hückeswagen, all of Fed. Rep. of Germany

Filed Feb. 14, 1980, Ser. No. 121,514

Claims priority, application Fed. Rep. of Germany, Mar. 3, 1979, 2908383

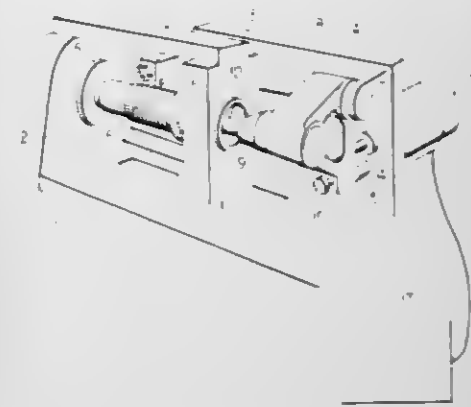
Int. Cl.³ B23B 3/28, 3/00

U.S. Cl. 82—18

6 Claims

1. In an apparatus for the out-of-round circumferential machining of workpieces, including a tool holder, a tool bit carried by the tool holder, a motor having a rotor operatively coupled to the tool holder for a radial feed of the tool bit; and means for numerically and electronically controlling the motor dependent upon a desired out-of-round contour of the work-

pieces, the improvement wherein the moment of inertia of the tool holder, the tool bit and any other component moving with



the tool holder as a unit during said feed motion is at the most equal to the moment of inertia of said rotor.

4,314,493

AUTOMATIC RHYTHM PATTERN ACCOMPANIMENT EQUIPMENT

Yoh-ichi Kondo, Kokubunji, Japan, assignor to Kabushiki Kaisha Kawai Gakki Seisakusho, Shizuoka, Japan

Continuation of Ser. No. 961,067, Nov. 15, 1978, abandoned.

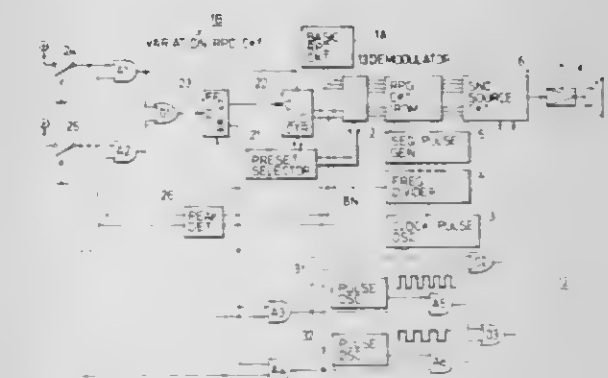
This application Mar. 24, 1980, Ser. No. 133,154

Claims priority, application Japan, Nov. 26, 1977, 52/141757; Nov. 29, 1977, 52/142951; Nov. 29, 1977, 52/142952

Int. Cl.³ G10F 1/00

U.S. Cl. 84—1.03

11 Claims



1. An automatic rhythm-pattern accompaniment equipment comprising:
an accompaniment rhythm-pattern generator for storing a plurality of accompaniment rhythm-patterns,
an accompaniment rhythm-pattern designator circuit for selecting a desired one of said accompaniment rhythm-patterns to be read out,
a sequence pulse generator providing an output to the accompaniment rhythm-pattern generator for the determination of signal read-out time of the accompaniment rhythm-pattern generator,
a sound source circuit supplied with the read-out signal from the accompaniment rhythm-pattern generator for producing a selected accompaniment rhythm sound, said sound source circuit producing a first accompaniment rhythm sound when a first accompaniment rhythm-pattern is selected by said accompaniment rhythm pattern designation circuit and producing a second accompaniment rhythm sound when a second accompaniment rhythm-pattern is selected by said accompaniment rhythm pattern designation circuit, said sound source switching from said first to said second accompaniment rhythm sound a predetermined time after said accompaniment rhythm-pattern designation circuit is switched from said first to said second accompaniment rhythm-patterns.

a means for generating a beat number determination signal synchronized to the accompaniment rhythm sound,
 a means for generating a fill-in rhythm signal,
 a means for superimposing a fill-in rhythm onto the accompaniment rhythm sound in response to a designation of a switch-over of accompaniment rhythm-pattern, said means for superimposing operating to superimpose said fill-in rhythm during said predetermined time, and
 a means for stopping the superimposed fill-in rhythm in synchronization with the beat number determination signal, said means for stopping operating to stop the fill-in rhythm after said sound source has switched from said first to said second accompaniment rhythm sound.

4,314,494

ELECTRIC KEYBOARD MUSICAL INSTRUMENT

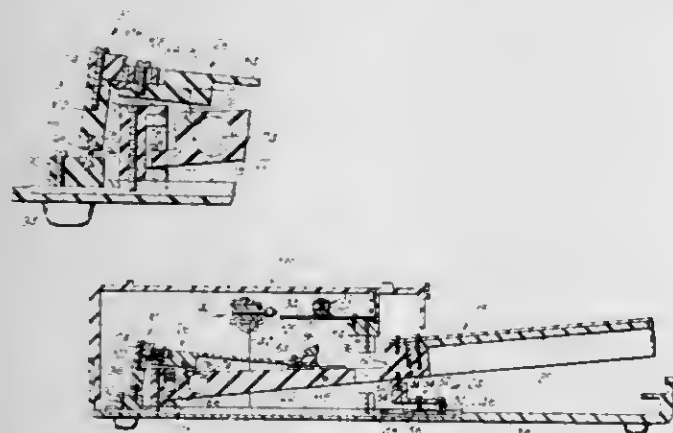
Paul de Vries, 38 W. 10th St., New York, N.Y. 10011

Filed Nov. 19, 1979, Ser. No. 95,558

Int. Cl.³ G10H 3/00

U.S. Cl. 84—1.06

11 Claims



1. An electric keyboard musical instrument comprising:
 supporting means;
 a plurality of vibratile reeds, each having a free end and its other end fixedly attached to the supporting structure;
 a plurality of actions, each being associated with a reed; each action including
 a key having a head and a tail,
 a hammer assembly including a hammer mounted on the key tail,
 an escapement,
 and flexible and resilient key hinge means for connecting the key to the supporting structure;
 said hammer assembly connected to the tail of the key by hinge and biasing means and when at rest in contact with the escapement and initially restrained thereby, whereby when the key head is depressed the key tail rotates about the key hinge causing the hammer assembly to overcome the resistance of the escapement so that the hammer strikes the reed at a specific point causing it to vibrate; pickup means in spaced relation to the free end of the reed for generating an electric oscillation signal from the vibrating reed.

4,314,495

PIEZOELECTRIC SADDLE FOR MUSICAL INSTRUMENTS AND METHOD OF MAKING SAME

Lloyd R. Baggs, 316 1/2 W. Pico Blvd., Los Angeles, Calif. 90015

Filed Nov. 8, 1979, Ser. No. 92,582

Int. Cl.³ G10H 3/18

U.S. Cl. 84—1.16

24 Claims

1. In a stringed instrument having a soundboard and a bridge portion over which a plurality of strings are passed, a piezoelectric saddle comprising:

an elongated body provided with an upper string support surface and an internal cavity extending the length of said body, means adapted for securing said body to said bridge

portion with the length of said body aligned in a direction transversely of said strings;

an elongated piezoelectric transducer member extending through the internal cavity in said body and in a direction parallel to the length of said body, said transducer member subtending said strings, said elongated piezoelectric transducer member defining a first transducer extending through the internal cavity in a direction parallel to the length of said body, and a second transducer extending in spaced parallel relation to said first transducer along the



4,314,496

MUSIC SYNTHESIZER

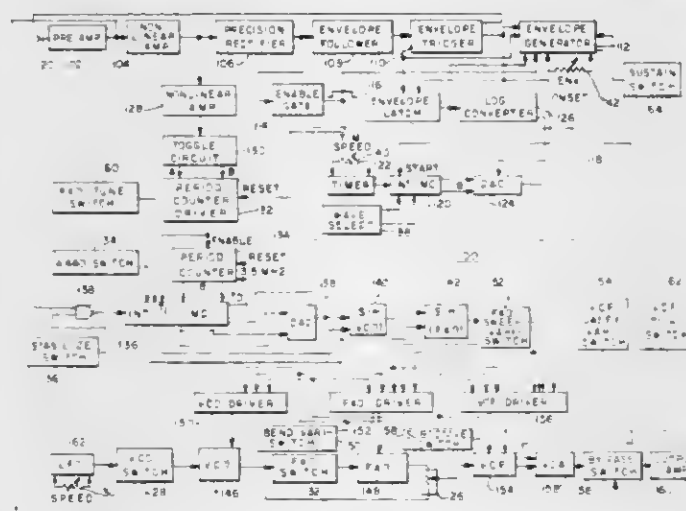
Michael L. Beigel, Warwick, N.Y., assignor to Donald L. Tavel, Indianapolis, Ind.

Filed Jun. 7, 1979, Ser. No. 46,443

Int. Cl.³ G10H 1/057, 1/46

U.S. Cl. 84—1.26

15 Claims



1. A music synthesizer controllable to provide a synthesized sound in response to an input signal derived from a musical sound, said input signal having a fundamental frequency and a rising amplitude portion, said synthesizer comprising:

means responsive to said input signal for generating a unipolar signal which follows the amplitude of said input signal;
 means for generating a controllable frequency signal related to said fundamental frequency;

envelope signal generating means responsive to said unipolar signal for providing a controllable envelope signal which increases in a controllable manner to a maximum amplitude related to the maximum amplitude of said input signal and which thereafter decreases in a manner related to the decrease of said input signal; and
 amplifier means for amplifying said frequency signal with a

gain determined by said envelope signal for providing said synthesized output signal;
 wherein said means for generating said unipolar signal further includes means for generating a maximum amplitude signal relating to the maximum achieved amplitude of said unipolar signal; and
 wherein said envelope signal generating means responds to said maximum amplitude signal in providing that portion of said envelope signal which increases to its maximum amplitude and responds to said unipolar signal in providing that portion of said envelope signal after said maximum amplitude is reached.

4,314,497

PIANO CONSTRUCTION FOR ENRICHED STEREOPHONIC TONAL RADIATION

Hideo Yamashita, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Japan

Continuation of Ser. No. 919,724, Jun. 27, 1978, abandoned.

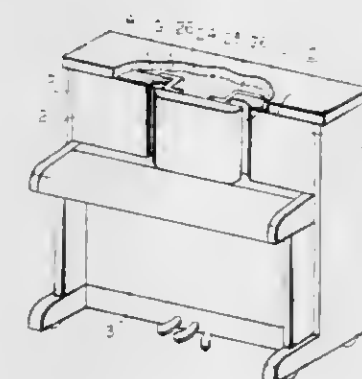
This application Sep. 2, 1980, Ser. No. 183,309

Claims priority, application Japan, Jul. 1, 1977, 52-87223

Int. Cl.³ G10C 3/02

U.S. Cl. 84—177

12 Claims



1. An improved piano construction for enriched stereophonic tonal radiation, comprising:

a resonant cavity including a front board defining a front end of said cavity, said resonant cavity having first, second and third areas in which treble, mid-range and base tones, respectively, predominate;

first and second tone radiating slits formed in said front board; said first and second slits being the only tone radiating slits formed in said front board; said first slit having a shape and location corresponding to one of said first, second and third areas so that said first slit radiates primarily a first tone range from within said cavity to the area in front of said front board whereby said slit operates primarily as a first tone range source; said second slit having a shape and location corresponding to a different one of said first, second and third areas such that said second slit radiates primarily a second tone range different than said first tone range from within said cavity to the area in front of said front board whereby said second slit operates primarily as a second tone range source; and
 each of said slits having an exponentially diverging shape which causes the tones radiated thereby to radiate over a wide area in front of said front board.

4,314,498

DRUM HAVING INTERNAL DOUBLE ACTING CONTROL TO PROVIDE VARIABLE PITCH

David P. Hofstad, 1005 S. Glendale, Sioux Falls, S. Dak. 57105

Filed Jun. 17, 1980, Ser. No. 160,206

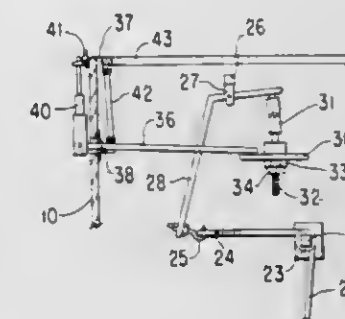
Int. Cl.³ G10D 13/02

U.S. Cl. 84—411 A

5 Claims

1. Drum means including a drum body and a drum head stretched over said body, stand means attached to said body and adapted to hold it, said stand means including legs and a central post means supported by said legs, pedal mounting means on said post means, a pedal pivotally mounted on said

mounting means, control means including a disc means mounted within said body and operably connected to said pedal, lever means pivoted to said body on a pivot axis adjacent to said body, said lever means extending adjacent to and adapted to be engaged by said disc means, each of said levers extending through an opening in said body and interior and exterior link means attached to each of said levers, said exterior link means being outside of said body and attached to the



4,314,499

MUSICAL INSTRUMENTS FACILITATING TEACHING, COMPOSING AND IMPROVISATION

Donald Olsen, 15 Cedar Pl., Sea Cliff, N.Y. 11579

Continuation-in-part of Ser. No. 899,086, Apr. 24, 1978, abandoned. This application Sep. 12, 1979, Ser. No. 74,662

Int. Cl.³ G10D 3/00; G09B 15/02

U.S. Cl. 84—485 R

5 Claims



1. A device for a musical instrument wherein both the device and the musical instrument for which it is designed used as their musical base the chromatic even tempered 12 tone scale, which device is either built into or placed upon the instrument itself, and, wherein the device provides a display means upon the fingerboard of the instrument consisting of lighting, illumination or designation means showing the exact place or places on the instrument where a string or strings are to be stopped, depressed or fingered with the fingers of one hand so that the note or combination of notes so selected as indicated by the display means can be plucked, strummed or played with the fingers of the other hand; and control means providing for user activation of the aforesaid display means; wherein the improvement comprises:

(a) a plurality of lights or other illumination or designation means located on or near the fingerboard of the instrument itself wherein each individual light, illumination or designation means is placed so as to display the exact

location on the fingerboard where each and every string or any part of them is to be stopped, depressed or fingered by the fingers of one hand so that a selected note or notes as displayed on the fingerboard can be played by the fingers of the other hand simultaneously plucking, strumming or playing the same string or strings so stopped as indicated; and

(b) with a plurality of switches, each switch controlling the illumination or activation of the display means for one pitch class on any part of one or all of the strings on the instrument where the selected notes naturally occur, and, which switch control means controls the illumination or activation of the display means associated with a pitch class separately from and independent of other switches controlling the display means associated with other pitch classes; and

(c) with the wiring circuitry arranged so that activation of one switch controlling the illumination of the display means of one pitch class is independent of and separate from any other circuit controlling the illumination or the designation of the display means of any other pitch class and with the stopping point displays of all notes of any given pitch class connected together so that all stopping points of any activated pitch class can be displayed simultaneously on all their locations on or near the fingerboard of the instrument used where the selected note naturally occurs; and,

(d) which switches are activated by the player with input chosen by the activation of individual switches or combinations of switches which switches control the illumination or activation of the display means located on or near the fingerboard of the instrument used and from out of the plethora of actuated or illuminated display means indicating a plurality of all notes of a selected pitch class possible to play on any part of the strings of the instrument used, the player can pick and choose from each pitch class involved; and

(f) which pattern of selection of pitch classes first chosen by the activation of selected switches can be changed by using the same matrix of switches which original selection and subsequent change conform to musical theory both in input and output and which pitch classes chosen are multiply displayed by the display means on or near the fingerboard of the instrument used at the precise places to be stopped by one hand in order to sound any notes of the selected pitch class with the other hand.

4,314,500

INSTANTANEOUS OPENING POSITIVE LOCK MECHANISM

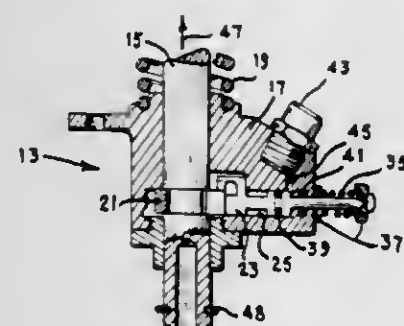
James C. Hoppe, Redondo Beach, Calif., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Jan. 25, 1980, Ser. No. 115,514

Int. Cl.³ F42B 15/10

U.S. Cl. 89—1 B

1 Claim



1. An instantaneous opening positive lock mechanism comprising a body portion having a vertically oriented cylindrical opening therethrough, an actuating rod disposed in the cylindrical opening in said body portion for slidable movement therein, a circular groove around the circumference of said

rod, a locking spring ring disposed in said circular groove for holding said rod in locked position in said body, a piston cam in alignment with said locking spring ring, said piston cam being positioned in a horizontally oriented cylindrical opening in said body portion for slidable movement therein, means on said piston cam for opening said ring when said piston cam is urged inward, said ring opening means including a wedge portion on the innermost end of said piston cam for engaging wedge faces on said locking spring ring whereby inward movement of said piston cam causes said ring to open and release said rod to allow vertical movement of said rod in response to forces acting thereon, and an internal mortise groove positioned on the innermost end of said piston cam, said mortise groove engaging upstanding mortise lugs on said locking ring to provide a positive locking capability and prevent opening of said locking ring until said piston cam is moved inward.

4,314,501

HIGH RATE OF FIRE REVOLVING BATTERY GUN

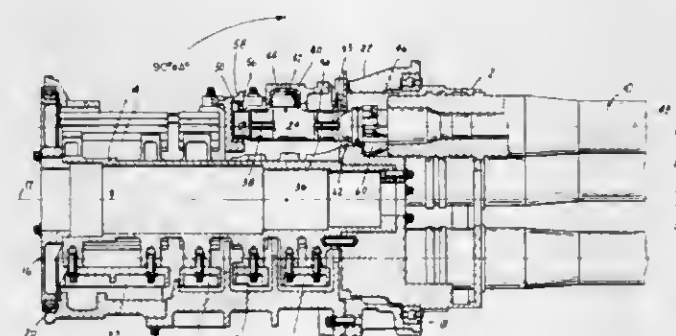
Robert G. Kirkpatrick, Shelburne, and Ronald R. Snyder, Georgia, both of Vt., assignors to General Electric Company, Burlington, Vt.

Filed Feb. 11, 1980, Ser. No. 120,442

Int. Cl.³ F41D 7/02

U.S. Cl. 89—12

5 Claims



1. A Gatling type gun including:

a housing;

a rotor journaled in said housing for rotation about a longitudinal axis;

said rotor including:

a plurality of gun barrels, each having a respective longitudinal axis, disposed in an annular row, each of said gun barrels fixed to said rotor with its respective longitudinal axis at an included angle A to said longitudinal axis of said rotor, said included angle A being neither 0° nor 180°, and

a like plurality of gun bolt assemblies, each having a respective longitudinal axis, disposed in an annular row, each of said gun bolt assemblies mounted to said rotor with its respective longitudinal axis coaxial with the respective longitudinal axis of a respective gun barrel.

4,314,502

SAFETY CONTROL SYSTEM FOR DOUBLE-ACTING CYLINDER

Edwin P. Brinkel, Royal Oak, and Philip J. Dellach, Utica, both of Mich., assignors to ISI Fluid Power, Inc., Fraser, Mich.

Filed Jan. 15, 1979, Ser. No. 3,411

Int. Cl.³ F15B 13/042

U.S. Cl. 91—438

2 Claims

1. In combination with a double-acting cylinder assembly, including a cylinder with pressure and exhaust ports, a piston defining opposed differential areas and piston rod, a cylinder control valve having a spool having a central position and a pair of control positions, with pressure, cylinder and exhaust ports, cylinder conduits between said control valve cylinder

4,314,503

STENCIL PRINTING

Andrew G. Perra, Jr., and George H. Sparhawk, Jr., North Swazey, both of N.H., assignors to Markem Corporation, Keene, N.H.

Filed Dec. 18, 1979, Ser. No. 104,801

Int. Cl.³ B41F 17/00

U.S. Cl. 101—41

2 Claims

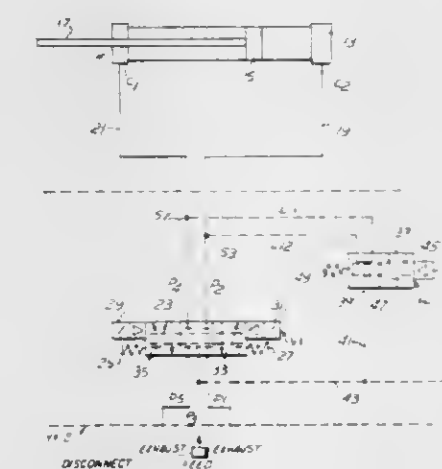
ports and said cylinder ports respectively, a pressure conduit connected at one end to said control valve pressure port and having an open end; and a source of compressed air including a pressure passage means having a disconnect fitting removably connected to said pressure conduit open end;

said pressure conduit on disconnection from said source of compressed air adapted for communication to atmosphere;

a safety control system for said cylinder assembly comprising a pilot operated valve including a housing having a pressure port connected to said pressure conduit, a pilot port connected to said pressure conduit, said pressure and pilot ports being connected to said pressure conduit between said disconnect fitting and said cylinder control valve, and a pair of cylinder ports connected to said cylinder conduits respectively;

a valve spool in said housing having first and second control positions therein;

operative means on said housing normally biasing said safety valve spool to a first control position connecting said safety valve pressure port to both of its cylinder ports and to opposite ends of the cylinder assembly;



1. Stencil printing apparatus adapted for printing on a curved or irregular underlying surface, comprising:

a rigid housing member having side wall means providing a chamber for enclosing a quantity of printing fluid

elastically compressible and deformable supporting wall means mounted on one end of said housing member side wall means extending beyond said housing member side wall means

providing an axial extension of said chamber, the outer edge of said supporting wall means being normally generally perpendicular to said side wall means of said chamber

a flexible stencil screen having its outer peripheral edge sealingly mounted on said outer edge of said supporting wall means and extending thereacross normally generally perpendicular to said side wall means of said chamber to form an end wall of said chamber, said stencil screen including its outer peripheral edge being deformable into continuous contact with said underlying surface and with said supporting wall means being elastically compressed thereby

print cylinder means for moving said housing member and wall means to contact said stencil with a surface to be printed

piston means mounted in said chamber adjacent the other end of said housing member for transmitting pressure to said printing fluid to extrude said printing fluid through said stencil screen when said stencil screen is in contact with said underlying surface to be printed, and

common control means for actuating said print cylinder means and said piston means.

4,314,504

PAD TRANSFER PRINTING MACHINE

Guy Combeau, Paris, France, assignor to Machines Dubuit, Paris, France

Filed Feb. 1, 1980, Ser. No. 117,552

Claims priority, application France, Feb. 1, 1979, 79 02655

Int. Cl.³ B41F 1/16, 17/00

U.S. Cl. 101—41

11 Claims

1. A pad transfer printing machine comprising a plate-holder carriage, means for mounting said plate-holder carriage for horizontal movement for inking a printing plate between a forward position and a return position, a pad-holder carriage, means for mounting said pad-holder carriage for horizontal movement between an image-receiving return position and a forward printing position, common control means for controlling the horizontal movements of both of said carriages, said common control means comprising a control rod pivotally

conically shaped nose end, and a rear end having a plurality of closed apertures disposed therein;
 sabot means, having a body section slidably disposed in said barrel and separated therefrom by a predetermined clearance, said clearance, in combination with propellant gases of said projectile providing a fluid dynamic bearing to assist in the guidance of said projectile-sabot system within said barrel, a conically shaped forward section disposed intermediate said body section and a full bore obturator-nozzle flange means in combination and substantially enclosing said projectile, said flange section being substantially the forward most section of said projectile, said flange having a plurality of nozzles extending from the forward surface of said flange section to the aft surface of said flange section for providing obturation and spin to said projectile-sabot system; and
 sabot base plug means for transferring torque generated by said obturator-nozzle flange means to said rear end of said projectile, for longitudinally sliding said nose end of said projectile into contact with said conically shaped forward section of said sabot means to axially align and radially secure said projectile within said sabot means, for allowing gas pressure to apply an accelerating force to the aft end of said projectile, and for stripping said base plug means and said sabot means from said projectile after said projectile-sabot system has exited from said barrel;
 friction means for providing frictional engagement between said sabot body section and said rotating band of said projectile, and for restraining the longitudinal movement of said projectile toward said obturator-nozzle flange means.

4,314,511

TRANSPORT DEVICE MAINLY INTENDED FOR PULLING TREE TRUNKS AND SIMILAR LOADS

Leif Bogren, Radavägen 59, Mölndal, Sweden (431 36)

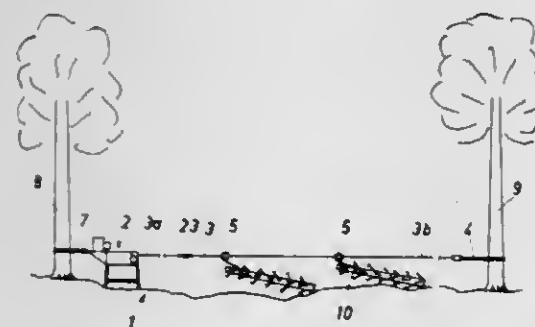
Filed Aug. 9, 1979, Ser. No. 64,987

Claims priority, application Sweden, Aug. 24, 1978, 7808923

Int. Cl.³ B66C 21/00

U.S. Cl. 104—173 R

10 Claims



1. A transport device for transporting a load along a path of transport between at least two points comprising, an elongated element extending along the path of transport, an anchoring member attached to one end of said elongated member, a driving means attached to the other end of said elongated element for producing a reciprocating movement of said elongated element in its longitudinal direction, at least one unidirectional load carrying gripping member releasably engaging said elongated element and operable to grip said elongated element when it is reciprocating in the desired direction of transport and release said elongated element when it is reciprocating in the opposite direction, and means for attaching a load to be transported to said gripping element, said gripping element comprising a hollow cylindrical casing member having a bore extending therethrough, a longitudinal slot extending through the wall of said casing through which said elongated element is insertable so that said gripping element may be engaged with and removed from said elongated element, releasable retaining means for retaining said gripping element in engagement with said elongated element, unidirectional locking members in said casing operatively associated with said elongated element to move said gripping member along the

path of transport, and a releasing member attached to said elongated element at a desired unloading position to cooperatively engage said gripping member to release said retaining means and remove said gripping member from engagement with said elongated member.

4,314,512

DAMPED SUSPENSION SYSTEM FOR CONVEYORS

Thomas Gerbard, Hirschberg-Leutershausen, and Ulrich Giesen, Krefeld, both of Fed. Rep. of Germany, assignors to Waggonfabrik Uerdingen AG, Krefeld, Fed. Rep. of Germany

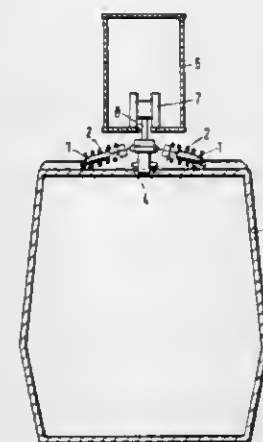
Filed Mar. 31, 1980, Ser. No. 135,620

Claims priority, application Fed. Rep. of Germany, Apr. 14, 1979, 2915236

Int. Cl.³ B61B 13/04, 13/02

U.S. Cl. 105—149

7 Claims



4. A damped suspension system for reducing transverse swinging of an element having an undercarriage and depending from an overhead carrier cable while the element is moving forwardly in a straight line and for limiting lateral inclination thereof relative to the carrier cable, comprising a pair of shock absorbers associated to the undercarriage and connected to the element; a pair of prestressed springs each associated with one of said shock absorbers to act in parallel therewith and exerting a force on the element for compensating swinging motions thereof; means associated to each of the two springs for actuating the respective spring in such a manner that upon an inclination of the element the one spring associated to the shock absorber located on the raised side of the element, exerts a force beyond its initial stress and the other spring of the shock absorber located on the lowered side of the element, becomes ineffective, wherein the shock absorber has a cylinder and a piston sliding in the cylinder; the shock absorber and the spring being surrounded by a cylindrical casing having an upper face fixed to the cylinder and a bottom face so developed as to have inwardly projecting tongues at a distance to each other, two respective tongues defining a recess in between; and wherein the bottom face of the casing is cooperating with a sleeve having a bottom side fixed to the piston and an upper side provided with outwardly projecting tongues at a distance to each other, wherein two respective tongues define a recess in between, in such a manner that the tongues of the casing are projecting into the respective recesses of the sleeve and the tongues of the sleeve are projecting into the respective recesses in the casing so that the spring is encased by the casing and the sleeve.

4,314,513

METHOD AND APPARATUS FOR THE INCINERATION OF STALKS, ESPECIALLY OF STRAW

Franz Berthiller, A 3473 Winkl 22, Lower Austria, Austria, assignor to Franz Berthiller, Winkl, Austria

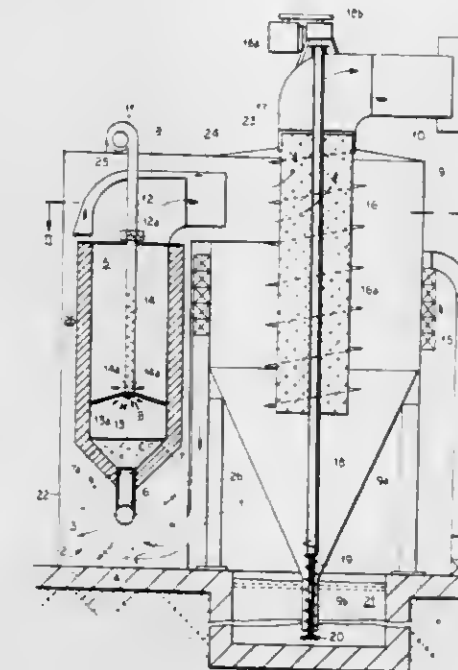
Filed Jun. 26, 1980, Ser. No. 163,399

Claims priority, application Austria, Jun. 28, 1979, 4535/79

Int. Cl.³ F23G 5/04

U.S. Cl. 110—224

14 Claims



1. An apparatus for the incineration of stalk crop material comprising:

- (a) cutter means for severing stalks of said crop material into pieces;
- (b) a pneumatic conveyor for receiving said pieces and pneumatically displacing same in a conveying air stream to a combustion station;
- (c) a first separator at said station for separating said conveying air stream from said pieces;
- (d) a compacting conveyor for withdrawing said pieces from said separator and compacting said pieces at said station into a body of said pieces;
- (e) a shaft furnace forming a combustion chamber receiving said body of pieces from said compacting conveyor for sustaining destructive distillation of said pieces below an exposed surface of said body in said chamber;
- (f) means for feeding fresh air to said chamber for combustion of combustible gases and said body at said surface, thereby producing ash entrained by a hot gas from said chamber;
- (g) a hood at an upper end of said shaft furnace for collecting said hot gas with entrained ash; and
- (h) an ash separator connected to said hood for separating ash from said hot gas.

4,314,514

SUGAR CANE PLANTER

Johann V. Binder, Cardier Rd., Wangan, Queensland, Australia (4860)

Filed Mar. 17, 1980, Ser. No. 131,008

Int. Cl.³ A01C 7/20

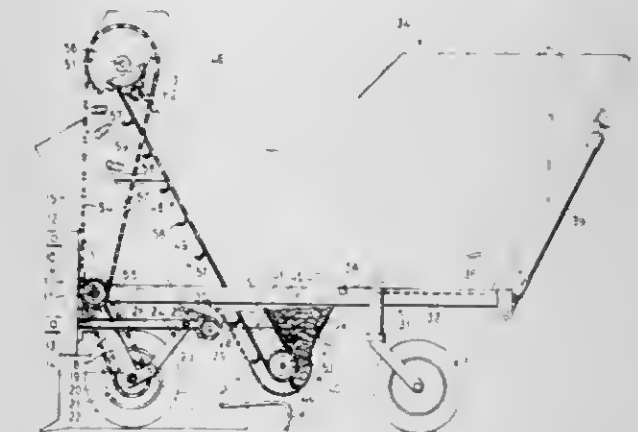
U.S. Cl. 111—3

4 Claims

1. A sugar cane planter including:
 a wheel-mounted main frame,
 means for connecting the main frame to a tractor,
 a drill plough mounted under the main frame,
 a wheel-mounted trailer frame pivotally connected about a transverse axis at its front to the main frame,
 a fixed tank adapted to contain a quantity of treating liquid on the trailer frame, said tank including side walls and

downwardly convergent front and rear walls which define a closed tank bottom,

a hopper on the trailer frame adapted to carry a quantity of cane setts and to deliver them gravitationally into the tank, said hopper comprising a pair of fixed parallel sides and, between the sides, a bottom member hinged at its front to the back of the tank and a back member rigidly secured to the back of the bottom member, and means for raising the bottom and back members relative to said fixed sides and tank for ejecting cane setts from the hopper into the tank,



an elevator extending into said tank to elevate setts from the tank and to discharge them above the main frame, said elevator including transverse channelled cleats on endless sprocket-mounted chains, each of said cleats being adapted to engage and elevate at least one sett, and means for ejecting from each of said ascending cleats any setts carried by said cleat in excess of one, and
 a chute assembly on the main frame adapted to receive such discharged cane setts and feed them gravitationally to a furrow opened by the drill plough.

4,314,515

SEED SINGULATOR

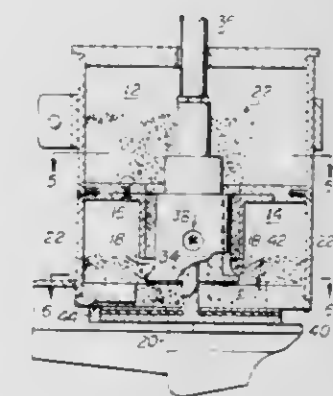
Miguel A. Jimenez, Douglas, Ariz., and Manuel M. Saucedo, Blythe, Calif., assignors to Patrick O. Griffin, Yuma, Ariz., by said Manuel M. Saucedo

Filed Nov. 13, 1979, Ser. No. 93,499

Int. Cl.³ A01C 7/20, 5/06

U.S. Cl. 111—77

4 Claims



1. A seed singulator which comprises:
 (a) a first member having an upwardly facing flat surface,
 (b) a second member having a flat surface with a groove extending across the flat surface and having a width dimensioned to receive seeds of the type to be singulated in a single file, the flat surface of said second member being positioned on a first part of the flat surface of said first member so that a first portion of the flat surface of said second member including an end of the groove extends beyond the flat surface of the first member and the end of the groove extends beyond said first member,

- (c) means for supplying seeds to a second part of the flat surface of said first member,
- (d) means for moving said first and second members relative to each other to move the seeds toward the groove in a direction having a component along the groove, the groove forming an angle of less than 90 degrees relative to the direction of motion between said first and second members, the motion between said first and second members being rotary about a first axis, said second member having an opening eccentrically disposed relative to the axis, which opening defines the second part of the flat surface of said first member,
- (e) means for adjusting the angle the groove forms with respect to the direction of motion between the first and second members,
- (f) a seed reservoir positioned above said first and second members, an enclosure between said seed reservoir and said first and second members, and an enclosed passageway communicating between said reservoir and said enclosure, said passageway terminating at a given distance above said first member to provide a predetermined depth of seeds in said enclosure independent of quantity of seeds in said reservoir, and
- (g) means for forming a furrow to receive the seeds from the end of the groove.

4,314,516

WORKPIECE GUIDE FOR SEWING MACHINES

Jean P. Touret, Chatillon, France, assignor to Rockwell-Rimoldi, S.p.A., Milan, Italy

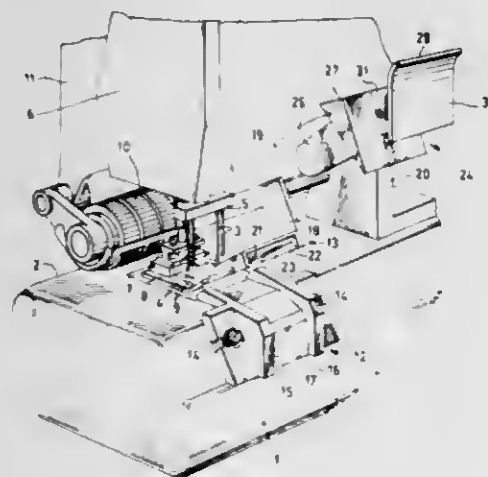
Filed Dec. 17, 1979, Ser. No. 103,878

Claims priority, application Italy, Jan. 11, 1979, 19201 A/79

Int. Cl.³ D05B 35/10

U.S. Cl. 112—152

4 Claims



1. A device for simultaneously guiding separated strips of waistband material and a workpiece interposed therebetween to the stitching instrumentalities of a sewing machine of the type having a presser foot, a feed dog and an auxiliary transport device, said device comprising:
- (a) a pair of U-shaped guide elements (12-13) mounted in spaced relation and in vertical alignment on the sewing machine including:
- (i) sides defining legs (15-16, 21-22) respectively, with the legs of one of said guide elements extending toward those of the other;
- (b) a dividing member (24) pivotably mounted on the sewing machine and selectively movable from an operative position between said guide elements (12-13) to a position displaced therefrom, said dividing member including:
- (i) upper and lower guide elements (27-28) having exterior surfaces defining lid elements (32-33) for cooperating with said guide elements (12-13) respectively to form passageways for the separated strips of waistband material being advanced to the stitching instrumentalities; and
- (c) means interconnecting said upper and lower guide elements

- (27-28) for guiding the workpiece being advanced with the strips of waistband material.

4,314,517

SEWING MACHINE WITH SUPPLEMENTAL WORK SUPPORTING SURFACE

Takahiko Kasahara, Anjoshi; Tukasa Yamaguchi, Aichiken; Shigebaru Shichi, Anjoshi; Masayuki Kato, Owariasahishi, and Senji Suito, Kariyashi, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariyashi, Japan

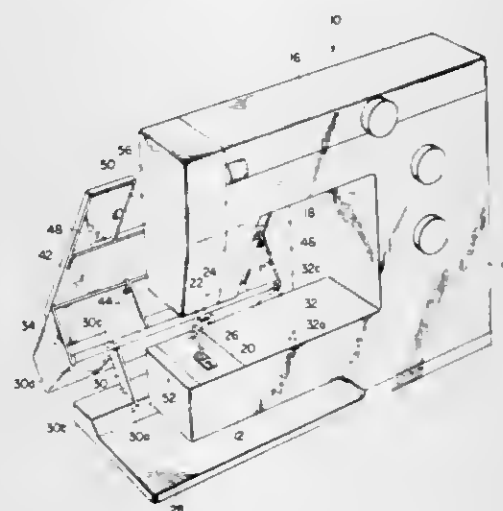
Filed Jan. 9, 1979, Ser. No. 2,003

Claims priority, application Japan, Jan. 13, 1978, 53-532472[U]

Int. Cl.³ D05B 73/10

U.S. Cl. 112—260

3 Claims



1. A sewing machine comprising:
- a main base;
- a base plate vertically separated from said main base;
- a head extending from the main base,
- a needle plate associated with the main base for supporting work fabric in position to be stitched, a line extending between said needle plate and said head, in the plane of said needle plate, defining a first direction,
- a supplemental base connected to the main base through means of link mechanisms placed in a position in which the supplemental base is substantially in a plane including the main base and is immediately contiguous to the main base to present a continuously combined wider flat plane or placed in another position in which the supplemental base is substantially apart from the main base so that the main base is left alone and adapted to support a tubular fabric therearound wherein, said link mechanisms include a pair of parallel and identical length first links separated from one another in said first direction and each pivoted at one end thereof to the base plate for rotation in a plane perpendicular to said first direction, and a second link to which in turn are pivoted said first links at the other ends thereof, said supplemental base being pivotally mounted to the second link, said second link includes an edge portion in abutment with the main base and a wall in abutment with the length of one of the first links to cooperate under influence of gravity with the supplemental base so as to support the supplemental base on the second link in a plane in which lies the main base.

4,314,518

SIMPLIFIED SAILING SYSTEM

Floyd Marsden, Garden City, Ga., assignor to Barbara B. Marsden, Garden City, Ga.

Filed Feb. 27, 1980, Ser. No. 125,360

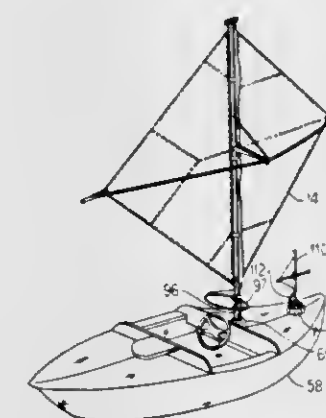
Int. Cl.³ G01D 21/00

U.S. Cl. 114—39

16 Claims

1. A method for sailing a wind-propelled vehicle comprising:

- (a) providing means for maintaining knowledge of the appropriate wind direction sufficient to enable a novice to make appropriate positioning of a rig to safely operate said vehicle, including, a wind indication means rotatably supported on said wind propelled vehicle and operative for locating the wind direction, a wind indicator secured to said wind indication means, a first coded structure secured to said wind-propelled vehicle, with an identifiable code responsive to said wind indicator, a rotatable support member secured onto said wind-propelled vehicle and operative to support a plurality of sails, a rig positioning indicator secured to said rotatable support member, and a second coded structure secured to said wind-propelled vehicle, with the same said identifiable code thereon responsive to said rig positioning indicator;
- (b) locating the wind direction by use of said wind indication means secured to said surface of said wind-propelled vehicle;
- (c) placing said wind indicator on said wind indication means;



- (d) securing to said wind-propelled vehicle said first coded structure around the base of said wind indication means, with said identifiable code thereon responsive to said wind indicator;
- (e) rigging a plurality of sails for said wind-propelled vehicle on said rotatable support member;
- (f) placing said rig positioning indicator secured to said rotatable support member;
- (g) securing to said wind-propelled vehicle said second coded structure around said rotatable support member, with the same identifiable code thereon responsive to said rig positioning indicator; and
- (h) moving said rotatable support member so that the rig positioning indicator identifies the same portion of said identifiable code on said second coded structure when said wind indicator identifies a similar portion of said identifiable code on said first coded structure;
- whereby, when said rig positioning indicator identifies the same portion of said identifiable code on said second coded structure that said wind indicator identifies on said first coded structure, said plurality of sails are in the appropriate position for that particular wind direction.

4,314,519

BALLAST PUMPING SYSTEM

Shigeto Yunoki, Tokyo, and Masataka Makizono, Sakado, both of Japan, assignors to Yamasbata-Shinniboo Steamship Co., Ltd., Tokyo, Japan

Filed Feb. 26, 1980, Ser. No. 124,942

Claims priority, application Japan, Mar. 14, 1979, 54-029289

Int. Cl.³ B63B 39/03

U.S. Cl. 114—125

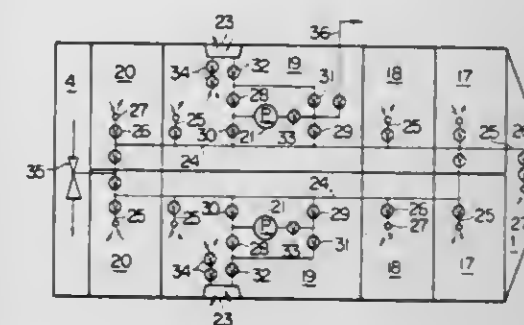
3 Claims

1. A ballast pumping system for pumping water ballast from or to the sea respectively to or from a plurality of ballast tanks provided within the hull of a ship, comprising:
- a hydraulically operated submerged ballast pump located in one of said ballast tanks;
- a sea chest provided in the bottom of the hull of said ship

adjacent said ballast pump, said sea chest having an interior region in fluid communication with the sea;

outboard valve means for selectively directly connecting said sea chest and the ballast tank in which said sea chest is located;

first piping means for interconnecting said pump and said sea chest;



second piping means for interconnecting said pump and the respective bottom regions of each of said ballast tanks, said second piping means comprising a main pipe and a plurality of branch pipes, said main pipe being directly connected to said pump and each of said branch pipes interconnecting said main pipe with a respective one of said ballast tanks.

4,314,520

STEERING MECHANISM FOR BOATS

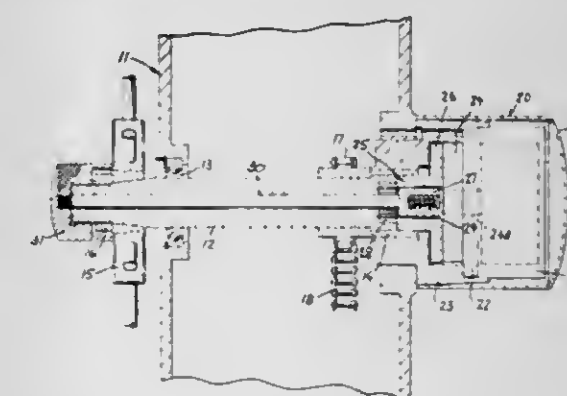
Stjepan Kotic, Sveavägen 49, 113 59 Stockholm, Sweden

Filed Apr. 16, 1980, Ser. No. 140,787

Int. Cl.³ B63H 25/00

U.S. Cl. 114—144 R

3 Claims



1. A steering mechanism for boats, comprising
- (a) a support,
- (b) a steering shaft rotatably mounted in the support,
- (c) means for transmitting rotational motion of the steering shaft to a rudder operating device,
- (d) a hand steering wheel secured to one end of the steering shaft, and
- (e) a power actuator mounted on the support adjacent to the opposite end of the steering shaft and comprising
- (i) a rotary motor,
- (ii) a self-locking reduction gear with high gear ratio and including a driving shaft connected to the motor and a driven shaft coaxial with the driving shaft and the steering shaft, and
- (iii) a clutch operatively positioned between the driven shaft of the reduction gear and said opposite end of the steering shaft, said clutch having a torque transmitting member coaxial with the driving shaft, the driven shaft and the steering shaft and being axially displaceable between an engaged position and a disengaged position, said torque transmitting member in said engaged position rotationally uniting the steering and driven shafts

and in said disengaged position permitting relative rotation of the steering and driven shafts.

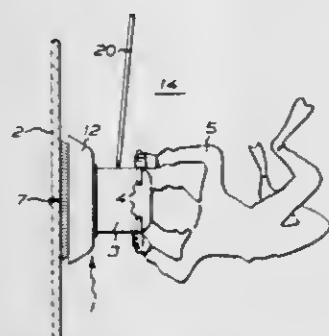
4,314,521

METHOD AND APPARATUS IN THE TREATMENT OF UNDERWATER SURFACES OF FIXED OR FLOATING CONSTRUCTIONS

Hans G. Lundberg, Löddeköpinge, Sweden, assignor to Trelleborg Marin Aktiebolag, Trelleborg, Sweden
Division of Ser. No. 848,795, Nov. 4, 1977, abandoned. This application Feb. 25, 1980, Ser. No. 124,045
Claims priority, application Sweden, Nov. 4, 1976, 7612280
Int. Cl.³ B63B 59/00

U.S. Cl. 114-222

16 Claims



1. Apparatus for cleaning underwater surfaces such as ships' hulls and the like comprising, in combination, a motor having a shaft, a substantially planar brush mounted on said motor shaft for rotation thereby and having a rear face and a front face for brushing contact with the surface to be cleaned, said shaft having an axial channel terminating in an open end adjacent said brush rear face, conduit means connected to an air supply above the water line for introducing air into said brush through said axial channel open end for emergence at said brush front face to thereby reduce the water resistance and power loss of the motor resulting from contact of the brush with the surrounding water, and means being provided for forming an insulation zone separating the brush from the surrounding water.

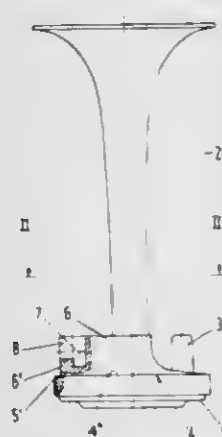
4,314,522

ACOUSTIC ELECTROPNEUMATIC SIGNAL GENERATOR, PARTICULARLY FOR AUTOMOTIVE VEHICLES

Domenico Frigo, Olmo, Italy, assignor to F.I.A.M.M. S.p.A. Fabbrica Italiana Accumulatori Motocarri Montecchio, Montecchio Maggiore, Italy
Continuation of Ser. No. 951,157, Oct. 13, 1978, abandoned. This application May 6, 1980, Ser. No. 147,150
Claims priority, application Italy, Oct. 14, 1977, 22499/77[U]
Int. Cl.³ G10K 9/00, 9/12

U.S. Cl. 116-142 R

9 Claims



1. In combination, an acoustic signal generator for an automotive vehicle, comprising two horns each provided with a cornet and a generally cylindrical muff enclosing a membrane

and having an end face joined to said cornet, and fastening means for securing said signal generator to a vehicle body, the muff of each horn carrying on said end face a radially extending boss which supports said cornet in coaxial relationship with said muff and is provided between the peripheral surface and the axis of said muff with an open-ended channel parallel to said axis and a narrower slot transversely communicating with said channel while opening onto said peripheral surface, said fastening means including a strap with a pair of extremities each connected to the muff of a respective horn by a removable screw with a polygonal head nonrotatably confined between walls of said channel and with a shank radially traversing said slot.

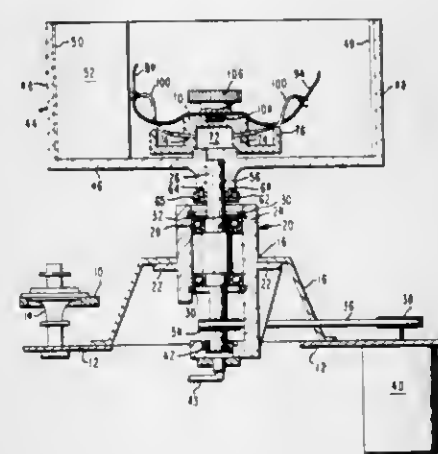
4,314,523

CENTRIFUGE ROTOR APPARATUS FOR PREPARING PARTICLE SPREADS

John W. Boeckel, Hamden; Vernon C. Rohde, Newtown, both of Conn., and John R. Wells, Culver City, Calif., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Mar. 19, 1980, Ser. No. 131,678
Int. Cl.³ B05C 13/00

U.S. Cl. 118-50

9 Claims



1. A centrifuge for depositing particles, suspended in a sample, on a deposition surface, said centrifuge comprising:
a rotor having a wall defining plural circumferentially located regions each adapted to receive one of said surfaces, each of said regions adapted to removably receive a chamber having an outlet orifice for removably engaging one of said surfaces and adapted to hold said sample in contact with said one surface,
a hollow drive shaft for mounting said rotor,
means for rotating said drive shaft,
a plurality of tube means each adapted to removably contact a different one of said chambers, thereby to interconnect said chambers with said hollow drive shaft for removing fluid from any said chamber in contact with said one surface.

4,314,524

APPARATUS FOR TRANSFER AND TREATMENT OF APERTURED ARTICLES

Osamu Deguchi, Iwata, Japan, assignor to NTN Toyo Bearing Company, Limited, Osaka, Japan
Continuation-in-part of Ser. No. 926,200, Jul. 19, 1978, abandoned, which is a continuation of Ser. No. 698,594, Jun. 22, 1976, abandoned. This application Mar. 5, 1980, Ser. No. 127,447

Claims priority, application Japan, Jun. 24, 1975, 50-78952; May 7, 1976, 51-52500

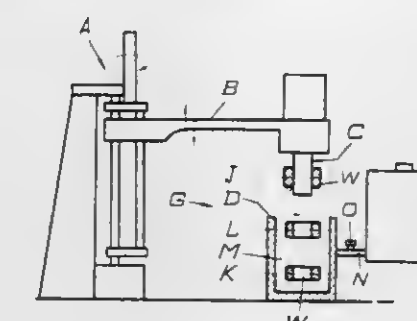
Int. Cl.³ B05C 3/09, 13/02

U.S. Cl. 118-54

5 Claims

1. An apparatus for the transfer of an apertured article in sequential order from a loading station to a treating station and thereafter to a discharge station comprising: vertically dis-

posed frame element means; an arm member mounted at one end on the upper portion of said vertical frame element means in reversibly revolvable horizontal relationship thereto and also in vertically movable relationship thereto; first means for revolvably moving said arm member back and forth in a horizontal plane and in sequential order from a loading station,



thereafter to a treating station, and finally to a discharge station; second means for vertically moving said arm member up and down on said frame element means; a chucking head mounted at the other end of said arm member in a revolvable state about a vertical axis of rotation for chucking an apertured article; and third means for rotating said chucking head at a high rate of speed about the vertical axis of rotation.

4,314,525

FLUIDIZED BED SILICON DEPOSITION FROM SILANE

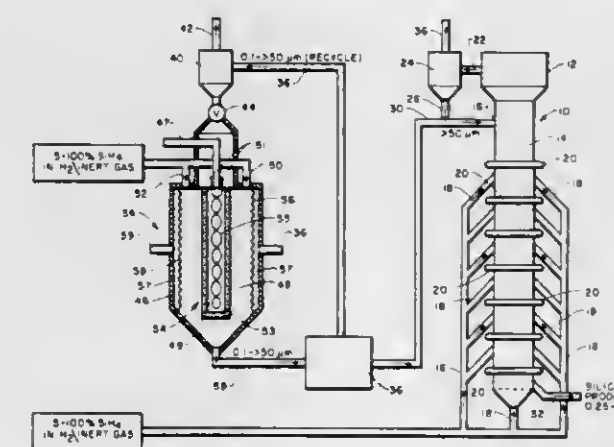
George C. Hsu, La Crescenta; Harry Levin, Woodland Hills; Richard A. Hogle, Arcadia; Ananda Praturi, Monrovia, and Ralph Lutwack, Sunland, all of Calif., assignors to California Institute of Technology, Pasadena, Calif.

Filed Mar. 3, 1980, Ser. No. 126,324

Int. Cl.³ C23C 13/08

U.S. Cl. 118-716

17 Claims



1. An apparatus for producing silicon by thermally decomposing a silicon containing gas in the presence of fluidized nucleating seed particles of silicon comprising:

a primary fluidized bed reactor defining a primary fluidized reactor zone;
seed particle introduction means for introducing seed particles of silicon into said primary fluidized reactor zone;
means for introducing a fluidizing gas into said primary fluidized reactor zone to maintain said silicon particles in a fluidized suspension;
means for introducing a silicon containing gas into said primary fluidized reactor zone;
means for heating said primary fluidized reactor zone to a temperature sufficient to thermally decompose the silicon in said silicon containing gas to elemental silicon for deposition on said silicon seed particles;
means for removing excess fluidizing gas, unreacted silicon containing gas, reaction by-product gases and any entrained silicon particles therein from said primary fluidized reactor zone;
means for removing silicon seed particles having thermally

decomposed silicon product thereon from said primary fluidized reactor zone; and
seed source means for supplying silicon seed particles to said seed particle introduction means, said seed source means including seed reactor means for thermally decomposing a seed generating gas containing silicon to form precursor silicon seed particles, said seed reactor having porous walls defining a pyrolysis seed reactor zone;
means for introducing said seed generating gas containing silicon into said pyrolysis seed reactor zone;
protective gas means for passing an inert gas through said porous reactor walls to provide a protective inert gas boundary to prevent deposition of silicon on said porous reactor walls;
means for heating said pyrolysis seed reactor to a temperature sufficient to thermally decompose said seed generating gas containing silicon to form precursor silicon seed particles including a heat generating element disposed internally within said pyrolysis seed reactor zone and including means for providing a protective, inert gas boundary surrounding said heat generating element to prevent contact of silicon with said heat generating element;
means for removing said precursor silicon seed particles from said pyrolysis seed reactor zone; and
means for transporting said precursor silicon seed particles to said seed particle introduction means for introduction into said primary fluidized reactor zone as said silicon seed particles.

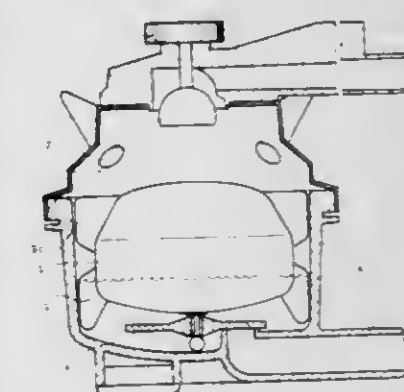
4,314,526

MILK RECEPTACLE WITH DISCHARGE VALVE

Kjell Nordenskjöld, Lidingö, Sweden, assignor to Alfa-Laval AB, Tumba, Sweden
Filed Oct. 17, 1980, Ser. No. 197,816
Claims priority, application Sweden, Oct. 31, 1979, 7909007
Int. Cl.³ A01J 9/06

U.S. Cl. 119-14.55

3 Claims



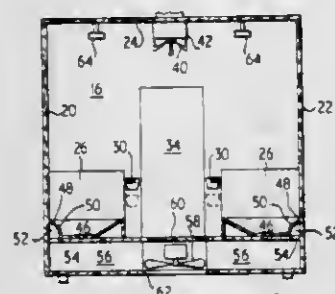
1. In combination with a milk receptacle, a valve for controlling the discharge of milk from the receptacle, said valve comprising a valve seat located at the bottom of the receptacle and having a generally horizontal sealing surface, valve means cooperating with the valve seat and including a circular disc having a central portion, the disc also having a part offset horizontally from said central portion and engageable with said sealing surface, a float for actuating said valve means, and means connecting the float to said central portion of the disc and so positioning the valve means that the valve seat is disposed eccentrically relative to the disc, said connecting means allowing tilting of the disc in a vertical plane to ensure gradual opening of the valve by a small opening force, said valve seat being generally triangular and having one of its points facing said central portion of the disc.

4,314,527

REARING UNIT

John C. M. Shaw, Louth, England, assignor to Spotmanor Limited, Spilsby, England
Continuation-in-part of Ser. No. 943,092, Sep. 18, 1978, abandoned. This application Mar. 11, 1980, Ser. No. 129,304
Int. Cl.³ A01K 1/00; F24F 7/06
U.S. Cl. 119—16

17 Claims



1. A rearing unit for farm animals comprising:
 - (a) a substantially closed rectangular body defined by floor, wall and roof structural elements and having at least one cage mounted therein which is adapted to have an animal disposed therein;
 - (b) means for supporting said body such that it is spaced from the ground to provide a restricted space between said floor and the ground;
 - (c) air inlet means formed in at least one of said structural elements in the upper portion of said body for allowing air to enter said body;
 - (d) air outlet means formed in at least one of said structural elements in the lower portion of said body through which air is withdrawn from said body; and
 - (e) air extraction means including exhaust outlet means disposed beneath said floor structural element for withdrawing air through said air outlet means from the body of said unit and through said air extraction means and exhaust outlet means, said exhaust outlet means being arranged to project said withdrawn air onto the ground;
 - (f) whereby the air withdrawn from said body of said unit by said air extraction means is expelled beneath said unit into said restricted space and onto the ground and said restricted space between said exhaust outlet means and the ground provides a choke preventing reverse air flow through said air extraction means.

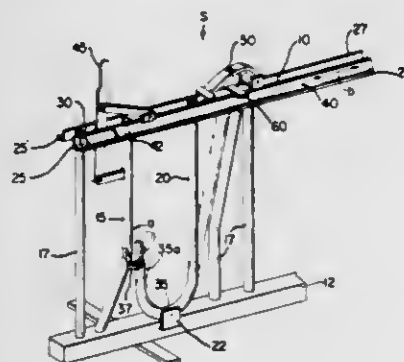
4,314,528

CATTLE STANCHION HAVING A SIMPLIFIED SELF-LOCKING MECHANISM

Boyd C. Fogleman, 2170 Herron Rd., Whitsett, N.C. 27377
Filed Apr. 28, 1980, Ser. No. 144,655
Int. Cl.³ A01K 1/06, 1/08

U.S. Cl. 119—147 R

9 Claims



1. An improved locking mechanism for self-locking cattle stanchions of the type where each cattle station is defined by a stationary upright standard extending vertically between longitudinally extending upper and lower rails on one side of the cow's head and a generally upright swinging standard extend-

ing between the upper and lower rails on the other side of the cow's head, which swinging standard is automatically activated between a first inclined access position and a second upright locked position by the cow as its head is moved around when feeding, comprising:

- (a) said upper rail formed by a pair of spaced walls slidably receiving and restraining the upper end of said swinging standard therebetween;
- (b) a locking bail means having one end thereof pivotally attached at a pivot point to said upper rail, the other end of said bail means having an inclined tongue portion extending down between said spaced walls at a point between the position of the upper end of said swinging standard in said first access position and said second locked position;
- (c) said inclined tongue portion when in position between said walls, allowing movement of said swinging standard underneath said tongue portion in a direction away from said pivot point from said first to said second position, and wherein when said swinging standard is in said second position said tongue portion extends below the upper end of said swinging standard to block movement of said swinging standard from said second to said first position.

4,314,529

INTAKE SYSTEM OF A MULTI-CYLINDER INTERNAL COMBUSTION ENGINE

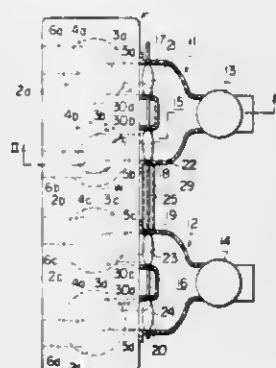
Katsuhiko Motosugi; Hiroshi Takahashi; Shuhei Toyoda, all of Toyota; Toshiaki Konomi, and Hideaki Matsui, both of Susono, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan
Filed May 2, 1979, Ser. No. 35,342

Claims priority, application Japan, Jul. 31, 1978, 53-92555

Int. Cl.³ F02B 29/02, 31/00

U.S. Cl. 123—52 MB

15 Claims



1. A multi-cylinder internal combustion engine which includes:
 - a cylinder block having a plurality of cylinders, each cylinder having a combustion chamber;
 - a cylinder head having a plurality of intake ports, each port leading to a respective combustion chamber through an intake valve which has a valve head;
 - an intake manifold having at least one intake passage common to at least two of said cylinders, said intake passage comprising a collecting portion having an inlet and at least two branch intake passages branched off from said collecting portion, each of said branch intake passages being connected to a respective one of said combustion chambers via a corresponding one of said intake ports;
 - at least two branch connecting passages, each branch connecting passage having an opening into a respective one of said at least two branch intake passages;
 - a common passage connecting said at least two branch connecting passages; and
 - valve means arranged in each of said branch intake passages at a location upstream of the openings of said branch connecting passages and opened in accordance with an increase in the level of the load of said engine, wherein the improvement comprises:

each intake port having a substantially horizontal portion connected to the respective branch intake passage and a downwardly inclined portion extending to the respective intake valve,

the opening of each of said branch connecting passages being located on the bottom wall of said downwardly inclined portion of the respective intake port in the vicinity of the corresponding intake valve head, and said common passage being a blind passage communicating only with said at least two branch connecting passages, whereby each branch connecting passage during the intake stroke of its respective cylinder spouts gaseous matter drawn only from at least one other intake port via the at least one other branch connecting passage and the common passage.

4,314,530

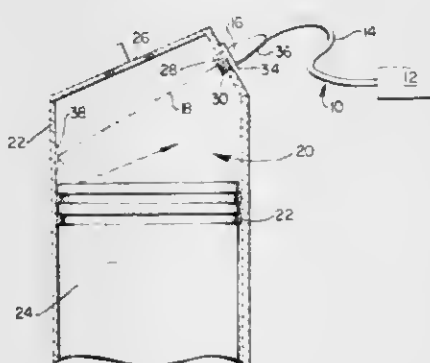
AMPLIFIED RADIATION IGNITER SYSTEM AND METHOD FOR IGNITING FUEL IN AN INTERNAL COMBUSTION ENGINE

Anacleto D. Giacchetti, 13100 Maple Ave., Lemont, Ill. 60439
Filed Feb. 25, 1980, Ser. No. 124,592

Int. Cl.³ F02P 23/04

U.S. Cl. 123—143 R

8 Claims



1. A system for initiating ignition of a fuel-air mixture in a combustion chamber for an internal combustion engine comprising:

at least one radiation producing means for providing a beam of amplified, high-intensity, coherent radiation; said beam having an intensity to ignite said fuel-air mixture in said combustion chamber and having an intensity such that it traverses the width of said combustion chamber; coupling means for coupling said radiation producing means to a wall of said combustion chamber and directing said beam of radiation into said combustion chamber; and, at least one reflective surface attached to said wall of said combustion chamber for reflecting said beam of radiation within said combustion chamber.

4,314,531

PISTONS AND CYLINDER LINERS

Ludovico Bruni, Turin, Italy, assignor to Associated Engineering Italy S.p.A., Turin, Italy

Filed Mar. 24, 1980, Ser. No. 133,527

Claims priority, application United Kingdom, Nov. 13, 1979, 39294/79

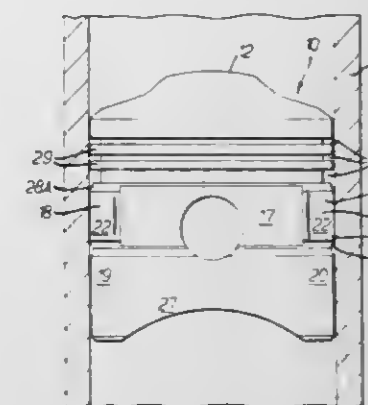
Int. Cl.³ F02F 3/04

U.S. Cl. 123—193 CP

7 Claims

1. An internal combustion engine comprising a cylinder having an untreated cylinder wall of an aluminum alloy and a piston mainly composed of an aluminum alloy, the piston comprising a crown, a ring band integral with the crown and having grooves therein for the reception of piston rings, a skirt integral at its upper end with the ring band and having a running surface having opposed portions which form opposed thrust faces for engagement under pressure with the wall of the cylinder, and at least one expansion-control insert of ferritic steel, the insert being mounted in the skirt, a portion of the

insert forming a portion of the running surface of the skirt of the piston, said portion of the insert being confined to an upper



portion of the skirt and within the opposed thrust faces of the piston.

4,314,532

METHOD AND APPARATUS FOR TRANSLATING FREQUENCY OF MECHANICAL MOVEMENT INTO A PNEUMATIC SIGNAL

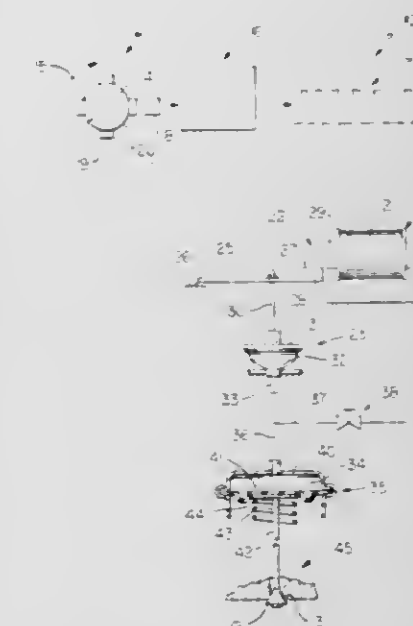
Frank Payne, Knoxville, Tenn., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Jun. 17, 1980, Ser. No. 160,372

Int. Cl.³ F02M 25/06; F02B 71/00

U.S. Cl. 123—198 A

30 Claims



1. In combination, first means for producing mechanical movement with a certain frequency of movement, second means operatively associated with said first means for producing a pulsing electrical signal that has a pulse rate substantially proportional to said frequency of movement, and third means operatively associated with said second means for producing a pneumatic signal that has a value that is substantially proportional to said pulse rate of said pulsing electrical signal.

4,314,533

ROTARY ENGINE EMPLOYING DOUBLE ECCENTRIC

Jose M. B. Barata, Mayor St. of Sarria No. 216, and Alejandro S. Valls, Travesera of Gracia No. 33, both of Barcelona, Spain

Filed Oct. 18, 1979, Ser. No. 86,187

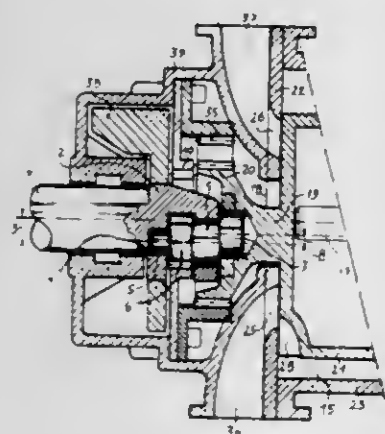
Int. Cl.³ F02B 53/00

U.S. Cl. 123—242

28 Claims

1. In a rotary-piston internal combustion engine having a housing provided with an inner cylindrical wall defined about

a housing axis and defining therein a substantially cylindrical piston-confining chamber, a piston positioned within said chamber and supported for rotation relative to said housing, said piston including a shell-like drum and a plurality of vanes which are angularly spaced about said housing axis and project radially outwardly therefrom through the periphery of said drum and have the radially outer ends thereof disposed in rotatable slidable engagement with the inner wall of said housing, the piston also including slidable swivel means coaxing between the vanes and the drum for permitting the drum to be radially slidably displaced relative to the vanes so that the drum can move eccentrically within the chamber relative to said housing axis, a shaft rotatably supported relative to said housing in coaxial alignment with said housing axis, and a crank mechanism connected between said shaft and said drum for controlling the rotational path of movement of the drum within the chamber, the improvement wherein the crank mechanism comprises:



a first crank fixed to said shaft for rotation therewith, said first crank defining a first eccentric axis which is substantially parallel to and radially spaced from the rotational axis of said shaft;

a second crank rotatably supported on said first crank for rotation relative thereto about said first eccentric axis, said second crank defining thereon a second eccentric axis which is parallel to and radially spaced from said first eccentric axis;

said piston drum being rotatably supported on said second crank for rotation relative thereto about said second eccentric axis; and

gear means reacting between said second crank and said stationary housing for causing rotation of said second crank relative to said first crank so that said drum is moved in an hypocycloidal path within said chamber.

4,314,534

FEEDBACK CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINE

Yasuo Nakajima, Yokosuka, and Kenji Yoneda, Fujisawa, both of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed May 2, 1980, Ser. No. 146,113

Claims priority, application Japan, May 7, 1979, 54-55394

Int. Cl.³ F02M 51/00, 25/06; F02P 3/02

U.S. Cl. 123-438

6 Claims

1. A control system for an internal combustion engine, comprising:

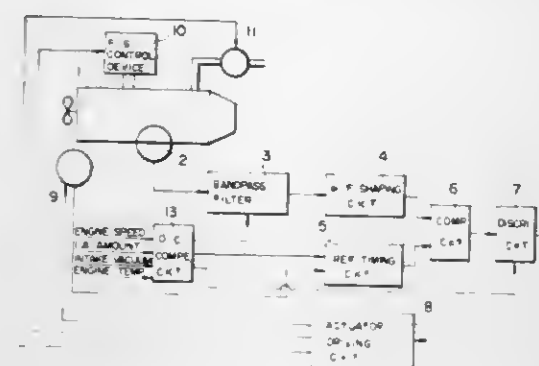
first means for issuing a signal representative of combustion pressure in a combustion chamber of said engine;

second means for issuing a signal representative of existing combustion timing of said combustion chamber by processing said signal from said first means for detection of rapid increase of the combustion pressure;

a reference timing circuit for issuing a signal representative of a predetermined reference combustion timing of said combustion chamber in accordance with operation modes of said engine;

a comparator circuit for issuing a signal representative of a

difference between the signal from said second means and the signal from said reference timing circuit; and third means for controlling at least one of engine operating parameters consisting of the ignition timing, the air-fuel



ratio of air-fuel mixture fed to said engine and the amount of exhaust gas recirculated into an intake system of said engine, by processing the signal from said comparator circuit.

4,314,535

FEEDBACK TYPE VARIABLE VENTURI CARBURETOR

Yuzu Takeuchi, Nagoya; Shigetaka Takada, Obbu, and To-shiharu Morino, Mie, all of Japan, assignors to Aisan Industry Co., Ltd., Aichi, Japan

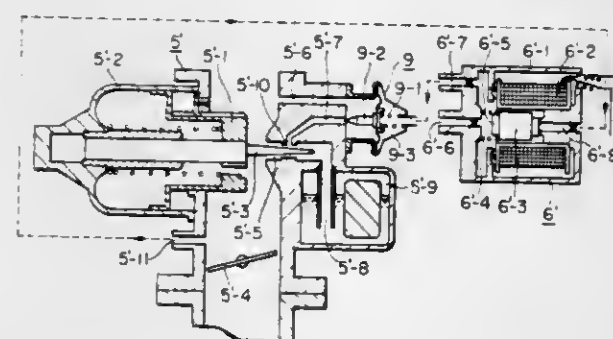
Filed May 19, 1980, Ser. No. 150,774

Claims priority, application Japan, May 30, 1979, 54-66996

Int. Cl.³ F02B 33/00; F02M 7/00

U.S. Cl. 123-439

9 Claims



1. A feedback type variable venturi carburetor for an engine comprising

an intake manifold and a main fuel jet communicating therewith,

a variable venturi including a movable piston movably extending into said intake manifold cooperating with said main fuel jet,

means defining an air bleed passage opening into said main fuel jet,

said piston of said variable venturi constituting means for controlling a negative pressure to a substantially constant value defining a vacuum source,

an exhaust manifold communicating downstream of said engine,

an exhaust gas sensor disposed in said exhaust manifold,

control valve means for varying an amount of main air bleed through said air bleed passage and disposed at a point along said air bleed passage,

a three-way solenoid valve means operatively connected to said control valve means,

a control circuit means operatively connected to said exhaust gas sensor for controlling said three-way solenoid valve means to regulate said control valve means and the amount of the main air bleed,

said three-way solenoid valve means for performing an ON-OFF operation in accordance with a signal from said

exhaust gas sensor via said control circuit means and having a first passage communicating with said vacuum source, a second passage opening to the atmosphere, a third passage communicating with said control valve means and constituting the operative connection thereto, and a movable iron core means operatively controlled by said control circuit means for executing a valve operation, one end of said movable iron core means operatively opening and closing respectively cooperating with said second passage and another end of said iron core means operatively closing and opening respectively cooperating with said first passage, respectively, and means for biasing said iron core means to close said first passage at all times.

4,314,536

PULSING SOLENOID IMPROVEMENT

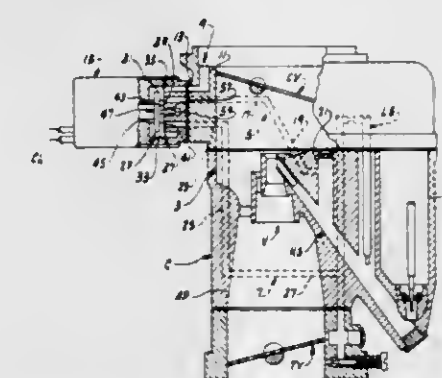
Larry J. Tipton, Florissant, Mo., assignor to ACF Industries, Inc., New York, N.Y.

Filed Dec. 31, 1979, Ser. No. 108,483

Int. Cl.³ F02M 7/00, 23/00

U.S. Cl. 123-440

2 Claims



1. In a control system for an internal combustion engine, the engine having a carburetor mounted thereon for producing an air-fuel mixture combusted in the engine, the carburetor having at least one air passage therethrough, a source of fuel, and high and low speed fuel circuits by which fuel is delivered from the source to the air passage to mix with air to form the mixture combusted, the system including a sensor for sensing a component of the products of combustion and for producing an electrical signal representative thereof, an electronic circuitry for processing the electrical signal to produce a control signal for controlling the air-fuel ratio of the mixture produced in the carburetor, the improvement comprising air bleed means defining a high speed air bleed path and a low speed air bleed path for respectively bleeding air into the high speed and low speed fuel circuits to vary the quantity of fuel delivered to the air passage through either fuel circuit at any one time, the air bleed means including means defining two adjacent air flow chambers in the solenoid, each chamber having an inlet and an outlet so air passing through one of said chambers is directed to the high speed fuel circuit while air passing through the other of said chambers is directed to the low speed fuel circuit; a solenoid having a movable armature and responsive to the control signal for opening and closing the air bleed means to control the quantity of air bled into the high speed and low speed fuel circuits; and, isolation means for isolating the high speed air bleed path from the low speed air bleed path to prevent cross flow of air between the paths which adversely affects the degree of control over fuel delivery through the high and low speed fuel circuits, the isolating means comprising an isolation pad attached to one end of the armature and separating the two chambers so air entering one of the chambers cannot flow into the other chamber, the outlets of each chamber being in a common wall spatially separated from each other, the wall having a cavity formed therein between the outlets and extending the length of the chambers, and the isolation pad being sufficiently large to simultaneously close both outlets when no signal is supplied to the solenoid and having an extending arm projecting into the cavity to create an

4,314,537

FUEL FEEDBACK CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINE

Masabaru Asano, Yokosuka; Hideyuki Tamura, Yokohama, and Shoji Furuhashi, Kaml-ohokanishi, all of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

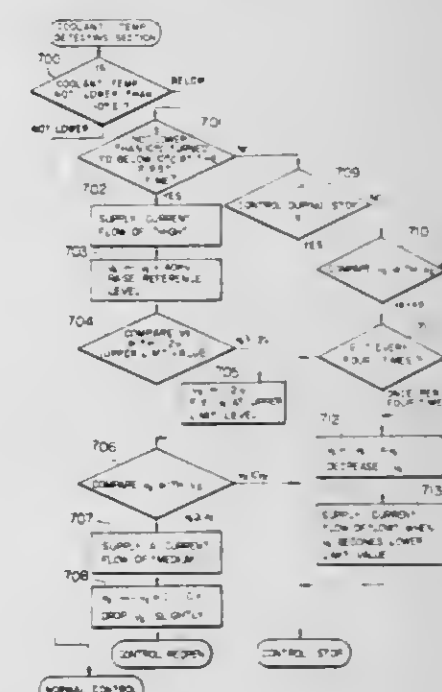
Filed Apr. 15, 1980, Ser. No. 140,666

Claims priority, application Japan, Apr. 16, 1979, 54-45326

Int. Cl.³ F02B 33/00; F02M 7/00; F02B 75/10; F02D 3/04

U.S. Cl. 123-440

14 Claims



1. A system for controlling, in a feedback control mode, fuel supply to an internal combustion engine so as to maintain the air-fuel ratio of an air-fuel mixture to be supplied to the engine at a preset value by correcting a fuel supply amount in response to a control signal depending upon the deviation from a reference value of an output of an exhaust sensor for sensing the concentration of a component of engine exhaust gas, the improvement comprising:

first means for supplying a current flow to the exhaust sensor;

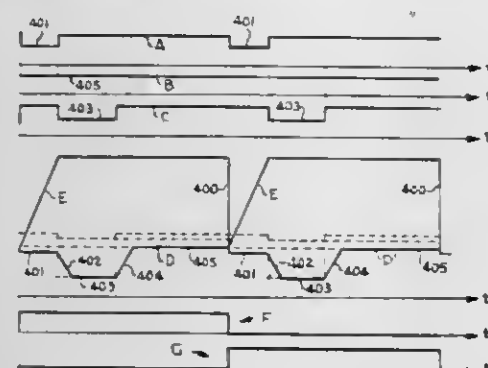
second means for varying said reference value in response to the output of said exhaust sensor;

third means for controlling the initiation and stop of the feedback control in accordance with the relationship between said reference value and the output of said exhaust sensor which output is generated in response to said current flow supplied to said exhaust sensor;

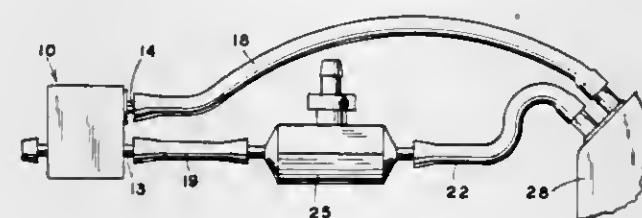
fourth means for controlling the initiation and stop of the feedback control in accordance with an engine temperature;

fifth means for varying said reference value and the value of said current flow to said exhaust sensor immediately when the feedback control is stopped by said fourth means; and sixth means for varying said reference value with the lapse of time while the feedback is stopped by said fourth means.

13 Claims



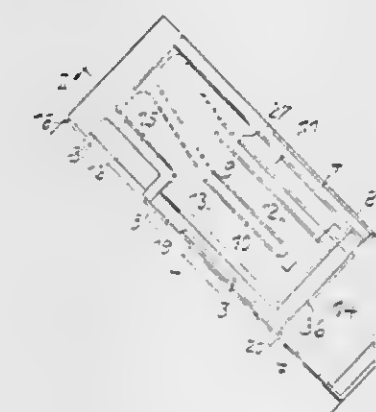
1 Claim



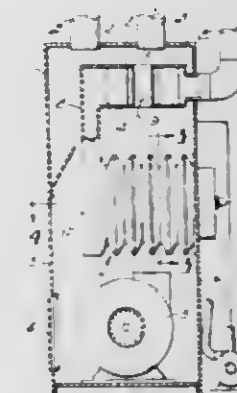
10 Claims

[illegible]

9 Claims



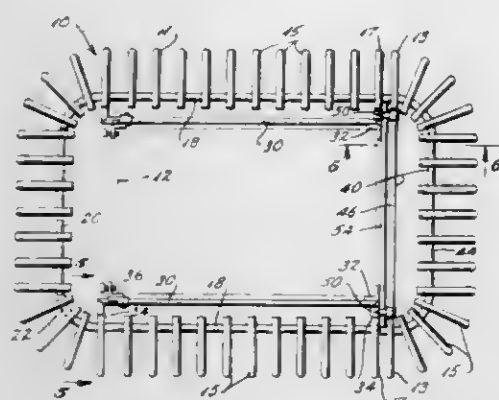
1 Claim



2 Claims

1. A safety guard for a free-standing stove comprising:
a multiplicity of generally vertical bowed hollow tubes open
top and bottom disposed in a closed array adapted to
surround at least the front and sides of a stove;
upper and lower horizontal support bars adjacent the tube
ends, said horizontal bars being spaced substantially in-
ward of the periphery of the safety guard as a whole by
the bowed structure of the tubes, said vertical tubes being
secured to said horizontal support bars;
a hinged section of the tube array adapted to pivot free of the

face of the stove providing thereby access to the face of the stove; and,



clamping brackets inside the closed array of tubes and attached to said array securing the safety guard to the stove with the tubes spaced well away from the stove.

4,314,544

SOLAR COLLECTOR FOR A WINDOW FRAME

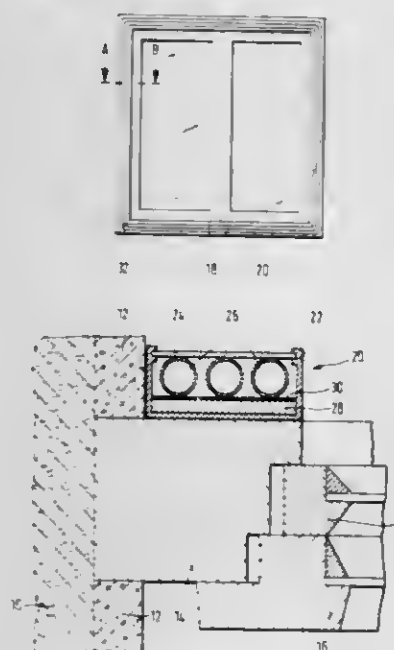
Gottfried Müller, and Paul Hipp, both of Kolbingen, Fed. Rep. of Germany, assignors to Schako-Metallwarenfabrik Ferdinand Schäd GmbH, Fed. Rep. of Germany
Filed May 8, 1979, Ser. No. 37,023

Claims priority, application Fed. Rep. of Germany, May 13, 1978, 2821165

Int. Cl.³ F24J 3/02

U.S. Cl. 126—417

6 Claims



1. A solar collector for a window frame having a pane for installation on a building or the like comprising, in combination:

- a window frame having a substantially flat exterior surface of a specific width,
- a channel of U-shaped cross section having a base mounted on said window frame exterior surface having a width less than or equal to said specific width and extending along the majority of the total area of said flat exterior surface, said channel having an interior and an outwardly opening side facing away from the exterior of the building in which said window frame is installed,
- a cover transparent to solar radiation disposed within said channel outwardly opening side and
- at least one conduit in said channel interior for conducting a heat transfer medium therethrough for heating by said solar radiation wherein said at least one conduit is in the form of a plurality of tubes and including a thermally

insulating cladding disposed on said base of said channel within said channel interior.

3. A solar collector for a window frame having a pane for installation on a building or the like comprising, in combination:

- a window frame having a substantially flat exterior surface of a specific width,
- a channel of U-shaped cross section having a base mounted on said window frame exterior surface having a width less than or equal to said specific width and extending along the majority of the total area of said flat exterior surface, said channel having an interior and an outwardly opening side facing away from the exterior of the building in which said window frame is installed,
- a cover transparent to solar radiation disposed within said channel outwardly opening side and
- at least one conduit in said channel interior for conducting a heat transfer medium therethrough for heating by said solar radiation wherein said at least one conduit is in the form of a passage which meanders in the interior of said channel and including a thermally insulating cladding disposed on said base of said channel within said channel interior.

4,314,545

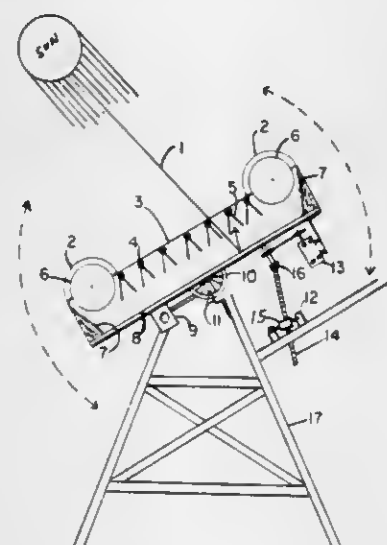
SOLAR HOT WATER GENERATOR

Charles W. Bowman, 1445 Bristol Pike, Morrisville, Pa. 19067
Filed May 9, 1979, Ser. No. 36,820

Int. Cl.³ F24J 3/02

U.S. Cl. 126—424

9 Claims



1. A solar hot water generating apparatus comprising:

- a hot water generator core comprising a heat exchanger defining a longitudinally extended fluid passageway, and including fluid storage means located on opposite sides of said core and fluidly connected thereto;
- support means for said generator core to permit said generator core to pivot in a vertical plane;
- means for pivoting said generator core in response to the change of direction of the sun, said pivoting means comprising actuating means mechanically connected to said generator core to cause the pivoting movement thereof, and automatic switching means associated with said actuating means, said switching means adapted to control the operation of said actuating means in response to the movement of the sun;
- hot water storage means fluidly connected to the generator core and removed therefrom, said hot water storage means having an inner fluid container thermally insulated from external ambient atmospheric conditions; and,
- a fluid conduit means connecting said generator core to said storage means, and to a water supply, said fluid conduit means including a plurality of reversible check valves provided adjacent said generator core, to reverse the flow of hot water through said generator core as said core

changes its position in response to the movement of the sun.

4,314,546

ARRAY POSITIONING SYSTEM

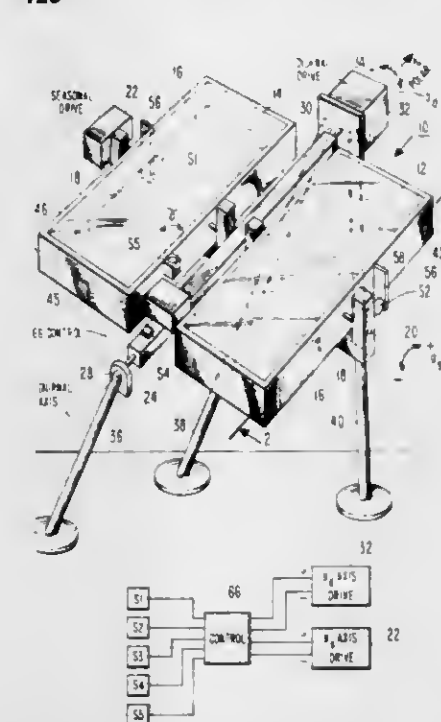
Arthur Miller, Princeton Junction, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Jan. 21, 1980, Ser. No. 113,506

Int. Cl.³ F24J 3/02; G01J 1/20; G03B 21/00

U.S. Cl. 126—425

14 Claims



1. A tracking system for a solar array which is tiltable about a diurnal axis comprising:

light sensor means responsive to incident solar energy for producing an output signal manifestation indicative of the difference in orientation between the sun orientation and a reference sun orientation and the difference in orientation between the array orientation and a reference array orientation,

attitude sensor means coupled to said array for producing an output indicative of the direction of tilt of said array about said diurnal axis, and

control means responsive to said output signal manifestation and to said output signal of said attitude sensor means for slewing said array about said diurnal axis toward its tracking position in a direction such that the array rotates within a given angle, less than 360°, between fixed limits regardless of the initial sun and array orientations.

4,314,547

SOLAR HOT WATER SYSTEM WITH SUB-LOOP HYDRONIC HEATING

Justin E. Walsh, 16 Thayer Pl., Brookline, Mass. 02146

Filed Feb. 4, 1980, Ser. No. 117,833

Int. Cl.³ F24J 3/02

U.S. Cl. 126—428

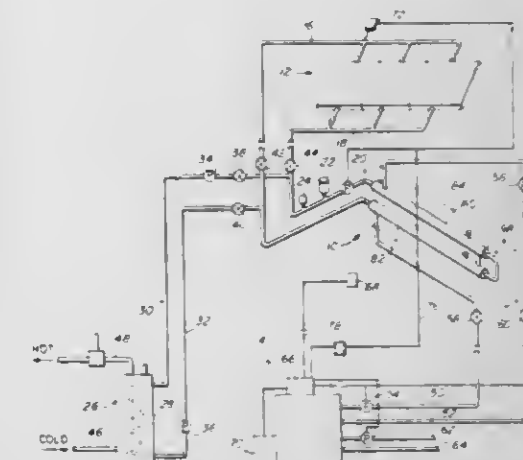
1 Claim

- 1. A heating system for a building comprising in combination
 - (a) at least one radiator located within said building,
 - (b) at least one solar heating panel mounted in position for heating a first liquid,
 - (c) first conduit means connected between said panel and said radiator,
 - (d) first circulator means operatively connected to said first conduit means for circulating said first liquid through said panel and said radiator,
 - (e) a furnace operatively associated with said building for heating a second liquid,
 - (f) second conduit means connected between said furnace and said radiator,
 - (g) second circulator means operatively connected to said

second conduit means for circulating said second liquid through said furnace and said radiator,

(h) said radiator providing separate flow paths for said first and second liquids in heat exchanging relation to one another,

(i) said radiator including a tubular outer conduit connected to one of said first and second conduits and a tubular inner conduit extending coaxially through said outer conduit to



define an annular passage therewith and connected to the other of said first and second conduits.

(j) said inner and outer conduits being formed into generally parallel U-shaped loops, and,

(k) a first cross-coupling connected between the ends of said outer conduit to provide a flow path therebetween and a second cross coupling located exterior to said first cross-coupling and connected between the ends of said inner conduit to provide a flow path therebetween.

4,314,548

SOLAR COLLECTOR

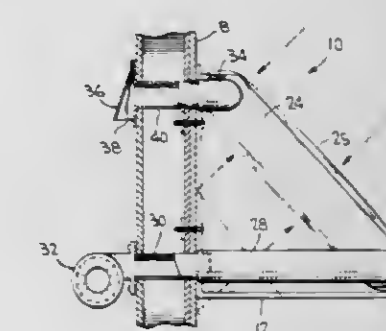
David J. Hanson, New Castle, Me. 04553

Filed Jun. 3, 1980, Ser. No. 155,955

Int. Cl.³ F24J 3/02

U.S. Cl. 126—429

2 Claims



1. A pressurized and inflatable solar energy collector comprising a radiating heat absorbing panel assembly formed of a central panel of a plurality of longitudinally disposed air passageways and end frames integral with said central panel formed perpendicular to said central panel, first and second manifold sections in fluid communication with said air passageways, end cap sections adapted to fit over said first and second manifold sections and said end frames, at least one of said end cap sections including an air inlet and air outlet port, an air inlet duct connected to said air inlet port in fluid communication with said first manifold section, an air exhaust duct connected to said air outlet port in fluid communication with said second manifold section, an inflatable air-tight bag forming the outer layer of said collector and a source of pressurized air connected to said air inlet duct for inflating said bag and pressurizing said assembly and providing air flow between said air

inlet ducts, said first manifold section, said air passageways, said second manifold section, and said outlet duct.

4,314,549

OMNIDIRECTIONAL SOLAR COLLECTOR

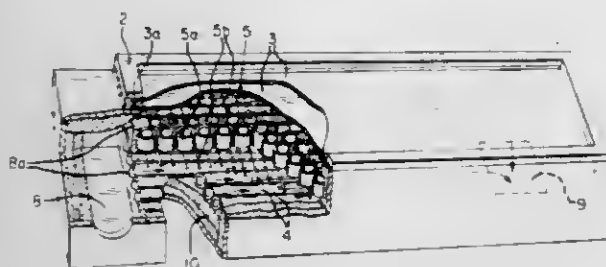
William A. Swanson, 2485 S. W. Elmhurst, Beaverton, Oreg. 97005

Filed May 25, 1979, Ser. No. 42,703

Int. Cl.³ F24J 3/02

U.S. Cl. 126-449

5 Claims



1. An omnidirectional solar collector comprising
 - (a) a transparent sheet pervious to shortwave solar radiation but impervious to longwave radiation,
 - (b) a primary collector comprising a plurality of parallel tubes, including a means on the surface for absorbing shortwave solar radiation and re-radiating the same as longwave radiation, and
 - (c) a secondary collector comprising a layer of cells situated between said transparent sheet and said primary collector with respective air spaces on either side of said layer of cells, a first one of said air spaces separating said cell layer from said primary collector, cell walls in said cell layer being oriented generally perpendicular to the surface of said primary collector and being open to both sides of said layer so that the interior of each cell is exposed to both of said first and second air spaces, said cell walls including means absorbing shortwave solar radiation and re-radiating the same as longwave radiation.

4,314,550

METHOD OF TREATING AN ARRESTED HEART

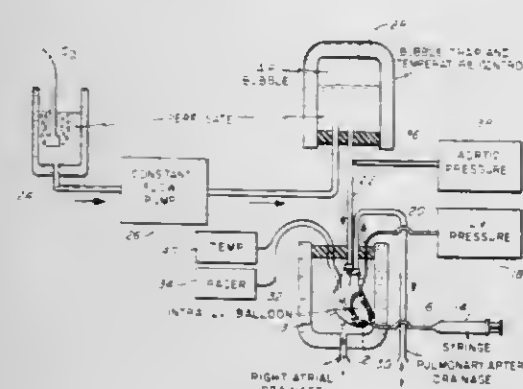
Carl S. Apstein, Waban, Mass., assignor to The Trustees of Boston University, Boston, Mass.

Filed May 1, 1980, Ser. No. 145,544

Int. Cl.³ A61B 17/00, 19/00

U.S. Cl. 128-1 D

25 Claims



1. A method of treating a heart during a period of arrest to protect the heart from the deleterious effects of sustained inactivity, the method comprising applying expanding force to the heart and expanding the ventricular volume a significant amount during the period of arrest to a volume greater than the arrested ventricular volume, the expansion causing stretching of the heart muscles.

4,314,551

LARYNGOSCOPE

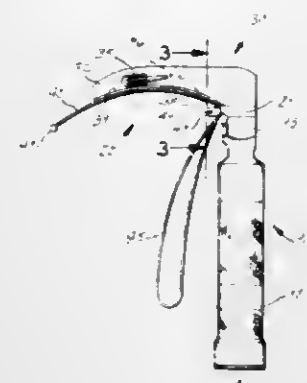
Roger J. Kadell, 508 N. Hunter, Lebanon, Ill. 62254

Filed Mar. 6, 1980, Ser. No. 127,925

Int. Cl.³ A61B 17/24

U.S. Cl. 128-11

1 Claim



1. An improved laryngeal speculum of the type inserted into the oral cavity to displace the tongue and raise the epiglottis, comprising
 - a hand grip including a source of electrical energy,
 - a fixed blade part mounted thereto and of sufficient length and curvature to permit insertion into the oral cavity, and having
 - a tongue-diverting wall on one side thereof, and an electric light connected to said energy source and directed forwardly,
 - in combination with
 - a movable blade part at the side of the fixed blade part which is opposite to the tongue-diverting wall, said movable blade part having
 - a pivot mounting adjacent to the hand grip and an operating lever projecting alongside said hand grip,
 - said movable blade part being formed to follow the curvature of said fixed blade part and extend therebeyond to terminate in a rounded tip,
 - whereby on inserting the rounded tip adjacent to the base of the tongue and squeezing the operating lever against the hand grip, the base of the tongue is raised without raising the laryngoscope or bringing it against the upper teeth and without affecting the direction of the light means.

4,314,552

CHIROPRACTIC TABLE

Derryl E. Moon, Fairmount, N. Dak. 58030

Continuation-in-part of Ser. No. 927,961, Jul. 26, 1978, Pat. No. 4,230,100. This application Jun. 16, 1980, Ser. No. 159,875

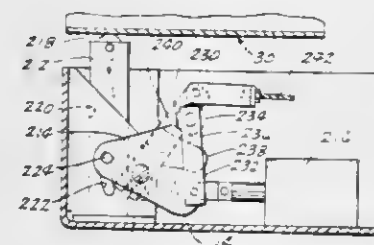
Claims priority, application Canada, Jul. 26, 1978, 331839

The portion of the term of this patent subsequent to Oct. 28, 1997, has been disclaimed.

Int. Cl.³ A61F 5/00

U.S. Cl. 128-70

2 Claims



1. A body support assembly for a chiropractic table having a frame comprising:
 - a support box having opposite ends;

mounting means for pivotally mounting said support box to said frame for pivotal movement about a horizontal axis; lock means for selectively locking said support box in any of a plurality of pivotal positions about said horizontal axis; a support piece positioned above said support box and having opposite ends; a first and second cock and drop assemblies, each supporting said support piece at one of said opposite ends, said first and second cock and drop assemblies each being movably mounted to said support box for movement from a cocked position supporting one of said opposite ends of said support piece in an elevated position to a drop position supporting said one opposite end in a lower position; power means for selectively and independently raising said cock and drop assemblies to their cocked positions, said power means being deactuable to permit said cock and drop assemblies to fall by gravity to their drop positions, connecting means movably connecting said support piece to said support box whereby said opposite ends are free to move vertically with said first and second cock and drop assemblies.

4,314,553

EARPLUG AND EARPLUG SET

Roland Westerdal, Great Falls, Va., assignor to Bilsom AB, Billesholm, Sweden

Filed Aug. 8, 1979, Ser. No. 64,861

Int. Cl.³ A61F 11/02

U.S. Cl. 128-152

17 Claims



1. An earplug adapted in size to fit within and to be inserted into a wide range of human ear canals comprising:
 - (a) a stem portion;
 - (b) a front portion mounted on said stem portion, said front portion being a conically shaped flexible wall member having a convex outer surface and a concave inner surface, said stem portion extending within said wall member and connected to the inner surface, and disposed such that a space exists between the inner surface of said front portion and said stem portion both prior to and during insertion of said earplug canal; and
 - (c) means comprising a plurality of spacing members extending between said inner surface of said front portion and said stem portion for spacing the inner surface of the front portion from said stem portion both prior to and during insertion of said ear plug into an ear canal.

4,314,554

TISSUE GROWTH CONTROL APPARATUS AND METHOD

Wilson Greatbatch, 5220 Donnington Rd., Clarence, N.Y. 14031

Filed Jul. 16, 1979, Ser. No. 57,744

Int. Cl.³ A61N 1/30, 1/32

U.S. Cl. 128-207.21

17 Claims

1. Apparatus for implantation in a patient for providing

germicide and healing treatment of tissue such as bone comprising:

- (a) an electrode of silver adapted to be operatively connected to a living tissue site to be healed;
- (b) another electrode adapted to be connected to a location spaced from the site to be healed;
- (c) a source of direct voltage having positive and negative polarity output terminals;
- (d) switching means operatively connected to said electrodes and to said terminals of said source, said switching means having a first state wherein said silver electrode is connected to said positive terminal and said other electrode is connected to said negative terminal once during an initial portion of the time during which said silver electrode is operatively connected to the tissue site and a second state wherein said silver electrode is connected to said negative terminal and said other electrode is connected to said positive terminal once during the remaining portion of the time during which said silver electrode is

operatively connected to the tissue site, said switching means including means enabling said switching means to be operated by operator means positioned external to said patient at a location so as to be operatively associated with said switching means for selectively and non-invasively changing the states of said switching means; and

- (e) means for enclosing said source, said switching means, any portion of said silver electrode not in operative contact with said tissue site to be healed, and any portion of said other electrode not in operative contact with said location spaced from the site to be healed, said enclosing means being of human body reaction free material thereby permitting said apparatus to be implanted in the body of the patient;
- (f) whereby when said switching means is in said first state current flow is in a direction relative to said silver electrode causing silver ions to be released to create a germicidal environment at the tissue site and when said switching means is in said second state current flow is in an opposite direction causing healing of tissue at the site.

4,314,555

INTRAVASCULAR CATHETER ASSEMBLY

Kyuta Sagae, Tokyo, Japan, assignor to Terumo Corporation, Tokyo, Japan

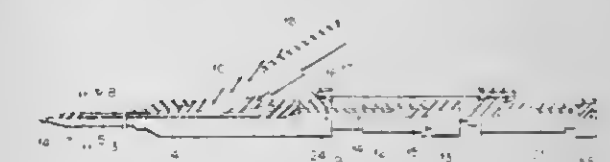
Filed Feb. 4, 1980, Ser. No. 118,310

Claims priority, application Japan, Feb. 20, 1979, 54-20424[U]

Int. Cl.³ A61M 5/00

U.S. Cl. 128-214.4

11 Claims



1. An intravascular catheter assembly which comprises:
 - a catheter hub;

- a flexible catheter tube which is provided with an axially extending hole, and whose proximal end is fixed to said catheter hub;
- a cannula which is detachably inserted into the axially extending hole, with the distal end of said cannula arranged to protrude from the distal end of the flexible catheter tube and the proximal end of said cannula being provided with a tubular hub;
- a rigid connector which is fitted to the proximal end of the catheter hub with a flexible tube interposed between said connector and the catheter hub;
- a seal cap which is fitted around the connector, the an axially extending hole, and whose inner wall tightly abuts against the outer wall of the cannula when the cannula passes through said axially extending hole;
- a cannula-locating bar, one end of which is fixed to the peripheral surface of a tubular hub of the cannula, and the other end of which projects toward the proximal end of the catheter hub; and
- a stopper which is mounted on the peripheral surface of the catheter hub to abut against the distal end of the cannula-locating bar, thereby defining the extent to which the cannula is inserted into the catheter tube.

4,314,556

EMERGENCY SYRINGE

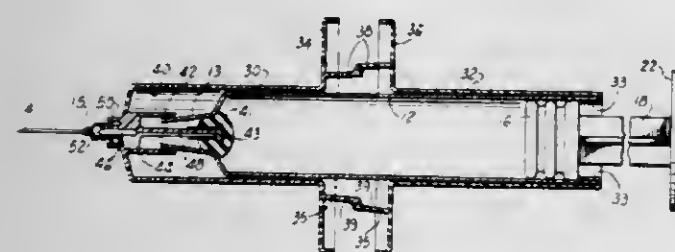
Austin C. Ma, 23812 Helsinki St., Mission Viejo, Calif. 92691

Filed Apr. 21, 1980, Ser. No. 141,877

Int. Cl.³ A61M 5/00

U.S. Cl. 128—218 DA

11 Claims



1. In a hypodermic syringe of the type having a containment chamber for long term sealed storage of a liquid therein and having means for dispensing the stored liquid through a channeled needle after the containment chamber is unsealed, the combination comprising:

- a constricted opening in said chamber forming a fluid path therein, said fluid path being in substantial proximity to said dispensing means,
- a stopper inside said chamber in blocking engagement with said fluid path,
- means for pushing said stopper further into said chamber without increasing the pressure in said chamber and for holding said stopper in fixed displacement from said fluid path thereby unsealing said chamber, and
- means for forcing said liquid through said fluid path and in to said dispensing means.

4,314,557

DISSOLUTION CONTROLLED ACTIVE AGENT DISPENSER

Santosh K. Chandrasekaran, Palo Alto, Calif., assignor to ALZA Corporation, Palo Alto, Calif.

Filed May 19, 1980, Ser. No. 150,966

Int. Cl.³ A61M 7/00

U.S. Cl. 128—260

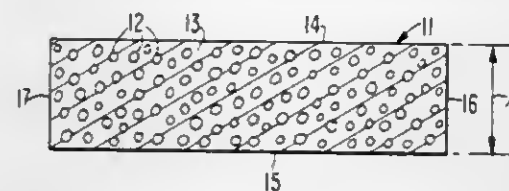
7 Claims

1. An active agent dispenser consisting essentially of a flat body consisting essentially of a particulate active agent solute phase dispersed in a continuous matrix phase that is permeable to the active agent solute phase wherein the following conditions are met

- (a) $D > K$ where D is the diffusion coefficient of the active agent solute phase in the matrix phase in cm^2/sec and K is

the dissolution rate constant of the active agent solute phase in the matrix phase in cm/sec and

(b) Kl/D is less than about 0.06 where K and D are as defined previously and l is the thickness of said body in cm



whereby the rate at which active agent is dispensed is (i) controlled by the rate at which the active agent solute phase dissolves in the matrix phase, and (ii) substantially constant.

4,314,558

SURGICAL DRAINAGE BAGS

Ralf Korpman, Bridgewater, N.J., assignor to Permacel, New Brunswick, N.J.

Filed Apr. 28, 1980, Ser. No. 144,497

Int. Cl.³ A61F 5/44

U.S. Cl. 128—283

6 Claims



1. A self-sealing bag suitable for receiving body fluids and waste discharged from a surgically created orifice comprising a flexible, fluid-impervious receptacle provided with an opening, said bag made of a normally non-tacky, non-elastic film prepared from a composition consisting essentially of a blend of (a) a thermoplastic-elastomeric block copolymer component wherein the thermoplastic blocks are derived from alkenylarenes, possess a number average molecular weight of at least about 5,000, and constitute about 5 to 50 percent by weight of the block copolymer, and the elastomeric blocks are derived from conjugated dienes or lower alkenes, and possess a number average molecular weight of at least about 45,000, and (b) a resin component wherein the resin is one tending to associate with the thermoplastic alkenylarene blocks of the thermoplastic-elastomeric block copolymers and is employed in an amount of from about 30 to 130 parts per 100 parts by weight of the block copolymer, said film characterized by having the property of deforming on the application of a stretching force and changing from a non-tacky, plastic, inelastic material to a tacky, elastic material; and said film providing a sealing means to the opening of the bag when stretched at least 100 percent in the vicinity of the opening in a direction perpendicular to the opening, then relaxed and the sides of the opening pressed together.

4,314,559

NONSTICK CONDUCTIVE COATING

Richard E. Allen, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed Dec. 12, 1979, Ser. No. 102,886

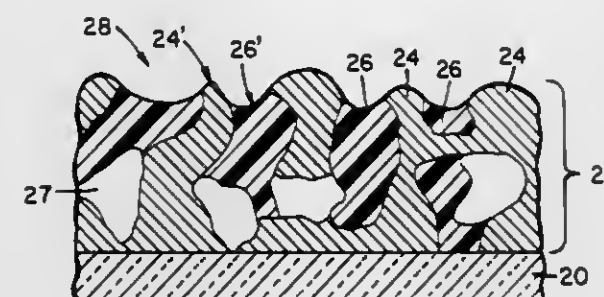
Int. Cl.³ A61B 17/36

U.S. Cl. 128—303.14

14 Claims

1. In an electrosurgical cutting blade having deposited thereon electrodes for contacting tissue and carrying electrical source generated hemostatic and cauterizing currents thereto,

each electrode comprising an electrically conductive non-stick composite coating deposited near the cutting edge thereof including: a first coating of electrically conductive material adherently deposited on said blade near the cutting edge, said first coating having an exposed textured surface; a second coating of nonstick material adherently deposited on said blade at least over said first coating to the extent that the textured



surface of said first coating, in the form of a sufficiently roughened mass having interconnected interstices forming locations for the secure adhesion of the non-stick material therein, is at least partially filled therewith, portions of said first coating in the form of interconnected islands being exposed and conductive, and the second coating imparting non-stick characteristics to the blade.

4,314,560

POWERED HANDPIECE FOR ENDOPHTHALMIC SURGERY

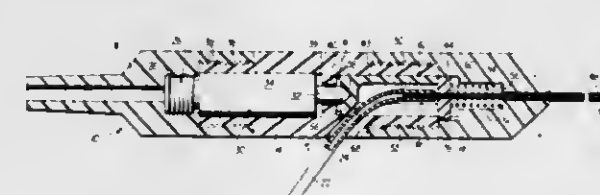
Maxwell A. Helfgott, 5640 Bradley Blvd., Bethesda, Md. 20014, and Gerald N. Helfgott, 5513 Uppingham St., Chevy Chase, Md. 20015

Filed Nov. 28, 1979, Ser. No. 97,984

Int. Cl.³ A61B 17/32

U.S. Cl. 128—305

5 Claims



1. A powered handpiece for endophthalmic surgery comprising:

- (a) a projecting tubular surgical instrument including coaxial inner and outer tubular members, said inner tubular member being slidably received within said outer tubular member for linear reciprocation therein;
- (b) a platform member rigidly attached to said inner tubular member near the proximal end thereof such that the proximal end of said inner tubular member extends beyond said platform member by a distance sufficient to permit the connection of a flexible tube to the proximal end of said inner tubular member;
- (c) a pneumatic linear actuator for producing linear reciprocating motion from a pneumatic power source;
- (d) a coupling member interposed between said pneumatic linear actuator and said platform member for transmitting linear reciprocating motion from said pneumatic actuator to the inner tubular member of said projecting tubular surgical instrument, one end of said coupling member being contoured for abutting said platform member in order to transmit linear reciprocating motion thereto while providing clearance for the connection of a flexible tube to the proximal end of said inner tubular member which extends beyond the platform member for carrying out suction or infusion through said inner tubular member during linear reciprocation thereof, said coupling member being maintained in simple abutting contact with the plat-

form member without rigid mechanical connection thereto;

- (e) a return spring operatively associated with the inner tubular member of said projecting tubular surgical instrument for acting in opposition to the motion produced by said pneumatic linear actuator as transmitted to said inner tubular member by said coupling member; and
- (f) a housing for receiving said return spring, said coupling member, said pneumatic linear actuator, said platform member, and the proximal portion of said projecting tubular surgical instrument, said housing comprising:
- (1) an anterior section for receiving the return spring, the platform member and the proximal portion of said projecting tubular surgical instrument;
 - (2) a posterior section for receiving in tandem arrangement said pneumatic linear actuator and said coupling member; and
 - (3) means for releasably coupling the anterior and posterior sections of said housing so as to bring said one end of the coupling member into abutting contact with the platform member.

4,314,561

SURGICAL SUTURE DERIVED FROM SEGMENTED POLYETHER-ESTER BLOCK COPOLYMERS

Donald S. Kaplan, Irvine, Calif., assignor to American Cyanamid Company, Stamford, Conn.

Continuation-in-part of Ser. No. 7,076, Jan. 29, 1979, which is a continuation-in-part of Ser. No. 933,224, Aug. 14, 1978, Pat. No. 4,224,946. This application Aug. 25, 1980, Ser. No. 181,286

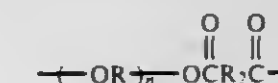
The portion of the term of this patent subsequent to Jan. 27, 1998, has been disclaimed.

Int. Cl.³ A61L 17/00

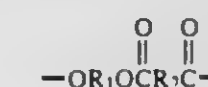
U.S. Cl. 128—335.5

4 Claims

1. An annealed non-absorbable monofilament sterile surgical suture or ligature comprising a polymeric block (A) consisting of a polyalkylene ether of the formula



having a number average molecular weight of from about 500-3000 wherein R is a straight chain alkyl group of about 4 carbon atoms and R₂ is 1,4-phenylene and n is the number of repeating units; and a polymeric block (B) which is the reaction product of an aromatic dicarboxylic acid and a short chain aliphatic diol, having the formula



wherein R₁ is a straight chain alkyl group of about 4 carbon atoms and R₂ is 1,4-phenylene, said block (B) comprising about 82% of the copolymer, and said copolymer having a number average molecular weight of from about 25,000 to 30,000, such that said suture has good flexibility, good fatigue life and high tensile strength.

4,314,562

ENCLOSURE SYSTEM FOR BODY IMPLANTABLE ELECTRICAL SYSTEMS

Lyle A. Ware, Bloomington, Minn., assignor to Medtronic, Inc., Minneapolis, Minn.

Continuation-in-part of Ser. No. 7,307, Jan. 29, 1979, Pat. No. 4,243,042, which is a continuation of Ser. No. 793,638, May 4, 1977, abandoned. This application Jan. 23, 1980, Ser. No. 114,714

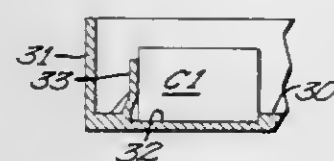
Int. Cl.³ A61N 1/00

U.S. Cl. 128—419 P

24 Claims

1. In a body implantable stimulator of the type having inter-

connected components housed within a preformed enclosure, the improvement which comprises insulating and isolating cup means formed of a resilient, non-conductive material and con-



figured to accept said components and substantially fill said enclosure, said cup means further comprising resilient means engaging at least one component for maintaining said component in a preselected position within said cup means.

4,314,563

APPARATUS FOR MEASURING RELATIVE CHANGES IN BLOOD VOLUME IN A PORTION OF AN ANIMAL BODY TO DETECT A VENOUS OCCLUSION

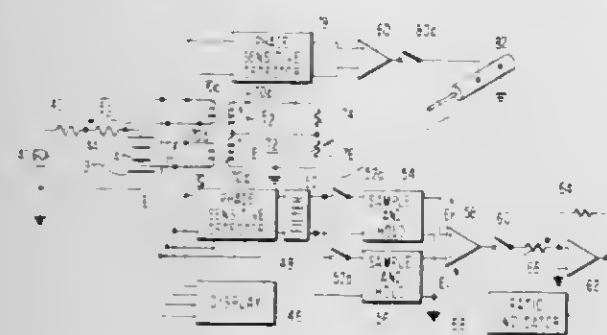
Hewitt B. Wheeler, Dedham, Mass., assignor to The United States of America as represented by the Administrator of the Veterans Administration, Washington, D.C.

Continuation of Ser. No. 75,227, Sep. 24, 1970, abandoned. This application Jun. 21, 1973, Ser. No. 372,092

Int. Cl.³ A61B 5/00

U.S. Cl. 128—693

5 Claims



1. Apparatus for measuring relative changes in blood volume in a portion of an animal body, comprising:

- A. means for measuring the impedance through said body portion;
- B. means for registering a first value of said impedance when the animal body is in a first reference condition in which a temporary, forced blockage of the venous return to the heart is applied,
- C. means for registering a second value of said impedance when the animal body is in a second reference condition free of said temporary forced blockage,
- D. means for forming an index relating the difference between said first and second impedance values to a selected reference value, and
- E. means for providing an output indicative of the magnitude of said index.

4,314,564

METHOD AND APPARATUS FOR DETERMINING ALCOHOL CONCENTRATION IN THE BLOOD

Scato Albarda, Gross Schenkenberg, Fed. Rep. of Germany, assignor to Drägerwerk Aktiengesellschaft, Fed. Rep. of Germany

Filed Jan. 15, 1980, Ser. No. 112,231

Claims priority, application Fed. Rep. of Germany, Feb. 22, 1979, 2906790

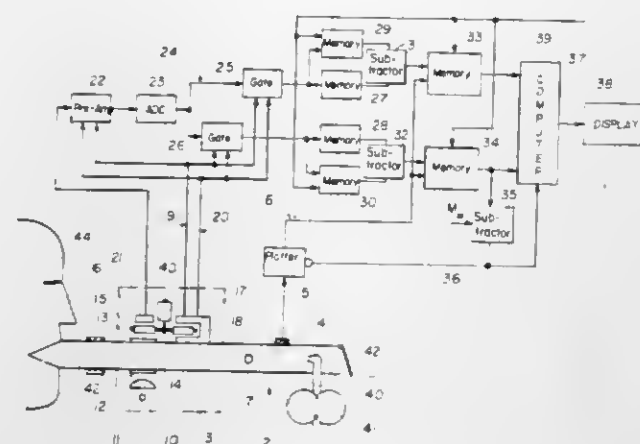
Int. Cl.³ A61B 5/00

U.S. Cl. 128—719

13 Claims

1. A method of determining the alcohol concentration in the blood of a person by testing a person's breath, comprising, maintaining at least a minimum flow rate for the person's breath, measuring the alcohol amount in the test sample, measuring an increase in humidity in the test sample over an ambi-

ent humidity in the air, and determining the ratio between the alcohol amount and the increase in humidity to obtain a value



which is proportional to the alcohol concentration in the blood of the person.

4,314,565

BIOPSY AND ASPIRATION NEEDLE UNIT

Peter F. Lee, 6425 Vernon Ave., Edina, Minn. 55436

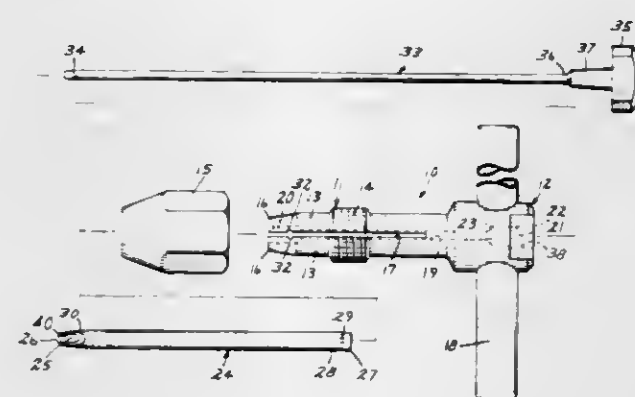
Continuation-in-part of Ser. No. 883,263, Mar. 3, 1978,

abandoned, which is a continuation of Ser. No. 706,130, Jul. 16, 1976, abandoned. This application Oct. 26, 1979, Ser. No. 88,818

Int. Cl.³ A61B 10/00

U.S. Cl. 128—753

5 Claims



1. A bone marrow biopsy needle unit comprising:

- (a) holding means including a collet chuck and a head portion aligned coaxially so that a line running along the common axis defines a longitudinal axis of said holding means, a bore of circular cross section along said longitudinal axis through said head portion and said collet chuck, and handle means extending from said head portion generally at right angles to said longitudinal axis, said collet chuck comprising a plurality of arms with external threading thereon, adjacent arms being separated by said generally longitudinally extending slot, each arm terminating in a jaw portion, and a collar nut to threadedly engage and radially compress said arms, each arm having an interior surface, said interior surfaces defining a segmented cylinder generally of a first diameter when said arms are not compressed by said collar nut;
- (b) a replaceable cannula, of predetermined length and gauge, of uniform hollow cylindrical configuration throughout the major portion of its length, having an open distal end, an external distal end surface portion uniformly tapered toward said distal end and an internal distal end surface portion tapered uniformly from a first circular diameter which extends along the major portion of said length of said cannula to a smaller circular diameter at said distal end, said distal end defining a cutting edge which is outwardly beveled and is obliquely disposed to the longitudinal axis of said cannula, an open proximal end, and an external proximal end surface portion, said proximal end

4,314,567

DROP CONTROLLER

Raymond E. Cannon, San Diego, Calif., assignor to IMED Corporation, San Diego, Calif.

Filed Sep. 24, 1979, Ser. No. 78,573

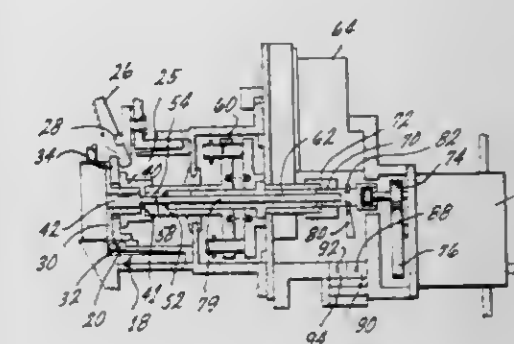
Int. Cl.³ A61M 5/00

U.S. Cl. 128—214 F

34 Claims

having a second diameter generally equal to said first diameter and being adapted to be releasably mounted in said collet chuck with a bore thereof being coaxially aligned with said bore of said holding means;

- (c) interlocking means for preventing movement of said cannula along or around said longitudinal axis of said holding means when said proximal end of said cannula is mounted in said collet chuck, said interlocking means comprising a protrusion and a recess, said protrusion extending from said proximal end portion of said cannula in a direction generally radial from said longitudinal axis a distance beyond said first diameter into one of said slots, said protrusion having an abutment surface facing in a direction of rotation about said longitudinal axis, said recess extending into at least one of said arms from an edge of said last-mentioned arm defining one of said slots into said last-mentioned arm in a direction of rotation about said longitudinal axis to define an abutment edge facing in a direction of rotation about said longitudinal axis, said abutment surface and abutment edge mating when said cannula is connected to said chuck to prevent the rotation of said cannula with respect to said chuck;
- (d) an elongated stylet, of predetermined length and gauge, of generally uniform circular cross section mounted in said aligned bores, said stylet having a distal end, a proximal end, and a cap portion at said proximal end; and
- (e) engaging means on both said stylet and said head portion cooperating to releasably engage said stylet and said holding means.



4,314,566

AIR COOLER FOR SELF-CONTAINED BREATHING SYSTEM

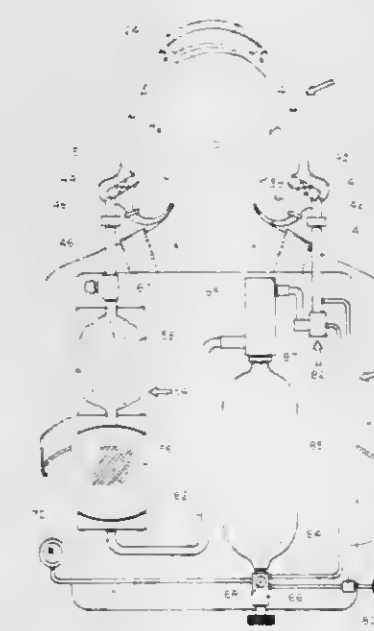
Robert S. Kiwak, Northville, Mich., assignor to The Bendix Corporation, Southfield, Mich.

Filed Aug. 28, 1980, Ser. No. 182,204

Int. Cl.³ A62B 7/00

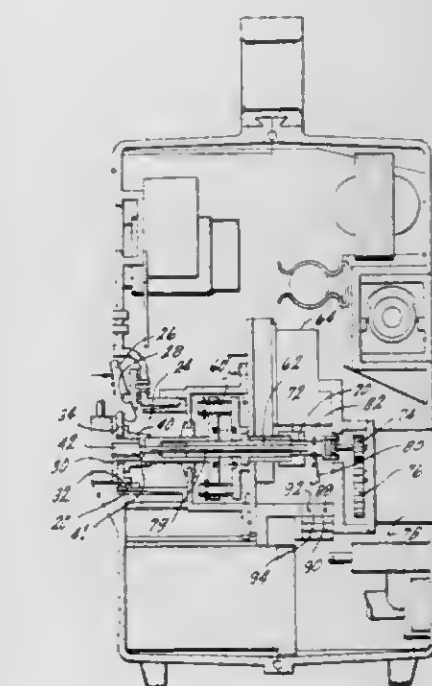
U.S. Cl. 128—204.15

5 Claims



1. In a breathing apparatus having means for scrubbing carbon dioxide from a stream of gas exhaled by a user to provide a stream of recycled gas, a tank of compressed breathable gas and means for reducing the pressure of said compressed breathable gas and adding the reduced pressure gas to the stream of recycled gas for use by said user, a heat exchanger for cooling said stream of recycled gas comprising:

- a heat sink located inside said tank;
- a heat exchange element located outside said tank in said stream of recycled gas; and
- a heat pipe connecting said heat sink and said heat exchanger element.



1. In combination in a drop controller for use with a cassette having a detent to hold the cassette in fixed but removable relationship to the drop controller,

- a housing,
- a plurality of detent means extending from the housing and having springlike characteristics for releasably holding the detent means on the cassette and having a looped configuration defining a socket for insertion of the cassette into the socket,
- pin means supported by the housing, and
- lever means mounted on the pin means and having a first arm and a second arm longer than the first arm and having first and second pivotable dispositions, the second arm being disposed for engagement by the cassette, upon the movement of the cassette into the socket, to become pivoted to the first position and being disposed in the first position in the housing in engagement with the cassette, the first arm being disposed externally of the housing for manual operation for removing the cassette from the socket.

4,314,568

VASCULAR STABILIZER

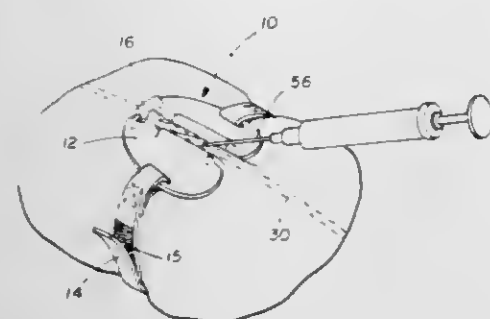
James A. Loving, Dallas, Tex., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Jan. 11, 1980, Ser. No. 111,355

Int. Cl.³ A61B 17/12; A61M 5/00

U.S. Cl. 128—327

12 Claims



1. An adjustable vascular stabilization device for stabilizing a blood vessel during venipuncture comprising:
 - a first body portion, said first portion having a first stabilizing edge portion thereon;
 - a second body portion, said second body portion having a second stabilizing edge portion thereon;
 - hinge means connecting said first and second body portions;
 - means securing said first body portion and said second body portion in contact with a patient with the portion of the vessel subject to venipuncture lying between said first stabilizing edge portion and said second stabilizing edge portion;
 - said first and second body portions being pivotal from an initial position about said hinge means to a stabilizing position to stabilize said vessel during venipuncture, said vessel being stabilized between said first and second stabilizing edge portions; and
 - locking means preventing said first and second body portions from pivoting about said hinge means from the position stabilizing said vessel, said locking means permitting said first and second body portions to pivot freely from the initial position to the stabilizing position.

4,314,569

BRA FOR ATHLETIC ACTIVITIES

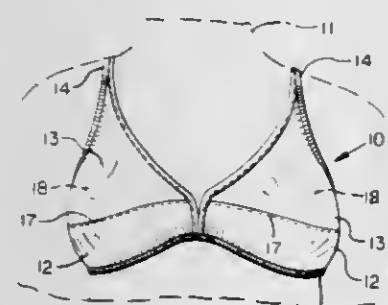
Joanne E. Speno, 1977 Reliez Valley Rd., Lafayette, Calif. 94549

Filed Jul. 25, 1979, Ser. No. 60,828

Int. Cl.³ A41C 3/00

U.S. Cl. 128—425

9 Claims



1. A bra for athletic activities, comprising:
 - an under cup at each breast, extending from the bottom edge of the bra up to a line below the nipple position;
 - a side panel at the outer end of each under cup, extending generally the same height as the under cup, for supporting the outer sides of the breasts;
 - a top cup at each breast, above the under cup and connected to the under cup in a seam at said line, the top cup extending laterally above the side panel in continuous manner, to

- help distribute the tops of the breasts comfortably and naturally;
 - a back strap extending from the outside ends of the side panels and top cups, for retaining the bra to the breasts; and
 - a pair of shoulder straps, each extending from the top of a top cup to a connection with the back strip, for supporting the bra on the shoulders;
- the bra having the raw edges of all seams protected from contact with the wearer's skin, for avoidance of irritation to the wearer;
- whereby adequate support and maximum comfort are provided the user during sporting activities.

4,314,570

CAPILLARY RECEPTACLE

Walter Sarstedt, 5223 Nümbrecht/Rommelsdorf, Fed. Rep. of Germany

Continuation of Ser. No. 960,249, Nov. 13, 1978, abandoned.

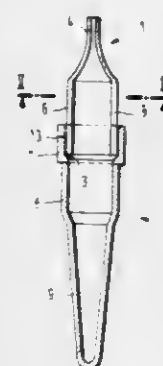
This application Aug. 18, 1980, Ser. No. 178,908

Claims priority, application Fed. Rep. of Germany, Nov. 18, 1977, 2751503

Int. Cl.³ A61B 10/00; G01N 1/10

U.S. Cl. 128—763

11 Claims



1. A capillary receptacle for the extraction and storage of blood, comprising:
 - a receiving receptacle having a bottom portion slightly tapering inwardly toward a closed bottom, said tapered portion extending over a substantial portion of the length of the receiving receptacle and defining a tapered receiving chamber, a cylindrical upper portion adjacent to the bottom portion, and a substantially cylindrical top portion, having a larger inner diameter than that of said upper portion, adjacent to the cylindrical upper portion and open at the upper end thereof; and
 - a removable insert having a cylindrical main portion, inserted into the top portion of said receiving receptacle, and a short portion, the interior of which is funnel shaped, adjacent to the cylindrical main portion, the tip of the short portion having such a small inner diameter that blood externally thereof is drawn in by capillary action and the main portion of said insert having such a large inner diameter that the entering blood is able to freely flow onto and off therefrom into said receiving receptacle without being hindered by capillary action; and
- wherein the outside of the cylindrical main portion of said insert and the inside diameter of the top portion of said receiving receptacle are so shaped that the outside of the cylindrical main portion is tightly received into the inside of said top portion with a venting duct provided therebetween.

4,314,571

COMBINE HARVESTER

Cyriel R. J. DeBussecher, Damme, and Gilbert J. I. Strubbe, Zedelgem, both of Belgium, assignors to Sperry Corporation, New Holland, Pa.

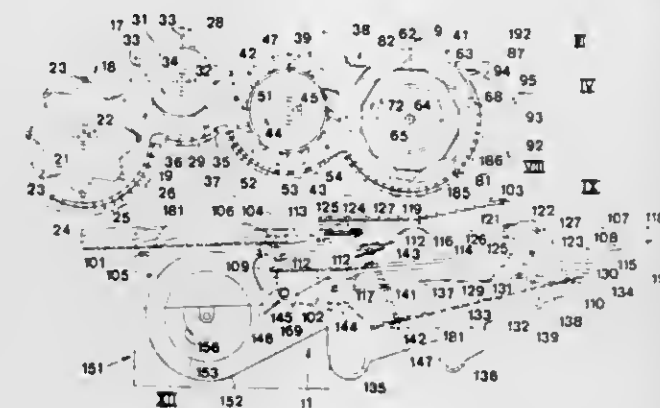
Filed Nov. 13, 1980, Ser. No. 206,738

Claims priority, application United Kingdom, Nov. 14, 1979, 39372/79

Int. Cl.³ A01F 12/44

U.S. Cl. 130—27.2

39 Claims



1. A combine harvester with a threshing and separating mechanism for threshing and separating crop material, and a cleaning device for cleaning threshed and separated grain, the cleaning device comprising:
 - a grain pan positioned to receive threshed and separated grain from the threshing and separating mechanism and to progressively convey said threshed and separated grain in the direction of the discharge end of the grain pan;
 - a sieve disposed to receive threshed and separated grain from the grain pan including at least a chaffer sieve having a receiving end at a level below the level of the discharge end of the grain pan;
 - fan means operable to direct a cleaning air blast to the sieve structure for cleaning grain therein;
 - a precleaning sieve disposed between the grain pan and the chaffer sieve and having a receiving end below the grain pan discharge end;
 - duct means directing cleaning air blast on the fall between the grain pan discharge end and the receiving end of precleaning sieve;
 - a further grain pan substantially vertically below the precleaning sieve; and
 - the further grain pan has a discharge end at a distance from the receiving end of the chaffer sieve thus defining therewith a discharge opening; the arrangement being such that grain received from the precleaning sieve on said further grain pan is conveyed through said discharge opening thus bypassing the chaffer sieve.

4,314,572

METHOD AND COMPOSITION FOR HAIR TREATMENT

Mario de la Guardia, Savannah, Ga., and Donald R. Cowsar, Birmingham, Ala., assignors to Carson Products Company, Savannah, Ga.

Continuation-in-part of Ser. No. 805,149, Jun. 9, 1977. This application Feb. 8, 1980, Ser. No. 119,836

Int. Cl.³ A45D 7/00

U.S. Cl. 132—7

14 Claims

1. An improvement in a method for treating hair of the type wherein a composition comprising guanidine hydroxide is applied to the hair and is subsequently removed therefrom, the improvement comprising the steps of:
 - (a) providing a first ingredient comprising a guanidine salt;
 - (b) providing a second ingredient comprising a quaternary ammonium, hydroxide-form, ion exchange resin;
 - (c) mixing said first ingredient and said second ingredient so as to produce guanidine hydroxide; and

- (d) separating said guanidine hydroxide from said resin.

4,314,573

PROCESS FOR CONDITIONING HAIR

J. George Spitzer, 44 Coconut Row, Palm Beach, Fla. 33480; Dorothea C. Marra, 107 Fernwood Rd., Summit, N.J. 07901; Lloyd I. Osipow, 2 Fifth Ave., New York, N.Y. 10003, and Kevin Claffey, 735 E. 17th St., Brooklyn, N.Y. 11230

Continuation-in-part of Ser. No. 41,377, May 22, 1979, abandoned. This application Apr. 24, 1980, Ser. No. 143,226

Int. Cl.³ A45D 7/06; A61K 7/06

U.S. Cl. 132—7

6 Claims

1. A process for conditioning hair which comprises applying to the hair an effective hair-conditioning amount of an alcohol-soluble fraction of soybean lecithin in solution in a lower alcohol having two or three carbon atoms, and then combing the hair, the alcohol-soluble lecithin fraction lubricating the hair and facilitating combing, and at the same time reducing the accumulation of an electrostatic charge on the hair during combing, and inhibiting fly away.

4,314,574

TOOTH-PICK HAVING ONE FOLDED END AND ASSOCIATED POCKET CONTAINER BOX

Maria Inerte, Via S. Bernardino, 152, Bergamo, Italy

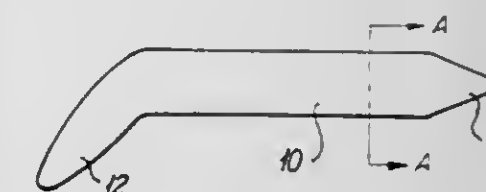
Filed Oct. 4, 1979, Ser. No. 81,852

Claims priority, application Italy, Oct. 5, 1978, 22957/78[U]

Int. Cl.³ A61C 15/00

U.S. Cl. 132—89

2 Claims



1. The combination of a laminar toothpick with a pocket container, both said toothpick and said container being flat and lying substantially in the same plane, the container walls and the laminar toothpick contacting each other inside said container, the toothpick comprising a straight central portion of a constant thickness, terminating at one end in a sharp point, while the other end is angular, lying in the same plane but disposed at about 45° to the axis of said central portion, said point and said angular end being integral with said central portion, said angular end having adjacent the first portion the same thickness as the central portion, but thence immediately tapering, toward the tip, and terminating in a rounded edge.

4,314,575

MULTI-PURPOSE STICKS OR CANES

Chin-Tui Kuo, No. 1-10, Ta Ho 1 Hsiang, Hsi Tun District, Taichung, Taiwan

Filed Feb. 27, 1980, Ser. No. 124,966

Int. Cl.³ A45B 3/00, 3/14

U.S. Cl. 135—66

3 Claims



1. A multi-purpose cane comprising an elongated hollow tubular outer body having a continuously tapering configura-

tion along its length, a hollow tubular metallic sleeve member fixedly attached to the smaller end of said outer body having an outer diameter the same as that of said smaller end so that its outer surface is continuous with that of said body and extending beyond said smaller end to provide a recess therein, an externally threaded extension extending coaxially from said smaller end beyond said sleeve, a metallic ground contacting member having a tapering cylindrical configuration the larger end of which has an outer diameter equal to that of said sleeve, said ground contacting member having a coaxial threaded bore to threadedly engage said threaded extension and a reduced extension on its larger end to interfit in close fitting relationship within said recess, the larger end of said outer body being reduced in diameter to form a shoulder, an external thread on said reduced portion, a metallic hollow tubular connector sleeve having a first internal threaded portion engaging said external thread on said reduced end of said body and a second internal threaded portion having a smaller diameter than and axially displaced from said first threaded portion, the outer diameter of said connector sleeve being equal to that of said larger end of said outer body so that it forms a continuous tapered cylindrical surface therewith, a hand grip member having a connecting end portion of cylindrical shape with an outer diameter substantially equal to that of said connector sleeve to form a continuous tapered surface therewith, a first reduced diameter externally threaded extension on said connecting end for threaded engagement with said second internal threaded portion of said connector sleeve, a second reduced diameter externally threaded extension on said connecting end of the same size as said threaded bore in said ground contacting member, an elongated cylindrical continuously tapering coaxial bore within said outer body, the larger diameter of which is at the same end as that of said outer body, an elongated cylindrical continuously tapering inner body removably insertable within said bore in said outer body, the largest diameter of said inner body being slightly smaller than said second internal threaded portion of said connector sleeve, a metallic connector sleeve on the larger end of and threadedly connected to said inner body having an outer cylindrical tapering surface the larger diameter of which equals the smaller diameter of said sleeve member on the smaller end of said outer body, a reduced coaxial extension on said connector sleeve of said inner body having the same shape and size as said reduced extension on said ground contacting member, and a coaxial threaded bore in said connector sleeve of said inner body having the same size as said bore in said ground contacting member, so that said ground contacting member and said inner body may be interchangeably attached by said threaded extensions to said smaller end of said outer body or to said hand grip member when stored in said elongated bore.

4,314,576

UNIVERSAL SELF HELP AID APPARATUS FOR INVALIDS

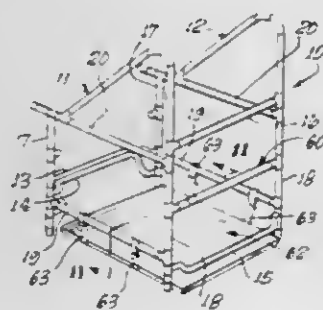
Charles W. McGee, 445 Thoma St., Reno, Nev. 89502

Filed Jan. 10, 1980, Ser. No. 110,818

Int. Cl.³ F16M 13/08; A61H 3/04

U.S. Cl. 135-67

8 Claims



1. Apparatus for assisting a crippled individual in movement and exercise comprising: a frame consisting of two side frame members, wherein said side frame members include angularly disposed members to be gripped by an individual using the

device; elongated members joining said two side frame members at one of their ends include members suitable to engage the lower legs of the person using the same in a clamping manner; elongated members joining the other end of said side frame members in such a manner as to allow for entry from that end from a wheelchair.

4,314,577

INSTALLATION, HYDROSTATIC TESTING, REPAIR AND MODIFICATION OF LARGE DIAMETER FLUID TRANSMISSION LINES

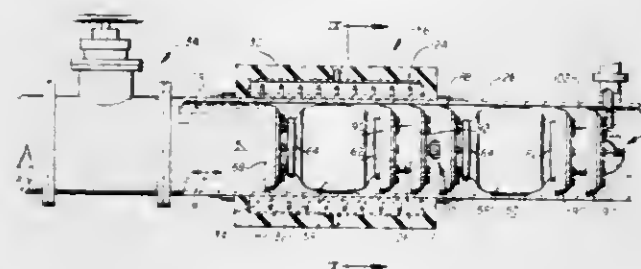
Beryle D. Brister, P.O. Box 2329, Amarillo, Tex. 79105

Filed Jul. 9, 1979, Ser. No. 55,961

Int. Cl.³ F16L 55/12

U.S. Cl. 137-13

4 Claims



1. A method for sealing a section of a fluid transmission line comprising the steps:
positioning within the interior of the fluid transmission line section a freeze pig having a sealed expandable boot filled with a quantity of a liquid solution which expands when frozen;
positioning refrigeration means around the section of fluid transmission line enclosing the pig; and
freezing the liquid solution within the expandable boot by introducing a refrigerant into said refrigeration means to cause said boot to expand into sealing engagement with the interior wall of said transmission line.

4,314,578

FLUID SIGNAL TRANSMITTING APPARATUS

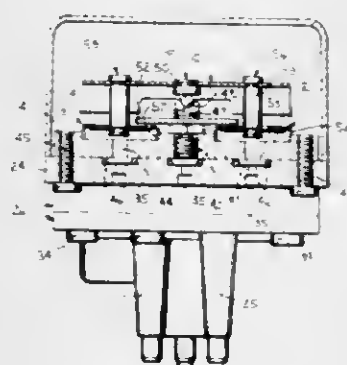
Warren A. Lederman, Bayside, Wis., assignor to Johnson Controls, Inc., Milwaukee, Wis.

Filed Oct. 22, 1979, Ser. No. 87,580

Int. Cl.³ G05D 16/00

U.S. Cl. 137-84

4 Claims



1. A fluid signal inverting apparatus comprising a signal chamber having a signal port and including a diaphragm forming one wall thereof, a feedback chamber having a signal port and including a diaphragm forming one wall thereof and mounted in spaced relationship to said signal chamber, said diaphragms of said signal chamber and feedback chamber being matched and located in a common plane, a motion balance lever member spanning said diaphragms, rigid interconnecting means connecting the diaphragms to said balance lever member and supporting said balance lever member for movement relative to said signal chambers, a valve means located in

fixed relationship intermediate said chambers and having a valve operator, said valve operator being connected to said lever member and including a pivotal connection and responsive to the movement of the lever member associated with movement of said diaphragms to position said valve operator and valve means in accordance with the lever member movement, and including a base plate having said chambers formed by recesses in one wall of said plate and said diaphragms each being a cup-shaped diaphragm having the sidewalls sealed in said recesses, said rigid interconnecting means including pin members affixed to the center of said diaphragms and to the aligned portion of said lever members, said valve means being adjustably secured to said plate for axial positioning toward and away from said valve operator, said valve operator being a spacer member secured to the lever member and extending into operative engagement with the valve means.

4,314,579

GATE VALVE

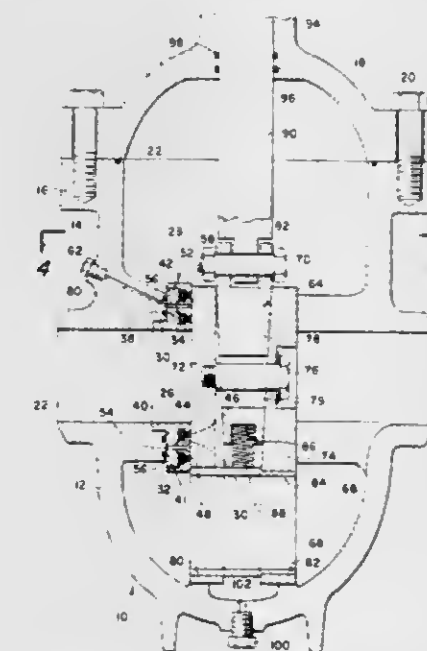
Charles Wheatley, 2909 E. 29th St., Tulsa, Okla. 74135, and Phyllis A. Wheatley, 25308 E. 65th St., Broken Arrow, Okla. 74012

Filed Mar. 18, 1980, Ser. No. 131,286

Int. Cl.³ F16K 23/00

U.S. Cl. 137-312

3 Claims



1. A gate valve comprising a valve body, oppositely disposed inlet and outlet ports provided in the body, valve seat means removably secured to the inner end of the inlet port, an annular shoulder provided on the inner end of the outlet port, gate means interposed between the valve seat means and annular shoulder and reciprocal in directions substantially perpendicular to the longitudinal axes of the inlet and outlet ports to provide alternate open and closed positions for the valve, the outer faces of said gate means being substantially flat and mutually parallel for simultaneously engaging the valve seat means and annular shoulder in the closed position of the valve and having passageway means extending therethrough for alignment with the inlet and outlet ports in the open position of the valve, and spring urged internally disposed wedge means provided in said gate means for facilitating the sealing engagement of the gate means with the valve seat means in the closed position of the valve and facilitating the movement of the gate means to the open position, said gate means comprising a pair of plate members, each of said plate members being provided with an outer face substantially perpendicular to the axis of the inlet and outlet ports and an innerface inwardly diverging, bolt means securing said plate members in spaced relationship and providing for a limited movement of the plate members in the axial direction of the inlet and outlet ports, said spring urged wedge means being disposed between the plate members and having bore means for receiving the bolt means therethrough whereby the wedge means is movable in a direction perpendicular

ular to the axis of the inlet and outlet ports independent of the movement of the plate members during the initiation of a closing and opening of the valve and simultaneously therewith for completion of the opening and closing of the valve.

4,314,580

FAUCET STRUCTURE

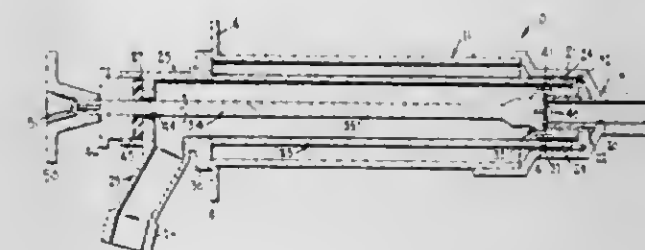
Dennis D. Steinwand, 201-6th Ave. N.W., Mandan, N. Dak. 58554

Filed Jun. 9, 1980, Ser. No. 157,884

Int. Cl.³ F16L 5/00

U.S. Cl. 137-360

7 Claims



1. A faucet structure comprising, in combination:
a hollow housing extending along an axis between first and second ends;
inlet means at said second end of said housing for coupling to a water supply conduit;
valving means at said second end actuable to selectively enable and prevent flow of water from said conduit into said housing;
a hollow liner removably contained within said housing along said axis between first and second ends;
an outlet tap closing said first end of said liner beyond said first end of said housing;
means at said second ends of said housing and said liner for releasably forming a watertight seal therebetween;
an actuator extending axially within said housing and said liner from a first end which sealingly traverses said outlet tap to a second end connected to said valving means, whereby to open said valving means enabling flow of water from said conduit, and to close said valving means to prevent flow of water from said conduit, said liner being removable through said first end of said housing over said actuator with the valving means closed thereby permitting replacement of said liner without enabling the flow of water from said conduit into said housing; and
means normally retaining said liner in said housing.

4,314,581

ROTARY VALVE WASHERLESS CARTRIDGE

Donald C. Schrock, Bay Village, Ohio, assignor to Streamway Corporation, Westlake, Ohio

Filed Oct. 19, 1979, Ser. No. 86,473

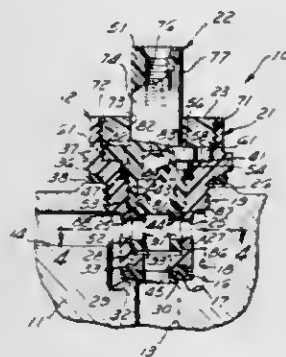
Int. Cl.³ F16K 25/00

U.S. Cl. 137-454.5

1 Claim

1. A valve assembly comprising a housing having a cavity including an annular seat adjacent an inner end of the cavity, an inlet passage communicating with the housing cavity through an area central of the annular seat, an outlet passage connected to the housing cavity, a cartridge assembly including a rigid hollow bonnet and a stem supported for rotation in the bonnet, the bonnet extending into the housing cavity, threaded means for securing the bonnet in the housing cavity, annular seal means at an inner end of the bonnet compressed by forces developed by said threaded means and sealing against the annular seat to isolate the inlet passage from the housing cavity, an inner portion of the bonnet forming a tubular wall including a circular bore, an outlet port extending radially through the tubular wall, means supporting said stem in an axially fixed position, an outer portion of said stem being ex-

posed at an outer end of the bonnet to permit manual rotation thereof, an inner end portion of the stem being disposed in said circular bonnet bore, said inner stem portion being cup-shaped and opening in the direction of said annular seat, said inner stem portion being formed of a relatively soft, elastomeric material and including a radial port through a sidewall of the cup-shaped area, said radial stem port being in axial alignment with said bonnet outlet port and capable of being disposed in circumferential alignment or misalignment with said bonnet outlet port through selective rotation of said stem, said outer stem portion being formed of a material relatively more rigid than the material forming the inner stem portion, said inner and outer stem portions including means providing an interlocking



torque transmitting connection therebetween, means for limiting rotation of the stem to substantially less than one full turn, an O-ring disposed in said bonnet about said stem axially outward of said inner cup-shaped stem portion to prevent leakage of fluid axially along said stem, said cup-shaped portion including a circumferentially continuous tubular zone axially outward of said stem port, an axially outer portion of said stem being relatively rigid, said cup-shaped portion having a free configuration providing a slight degree of interference with said circular bonnet bore, said cup-shaped portion being responsive to fluid pressure therein when said ports are misregistered to expand radially outwardly into tight sealing engagement with said bonnet bore to prevent radial fluid flow through said ports and axial leakage along said stem.

4,314,582

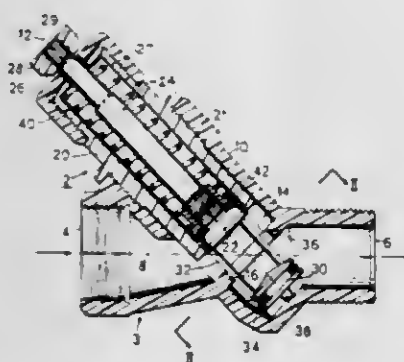
COMBINED PRESSURE-REGULATOR AND MANUAL SHUT-OFF VALVE

Mordeki Drori, 89 Zabal St., Kiron, Israel
Continuation-in-part of Ser. No. 669,663, Mar. 23, 1976, abandoned, and a continuation-in-part of Ser. No. 495,497, Aug. 4, 1974, abandoned. This application Aug. 24, 1976, Ser. No. 717,356

Int. Cl.³ F16K 31/14

U.S. Cl. 137—495

3 Claims



1. A fluid flow control device useful as a combined manual shut-off valve and pressure regulator effective to regulate the pressure downstream of a line during both fluid flow and non-flow conditions therein, comprising: a housing having an inlet connectable to the upstream side of the line, an outlet connectable to the downstream side of the line, and an inwardly extending annular flange formed within the housing

between the inlet and outlet and defining a circular opening providing a fluid passageway therebetween, the annular flange having a longitudinal axis inclined at an acute angle to the axis of the inlet and intersecting same at the center of said opening; an internally threaded cylindrical socket formed on the housing at the inlet side thereof and having a longitudinal axis aligned with that of the annular flange and the center of said opening; an externally threaded cylinder threaded at its mid-portion within said socket; a piston of the same diameter as said opening sealingly slidable within the cylinder; a coil spring biasing means urging the piston towards said opening; a disc of the same diameter as said opening and said piston; said disc being movable from an open position on the outlet side of said opening to a closed position within said opening; a sealing ring between said disc and opening when the disc is in its closed position within said opening; connecting means including at least one rod securing the piston at the inlet side of the opening to the disc at the outlet side of the opening while permitting the fluid to flow between the disc and the piston through the opening when the disc is in its open position such that the inlet pressure is applied equally to the piston and to the confronting face of the disc producing substantially equal and opposite forces, whereas the outlet pressure is applied to the opposite face of the disc tending to move the disc, and the piston in the cylinder, against the spring biasing means, a further rod fixed to the piston and extending through the outer end of the cylinder; and manual presettable means comprising a cap axially presettable in one of two positions on the outer end of said cylinder and having an aperture through which said further rod passes, the outer end of said further rod carrying a stop engaging the outer face of the cap such that presetting the cap on the cylinder in one position away from said circular opening causes the device to act as a manual shut-off valve by fixing the disc in its closed position within said opening, and presetting the cap on the cylinder in a second position towards the opening causes the disc carried by the piston to be disposed on the outlet side of the circular opening and to be urged by the spring biasing means away from the opening whereby the device acts as a pressure-regulator wherein an increase in the outlet pressure of the fluid moves the disc towards said opening to reduce or shut-off the flow therethrough and thereby to regulate the fluid pressure during both fluid flow and non-flow conditions downstream of the line.

4,314,583

BACKWATER VALVE

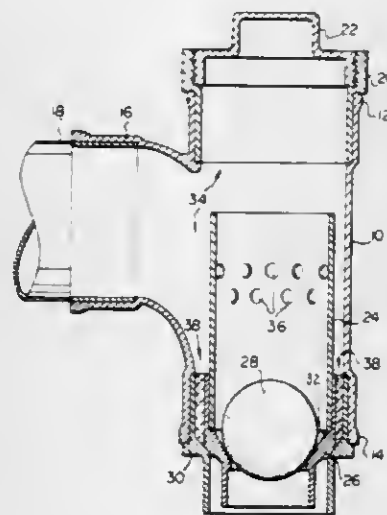
Harold A. Peterson, 8300 Ryan Rd., Richmond, British Columbia, Canada (V7A 2E6)

Filed Jun. 9, 1980, Ser. No. 157,473

Int. Cl.³ F16K 15/04

U.S. Cl. 137—533.11

5 Claims



1. A check valve insert for installation between the inlet and outlet ports of a fluid conduit, said outlet port communicating with a drainage conduit, said insert comprising:

- (a) an apertured coupler for insertion into the inlet port of said fluid conduit, said coupler including a valve seat around said aperture;
- (b) a cylindrically apertured guide sleeve fixed to said coupler to project into said fluid conduit above said valve seat and permit fluid communication from said inlet port through said coupler aperture and through said sleeve aperture to said outlet port, said sleeve including a plurality of apertures spaced around the upper end of said sleeve; and,
- (c) a ball closure member positioned within said sleeve for sealing engagement against said valve seat to prevent fluid communication from said outlet port to said inlet port; wherein, when said insert is installed in said fluid conduit, said plurality of sleeve apertures are positioned above the lowest point of entry from said fluid conduit outlet port to said drainage conduit.

4,314,584

ANGLE VALVE

Manfred Sieglitz, Bremen, Fed. Rep. of Germany, assignor to Gustav F. Gerds KG, Bremen, Fed. Rep. of Germany

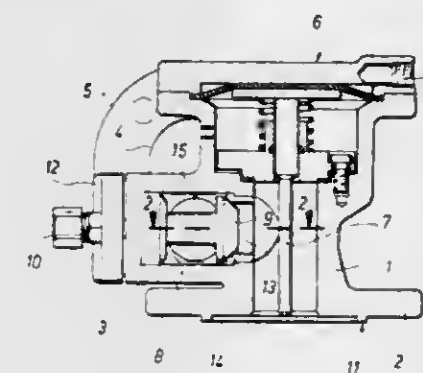
Filed Aug. 21, 1978, Ser. No. 935,287

Claims priority, application Fed. Rep. of Germany, Aug. 25, 1977, 2738294; Sep. 21, 1977, 2742414

Int. Cl.³ F16K 31/145; B65D 47/20

U.S. Cl. 137—613

7 Claims



1. An angle valve mountable on the exterior of a container having a container valve disposed therein, comprising:

- a unitary valve housing including a container-side connecting member having a front face and a channel formed therein opening onto said front face for communication with said container and a loading-side connecting member, which has a channel formed therethrough and which is capable of communication with a loading line, said valve housing further including an intermediate connecting member mounted on said container-side connecting member and extending radially therefrom, said intermediate connecting member having a free end on which is mounted a support for supporting a valve spindle and a receiving chamber formed therein which establishes communication between said channels of said loading-side and said container-side connecting members, with said channel of said loading-side connecting member disposed to terminate and discharge directly into said receiving chamber and with said loading-side connecting member disposed tangentially relative to said container-side connecting member and extending radially outwardly from said intermediate connecting member between said support and said container-side connecting member, said loading-side connecting member having an axis which is disposed at a fixed angle to said front face and also having an inner end coupled to said intermediate member and an outer end ascending away from said front face;
- a valve seat mounted within said receiving chamber;
- a stroke-adjustable valve head mounted within said receiving chamber and disposed for cooperative engagement with said valve seat, said valve head being disposed laterally adjacent to said container-side connecting member so as to leave said channel of said container-side connecting

member unobstructed for the receipt therein of an actuating plunger;

- a manually-adjustable valve spindle at least partially mounted in said receiving chamber and having an inner end coupled to said valve head, and an outer free end supported by said support, said valve spindle being mounted with its axis substantially parallel to the axis of said intermediate member and to said front face of said container-side connecting member such that its outer free end does not extend substantially above said actuating member and said loading-side connecting member, said spindle being adjustable to control communication between said container-side connecting channel and said receiving channel;
- an actuating plunger which is disposed in and extends through said channel of said container-side connecting member for coupling with the container valve disposed in the container; and
- a pneumatically operable actuating member supported on said housing and coupled to said actuating plunger.

4,314,585

PROPORTIONAL TYPE ELECTROMAGNETIC VALVE
Torazo Nishimiya, Mito; Masamitsu Okumura, and Seisaku Numakura, both of Katsuta, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

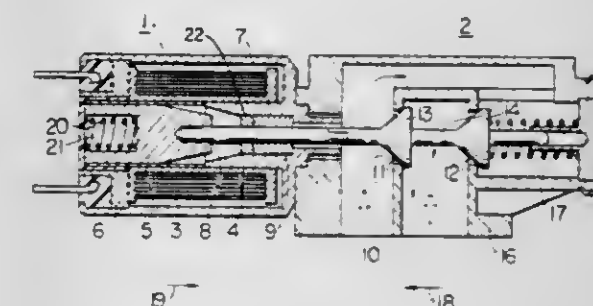
Filed Aug. 22, 1979, Ser. No. 68,577

Claims priority, application Japan, Aug. 23, 1978, 53/103315

Int. Cl.³ F16K 31/06, 1/44

U.S. Cl. 137—625.34

6 Claims



1. A proportional type electromagnetic valve for controlling flow rate of fluid comprising, electromagnetic driving means having axially movable output shaft means whose moving stroke is in proportion to an input current fed to the electromagnetic driving means, a plurality of valve means mounted on the output shaft means for controlling flow rate of fluid in proportion to the stroke of the output shaft means, a first spring means biasing the output shaft means in a direction opposite to a direction of force applied to the output shaft means by the electromagnetic driving means, and a second spring means biasing said output shaft means in the same direction as the direction of force applied to said output shaft means by said electromagnetic driving means, each of said first and second spring means having a linear force-displacement characteristic such that the sum of the spring forces of said first and second spring means biasing said output shaft means is in linear proportion to the stroke of said output shaft means.

4,314,586

DISPOSABLE VALVE

Bern D. Folkman, Burbank, Calif., assignor to Troonmed International, Inc., Costa Mesa, Calif.

Continuation of Ser. No. 937,952, Aug. 30, 1978, abandoned.

This application Jun. 27, 1980, Ser. No. 163,778

Int. Cl.³ F16K 5/04

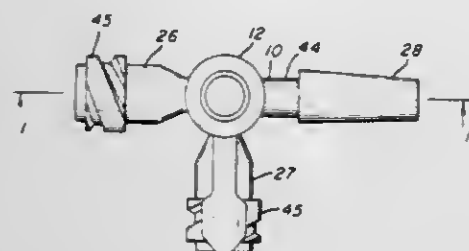
U.S. Cl. 137—625.47

9 Claims

5. A two-piece, three-way disposable plastic valve comprising:

a valve body having a substantially straight inner cylindrical surface bore with three peripherally spaced ports and an annular tapered surface adjacent one end of the bore extending into the bore and forming a first flat annular stop member;

a respective tubular extension aligned with and extending from each port, at least two of the tubular extensions having a first diameter portion adaptable for connection to a fluid conduit and a second reduced diameter portion adjacent their respective ports to minimize the quantity of plastic adjacent the valve body which is subject to cooling during solidification to prevent sink warpage of the cylindrical bore which could permit leakage of the valve;



a substantially hollow valve core rotatably mounted in the valve body with an outside cylindrical surface sealingly contacting the bore;

conduit means in the valve core capable of fluidly connecting at least two valve body ports;

a second stop member on the valve core of a complimentary configuration to the tapered portion of the valve body wherein the valve core can be forced past the tapered portion of the valve body to be permanently secured in an operative position, the relative alignment of the first and second stop members permitting a limited axial sealing movement of the valve core within the valve body cylindrical bore while still maintaining an operative relationship of the valve body ports with the conduit means.

4,314,587

RIB DESIGN FOR BOILER TUBES

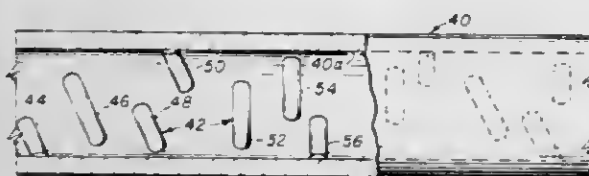
Charles D. Hackett, Tunnel Hill, Ga., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Sep. 10, 1979, Ser. No. 73,967

Int. Cl.³ F16L 11/14

U.S. Cl. 138—38

9 Claims



1. A boiler tube for effecting the heating by means of high temperature gaseous products of combustion flowing in surrounding relation thereto of a fluid flowing therethrough comprising a metallic cylinder having a hollow interior defining a passage for the fluid to flow through, means provided on the inner wall surfaces of said metallic cylinder for preventing the occurrence of nucleate boiling of the fluid flowing through the hollow interior of said metallic cylinder, said means comprising ribbing consisting of a multiplicity of individual ribs that are arranged in a preselected variably configured pattern so as to induce each increment of length of said metallic cylinder with the proper fluid flow properties required for purposes of achieving a maximization without causing nucleate boiling of the rate of heat transfer through the walls of said metallic cylinder to the fluid flowing through the hollow interior of said metallic cylinder, the arrangement of said multiplicity of individual ribs in said preselected variably configured pattern being determined in accordance with parameters selected from

amongst a plurality of variable factors to fulfill certain preestablished design criteria having for their objective the prevention of nucleate boiling.

4,314,588
LOOM

Francisco Speich, Gipf-Oberfrick, Switzerland, assignor to Textilma AG, Switzerland

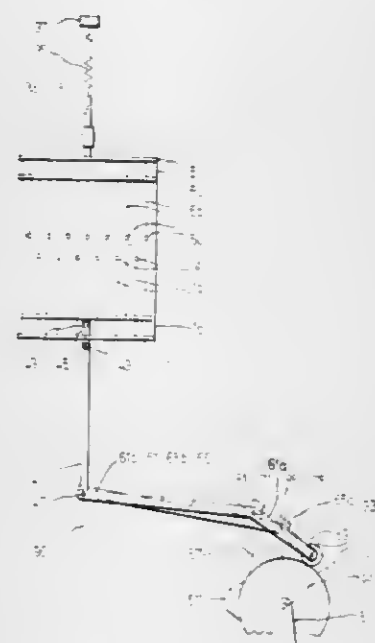
Filed Jan. 21, 1980, Ser. No. 113,600

Claims priority, application Switzerland, Feb. 15, 1979, 1490/79

Int. Cl.³ D03C 5/00

U.S. Cl. 139—79

9 Claims



1. A loom comprising:

(a) a plurality of heald devices, each of said heald devices being generally disposed in a respective one of a plurality of parallel planes and each of said heald devices being displaceable for reciprocating displacement along a respective path in its said respective one of the parallel planes, said plurality of heald devices being so disposed that a common central plane extends centrally of each of said plurality of heald devices, said common plane being disposed parallel to said paths and perpendicular to each of said parallel planes,

(b) a plurality of levers, each lever being operatively connected to one of the heald devices and pivotable about a respective pivot axis to cause said reciprocating displacement of a respective one of said plurality of heald devices, each pivot axis of said levers being extended at a right angle said parallel planes,

(c) drive means for pivoting said lever,

(d) each lever contacting said drive means at a drive input location spaced from the respective pivot axis of said lever by a first distance,

(e) a plurality of intermediate elements, each of said intermediate elements being connected between a respective one of said heald devices and a respective one of said levers at a drive output location spaced from the respective pivot axis of said lever by a second distance, and

(f) said pivot axis of each of at least two levers being mutually offset relative to each other, said at least two levers having a different ratio of said first distance to said second distance relative to each other so that mutually different stroke transmission ratios for said at least two levers results.

4,314,589

DUPLEX FORMING FABRIC

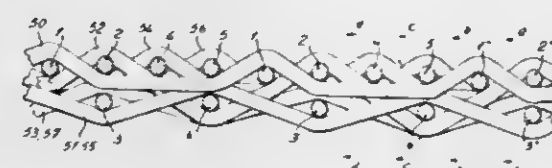
John G. Buchanan, Ottawa, and Donald G. MacBean, Barrhaven Cres., both of Canada, assignors to JWI Ltd., Montreal, Canada

Continuation of Ser. No. 953,928, Oct. 23, 1978. This application Aug. 20, 1980, Ser. No. 179,733

Int. Cl.³ D03D 15/00

U.S. Cl. 139—383 A

4 Claims



1. A paper forming fabric having two layers of synthetic weft strands with interwoven synthetic warp strands and approximately 100% warp fill, the upper surface of the fabric having a plurality of knuckles formed by said interwoven weft and warp strands being essentially tangent to the plane of the fabric on which the paper is to be formed, and wherein the upper layer of the said fabric comprises a regular array of mesh openings which are spaced apart in the weft direction by a distance not greater than the thickness of a single intervening warp strand and in the warp direction by a distance not greater than the thickness of a single intervening weft strand, said mesh openings being defined by the spacing between adjacent upper weft strands and by the spacing between warp strands which are held separated within the body of the fabric by at least one intervening warp strand, said at least one intervening warp strand being woven with lower layer weft strands and extending in its entire length below said top layer weft strands.

4,314,590

WEFT GUIDING COMB FOR A JET LOOM

Hajime Suzuki, Anjyo; Yoshifumi Umemura, Toyoake; Masahiko Kimbara, Kariya, and Yoshimi Iwano, Ohbu, all of Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya, Japan

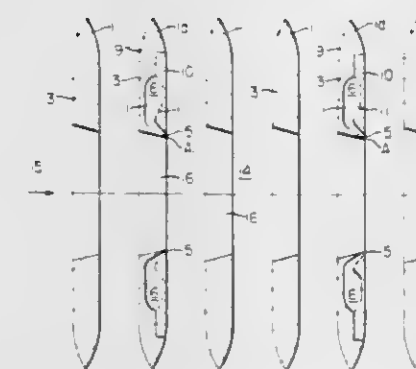
Filed Mar. 11, 1980, Ser. No. 129,410

Claims priority, application Japan, Mar. 14, 1979, 54-3014

Int. Cl.³ D03D 47/30

U.S. Cl. 139—435

6 Claims



1. A weft guiding comb for a jet loom consisting of a root portion, an annular portion integrally connected to the upper end of the root portion and forming an aperture with a slit, a fluid passage formed in said root portion and said annular portion to allow a flow of fluid to flow therethrough, and outlet means arranged around the periphery of the aperture for discharging the flow of fluid passed through the fluid passages, at least said annular portion being composed of two members each extending in the radial direction of the aperture and cooperating with each other to form said fluid passage and said outlet means, said outlet means being defined by radially inward peripheral edges of said two members.

4,314,591

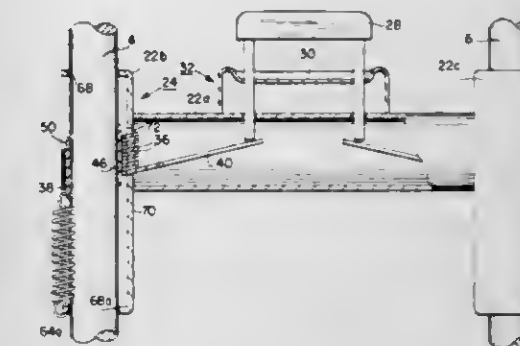
LOG SPLITTER WITH IMPROVED CLAMP

Michel A. Pierrat, 48 Farrwood Dr., Andover, Mass. 01810
Continuation-in-part of Ser. No. 873,060, Jan. 27, 1978, abandoned. This application Jun. 29, 1979, Ser. No. 53,199

Int. Cl.³ B27L 7/00

U.S. Cl. 144—193 A

19 Claims



1. A log splitter comprising first and second guide members, means supporting said guide members in spaced parallel relationship, a support positioned between said guide members for supporting a log to be split, a carriage extending between said guide members, a splitting wedge carried by said carriage, clamping means secured to said carriage and arranged to releasably clamp said carriage to said first guide member including a locking member surrounding and movable along said first guide member, an operating arm extending from said locking member and arranged to tilt said locking member with respect to the longitudinal axis of said first guide member, a gripper shoe positioned between said locking member and said first guide member, and a slipper shoe positioned on the side of said first guide member opposite said gripper shoe between said first guide member and said locking member, and drive means for moving said support into closing relationship with said wedge.

4,314,592

TREE FELLING SYSTEM WITH CAM-OPERATED HYDRAULIC CHECK VALVE

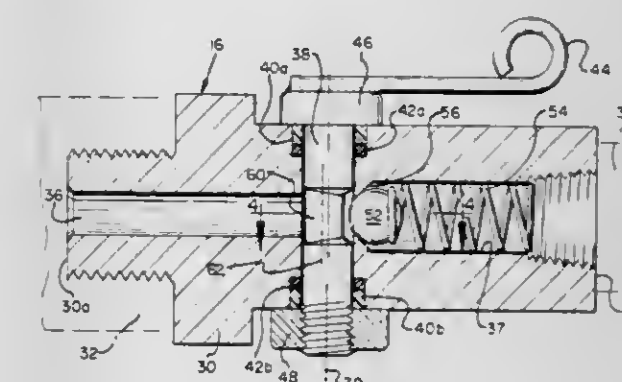
Elmer R. Silvey, 1231 Dutton Rd., Eagle Point, Oreg. 97524

Filed Dec. 31, 1979, Ser. No. 108,666

Int. Cl.³ B66F 3/24; A01G 23/08

U.S. Cl. 144—34 A

2 Claims



2. In a hydraulic tree-felling system having a hydraulic pump, a primary hydraulic line leading from said pump, and a plurality of hydraulic jacks connected in parallel to said primary line by secondary hydraulic lines, a hydraulic check valve disposed in each of said secondary lines between each of said jacks and said primary line comprising:

a valve body defining outlet and inlet fluid passages in fluid communication with one another and a valve seat therebetween, said inlet passage being in fluid communication with said pump,

said outlet passage being in fluid communication with one of said jacks,
a valve stem journaled at its opposite ends in the housing for rotation on an axis and passing through the intersection of said passages, said stem being manually rotatable,
wall means defining a valve seat within said outlet passage adjacent said valve stem,
a valve member disposed in the outlet passage,
resilient means resiliently urging said valve member toward said valve seat, and
camming means defined by an intermediate portion of said valve stem and selectively rotatable with said stem to a position forcing said valve member away from said valve seat to hold the valve open to fluid flow through the passages independently of the relative pressures in the passages, said valve stem being rotatable to a second position such that said camming means is spaced apart from said valve member and said valve member is operable as a check valve to enable fluid flow under pressure from said pump to said one jack but prevent reverse fluid flow under pressure through said valve in a direction from said jack toward said pump.

4,314,593

HAMMER WITH SELECTIVELY ACTUATED AUXILIARY HEAD

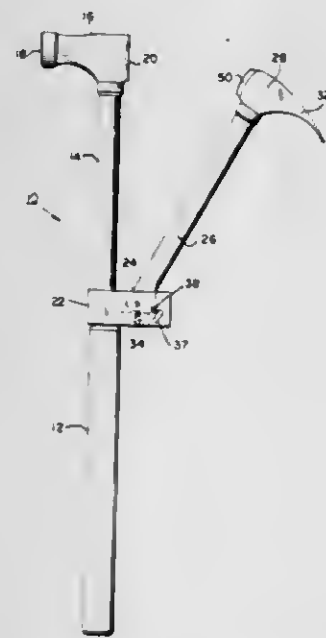
Boris Schwartz, 625 Lafayette Ave., Hawthorne, N.J. 07506

Filed Jul. 9, 1980, Ser. No. 167,135

Int. Cl.³ B25C 1/00

U.S. Cl. 145—29 R

20 Claims



1. A hammer with a selectively actuated auxiliary head and including:

- a handle having a shank portion, said handle adapted for grasping by the user of the hammer;
- a first head fixedly secured to the shank portion and having a front face adapted for striking a nail head and the like, said head having a rear face with a surface normal to a line substantially in axial alignment with said fixed head;
- a fixed bracket carried at the upper end of the handle grasping portion;
- a second auxiliary hammer head fixedly secured to a second shank portion, said second head having a face surface contoured to engage the rear face of the first head;
- pivot pin means carried by the fixed bracket and disposed to retain said second shank portion so as to control and guide the swing of the auxiliary head and to permit this second auxiliary head, when moved in an arc established by the pivot means, to engage the rear face surface of the first head to provide further impact and driving force to said first head;
- means for limiting the rearward swing of said second auxiliary head, and
- means for selectively securing said first and second heads to

each other in a contiguous relationship so that the driving force is concentrated.

4,314,594

REDUCING MAGNETIC HYSTERESIS LOSSES IN CORES OF THIN TAPES OF SOFT MAGNETIC AMORPHOUS METAL ALLOYS

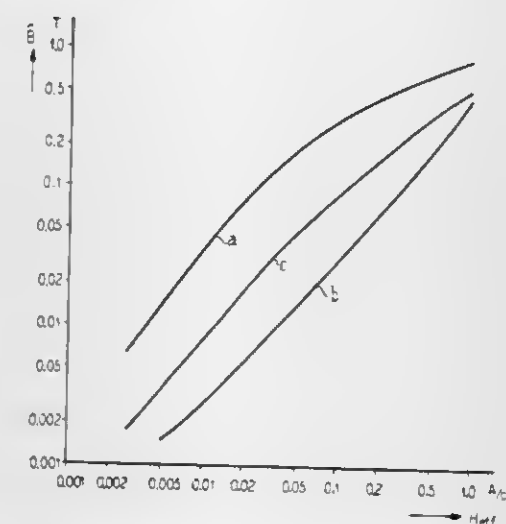
Friedrich Pfeifer, Bruchköbel, and Wernfried Behnke, Hanau, both of Fed. Rep. of Germany, assignors to Vacuumschmelze GmbH, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 881,039, Feb. 24, 1978, abandoned. This application Apr. 29, 1980, Ser. No. 144,895
Claims priority, application Fed. Rep. of Germany, Feb. 26, 1977, 2708472; Mar. 5, 1977, 2709626

Int. Cl.³ C21D 1/04; H01F 3/04

U.S. Cl. 148—108

23 Claims



1. In an improved method for reducing magnetic hysteresis losses in a starting magnetic core formed of a thin tape consisting of soft-magnetic, amorphous metal alloy, the steps comprising

- heating said core to a temperature in the range above the Curie temperature and below the crystallization temperature of said alloy for a time sufficient to relax mechanical tensions in said tape, and then
- cooling the so-heated said core to a temperature below its Curie temperature at a controlled rate,

said heating and said cooling being conducted in an oxidizing atmosphere.

20. A magnetic core produced by the process of claim 1, said core having lower magnetic hysteresis losses, lower remanences, and lower remanence ratios than said starting magnetic core.

4,314,595

METHOD OF FORMING NONDEFECTIVE ZONE IN SILICON SINGLE CRYSTAL WAFER BY TWO STAGE-HEAT TREATMENT

Kazuhiko Yamamoto, Yokobama; Yoshiaki Matsushita; Masaru Kanamori, both of Tokyo; Kazutoshi Nagasawa, Yokohama; Naotsugu Yoshihiro, Matsudo, and Seigo Kishino, Hachioji, all of Japan, assignors to VLSI Technology Research Association, Japan

Filed Jan. 8, 1980, Ser. No. 110,456

Claims priority, application Japan, Jan. 19, 1979, 54-4929

Int. Cl.³ H01L 21/322, 7/52

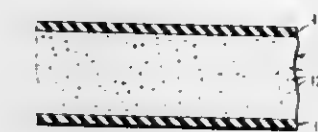
U.S. Cl. 148—1.5

13 Claims

1. A method of forming a nondefective zone in a silicon single crystal wafer comprising:

- a first-stage heat treatment of heating the wafer for ten (10) to one hundred (100) hours at a temperature within the range of between 500° C. and 1000° C. to form a number of defect-causing nuclei within the wafer; and
- a second-stage heat treatment of heating the thus treated

wafer at a temperature higher than that used in the first-stage, thereby converting the surface region of the wafer into a nondefective zone and forming a micro defect-rich



zone at the interior center region of the wafer, the defect-causing nuclei being mainly involved in the formation of the micro defects in the second-stage heat treatment.

4,314,596

RETENTION DEVICE FOR CAPTURING A SPENT THERMAL FUSE

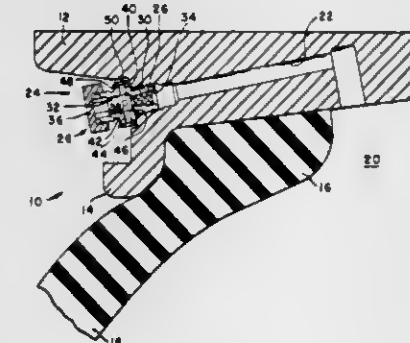
Robert J. Keresztes, South Bend, Ind., assignor to The Bendix Corporation, Southfield, Mich.

Filed Sep. 10, 1979, Ser. No. 73,973

Int. Cl.³ B60C 5/00

U.S. Cl. 152—330 R

1 Claim



1. In an aircraft wheel having a rim with a tire attached thereto to define a pressure chamber for a fluid, and a relief valve connected to the pressure chamber through a passage in the rim, said relief valve having a core member made of a fusible alloy located in a conical bore connected to said passage, the core member responding to a predetermined temperature by changing shape and being expelled from the relief valve by the pressure of the fluid in the pressure chamber to thereafter allow fluid to escape through the passage and conical bore and thereby prevent damaging the tire from a predetermined pressure resulting from the predetermined temperature, the improvement comprising:

- a cylindrical projection extending from the relief valve having a cylindrical bore aligned with the core member and vent holes for connecting the cylindrical bore with the surrounding environment, said vent holes being located adjacent a shoulder that separates said cylindrical bore from the conical bore, said cylindrical projection having a groove on its peripheral surface, said vent holes terminating in said groove;
- a resilient band located in said groove to cover the vent holes to prevent contaminants from entering the cylindrical bore; and
- an end cap attached to said cylindrical projection to establish a retention chamber in said cylindrical bore, said core member on being expelled from the relief valve being retained in said retention chamber adjacent said end cap to prevent injuring any person or damaging any property resulting from the expulsion of the core from the relief

valve, said fluid in the chamber thereafter flowing from the passage through the vent holes to the surrounding environment by expanding the resilient band over the vent holes to reduce the fluid pressure in the pressure chamber.

4,314,597

TIRE MOUNTING AND DEMOUNTING APPARATUS AND METHOD

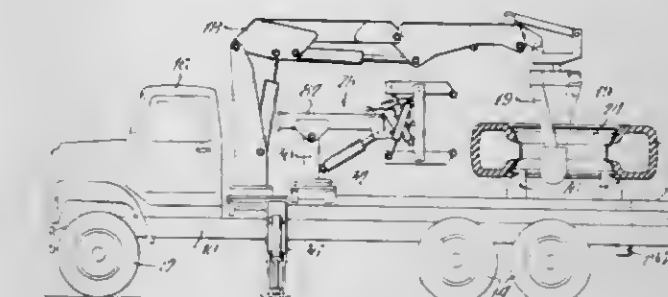
Francis L. Zrostlik, and John J. Collins, both of Garner, Iowa, assignors to Iowa Mold Tooling Co., Inc., Garner, Iowa

Continuation-in-part of Ser. No. 945,915, Sep. 26, 1978, abandoned. This application Jan. 4, 1980, Ser. No. 109,681

Int. Cl.³ B60C 25/06

U.S. Cl. 157—1.11

23 Claims



- A method of mounting a tire having opposed, normally spaced beads on a drop center wheel comprising the steps of:
 - disposing the tire partly on the wheel such that part of one of the beads is between the flanges of the wheel;
 - nonaxially urging, at a location remote from said bead part, the tire away from the wheel to draw said part into the drop center while axially moving the tire, at said remote location, toward the wheel so that said beads at said remote location are disposed between the flanges of the wheel;
 - bringing both beads at said remote location towards each other into sufficient proximity that both may enter the drop center of the wheel;
 - nonaxially urging said tire at said remote location toward said wheel to dispose said both beads at said remote location within the drop center of the wheel; and
 - axially moving said tire adjacent said part toward said wheel to cause the part of the bead opposite said bead part to be disposed between the wheel flanges.

4,314,598

INTEGRAL WINDOW UNITS

Edgar B. Roesch, Pennington, N.J., assignor to The Roesch Trust, Bristol, Pa.

Continuation of Ser. No. 726,265, Sep. 24, 1976, abandoned. This application Nov. 7, 1977, Ser. No. 848,892

Int. Cl.³ E06B 3/32; A47H 1/00; E05B 65/04; E05C 7/02

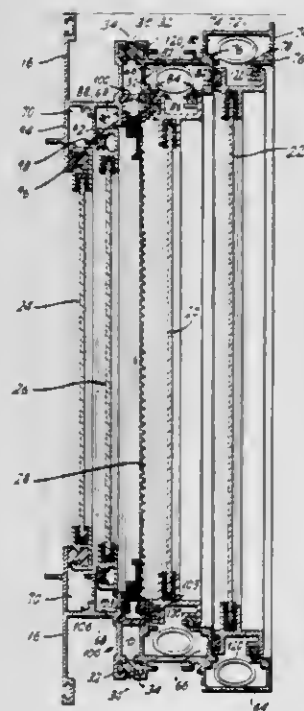
U.S. Cl. 160—90

10 Claims

1. An integral window unit comprising a sill member, a header member and a pair of jamb members interconnected to form a generally rectangular window frame, first, second, third and fourth pairs of track means, one track means in each pair being located in one of said jamb members so that the first and second pair of track means each slideably receive a prime window sash and so that the third and fourth pair of track means each slideably receive a storm window sash, each track means in a pair being offset from the track means in an adjacent pair whereby removal of said window sashes is facilitated, each track means in said first and said second pairs of track means including an outer wall portion and first and second spaced-apart inner wall portions extending parallel to the depth of said jamb members, each track means in said first pair of track means further including a first short wall portion spaced from said second track means and a second short wall portion adjacent said second track means, each track means in said second pair of track means including a third short wall

portion adjacent said first track means and a fourth short wall portion spaced from said first track means, said short wall portions extending transverse to said inner and outer wall portions whereby said each track means in said first and second pair of track means is generally rectangular in cross-section, said outer wall portion in each track means in said second pair of track means lying in a common plane with the adjacent inner wall portion of said first pair of track means, said third short wall portion being closer to said first short wall portion than is said second wall portion and said second wall portion being closer to said fourth wall portion than is said third wall portion whereby said first pair of track means is in overlapping relationship with said second pair of track means along the depth of said jamb members.

10. An integral window unit comprising a sill member, a header member and a pair of jamb members interconnected to form a generally rectangular window frame, first, second, third



and fourth pairs of track means, one track means in each pair being located in one of said jamb members so that the first and second pair of track means each slideably receive a prime window sash and so that the third and fourth pair of track means each slideably receive a storm window sash, each track means in a pair being offset from the track means in an adjacent pair, each track means in said first and second pair of track means being generally rectangular in cross-section and each track means in said first pair being in overlapping relationship with the adjacent track means in said second pair, a relatively rigid thermal barrier extending about said window sash between said second and third pair of track means, and a fifth pair of track means inwardly and directly adjacent said thermal barrier, each track means in said fifth pair being located in a different jamb member so that said fifth pair of track means slideably receive a screen member, each of said track means in said fifth pair being made of a material acting as a thermal barrier.

4,314,599 PROCESS FOR MAKING A STARTING MATERIAL FOR THE MANUFACTURE OF ARTIFICIAL GRAPHITE ARTICLES

Hartmut Lühleisch, Duren, and Francisco J. Dias, Jülich, both of Fed. Rep. of Germany, assignors to Kernforschungsanlage Jülich, Gesellschaft mit beschränkter Haftung, Jülich, Fed. Rep. of Germany

Continuation of Ser. No. 886,419, Mar. 14, 1978, abandoned.

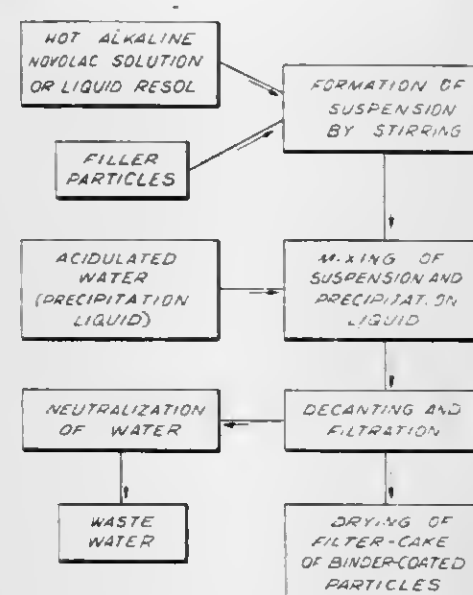
This application Dec. 18, 1979, Ser. No. 104,755

Claims priority, application Fed. Rep. of Germany, Mar. 23, 1977, 2712628

Int. Cl.³ C08G 51/24; C09D 5/02

U.S. Cl. 164—16

6 Claims



1. A process for making a starting material for the manufacture of artificial graphite and graphite-bearing and graphite-like bodies, especially of the kind containing fine-grain graphites, comprising the steps of:

preparing, by means of mixing, a suspension of particles of a filler powder in an alkaline water solution of a phenolformaldehyde resin salt formed by reacting a phenolformaldehyde resin with a water solution of an alkali metal hydroxide, said filler consisting of a powdered carbon substance selected from the group consisting of electro-graphite, natural graphite, carbon black, ground coke, and particulate mixtures of a plurality of the foregoing substances;

forming a coating of phenolformaldehyde resin on said filler particles in said suspension in said resin salt solution by immediate conversion of said dissolved resin salt into pure phenolformaldehyde resin in solid form deposited on said particles, accomplished by mixing acidulated water with said suspension;

separating the coated particles from the water by decantation, filtration, or both decantation and filtration; and drying the coated powder particles so separated.

4,314,600 APPARATUS FOR GUIDING AND SUPPORTING A CONTINUOUSLY CAST SLAB

Bertrand Reymont, Zürich, Switzerland, assignor to Alfred Werli Inc., Winterthur, Switzerland

Filed Mar. 17, 1980, Ser. No. 131,128

Claims priority, application Fed. Rep. of Germany, Apr. 4, 1979, 2913440

Int. Cl.³ B22D 11/00

U.S. Cl. 164—448

7 Claims

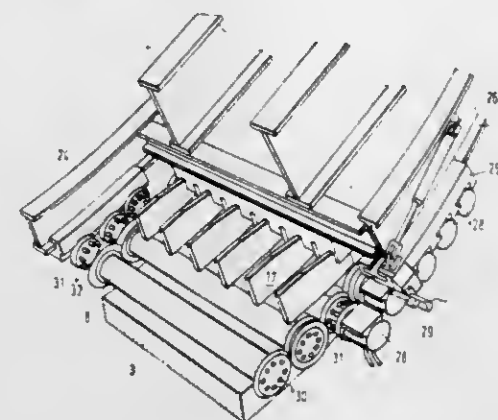
1. An apparatus for guiding and supporting a continuously cast slab, the combination comprising

a support surface;

a plurality of rolls disposed on said support surface in freely rolling completely unjournalled relation with respect to

said support surface and each other to travel in a direction along said support surface and to guide a slab therealong, each said roll having an axis of rotation perpendicular to the direction of travel along said support surface;

a pair of rails, each said rail being disposed along one respective side of said support surface running in the direction of travel of said rolls;



a plurality of slides, each said slide being slidably mounted on a respective rail; and

a plurality of drive motors, each said drive motor being mounted on a respective slide for selective coupling with a respective roll to drive said roll in said direction.

4,314,601 HEAT EXCHANGE SYSTEM FOR RECYCLING WASTE HEAT

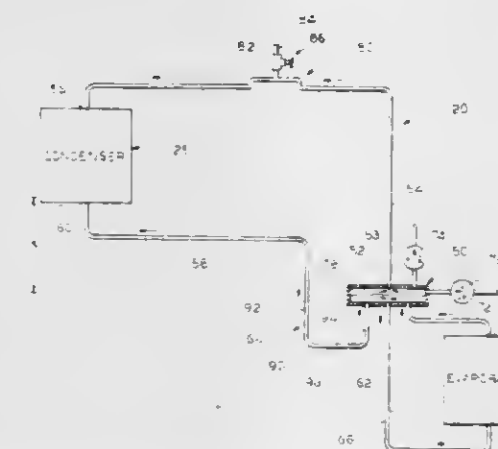
Anthony A. Giuffre, and Anthony F. Giuffre, both of 4344 N. 70th St., Milwaukee, Wis. 53216

Filed Oct. 4, 1978, Ser. No. 948,392

Int. Cl.³ F28D 15/00

U.S. Cl. 165—1

13 Claims



10. The method of supplying heat to a fluid at a predetermined site from a point remote from said site, said method comprising:

establishing a closed circuit heat generated refrigerant convection flow type refrigeration system including an evaporator, a condenser in heat transfer relation with the fluid at a level above that of the evaporator, a refrigerant receiver at a horizontal level that is adjacent and above the horizontal level of the evaporator and that is below the horizontal level of the condenser, outflow conduit means communicating between the receiver and the condenser for conducting heat charged vapor phase refrigerant from the receiver to the condenser, return conduit means for communicating under gravity heat depleted liquid phase refrigerant from the condenser to the receiver, and recycle conduit means connecting the receiver with the evaporator for recirculating refrigerant therebetween,

charging said system with a halogenated hydrocarbon type refrigerant to establish the liquid level of the refrigerant within the receiver and sealing the system,

establishing a source of heat in heat transfer relation relative to the evaporator,

utilizing the heat transferred to the refrigerant at the evaporator from said heat source, forming the heat input to said system, as the motivating means to freely cycle by convection the refrigerant through the system free of mechanical pumping action on the refrigerant, while continuously convection flow circulating a liquid phase portion of the refrigerant between the receiver and the evaporator below the receiver liquid refrigerant level for effecting forced flow of the refrigerant through the evaporator and a carrying with such refrigerant flow of the vapor phase refrigerant to the liquid refrigerant in the receiver for rising through the liquid refrigerant in same to and through said receiver liquid level, and maintaining the refrigerant liquid level in the receiver at a level that is above the evaporator and below the condenser,

and recycling the refrigerant through said system using said utilizing and convection flow circulation steps while maintaining said source of heat.

4,314,602 KNOCK-DOWN HEAT STORAGE TANK

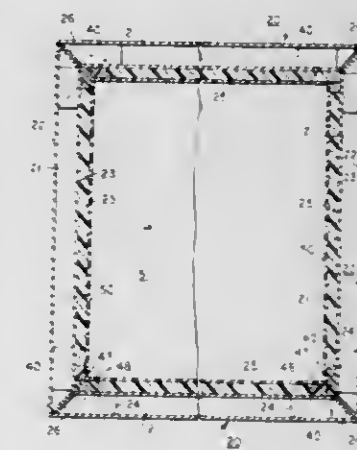
Larry D. Frederick, and Richard E. Somers, both of Huntsville, Ala., assignors to Solar Unlimited, Inc., Huntsville, Ala.

Filed Aug. 25, 1980, Ser. No. 181,309

Int. Cl.³ F28D 1/06, 15/00

U.S. Cl. 165—10

9 Claims



1. A knock-down tank for containing a liquid medium, comprising:

a disassemblable rigid container having a bottom panel, with an inner wall, separate upright side-wall panels having inner walls and upper edges and having lower edges which rest on the bottom panel and having side edges in mutually abutting relationship, and having a top panel overlying said upper edges and closing the container, and having releasable fastener means extending inwardly of the container from the side-wall panels in the vicinity of their abutting side edges and releasably coupled together inside the container to hold the side panels together, the top panel having a hole extending downwardly there-through;

rigid sheets of heat insulating material disposed against the inner walls of the bottom and side panels and having sufficient thickness to cover and conceal said releasable fastener means which extend inwardly of the container;

a liquid-containing flexible liner having side walls fitting snugly within said side panels and having a bottom wall supported by said bottom panel, the walls of the liner lying against said sheets of insulating material and having peripheral flange portions extending outwardly from said side walls and overlying the upper edges of said side panels beneath said top panel; and

a dip tube assembly extending downwardly into the liner through the hole in the top panel and supported by the top panel the dip tube assembly providing access to the liquid in the liner.

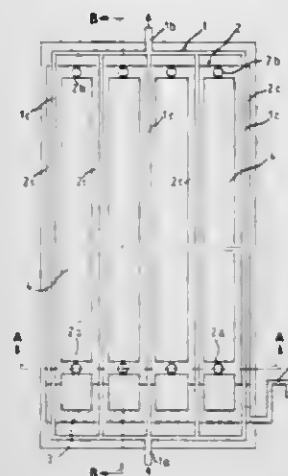
4,314,603

SYSTEM FOR DRYING HUMID AIR

Anders D. Backlund, Holmer, S-820 90 Ytterhogdal, Sweden
Filed Jun. 20, 1979, Ser. No. 50,243Claims priority, application Sweden, Jun. 22, 1978, 7807188
Int. Cl.³ F28B 9/08

U.S. Cl. 165—57

5 Claims



1. A system for drying humid air to be used for ventilating a space, said system comprising:
- a solid module block forming at least part of the outer walls and roof of a structure enclosing said space;
 - a ventilating conduit system, for supplying air to said space, embedded within the module block and having a plurality of air carrying sections defining ventilation paths;
 - a coolant conduit system having a plurality of sections connected in parallel for circulating a cooling fluid, the cooling fluid sections being disposed within the air carrying sections and being in heat exchanging relationship with the air flowing in the air carrying sections; and,
 - means for collecting water embedded in said module block and connected to said air carrying sections so as to be out of said ventilating paths, whereby water vapor contained in the supply air in the ventilation paths will condense out and run into the water collecting means, accumulating therein without impeding the air flow through the ventilation paths.

4,314,604

APPARATUS FOR THE SEGREGATION OF WORN-OUT CLEANING BODIES

Josef Koller, Ziegeleiweg 26, 4006 Erkrath 2, Fed. Rep. of Germany

Filed Sep. 20, 1979, Ser. No. 77,229

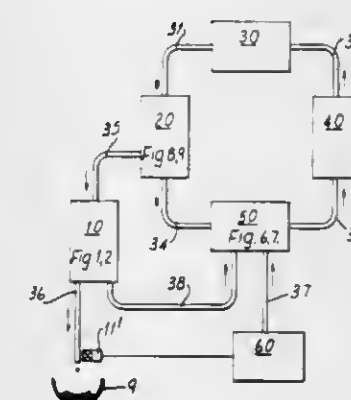
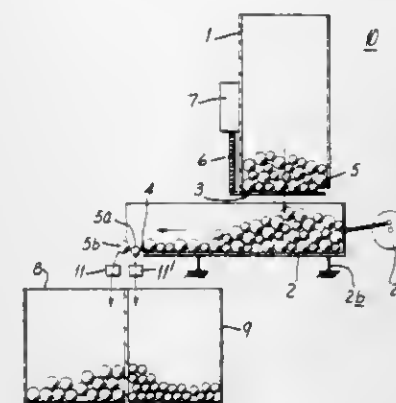
Claims priority, application Fed. Rep. of Germany, Sep. 23, 1978, 7828382[U]; Sep. 23, 1978, 7828404[U]
Int. Cl.³ F28G 1/00

U.S. Cl. 165—95

12 Claims

1. In an apparatus for the segregation of worn-out cleaning bodies formed of resiliently deformable material such as rubber or plastic and carried in the coolant fluid circuit of a heat exchanger, the improvement comprising,
- a diverter inserted into the circuit for the diversion of all the cleaning bodies to a device for sorting cleaning bodies by predetermined diameter limits,
 - said sorting device being disposed outside the coolant fluid circuit and including:
 - a branch pipe connecting said diverter with a feeding container to deliver the cleaning bodies to said feeding container;
 - a cleaning body separator disposed beneath said feeding container for receiving cleaning bodies therefrom and operable to separate reusable cleaning bodies having a greater than a predetermined cross-section dimension from those worn-out bodies having a smaller than predetermined cross-section dimension, said separator comprising a downwardly tapered trough having a vibrator to

cause cleaning bodies to move therethrough, and a restricted opening portion formed of two spaced apart rails operable to separate the reusable from the worn-out cleaning bodies by cross-section dimension, and



means to return the reusable cleaning bodies to the coolant fluid circuit.

4,314,605

CONDENSER

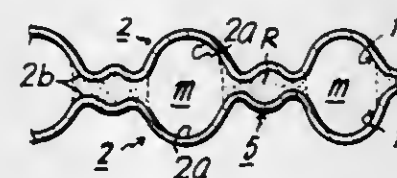
Hiroyuki Sumitomo, Takatsuki; Masafumi Doi, Daito; Kazuyuki Kobayashi; Katsutoshi Fukami, both of Nara, and Kenzo Kawanisbi, Yao, all of Japan, assignors to Hisaka Works Ltd., Osaka, Japan

Filed Feb. 22, 1977, Ser. No. 770,562

Claims priority, application Japan, Feb. 28, 1976, 51-21553
Int. Cl.³ F28B 9/08

U.S. Cl. 165—110

1 Claim



1. A rectilinear plate type condenser construction comprising a pair of condenser elements placed in opposed relationship to one another, each of said condenser elements having a condensing and heat transmitting plate surface in opposed relationship to one another along which a steam condensate will flow in the form of a film, the plate surface of each condenser element having a plurality of laterally spaced longitudinally extending grooves therein thereby forming longitudinally extending valleys and ridges in alternating relationship to one another on the plate surface of each condenser element, said grooves being in substantially right angle relationship to the top of each of said plate elements, the longitudinally extending ridges of one condenser element being in longitudinal alignment with and at least in close opposed relationship to the longitudinally extending ridges of the other condenser element, thereby permitting the opposed valleys of each con-

denser element to form a plurality of vertically extending steam passageways in the condenser whereby the condensate in each formed vertically extending steam passageway is collected in the area at which each of the opposed ridges of the opposed condenser elements are in at least close engagement with one another, wherein each of the longitudinally extending ridges of each condenser element in opposed and at least close relationship to one another is each provided with a small, longitudinally extending, vertical groove thereby forming small, vertical, tubular channels therein which will run in parallel relationship to the formed, vertically extending steam passageways of said condenser whereby the condensate from the formed steam passageways will be collected in said tubular channels and will then flow downwardly therein.

4,314,606

APPARATUS FOR A TREATMENT OF FLOWING MEDIA WHICH CAUSES HEAT EXCHANGE AND MIXING

Walter Müller, Kelkheim; Richard Gauer, Wiesbaden; Wilfried Walkenhorst, Königstein, and Gerhard Wild, Frankfurt am Main, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

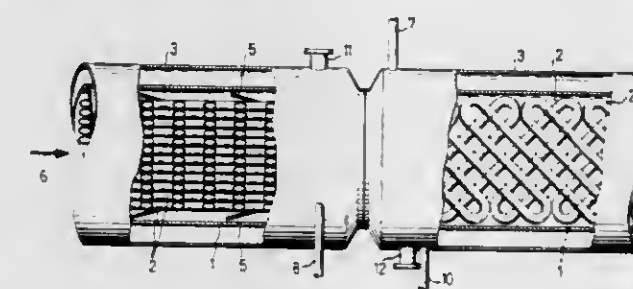
Filed Sep. 10, 1979, Ser. No. 73,656

Claims priority, application Fed. Rep. of Germany, Sep. 12, 1978, 2839564

Int. Cl.³ F28D 7/08

U.S. Cl. 165—163

10 Claims



1. An apparatus for treatment of flowing media to cause heat exchange and mixing thereof, which includes a tubular housing and within said housing internal fittings consisting of a plurality of tubes each of which extends in the axial direction of the housing and contains elbow-shaped tube portions, said tubes being arranged in parallel to one another, with the connecting tube portions of adjacent tubes crossing one another.

4,314,607

PLATE TYPE HEAT EXCHANGER

Nicholas H. DesChamps, Whippany, N.J., assignor to DesChamps Laboratories, Inc., East Hanover, N.J.

Filed Nov. 14, 1979, Ser. No. 94,047

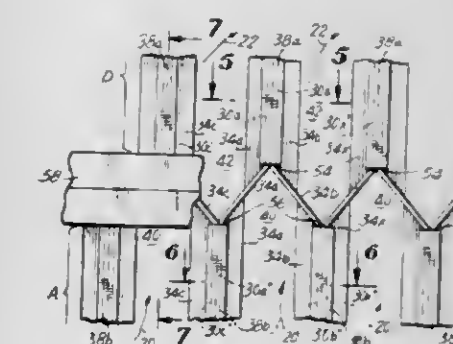
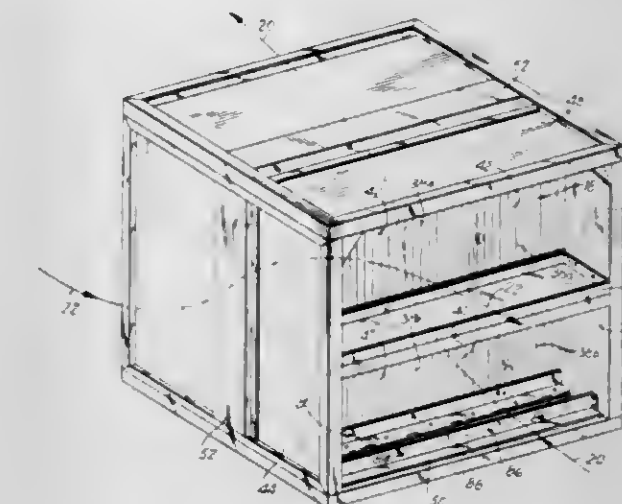
Int. Cl.³ F28F 3/10

U.S. Cl. 165—166

15 Claims

1. A heat exchanger for transmitting thermal energy from one moving body of fluid to another, comprising:
- a housing defined by a pair of opposed side walls and opposed top and bottom walls and having first and second open ends; and
 - a thermal transfer core disposed within said housing including,
 - a continuous sheet of heat conductive material having first and second longitudinally extending edges, said sheet being folded upon itself in opposite directions alternately on fold regions which extend between said first and second ends of the housing and transversely to said longitudinally extending edges to define between said fold regions a plurality of substantially parallel, mutually spaced sheet portions, each sheet portion extending through said housing and having first and second terminal edge sections located in the regions of said first and second open ends, respectively, and wherein said fold regions comprise an

upper set of fold regions located contiguous with said top housing wall and a lower set of fold regions located contiguous with said bottom housing wall, and, wherein for substantially each sheet portion which is located between first and second sheet portions which are adjacent thereto, edge sealing means are provided for sealing upper and lower portions of the first edge section thereof to upper and lower portions of the respective first edge sections of said first and second adjacent sheet portions



respectively, and for sealing upper and lower portions of the second edge section thereof to upper and lower portions of the respective second edge sections of said second and first adjacent sheet portions respectively, whereby alternate pairs of adjacent sheet portions define first channels for flow of fluid moving through the exchanger and wherein the other alternate pairs of adjacent sheet portions define second channels for flow of fluid moving through the heat exchanger.

4,314,608

METHOD AND APPARATUS FOR WELL TREATING

Charles N. Richardson, Overton, Tex., assignor to Tri-State Oil Tool Industries, Inc., Bossier City, La.

Continuation-in-part of Ser. No. 158,889, Jun. 12, 1980, abandoned. This application Aug. 19, 1980, Ser. No. 179,487

Int. Cl.³ E21B 23/02, 33/24, 43/26, 43/27

U.S. Cl. 166—250

6 Claims

1. A method for performing sequential operations on two vertically separated zones in a well bore comprising the steps of:
- setting between the two said zones a packer having a fluid passageway extending vertically therethrough with a pressure shearable member closing the lower end thereof;
 - setting a retrievable fluid plug to close the upper end of said passageway to thereby insulate said pressure shearable member from well pressures in the zone above said packer;
 - performing the desired well treating operations in the zone above said packer;

equalizing the pressure differential across said retrievable plug;
removing said retrievable plug from the well bore;
running tubing into the well bore and sealably engaging said tubing with said fluid passageway through said packer;
establishing the fluid pressure in said tubing at a first desired pressure test level which is sufficient to test the fluid integrity of said tubing string and the fluid seal between said tubing string and said packer fluid passageway, but is



less than the minimum pressure required to shear said pressure shearable member at the lower end of said packer fluid passageway;
elevating the fluid pressure in said tubing string to a sufficiently higher pressure to shear said pressure shearable member and establish fluid communication between the bore of said tubing string and said zone below said packer;
and,
performing the desired well treating operation on said zone below said packer.

4,314,609

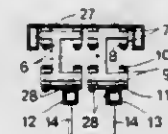
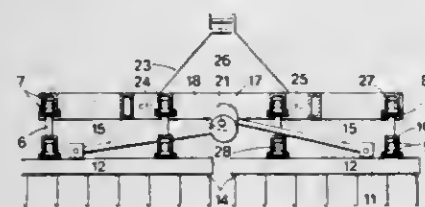
APPARATUS FOR THE PREPARATION OF THE SOIL
Robert Chauvet, Saint-Saphorin Sur Morges, Vaud, Switzerland
Filed Mar. 5, 1980, Ser. No. 127,449

Claims priority, application Switzerland, Mar. 6, 1979, 2148/79

Int. Cl.³ A01B 19/06

U.S. Cl. 172—54.5

3 Claims



1. Apparatus for preparation of the soil adapted to be attached to an agricultural tractor, comprising a frame, at least two rows of toothed bars (12,13) mounted on the frame in side by side relationship and at a right angle to the path of travel of said tractor, means for actuating said bars at one end, an eccentric (17,20) at the other end of said rods, a drive shaft (21) on which said eccentrics are fixed, said drive shaft adapted to be connected to the power take-off means of said tractor, characterized in that said eccentrics (17,18) which actuate one row of said bars (12) are displaced in a direction opposite to one another, said eccentrics (19,20) which actuate an adjacent row of said bars (13) are displaced in a manner relative to said eccentrics (17,18) actuating said first mentioned row of bars whereby said adjacent row of bars (13) are substantially at half-stroke while the first mentioned row of bars (12) is at the end of its

stroke toward the outside or toward the inside of the path of travel, said bars (12,13) opposite one another in each of said rows of bars being displaced therefore during a portion of its travel in the same direction and during the other portion of its travel in an opposite direction, said toothed bars (12,13) each provided with movable supports (6), bearings (27,28) for each support, said bearing being of quadrangular transverse cross-section and mounted on resilient bands (7,9).

4,314,610

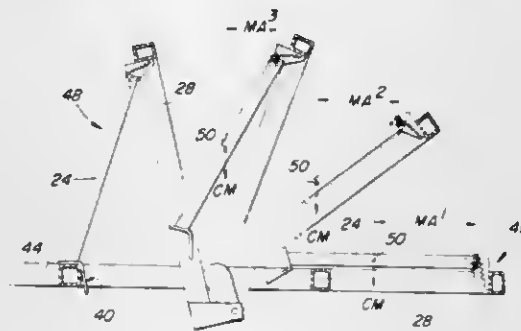
FOLDABLE IMPLEMENT AND PIVOTAL BRACE THEREFOR

Paul R. Riewerts, Port Byron, and David J. Wolak, Moline, both of Ill., assignors to Deere & Company, Moline, Ill.
Filed May 22, 1980, Ser. No. 152,260

Int. Cl.³ A01B 73/00

U.S. Cl. 172—776

9 Claims



2. In an earthworking agricultural implement having a main section connectible to a mobile vehicle, a wing section, hinge means between the main and wing sections permitting the wing section to be swung from a first and generally horizontal position outboard of the main section to a second and generally elevated position above the main section, folding means for swinging the wing section between the first and second positions, and an improved means for supporting the wing section above the main section when it is in its second position comprising: an elongated brace member; pivot means connecting the brace member to the wing member for swinging movement, said pivot means being outboard of the hinge means when the wing section is in the first position; biasing means spatially separated from the folding means, said biasing means acting between the one end of said brace member and the wing section for swingably urging the other end of said brace member away from said wing section; and stop means between the wing section and brace member engageable to limit swinging movement of said member away from the wing section as said wing section is swung to its second position.

4,314,611

APPARATUS FOR SUPPORTING AND ROTATING A DOWN HOLE TUBULAR

Clyde A. Willis, Wichita Falls, Tex., assignor to Walker-Neer Manufacturing Co., Inc., Wichita Falls, Tex.

Filed Jun. 11, 1980, Ser. No. 158,452

Int. Cl.³ E21B 3/00; E21C 7/10

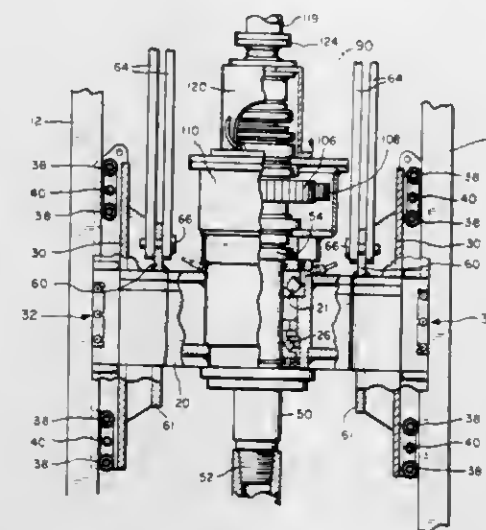
U.S. Cl. 173—57

23 Claims

1. A drive apparatus for an earth boring apparatus including a derrick, said drive apparatus comprising:

- a support member;
- means for guiding the support member along the derrick such that the support member is substantially prevented from twisting with respect to the derrick;
- a shaft adapted for connection to a drill string to support the weight of the drill string;
- first bearing means for supporting the shaft on the support member such that the shaft is rotatable with respect to the support member and the first bearing means accommodates a selected degree of skewness of the shaft with respect to the support member;
- rotary drive means for rotating the shaft;

second bearing means for precisely aligning the rotary drive means on the shaft adjacent the support member; and
holding means for substantially preventing the rotary drive means from rotating with respect to the support member in a plane perpendicular to the longitudinal axis of the shaft;



said rotary drive means coupled to the holding means and the shaft such that the rotary drive means is movable relative to the support member and the rotary drive means is substantially free to follow lateral movement of the shaft as it turns in the first bearing means without subjecting the second bearing means to excessive skew forces.

4,314,612

HYDRAULIC LINEAR IMPACT TOOL

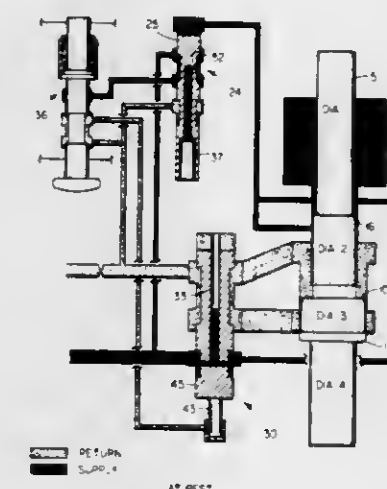
David L. Thomas, and Donald J. Hackman, both of Columbus, Ohio, assignors to Battelle Development Corporation, Columbus, Ohio

Filed Jul. 20, 1978; Ser. No. 926,305

Int. Cl.³ B25D 9/18

U.S. Cl. 173—119

5 Claims



1. A hydraulically-operated linear impact device comprising a body member having a longitudinal bore extending there-through and a plunger supported in said bore, main valve means, trigger valve means, hydraulic fluid lines connecting said bore and valves with a source of hydraulic fluid, spring means acting near the upper end of said plunger and means for detachably mounting a tool member at the lower end of said body member wherein
 - a. said trigger valve means is mounted in said body member for movement between an actuating position and a rest position;
 - b. said plunger is supported for reciprocating movement in said bore between a first position in which said plunger compresses the spring means at the upper end of the body member and a second position at the lower end of the

body member in which said plunger may impact a tool member, and wherein said plunger has enlarged diameter area (DIA. 3) intermediate its upper and lower ends forming a valved annular work area (11) for hydraulic fluid pressure acting to move said plunger upward against said spring means;

- c. said main valve means having connections to said bore and to a high-pressure supply line and a lower-pressure return line for hydraulic fluid and being positionable, when the trigger is in actuating position, in response to a condition of said plunger such that when the plunger is in its downward second position said main valve means connects fluid under high pressure from said supply line to said valved annular area of the plunger to cause the plunger to be moved upward against said spring means, and when the plunger has moved to its upward, first position against said spring means, said main valve means connects said valved annular area to lower-pressure fluid such that said spring means is unopposed by high pressure and can then move said plunger downward on the impact stroke;
- d. said spring means comprises a mechanical, pneumatic or hydraulic spring which acts near the upper end of said plunger to bias the plunger downward, and wherein
- e. said hydraulic fluid lines are operable when the trigger is in the actuating position and said plunger is in its downward second position to provide a first fluid circuit from said high-pressure supply line to said main valve means for actuating the main valve means to connect fluid under high-pressure from said supply line to said valved annular area causing said plunger to be moved upward against said spring means and to compress said spring means, and said hydraulic fluid lines are operable when said plunger is in its upward first position to provide a second fluid circuit from said lower-pressure return line to said main valve means for actuating the main valve means to connect said valved annular surface to lower-pressure fluid causing the plunger to be moved downward to impact the tool member due to said compressed spring means acting on said plunger.

4,314,613

PILE-DRIVING RECOIL DAMPING DEVICE

Hans Kühn, Hamburg, Fed. Rep. of Germany, assignor to Koehring GmbH, Ellerau, Fed. Rep. of Germany

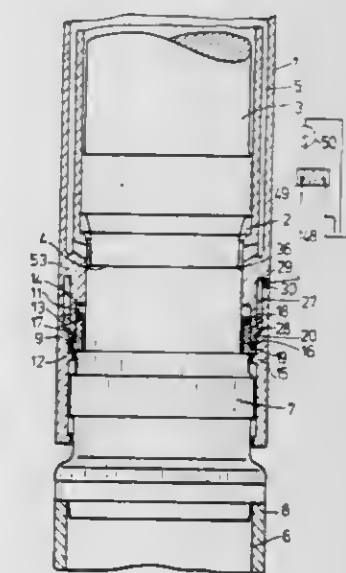
Continuation of Ser. No. 894,850, Apr. 10, 1978, Pat. No. 4,262,755. This application Sep. 8, 1980, Ser. No. 184,888

Claims priority, application Fed. Rep. of Germany, Apr. 15, 1977, 2716701

Int. Cl.³ B25D 17/06; E02D 13/10

U.S. Cl. 173—131

7 Claims



1. A pile driver which utilizes a hollow, axially elongated housing having a substantially cylindrical wall and an open bottom end,

a ram closely and slidably guided within the housing and axially reciprocable therein along a path, a ram follower slidably guided within the housing to execute limited axial movement and having

- an upper surface which can be struck by the ram
- a lower surface opposed to the upper surface, which lower surface can strike a pile to be driven and
- an outer support flange integrally formed on the ram follower and projecting radially outwardly of the upper surface, and

an inner support flange projecting radially inwardly from the wall of the housing between the outer support flange and the path, said inner support flange being axially opposed to said outer flange; and

at least one piston located between the support flanges, said at least one piston having a free end abutting on one of the support flanges and being slidably guided by another of the support flanges for limited axial movement parallel to the axis of the housing into and out of a corresponding closed compartment bounded by said another of the support flanges, which compartment is sealed by its corresponding piston, whereby compartment volume is reduced upon displacement of its corresponding piston towards said another of the support flanges; and

means for introducing and retaining a pressurized gas cushion within said compartment, which gas cushion urges the free end of said at least one corresponding piston against said one of the support flanges.

4,314,614

METHOD AND APPARATUS FOR DISARMING AND ARMING EXPLOSIVE OIL WELL PERFORATORS

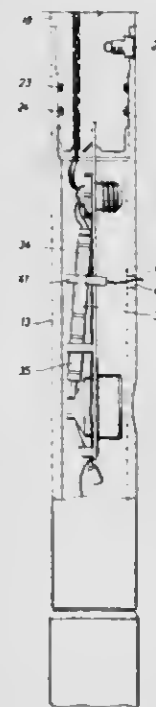
William A. McPhee, and Timothy G. Golian, both of Houston, Tex., assignors to Dresser Industries, Inc., Dallas, Tex.

Filed May 30, 1980, Ser. No. 154,652

Int. Cl.³ E21B 43/118

U.S. Cl. 175—4,56

2 Claims



1. A shaped charge perforator apparatus, comprising:

- a plurality of chambers with each chamber containing one or more shaped charge units;
- a plurality of blasting caps, one of said blasting caps provided for each of said shaped charge units;
- said blasting caps consisting of an explosive charge section having a heat sensitive portion and an ignitor section separated by a void zone therebetween;
- an interrupter means removably disposed within said void zone thereby isolating said ignitor section from said explosive charge section, said interrupter means being impregnated with ammonium acetate for operably desensitizing

said heat sensitive portion of said explosive charge section when said interrupter means is so disposed; and

means for removing said interrupter means from said void zone having a lanyard attached to said interrupter and passing to the exterior of said chamber for removing said interrupter from said void zone to thereby arm said perforator apparatus.

4,314,615

SELF-PROPELLED DRILLING HEAD

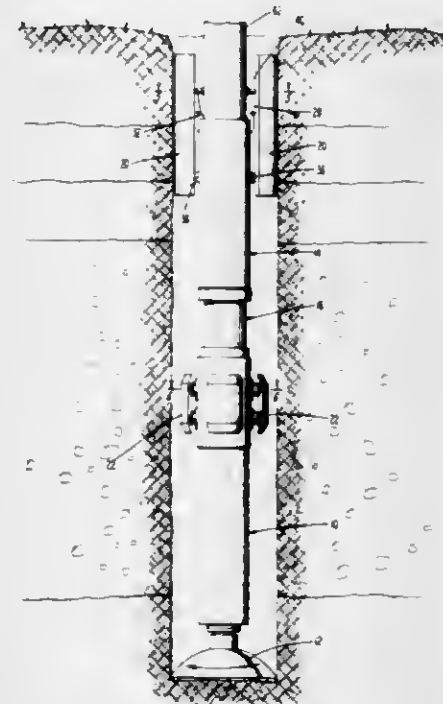
George Sodder, Jr., 607 4th Ave., Montgomery, W. Va. 25136, and Oliver E. Palmer, Montgomery, W. Va., assignors to George Sodder, Jr., Alloy, W. Va.

Filed May 28, 1980, Ser. No. 165,844

Int. Cl.³ E21B 4/02

U.S. Cl. 175—94

16 Claims



1. A self-propelled vertical downhole drilling head comprising:

- a base section including gripper means mounted for longitudinally directed extension and retraction to selectively grip the wall of a hole being drilled,
- first actuating means for extending and retracting said gripper means,
- a drilling section mounted on said base for reciprocation relative thereto,
- second actuating means for urging said drilling section downwardly relative to said base section when said gripper means is extended,
- a cutter bit mounted at a lower end of said drilling section, and
- third actuating means for rotating said cutter bit, comprising:
 - a first hydraulic motor having a first output shaft,
 - a second hydraulic motor spaced longitudinally and laterally from said first hydraulic motor and having a second output shaft extending parallel to said first output shaft,
 - a driven gear mounted at the end of each said output shaft,
 - drive transmitting gear means meshingly engaged on opposite sides by said driven gears,
 - first conduit means for supplying pressurized hydraulic fluid to said first and second motors,
 - second conduit means for conducting hydraulic fluid from said first and second motors, and
 - power transmitting means operably connecting said drive transmitting gear to said cutter bit to rotate the latter.

4,314,616

DIE-CAST MASONRY DRILL WITH LEADING HARD INSERT

James E. Rauckhorst, Geneva, and Thomas J. Skingle, Parma, both of Ohio, assignors to Acme-Cleveland Corporation, Highland Heights, Ohio

Filed Jan. 28, 1980, Ser. No. 116,225

Int. Cl.³ E21B 10/58

U.S. Cl. 175—394

8 Claims



1. A drill adapted for use in drilling masonry or other hard, brittle material, which comprises:

- an axially elongated, generally cylindrical body having a leading front end portion and a rear end portion, said rear end portion adapted to be held by a tool holder, said body being formed of a die cast material and having at least one spiral groove cast in its exterior surface substantially along its length; and
- a hard insert embedded in the leading end of said body, said insert being generally flat and extending generally diametrically across said leading end of said body, the sides of said insert having parallel planar side portions and a chisel edge across the top of said insert with leading cutting edges on either side of said chisel edge and a bottom edge on said insert opposite said cutting edges, said insert having means for interlocking with said body, said interlocking means comprising a pair of projections each extending from the plane of one of said flat side portions, each of said projections extending the greatest distance from the plane of said side portion near said bottom edge of said insert, said projections being in a contiguous relationship with said body and substantially surrounded by said body to retain said insert within said body without the addition of other securing material, the portion of each of said projections nearest said chisel edge being entirely covered with said die cast material of said body to form a secure interlocking relationship between said insert and said body.

4,314,617

STEERING APPARATUS FOR A HYDRAULICALLY DRIVEN VEHICLE

Masaaki Sakamoto, Kaga, Japan, assignor to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

Filed May 27, 1980, Ser. No. 153,593

Claims priority, application Japan, May 25, 1979, 54/69422[U]

Int. Cl.³ B62D 11/04

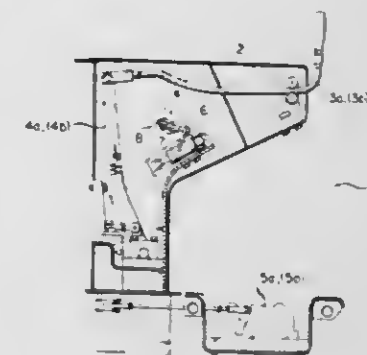
U.S. Cl. 180—6,48

2 Claims

1. A steering apparatus for a hydraulically driven vehicle

having a pair of independent hydrostatic transmissions, comprising:

- a frame of the vehicle;
- a pair of steering levers mounted for movement to said frame;
- a pair of swivel levers pivotally mounted on said frame each being pivotally connected to said respective steering levers;
- a pair of steering valve means each for controlling said



respective hydrostatic transmissions so that each hydrostatic transmission has forward and reverse positions and a stop position therebetween;

- a pair of linkages each for operatively interconnecting said respective swivel levers and said steering valve means; and
- means mounted on said frame for preventing said pair of swivel levers from being simultaneously pivoted to such a degree that both of said steering valve means are changed over to their reverse running positions.

4,314,618

SUSPENSION MECHANISM FOR TRACKED VEHICLES

Joji Tamura, Iwata, Japan, assignor to Yamaba Hatsudoki Kabushiki Kaisha, Iwata, Japan

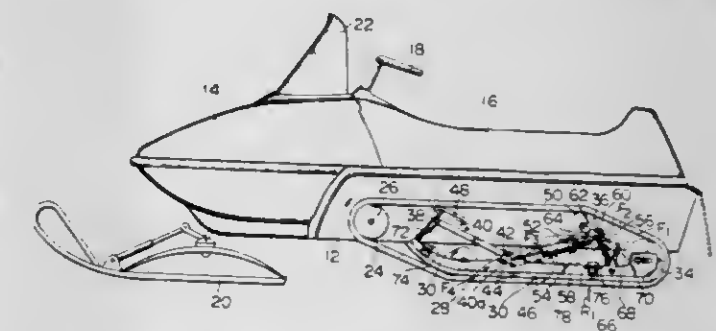
Filed Jan. 23, 1980, Ser. No. 114,694

Claims priority, application Japan, Jan. 25, 1979, 54/7387

Int. Cl.³ B62M 27/02

U.S. Cl. 180—193

8 Claims



1. Vehicle including frame means, endless track means having front and rear end portions and upper and lower runs, power driven wheel means engaged with the endless track means at the front end portion thereof, slide rail means extending along and engaged with said lower run of the endless track means, suspension spring means including compression spring means and having one end connected with said slide rail means, first link means having one end pivotally connected with the frame means and the other end pivotally connected with the slide rail means, crank lever means mounted on said frame means for swingable movement about a pivot axis, said crank lever means having one end located above said pivot axis and connected with the other end of the suspension spring means, second link means having one end pivotally connected with the slide rail means at a pivot point, the other end of the crank lever means being located rearwardly of a line passing through the pivot axis and the pivot point and connected with the other end of the second link means.

4,314,619

OPERATING DEVICE FOR SWIVEL WORKING VEHICLE

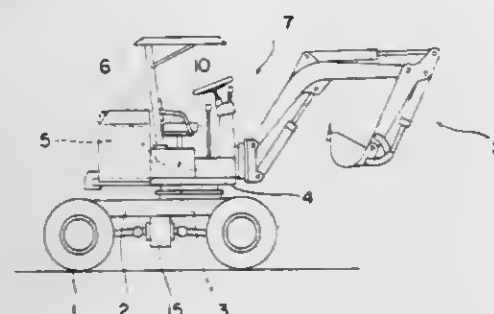
Keiro Tsuji, Osaka, Japan, assignor to Kubota, Ltd., Japan
Filed Aug. 17, 1979, Ser. No. 67,562

Claims priority, application Japan, Aug. 24, 1978, 53-116613[U]

Int. Cl.³ B60K 41/16

U.S. Cl. 180—327

3 Claims



1. An operating device for a swivel working vehicle, comprising:

- a vehicle body;
- a rotary joint mounted to said vehicle body;
- a swivel base mounted to said rotary joint;
- a fluid pressure motor capable of rotation in forward and reverse directions;
- a control valve operatively connected to and capable of causing said fluid pressure motor to be rotated in the forward and reverse directions and of stopping said fluid pressure motor, said control valve being mounted to said swivel base;
- travelling means mounted to said vehicle body;
- speed change gears disposed between said fluid pressure motor and said travelling means;
- an operation valve for operating said speed change gears;
- a mechanical interlocking mechanism including a push-pull rod passing through the center portion of said rotary joint;
- a swing lever capable of being moved in two directions, said mechanical interlocking means including means operatively connecting said swing lever to said control valve such that when said swing lever is moved in one direction, said control valve is capable of operation, and said push-pull rod connecting said swing lever and said operation valve such that when said swing lever is moved in another direction, said operation valve is capable of operation.

4,314,620

LOUDSPEAKER WITH CONE DRIVEN HORN

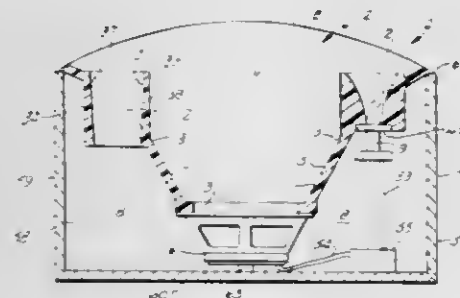
John T. Gollehon, Grand Rapids, Mich., assignor to Gollehon Industries, Inc., Grand Rapids, Mich.

Filed Jun. 2, 1980, Ser. No. 155,212

Int. Cl.³ H05K 5/00

U.S. Cl. 181—144

16 Claims



1. A full range loudspeaker, comprising:

- a radial horn having an open throat and a pair of outwardly curved side walls extending therefrom in a generally symmetrical relationship with a central axis of said horn to a mouth portion of said horn;

a cone driven speaker mounted in the open throat of said horn and producing an audio response to an input signal; a base reflex enclosure having an open side in which said horn with attached speaker is mounted, and forming a single, open chamber between said horn and said enclosure;

a compression driven speaker mounted in one of said curved horn side walls adjacent the mouth portion of said horn, and producing a separate audio response to another input signal; said compression driven speaker having a central axis oriented substantially parallel with the central axis of said horn; and

a port disposed in the other of said curved horn side walls adjacent the mouth portion of said horn, and communicating with said chamber to vent back waves therein; said port being defined by a generally cylindrical sleeve having a central axis, and an exterior end protruding from said other horn side wall; the central axis of said port sleeve being oriented substantially parallel with the central axis of said horn, whereby said cone driven speaker, said compression driven speaker, and said port produce three separate, laterally spaced apart sound sources which propagate associated audio signals forwardly along generally parallel axes.

4,314,621

FLUIDBORNE NOISE ATTENUATOR

Robert C. Hansen, East Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US79/00140, § 371 Date Mar. 7, 1979, § 102(e)

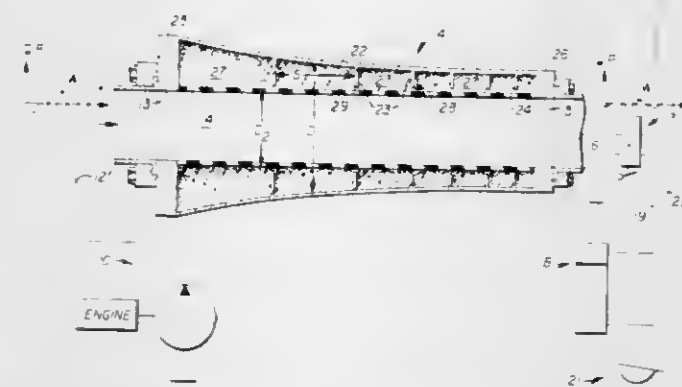
Date Mar. 7, 1979, PCT Pub. No. WO80/01933, PCT Pub. Date Sep. 18, 1980

PCT Filed Mar. 7, 1979, Ser. No. 81,219

Int. Cl.³ F01N 1/04; F16L 55/02

U.S. Cl. 181—233

15 Claims



1. A hydraulic fluidborne noise attenuator (14) comprising a rigid, tubular outer casing (22), flow passage means (14') for communicating hydraulic fluid through said attenuator (14), said flow passage means (14') having an inlet (13) at a first end thereof and an outlet (15) at a second end thereof, and

fluidborne noise means (27) for exhibiting a bulk modulus substantially greater than the bulk modulus of a gas and substantially less than the bulk modulus of said hydraulic fluid to attenuate noise levels at frequencies that vary over at least substantially the entire frequency range of from 100 to 5,000 Hz generated by flow and pressure fluctuations of said hydraulic fluid by tuning said fluidborne noise attenuator (14) to various portions of said entire frequency range, said fluidborne noise means (27) being at least generally tubular in shape and tapered downwardly at least approximately uniformly from said first end towards said second end of said attenuator with the diametrical size of said fluidborne noise means (27) being larger at said first end than at said second end.

4,314,622

EXTENSION BOOM FOR TRACTORS HAVING BACK HOE ATTACHMENTS

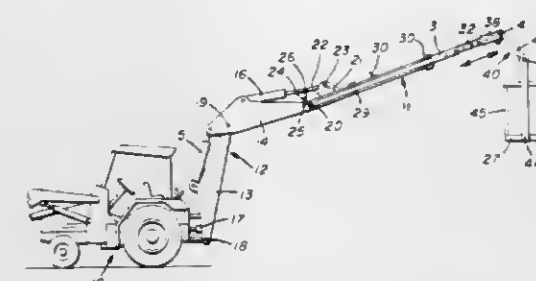
William W. Lindquist, 190 Clarendale Ave., Youngstown, Ohio 44512

Filed Mar. 26, 1980, Ser. No. 134,189

Int. Cl.³ B66F 11/04

U.S. Cl. 182—2

6 Claims



1. An extension boom for use with a tractor having a back hoe assembly thereon wherein the back hoe assembly has a pair of arms pivoted to one another and wherein one of the arms is pivoted to the tractor and means on the tractor and the arms for moving the same relative to one another, the extension boom being pivotally attached to one of said arms so as to extend outwardly therefrom, said extension boom comprising a pair of elongated body members arranged in spaced parallel relation, a first tubular member secured to the elongated body members and extending outwardly beyond one end thereof, a secondary tubular body member telescopically mounted in said first tubular body member and means for securing said secondary tubular body member in desired relation to the first tubular body member, means on said boom for supporting an article to be moved, apertured attachment plates on said elongated body members located above the axial center line thereof and links selectively engaged in said apertures plates, power means on one of said arms and connected with said links whereby motion imparted by said power means to said apertured plates raises and lowers said boom extension relative to said arms of said back hoe assembly.

4,314,623

VIBRATION ISOLATOR

Masahito Kurokawa, Tokyo, Japan, assignor to Kokka Kogyo Kabushiki Kaisha, Tokyo, Japan

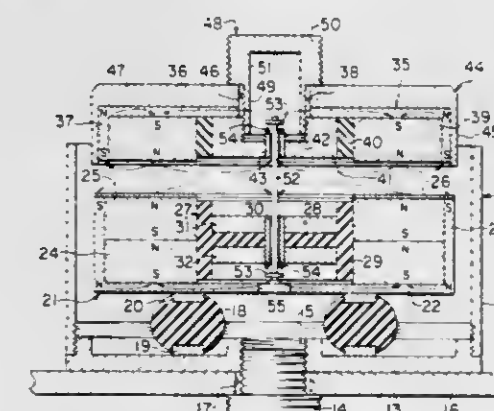
Filed Feb. 1, 1980, Ser. No. 117,737

Claims priority, application Japan, Feb. 2, 1979, 54-12556[U]

Int. Cl.³ F16F 7/00, 6/00

U.S. Cl. 188—267

6 Claims



1. A vibration isolator comprising an upper and a lower magnet assembly each magnetized in the vertical direction and formed with a central opening which extends vertically there-through, the magnet assemblies being disposed coaxially on a common axis of the central opening so that their opposing surfaces present poles of a like polarity, a pair of yoke members of a magnetizable material disposed on the respective magnet assemblies so as to surround the side and the opposite surface from said opposing surfaces of the individual magnet assemblies.

1015 O.G.—19

blies, a pair of bearing members disposed in the central openings of the magnet assemblies and each formed with a through-opening in alignment with said axis, and a connecting shaft of magnetizable material loosely extending through the through-openings of the pair of bearing members and coupling one of the magnet assemblies to the other so as to be axially movable independently from each other.

4,314,624

WHEEL-MOUNTED LUGGAGE

Paul F. Royet, Z.I. Nord, Avenue de la Roseraie, Pierrelatte (Drôme), France

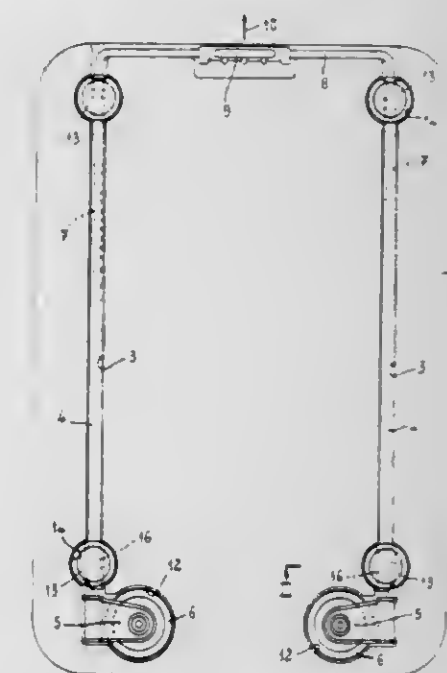
Filed Oct. 2, 1980, Ser. No. 193,010

Claims priority, application France, Oct. 3, 1979, 79 25151

Int. Cl.³ A45C 5/14

U.S. Cl. 190—18 A

7 Claims



1. A piece of luggage comprising:

- a case having a substantially flat bottom wall formed with a pair of generally parallel, relatively narrow, and outwardly open elongated grooves having upper and lower groove ends,
 - a pair of longitudinally spaced, relatively wide, and outwardly open recesses at each groove between the ends thereof, and
 - a wheel cutout adjacent each lower groove end;
- respective solid support blocks force-fitted in said recesses and each formed with a throughgoing passage aligned with the respective groove;
- respective tubes extending longitudinally along said grooves through the respective passages and rotatable therein and having upper tube ends at said upper groove ends and lower tube ends at said lower groove ends;
- respective pivot mounts carried on said lower tube ends;
- respective wheels journaled on said pivot mounts;
- a handle connected to said upper tube ends and displaceable longitudinally relative thereto; and
- means in said tubes between said handle and said pivot mounts for pivoting said mounts through about 90° between positions with said wheels in said cutouts and with said wheels standing up from said bottom wall on displacement of said handle longitudinally away from said upper tube ends.

4,314,625

ARTIST'S PORTFOLIO

Abraham Sarna, Woodford, and David Sarna, London, both of England, assignors to A. Sarna & Son Limited, London, England

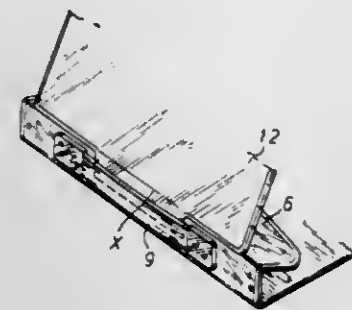
Filed Mar. 27, 1980, Ser. No. 134,413

Claims priority, application United Kingdom, Oct. 29, 1979, 37455/79

Int. Cl.³ A45C 11/00

U.S. Cl. 190—16

2 Claims



1. An artists' portfolio comprising two outer covers with one side of each cover joined so as to open and close book-fashion to form a case, closure means to secure the two adjacent free sides of each cover, a flap with a carrying handle being provided on the free side of one cover opposite the side thereof joined to the other cover, the side of the said other cover opposite to the side thereof joined to the one cover including a spine with securing means for sheet material and a support with a tongue on a side thereof which may be swung from a position lying between the covers when the case is closed to a position in which the tongue on the side of the support engages under the handle on the flap when the flap is positioned to lie generally over the one cover opposite to the side thereof joined to the other cover, whereby a triangular structure is formed with the sheet material to lie against either the flat support or the other cover.

4,314,626

Patent Not Issued For This Number

4,314,627

SYNCHRONIZER RING FOR TRANSMISSION SYNCHROMESH DEVICE

Koji Nozawa, Higashikurume, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

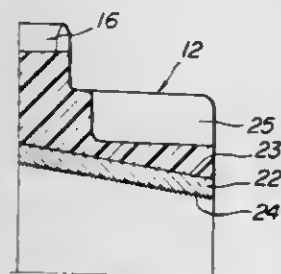
Filed Jul. 25, 1979, Ser. No. 60,359

Claims priority, application Japan, Aug. 1, 1978, 53/93103

Int. Cl.³ F16D 23/06, 69/00

U.S. Cl. 192—53 F

2 Claims



1. A synchronizer ring for a transmission synchro-mesh device comprising: an annular inner body of a wear-resistant metal having an interior conical slide surface, and an annular

outer body of a resilient resin integrally molded onto the outer surface of said inner body, the radial thickness of said inner body being small in comparison to that of said outer body.

4,314,628

FEED AND STORAGE TRACK FOR DIP DEVICES

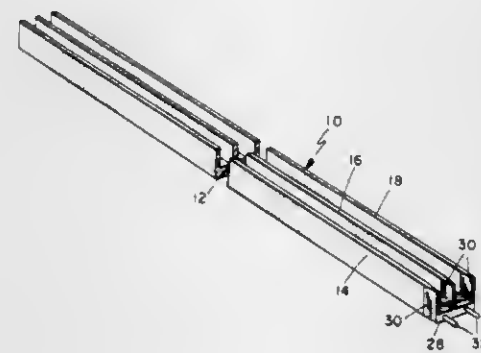
Raymond E. Calbert, Escondido, and Herbert E. Morse, San Diego, both of Calif., assignors to Delta Design, Inc., San Diego, Calif.

Continuation of Ser. No. 942,060, Sep. 13, 1978, abandoned. This application Jul. 3, 1980, Ser. No. 165,785

Int. Cl.³ B65G 11/00

U.S. Cl. 193—2 R

5 Claims



1. Feed and track means for handling dual in-line packaged electronic devices of different widths, each having a generally rectangular shaped body with a plurality of electrical conductors extending downwardly from two opposite sides thereof, comprising:

an elongated track means having a plurality of longitudinally extending rails fixed in parallel spaced relation and including a pair of outer rails and an intermediate rail between the outer rails;

one of said outer rails and the intermediate rail forming a first pair of rails with a spacing therebetween to accommodate a first size of dual in-line packaged device straddling the first pair of rails;

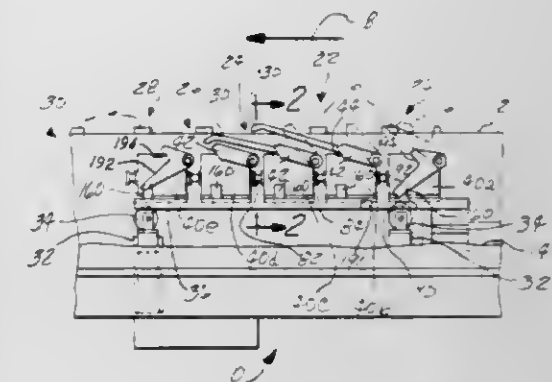
the other outer rails and the intermediate rail forming a second pair of rails with a spacing therebetween to accommodate a second size of dual in-line packaged device straddling the second pair of rails;

the two outer rails forming a third pair of rails having a spacing therebetween for accommodating a third size of dual in-line packaged device straddling the third pair of rails;

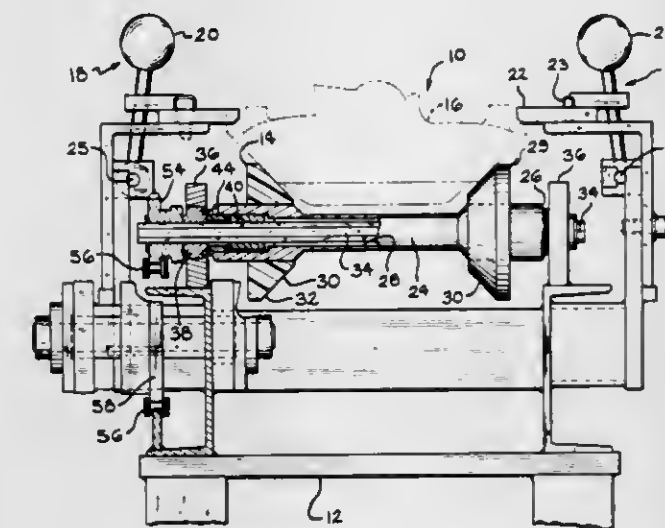
said track having an input end;

and an input head adjustably mounted on said input end with guide means thereon for guiding dual in-line packaged devices onto a selected pair of rails.

4,314,630
ACCUMULATING CONVEYOR
Walter Greenwood, Jr., 505 Brentwood, Dearborn, Mich. 48124
Filed Feb. 25, 1980, Ser. No. 124,330
Int. Cl.³ B65G 25/00
U.S. Cl. 198—718
12 Claims



4,314,629
POWER ROLLER ACCUMULATING CONVEYOR
Frank R. Shilander, Euclid, and Gyorgy Kiss, Chesterland, both of Ohio, assignors to La Salle Machine Tool, Inc., Troy, Mich.
Filed Dec. 31, 1979, Ser. No. 108,688
Int. Cl.³ B65G 45/02, 13/06
U.S. Cl. 198—500
3 Claims



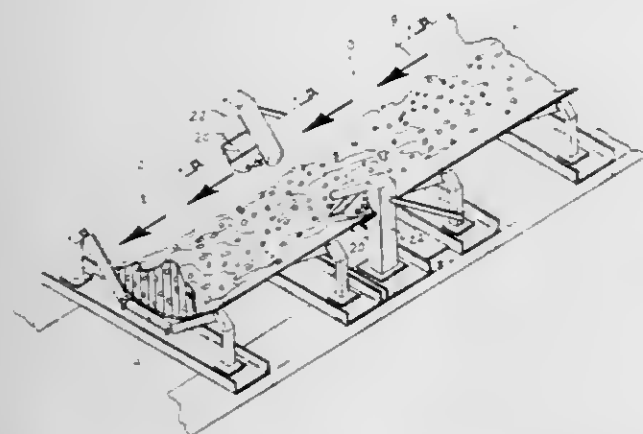
1. A conveyor comprising a frame, a plurality of spaced apart power rollers positioned on said frame and operable to propel articles along said conveyor, each of said power rollers comprising a roller member terminating at opposite ends and having a longitudinal passageway extending between and through said ends, at least a portion of said passageway forming a radially inwardly facing cylindrical surface of substantially uniform diameter, drive means for imparting rotational movements to each of said power rollers, said drive means comprising a drive shaft rotatably mounted on said frame and extending through and beyond the ends of the passageway of an associated power roller, a friction drive member mounted on said drive shaft and positioned in said passageway portion, co-acting means on said drive shaft and on said friction drive member providing for the conjoint rotational movement of said drive shaft and said friction drive member, said friction drive member having a generally cylindrical outer surface of substantially uniform diameter which is sufficiently less than the diameter of said cylindrical surface in said passageway to provide for a space between the bottom sides of said cylindrical surfaces when the top sides thereof are in frictional engagement, said friction drive member being frictionally engaged with said roller member to transmit the rotational movement of said drive shaft to said roller member to propel the articles along said conveyor, said friction drive member being formed of a powdered metal and being impregnated with a lubricating agent enabling said friction drive member to slip in said pas-

9. A conveyor module adapted for use in an accumulating conveyor of the type having a longitudinal frame with a plurality of spaced article support stations through which articles are advanced intermittently from a load to an unload station of said frame by reciprocal movement of said conveyor module, said conveyor module comprising:
an enclosed housing;
means, carried externally by said housing, for sensing the presence of an article, said article sensing means adapted to sense the presence of an article in the adjacent advanced article support station;
article engaging means carried externally by said housing, said article engaging means being movable between a lowered inoperative position and an elevated article engaging position;
means, carried within said housing, for transferring said article engaging means between lowered and elevated positions;
means, carried within said housing, for actuating said transferring means;
said actuating means being responsive to said sensing means to position said transferring means in an operative condition when the adjacent advanced support station is empty to move said article engaging means to an elevated, article engaging position.

4,314,631
FRICTIONAL BELT BRAKE
Enoch R. Hagerman, Ligonier, Ind., and Richard H. Walkden, Buchanan, Mich., assignors to Uniment Systems, Inc., South Bend, Ind.
Filed Feb. 22, 1980, Ser. No. 123,743
Int. Cl.³ B65G 43/06
U.S. Cl. 198—856
5 Claims

1. A brake device for a belt run having an upper surface, said device comprising a support surface and a wedge member spaced above said support surface, said support surface and said wedge member defining a path therebetween for movement of said belt run, means for directing said wedge member downwardly to compress said belt run against said support surface and into wedging motion-stopping contact with the belt run upper surface upon reverse movement of said belt run, and means associated with said directing means for permitting forward movement of said belt run without wedging contact of the wedge member, said directing means being a pivot part carrying said wedge member, said pivot part being shiftable about a pivot location above said support surface between upper and lower positions wherein said wedge member is

movable in an arc from a location spaced from said belt upper surface when said pivot part is in its upper position into a location in said wedging contact with the belt run upper surface when said pivot part is in its lower position, said means permitting forward movement of said belt run being a roller, a bracket journaling said roller and being pivotally connected to



positioning means located at the extremity of said first panel opposite said end having a concave configuration; and a flap closure connected to said first panel so as to define a closure for said opening at the end opposite said third panel while being capable of flapping open only into said compartment for the purpose of removing the contents of said compartment;

said compartment adapted for the receipt of coins through said means for receiving and discharge of coins through said flap closure, said concave surface when mated to a bill section defining an open volume for the storage of bills.

4,314,633

STACKING DEVICE FOR TIERS OF ARTICLES

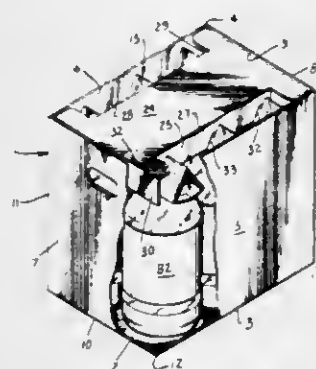
James R. Oliff, Austell, Ga., assignor to The Mead Corporation, Dayton, Ohio

Filed Nov. 9, 1979, Ser. No. 92,989

Int. Cl.³ B65D 75/00

U.S. Cl. 206—148

9 Claims



said pivot part, said bracket being pivotal relative to the pivot part from a first position locating said roller adjacent said wedge member wherein the roller will ride upon said belt upper surface to locate said pivot part in its upper position and a second position locating said roller more remotely from said wedge member wherein said pivot part is shifted into its said lower position.

4,314,632

INSERT FOR TILLS

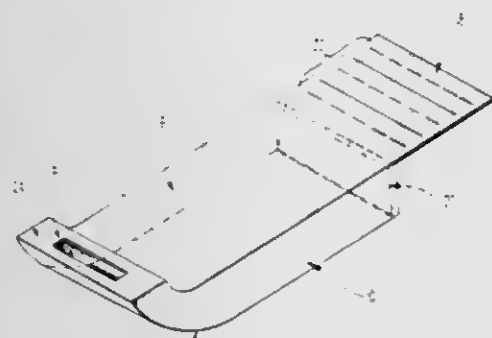
Richard T. Hutchinson, 109 Public Sq., Gallatin, Tenn. 37066

Filed Sep. 4, 1979, Ser. No. 72,262

Int. Cl.³ A45C 11/28

U.S. Cl. 206—0.81

4 Claims



1. An elongated till insert for quickly and reliably receiving selected currency deposited therein by a cashier, said insert securely and safely mating within a bill section of a cash register tray without defeating entirely the use of said section for the receipt of other currency, said insert comprising:

- a first panel having a concave end portion and defining a top for said insert;
- a second panel shorter than said first panel, and acting as a bottom of said till, said second panel having a similar concave geometry on one end to said first panel and being positioned under said first panel to lie in a parallel relationship thereto;
- a third panel being shorter than all other panels and defining within its confines a frontal opening constituting a means for receiving, said third panel being positioned between said first and second panels at the concave extremities thereof;
- fourth and fifth panels forming sides between said first and second panels, said sides adjoining said third panel and thus defining a receiving compartment having an opening at the end opposite said third panel;

1. In combination, a plurality of packages arranged in parallel relation in a single tier, said tier being disposed within a container, said container having a bottom wall and parallel side and end walls, each package including a plurality of articles and a top gripping carrier having side walls with openings for receiving the top portions of the associated articles, a stacking device including a main panel having generally parallel side edges and disposed in overlying relation to said packages, a pair of side panels foldably joined to the side edges of said main panel and folded downwardly and into said top openings, said main panel comprising an intermediate portion and at least one end portion, and said end portion being substantially equal to the corresponding horizontal dimension of said container.

4,314,634

RETURNABLE CONTAINER HAVING A CENTRAL PARTITION FORMING A RETURN HANDLE

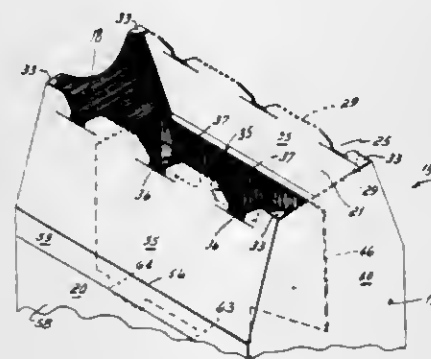
Orison W. Stone, New Haven, Vt., assignor to Pack Image, Inc., Middlebury, Vt.

Filed Mar. 3, 1980, Ser. No. 126,690

Int. Cl.³ B65D 5/02

U.S. Cl. 206—167

15 Claims



1. A returnable container for glass bottles and capable of being side loaded comprising,

a bottom wall, end walls hinged to said bottom wall, a top wall hinged to the end walls, said bottom wall, top wall and end walls forming a tube having an axis through it, a pair of lower side flaps hinged to said bottom wall, a pair of upper side flaps hinged to said top wall, a single thickness central partition extending between end walls in a plane transverse to the axis of the tube, said partition being connected to at least two of said end walls and bottom wall to form a handle suitable for carrying empty bottles after said top wall has been opened.

4,314,635

CHECKING ACCOUNT CHECK AND CHECK BOOK ORDER-TAKING PORTFOLIO

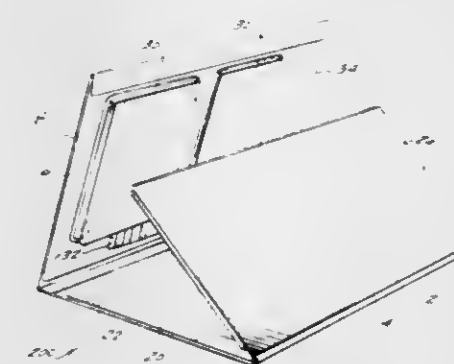
Robert Fraser; John Rouse, both of Baltimore; Robert C. Redic, and Suzanne Frock, both of Columbia, all of Md., assignors to Falconer Security Printers, London, England

Filed Aug. 29, 1980, Ser. No. 182,757

Int. Cl.³ B65D 73/00

U.S. Cl. 206—232

12 Claims



1. A checking account customer supplies-ordering portfolio, comprising:

- a six rectangular panel blank of flexible sheet material having at least one face printed with indicia relating to checking account customer supplies, folded and zonally adhered to provide three composite panels integrally hinged together in a horizontally extending series comprising a central composite panel integrally hinged to a left-flanking composite panel and a right-flanking composite panel, with there being an integral hinge region comprising at least one respective vertical line fold between said central composite panel and each said flanking composite panel;
- two of said composite panels, including said central composite panel and one of said flanking composite panels each comprising a respective two of said six rectangular panels of said blank folded over upon one another about a horizontal margin bend line common to both until back-to-back, with said printed face presented outwards; and adhesive means zonally applied between such two rectangular panels for adhering such two rectangular panels together; and
- the remaining one of said flanking composite panels comprising a respective two rectangular panels of said blank folded over upon one another about margin bend line means common to both and including two bend lines, each common to a respective margin of a respective said rectangular panel and both common to a first depth-providing boxing panel, and two tab means integral with a respective two different ones of the margins of either of said respective two rectangular panels of said remaining flanking composite panel; each such tab means comprising a tab having a basal margin, a depth-providing boxing panel, and two bend lines including one common to the respective rectangular panel and the respective boxing panel, and another common to the respective tab basal margin and the respective boxing panel; both of the tabs being represented face to face against the opposite one of the two rectangular panels of said remaining flanking compos-

ite panel than the one to which the respective tab means is integrally appended; and adhesive means zonally applied between and adhering said tabs to the respective said opposite one of the two rectangular panels; the three boxing panels being of substantially equal depth, so that there is provided a one margin open rectangular slip case with said printed face of said blank providing the exterior of said slip case and the opposite side of said blank from said printed face providing the interior of said slip case.

4,314,636

DEVICE AND METHOD FOR ASSEMBLING LARGE SPACE STRUCTURES

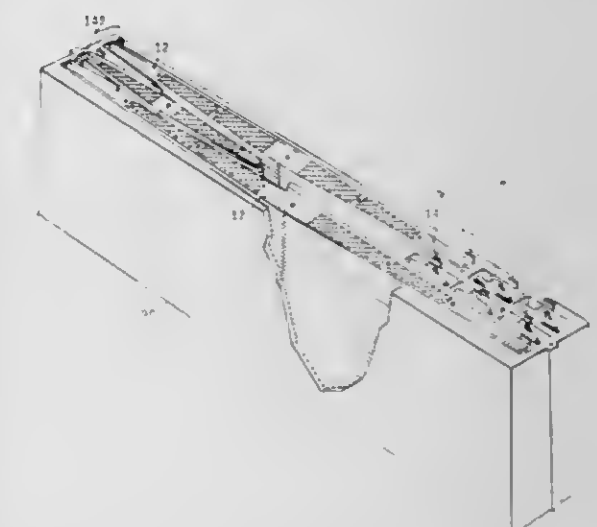
Paul Slysh, San Diego, Calif., assignor to General Dynamics Corporation, San Diego, Calif.

Division of Ser. No. 930,823, Aug. 3, 1978. This application Dec. 17, 1979, Ser. No. 104,504

Int. Cl.³ B65D 85/00

U.S. Cl. 206—321

4 Claims



1. A strut and node storage canister comprising: a box structure having an open end and a base end opposite said open end; a plurality of lead screws disposed within said box structure, each lead screw having a free end and a fixed end, said fixed end rotatably mounted in said base end of said box structure with said free end extending toward said open end; a plurality of advance plates disposed within said box structure, each advance plate adapted for threaded engagement with at least one of said lead screws so that rotation of said lead screws in a first direction moves said advance plates toward said open end; driving means connected to said fixed end of each of said lead screws for rotating said lead screws; a dog fixedly attached to said free end of each of said lead screws to rotate with said lead screw; each of said advance plates adapted to support a plurality of stacked struts for movement along said lead screws with said advance plates; and said struts having keyways positioned to fit over said dogs and lead screws, said keyways being offset from one strut to the next through said strut stack; whereby as said lead screws are rotated in said first direction said advance plates and strut stacks are moved toward said open end and said dogs are brought into alignment with the keyways in the uppermost strut to permit individual sequential removal of struts from said stack.

4,314,637

CASE FOR PACKING A TAPE CASSETTE OR THE LIKE
Patrick Posso, 10, avenue Jurigoz, Lausanne, Switzerland (CH-1006)

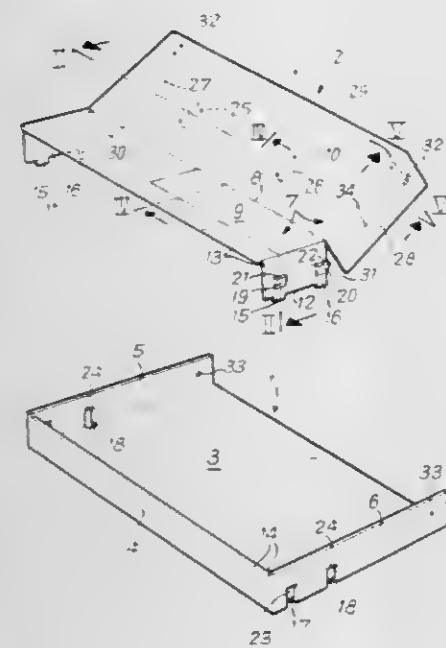
Filed May 7, 1980, Ser. No. 147,519

Claims priority, application France, May 14, 1979, 79 12220

Int. Cl.³ B65D 85/67, 43/16

U.S. Cl. 206—387

5 Claims



1. A case for a tape cassette, comprising:
 - A. a substantially transparent bottom member formed in one piece and having
 - (1) a bottom wall,
 - (2) an upright rear wall,
 - (3) opposite upright and parallel side walls,
 - (4) at least one window in each of said side walls, near the rear wall and spaced therefrom and extending down to the bottom of the side wall, and
 - (5) at least two shallow slots in said bottom wall, one at each side thereof, each opening outwardly to one of said windows;
 - B. a top member formed in one piece and having
 - (1) a top wall,
 - (2) a downwardly projecting front wall, and
 - (3) opposite, parallel, downwardly projecting side walls spaced apart by a distance to be closely receivable between the side walls of the bottom member and each of which has a slit that extends through its full height and divides it into front and rear portions,
 - (4) said top wall having a laterally extending groove aligned with said slits that provides a hinge whereby a front portion of the top member can swing up and down relative to the rear portion thereof;
 - C. integral means on the top member for securing the same to the bottom member, said integral means comprising
 - (1) a tooth projecting sideways outwardly from each of said side wall rear portions and closely receivable in one of said windows, and
 - (2) a tongue projecting edgewise downwardly from each of said side wall rear portions and closely receivable in one of said slots; and
 - D. cooperating detent means on the side walls of said members for releasably confining the front portion of said top member against swinging out of a closed position, said detent means comprising a protuberance on each side wall of one of said members projecting towards the adjacent side wall of the other member and receivable in a depression in said adjacent side wall, said detent means being located near said front wall.

4,314,638

SHIPPING CONTAINER DESIGNED TO PREVENT CAN DAMAGE DUE TO CHIME RIDE

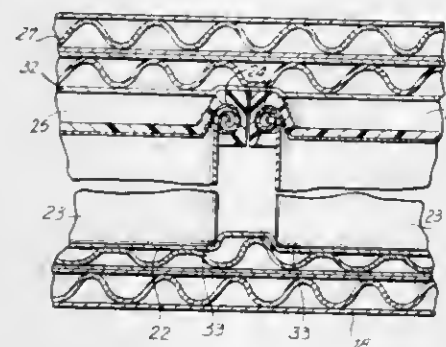
Robert L. Gordon, Monroe, N.Y., and Paul Z. Wolak, Kingston, Mich., assignors to International Paper Company, New York, N.Y.

Filed Apr. 2, 1981, Ser. No. 250,452

Int. Cl.³ B65D 81/02, 65/00

U.S. Cl. 206—427

2 Claims



1. A shipping container for a plurality of lidded, chimed cans, which comprises
 - (a) hingedly connected pairs of side and end walls;
 - (b) a bottom wall comprising a first pair of major flaps hingedly connected to the ends of the side walls and extending substantially perpendicular thereto and a first pair of minor flaps hingedly connected to the ends of the end wall and extending substantially perpendicular thereto and secured to the outer surfaces of the first pair of major flaps;
 - (c) a lower corrugated pad positioned in abutting contact with the inner surfaces of the first pair of major flaps;
 - (d) a plurality of lidded, chimed cans seated atop the corrugated pad;
 - (e) a top wall comprising a second pair of major flaps hingedly connected to the side walls at their other ends and extending substantially perpendicular thereto and a second pair of minor flaps hingedly connected to the end walls at their other end and extending substantially perpendicular thereto and secured to the outer surfaces of the second pair of major flaps;
 - (f) the interior height of said container being less than the combined height of a lidded, chimed can and the lower corrugated pad creating a compression fit whereby the combination of the corrugated pad and the first pair of major flaps forms a rigid platform which maintains the cans in an upright position while avoiding bottom wall sag, caused by horizontal movement of the cans relative to one another, and damage due to chime ride.

4,314,639

FOLDING BOX CARRYING CONTAINER WITH ADHESIVE SEAL FOR CARRYING STANDING BOTTLES
Wolfgang Glöyer, Wiesenweg 51, D-2000 Oststeinbek, Fed. Rep. of Germany

Filed Feb. 20, 1980, Ser. No. 122,971

Claims priority, application Fed. Rep. of Germany, Feb. 22, 1979, 7905025[U]; Oct. 24, 1979, 2942908

Int. Cl.³ B65D 5/46, 25/30

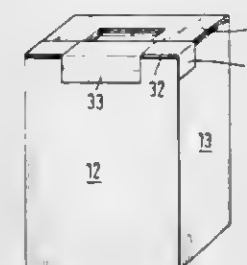
U.S. Cl. 206—427

8 Claims

1. A carton blank cut and scored to permit folding and assembly as a carton for beverage bottles standing therein in rows, said blank comprising a one-piece cardboard member having score lines to define a first end wall portion, a first sidewall portion extending from one side of said first end wall portion, a second end wall extending from one side of said first sidewall portion, a second sidewall portion extending from one side of said second end wall portion, first and second transverse top wall portions extending respectively from a first end of each of the first and second end wall portions, first and

second longitudinal top wall portions extending respectively from a first end of each of the first and second sidewall portions, and a plurality of bottom wall portions extending respectively from a second end of separate ones of the end wall and sidewall portions; said score lines permitting folding of said carton blank to a position with said bottom wall portions defining a carton bottom, said first and second end wall portions extending in spaced parallel relation and said first and second sidewall portions extending in spaced parallel relation and cooperating with said first and second end wall portions to define a rectangular carton, and said first and second transverse top wall portions and first and second longitudinal top wall portions overlapping to provide a carton top of at least three layers; said first longitudinal top wall portion having a rectangular opening cut therethrough; said first and second

cooperating means securing the panels together, end wall forming panels integrally hinged to the ends of said sidewall panels and said top wall panel which are disposed in end closing relation at opposite ends of the tubular carton, said top end wall panels being free of the sidewall panels and being hinged downwardly and inwardly to a position adjacent the top portions of the endmost pair of bottles, said side end wall panels having top edges tapered inwardly and downwardly and having top marginal portions overlying free marginal portions of said top end wall panels and said end wall panels hinged to said side wall panels having inner vertical margins disposed in overlapping relation and having dual latch means interengaged with each other and with said top end wall panel securing said panels in end closing position.



4,314,641

RACK FOR FLEXIBLE SHAPES

Henri Bronne, Monaco, Monaco, assignor to S.A.M. Silvatrim, Monaco, Monaco

Filed Sep. 14, 1979, Ser. No. 75,660

Claims priority, application France, Oct. 9, 1978, 78 29356

Int. Cl.³ B65D 85/20

U.S. Cl. 206—443

3 Claims



transverse top wall portions being cut so that in the folded carton position with said first longitudinal top wall portion overlying said first and second transverse top wall portions a rectangular opening exists through said transverse top wall portions substantially congruent with the first longitudinal top wall portion rectangular opening; said second longitudinal top wall portion being cut and scored to define a foldable rectangular flap capable in the folded carton position, with said second longitudinal top wall portion overlying said first longitudinal top wall portion, of folding around one longitudinal edge of the congruent rectangular openings to place a major portion of said flap in a plane parallel with the plane of said first longitudinal top wall portion; said major portion, when said carton is assembled, filled and closed, being held in said plane by a bottle within said carton.

4,314,640

BOTTLE PACKAGE

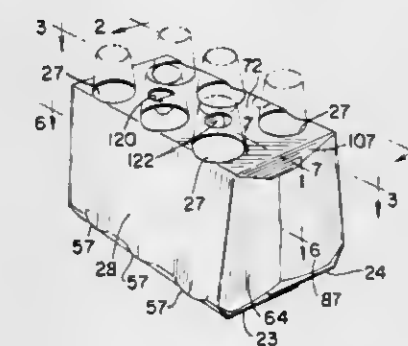
Guelfo A. Manizza, Blauvelt, N.Y., assignor to Federal Paper Board Company, Inc., Montvale, N.J.

Filed May 13, 1980, Ser. No. 149,350

Int. Cl.³ B65D 85/62, 75/08

U.S. Cl. 206—434

12 Claims



1. A carrier package comprising an assembly of articles, in the form of bottles, arranged in a double row and in transversely aligned pairs, enclosed in a tubular carton formed from a single blank of paperboard or similar foldable sheet material, said carton having a top wall panel, integrally hinged sidewall forming panels depending from side edges of said top wall panel and extending along the oppositely disposed outer side faces of the article assembly, bottom wall forming panels integrally hinged to the bottom edges of said sidewall panels and extending inwardly toward each other with overlapped margins, which margins of said bottom wall forming panels have

1. A rack for holding elongated articles, comprising at least two assemblies of straight parallel coplanar grooves separated by ribs for receiving in the grooves straight portions of the articles to be held, the ribs and grooves of one assembly being disposed at an angle to those of the other assembly, the region between adjacent ends of the ribs of the two assemblies being free from ribs, said ribs and grooves being present on both sides of the rack, the orientation of the ribs and grooves on one side of the rack being the opposite of the ribs and grooves on the other side of the rack.

4,314,642

CARDBOARD CONTAINER WITH RECLOSABLE TOP CLOSURE

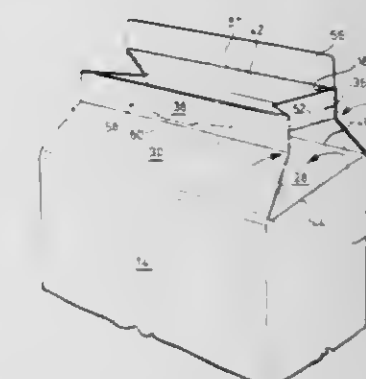
Leslie J. Dagostine, Quebec, Canada, assignor to Somerville Belkin Industries Limited, London, Canada

Filed Aug. 13, 1980, Ser. No. 177,573

Int. Cl.³ B65D 5/54, 65/28

U.S. Cl. 206—621

4 Claims



1. A cardboard container comprising:

a tubular cardboard body with opposed side walls, opposed end walls, a bottom closure and a top closure;
said top closure being formed from panels at the upper end of each of said side walls and end walls of said tubular body, said panels being foldably connected to each other in series around the top of the container in the open condition;
each of said panels having a lip at its outer end;
the side panels on the side walls being foldable from the open condition in a downward direction to meet and form a top cover with their respective lips in abutting relation and extending upwardly; the end panels of the end walls being creased to fold upon themselves and underlie the side panels with their respective lips folded upon themselves and interposed between the lips of said side panels as said side panels move downwardly to form a top cover as aforesaid;
means for sealing the lips of said container when said side panels form a top cover as aforesaid;
the lip on the first one of said side panels having a reclosure tab hinged thereto, said reclosure tab being folded to lie in juxtaposed relation to the inner face thereof as the side panels form a top cover, but being hingeable as aforesaid to overlie the outer face of the lip on the second one of said side panels and function as a tongue;
the side panel on the second side wall being formed with means to admit said tongue to form a locked reclosure.

4,314,643

FLIP TOP CARTON

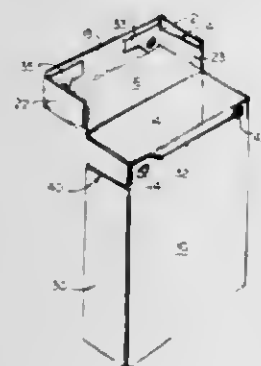
Hampton E. Forbes, Jr., Wilmington, Del., assignor to Westvaco Corporation, New York, N.Y.

Filed Oct. 27, 1980, Ser. No. 201,278

Int. Cl.³ B65D 5/54

U.S. Cl. 206—626

8 Claims



4. A reclosable, flip top carton formed from a unitary blank of paperboard or the like including a receptacle portion comprising a front wall, bottom wall, side walls and a rear wall, and a flip top cover portion and cover portion locking means foldably attached respectively to the carton rear wall and front wall, the improvement wherein the cover portion locking means comprises a first locking flap having tapered outer edges centrally positioned along the upper edge of said front wall, and a pair of secondary locking flaps of abbreviated length that occupy the space along said front wall outboard of said first locking flap and which are detachably connected only to the tapered edges of said first locking flap.

4,314,644

ZIP SORT REGISTRATION SYSTEM

Lester H. Stocker, Phillipsburg, N.J., assignor to Bell & Howell Company, Phillipsburg, N.J.

Continuation of Ser. No. 913,727, Jun. 7, 1978, abandoned. This application May 14, 1980, Ser. No. 149,615

Int. Cl.³ B07C 5/00

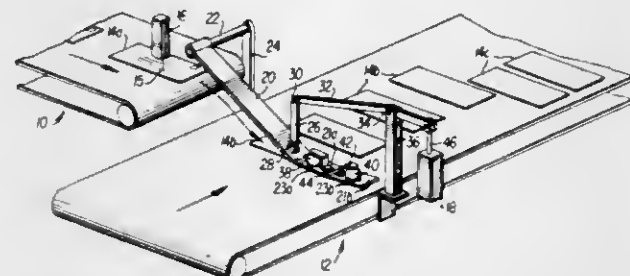
U.S. Cl. 209—569

9 Claims

1. Apparatus for segregating into separate groups flat articles such as envelopes or documents bearing address blocks having at least one unique destination indicium associated

therewith, all articles in each group having address blocks with the same unique destination indicium associated therewith, said apparatus comprising:

- a discharge conveyor for conveying and discharging said flat articles along a first path;
- indicating means for indicating the existence of said unique destination indicium for each of said flat articles before said flat article is discharged from said discharge conveyor;
- a selection means;
- transmitting means coupled to said indicating means for transmitting an action signal to said selection means in response to a change in said unique destination indicium;
- laterally moving conveyor means;



said selection means including a movable portion articulately joined to a relatively stationary portion said movable portion being operative in response to said action signal to selectively move between a first position in engagement with said laterally moving conveyor means and a second position out of engagement with said laterally moving conveying means;
said movable portion being further operative, when in said first position, to engage said flat articles and change their direction to move said articles along a first lateral path on said lateral conveyor; and, said relatively stationary portion being operative, when said movable portion is in said second position, to engage said flat articles and change their direction to move along a second lateral path on said lateral conveyor means.

4,314,645

MECHANICAL REJECTION SYSTEM FOR AUTOMATIC SORTING MACHINES

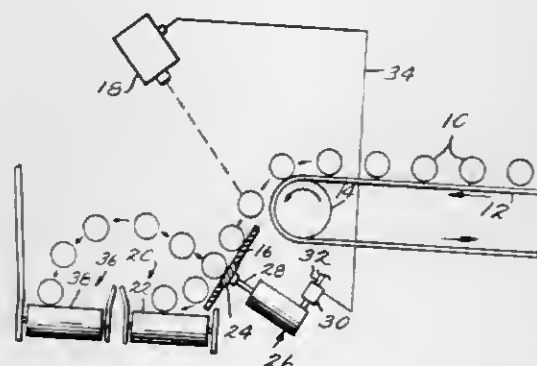
Joseph R. Perkins, III, Roseville, and Sylvester L. Woodland, Sacramento, both of Calif., assignors to Sortex North America, Inc., Sacramento, Calif.

Filed Jan. 23, 1980, Ser. No. 114,669

Int. Cl.³ B07C 5/00

U.S. Cl. 209—638

7 Claims



1. In an automatic sorter system wherein easily damaged delicate objects traveling along a path are scanned by optical-electronic sensor means to determine whether or not the object is acceptable or unacceptable, the combination of ejector means comprising:

- means defining a generally planar, generally uninterrupted surface inclined to the horizontal along which scanned

objects move by gravity along a substantially free-fall path to a station for collecting acceptable objects;
means defining a separate section of said surface downstream of the scanning location, said section being movable outwardly of said surface to push an object opposed to said section out of said path to a station for collecting rejected objects, said surface and said path being arranged so that the distance between the objects in said path and said section is kept to a minimum, whereby rejected objects are subjected to minimum impact by said section to avoid damage thereto; and
means responsive to the sensor means for moving said section.

4,314,646

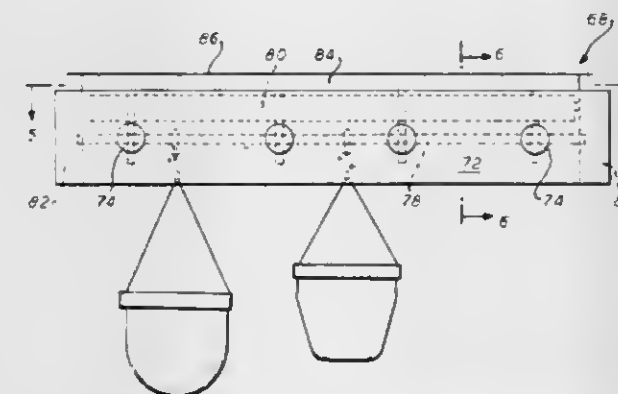
DEVICES FOR SUPPORTING HANGING PLANTS

Robert C. Purnell, Fishkill Park, Rte. 52, Fishkill, N.Y. 12524
Continuation of Ser. No. 812,255, Jul. 1, 1977, abandoned. This application Oct. 16, 1978, Ser. No. 952,246

Int. Cl.³ A47F 5/08

U.S. Cl. 211—113

13 Claims



1. A plant support of the type intended to be suspended in a horizontal plane from a horizontal or vertical surface and from which plant containers or other objects are suspended from hooks, said support comprising:

- (a) at least one pair of rigid members having substantially planar surfaces parallel to one another;
- (b) at least one rod-like member spaced from said rigid members so as to be capable of receiving thereon the hooks; said rigid members being substantially wider than and enclosing said rod, such that said rod is obscured from view by said rigid members with the plant container or other object in view; the ends of said rigid members being substantially in registry with one another;
- (c) joining means, at least one of said joining means being secured to each of said ends of said rigid members to thereby define a frame; said joining means being secured perpendicularly to said planar surfaces of said rigid members at regular intervals therealong and at least one of said joining means being capable of receiving thereon the hooks, the hooks being obscured from view from any side of said suspended frame; and
- (d) means for suspending said frame from the surfaces.

4,314,647

STORAGE AND DISPLAY ELEVATOR

Jack W. Harris, 1194 Houston Mill Rd. N.E., Atlanta, Ga. 30320, and Walter H. Eskew, Marietta, Ga., assignors to Jack W. Harris, Marietta, Ga.

Filed Jul. 1, 1980, Ser. No. 165,144

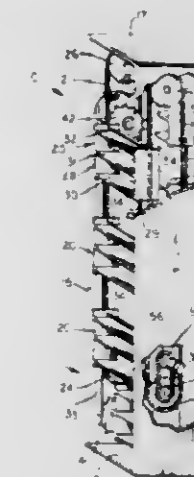
Int. Cl.³ A47F 3/11

U.S. Cl. 211—121

8 Claims

1. A storage and display elevator comprising a support frame, an upper pair of sprocket wheels mounted in said support frame in spaced coaxial relationship with respect to each other, a lower pair of sprocket wheels mounted in said support frame in spaced coaxial relationship with respect to each other and in vertical alignment with said upper pair of sprocket

wheels, a pair of endless chains positioned in parallel planes and each extending about one of said upper and one of said lower sprocket wheels and each forming parallel upwardly extending chain flights, means for rotating said sprocket wheels and moving said chains in unison, a plurality of storage and display platforms connected to said chains in approximately equally spaced relationship along the lengths of said chains, said platforms including connecting rods extending therefrom and said connecting rods being attached to said endless chains whereby the platforms are pivotably suspended from said chains, guide rails supported by said support frame and extending vertically along the vertical runs of at least one of said endless chains, an upper guide sprocket positioned below an upper sprocket wheel and rotatable about an axis parallel to the axis of rotation of said upper pair of sprocket wheels, cam means positioned below said upper sprocket wheels and extending from said support frame beyond the plane of an adjacent endless chain toward the path of movement of said platforms and including arcuate entry cams positioned on opposite sides of said adjacent endless chain and an arcuate holding cam positioned inside the upwardly extending chain flights of said adjacent endless chain whereby gaps are formed between said entry cams and said holding cam for the



passage of the connecting rods of the platforms, said platforms each including a pair of guide means protruding laterally therefrom at a level below the connecting rod of the platform toward the plane of the adjacent endless chain for engagement with said guide rails, a first cam follower protruding laterally therefrom at a level above said pair of guide means, and a pair of cam followers protruding laterally therefrom on opposite sides of said first cam follower, whereby the guide means protruding from said platforms engage and move along a guide rail of one vertical run of an endless chain as the platforms are moved vertically, and as the platforms begin to move about the upper pair of sprocket wheels an arcuate entry cam engages one of the pair of cam followers and urges the pair of guide means into engagement with the upper guide sprocket, and as the platform continues its movement about the guide sprocket, the holding cam engages the first cam follower and maintains the pair of guide means in engagement with the upper guide sprocket, and then the other arcuate entry cam engages the other of the pair of cam followers and maintains the pair of guide means in engagement with the upper guide sprocket until the platform begins its downward vertical movement and the pair of guide means engage and follow the guide rail of the other vertical run of the endless chain.

4,314,648

GRAVITY FEED SHELF

William S. Spamer, Roswell, Ga., assignor to The Mead Corporation, Dayton, Ohio

Filed Nov. 30, 1979, Ser. No. 98,876

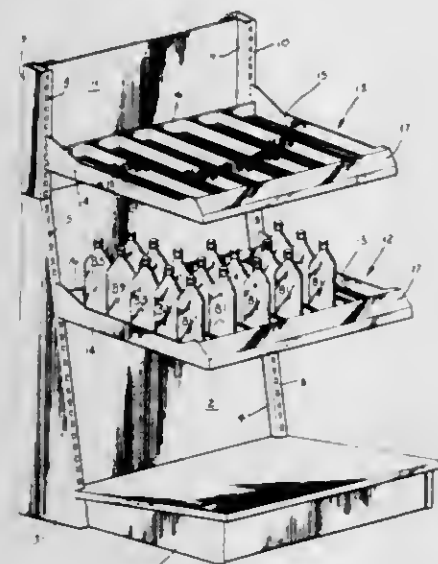
Int. Cl.³ A47F 1/00

U.S. Cl. 211—49 D

14 Claims

1. A gravity feed shelf comprising a substantially rigid sup-

port frame which is forwardly and downwardly inclined, front and rear support surfaces formed on the front and rear portions of said frame respectively, an intermediate support surface forming a part of said frame and disposed between said front and rear support surfaces and in substantial coincidence with an imaginary straight line interconnecting said front and rear support surfaces, an elongated chute mounted on said support frame with its ends in contact with said front and rear support



surfaces so that a row of articles disposed on said chute is automatically fed in the direction of inclination of said support frame upon removal of the leading article in the row, said chute being formed of semi-rigid yieldable material and being upwardly bowed somewhat in the absence of said row of articles and being substantially flat and with a part intermediate its ends in contact with said intermediate support surface when loaded.

4,314,649

STACKABLE PALLET COLLAR

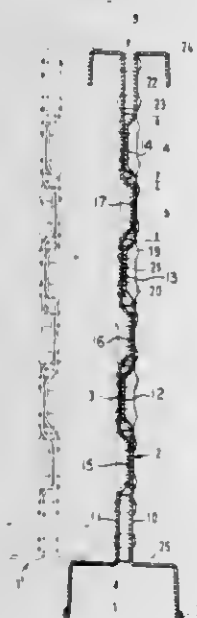
Berthold Blomqvist, Växjövägen, S-360 30 Lammhult, Sweden
Filed May 9, 1980, Ser. No. 148,242

Claims priority, application Fed. Rep. of Germany, May 10, 1979, 7913519[U]

Int. Cl.³ B65D 21/02, 6/22

U.S. Cl. 220—4 F

7 Claims



1. A stackable metallic pallet collar wherein the collar consists of four side sections arranged in opposite pairs joined by means of hinged joints so that they can be folded together to closed position, the side sections of each pair being of equal length and hinged at their ends to the side sections of the other pair to form a hollow rectangular frame when unfolded to open position, said hollow rectangular frame being capable of

being stacked upon a frame formed by a like pallet collar, the side sections of each pair being a body of sheet metal having pressed-out portions providing a plurality of continuous longitudinal ribs in each side section spaced parallel to one another, and arranged and dimensioned in such a way that the longitudinal ribs of two adjacent side sections which are connected by a common hinged joint are staggered so that the ribs nest within one another in pairs when the side sections are folded together around said common hinged joint, said individual longitudinal ribs extending the entire length of the side sections from hinge to hinge, and including diagonal lateral flanks which level out into a base area running parallel to the plane of the side section body, the width of the longitudinal ribs inclusive the lateral flanks corresponding to the width of the area which is located between the longitudinal ribs, the upper and lower edges of said side sections being bent at right angles to the body and having means to enable the lower edge of the side sections of one pallet collar engage the upper edge of the side section of a like pallet collar in a tight fit.

4,314,650

PACKAGE COMPRISING A CREAMY CONFECTIONERY PRODUCT

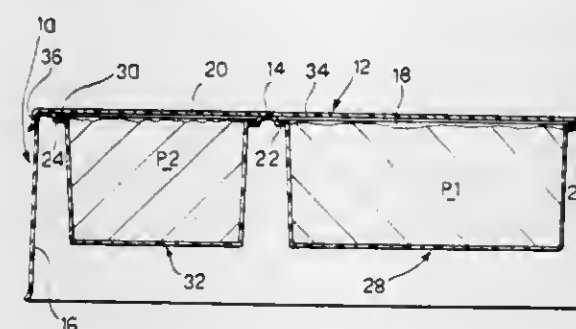
Renzo Cillario, Corso Fratelli Bandiera 3, Alba (Cuneo), Italy
Filed Sep. 26, 1980, Ser. No. 191,205

Claims priority, application Italy, Oct. 25, 1979, 53683/79[U]

Int. Cl.³ B65D 1/38; A47G 19/00

U.S. Cl. 220—23.83

1 Claim



1. A food package comprising a base member having a flat horizontal circular wall having a plurality of apertures therein and a cylindrical supporting skirt depending from the circumference of said wall to support the latter in elevated relation with respect to a plane surface upon which the package may be placed, said apertured wall including a plurality of relatively small, circular apertures equally spaced in a circle about one relatively large centrally located aperture, a relatively large cup adapted to contain a food product being removably inserted into the large aperture and a plurality of relatively small cups adapted to contain related food products for use with the food product in said large cup being removably inserted into the respective small apertures, each of said cups having an external flange surrounding the mouth of said cup and an annular recess in said flat wall surrounding each of said apertures and having a depth substantially equal to the thickness of said flange whereby each cup disposed in an aperture is supported by its flange located in a respective annular recess and the flanges of the cups are flush with the horizontal circular wall of the base and further comprising a lid including a planar circular disc portion superimposed on and in contact with said horizontal circular wall of said base and the top of the flanges of each cup, and the lid further including a flanged circumferential relatively short skirt portion depending from said disc portion in frictional engagement with the upper circumferential portion of the skirt of said base the lower end of the skirt being flared outwardly whereby said lid removably covers the cups supported in each of said recess and isolates the contents of each cup from each other when the lid is installed and the package is moved from a horizontal position.

4,314,651

FLEXIBLE PLASTIC CLOSURE MECHANISM AND CONTAINER

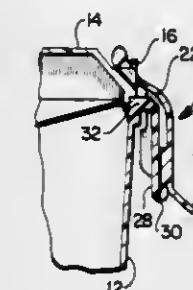
William R. Gaiser; E. Bryant Crutchfield, both of Dayton, and Harold D. Bartley, Springfield, all of Ohio, assignors to The Mead Corporation, Dayton, Ohio

Filed Oct. 31, 1980, Ser. No. 202,850

Int. Cl.³ B65D 45/16

U.S. Cl. 220—326

10 Claims



1. A lockable plastic closure mechanism comprising a first leaf including means adapted to engage a protrusion on a container cover, a second leaf connected to said first leaf by a first flexible axially extending web portion of reduced thickness, and a third leaf one edge of which is adapted to be secured to a container wall and the opposite edge of which is connected to said second leaf by a second flexible axially extending web portion of reduced thickness.

4,314,652

MULTI-COMPONENT PACKAGE DISPENSING METHOD

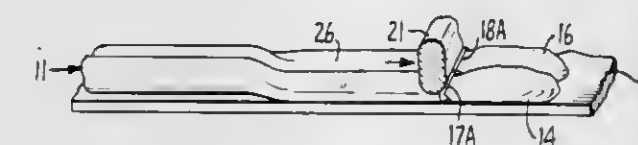
Douglas E. Cooper, 3065 Argonaut, Rocklin, Calif. 95677

Filed Nov. 30, 1979, Ser. No. 98,863

Int. Cl.³ B65D 35/22

U.S. Cl. 222—1

2 Claims



1. The method of mixing and applying proportionate amounts of viscous components of a polymerizable adhesive, comprising the steps of

forming parallel tubes of non-resilient deformable material, with said tubes having substantially uniform and proportionate areas along their lengths, placing one of said components in each of said tubes, sealing the ends of said tubes to provide a protective package to keep said components separated and from contact with the atmosphere, severing the sealed ends of said tubes from one end of said package, simultaneously squeezing said tubes flat from a point a measured distance from said last named end of said package so as to express measured proportional quantities of said components from said last named end of said package while at the same time flattening said tubes over said distance,

depositing said proportional quantities of said components on a work surface as they are expressed from said package, mixing said components together on said work surface utilizing said flattened end of said package from which said components were expelled, and retaining a layer of the mixed components on the flattened ends of said tubes for further sealing in of their contents.

4,314,653

MULTIPLE AUTOMATIC METERING DEVICE

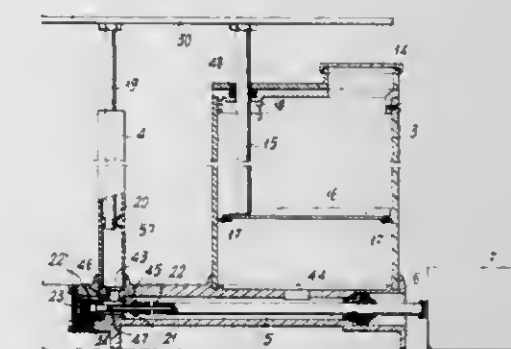
Giuseppe Sindoni, Via Muratori 29, Milan, Italy

Filed Nov. 28, 1979, Ser. No. 98,030

Int. Cl.³ G01F 11/14; B01F 3/00

U.S. Cl. 222—41

10 Claims



1. A multiple automatic metering device particularly suitable for metering and admixing paints, wherein there are provided a series of units each of which comprises a container and a metering head connected between each other by a communication chamber having therein interception means displaceable into one of two positions and a discharge conduit toward a single central collecting container, in each container and in each metering head there being provided stems operated by a single plate capable of reciprocating movement, acting simultaneously on all units, said stems being connected to mixing blades for the containers and to sealing gaskets for the metering heads, so that for one position of said interception means there is a flow of the product to be dosed from the container to the metering head and vice versa under the action of the plate capable of reciprocating movement and that for the other position of interception the metering means discharge directly through the discharge conduit, there being obstructed the communication toward the container.

4,314,654

BULK LIQUID CONTAINER HAVING A PIVOTABLE TAP

Rene J. Gaubert, 4219 Oakmore Rd., Oakland, Calif. 94602

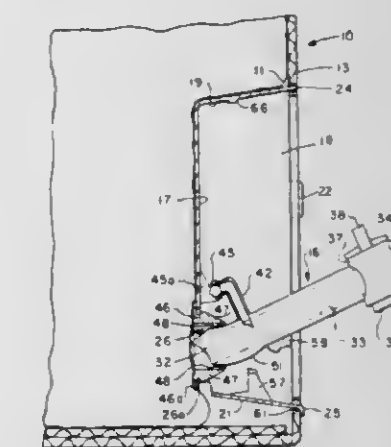
Continuation-in-part of Ser. No. 116,475, Jan. 29, 1980,

abandoned. This application May 5, 1980, Ser. No. 146,762

Int. Cl.³ B67B 7/26

U.S. Cl. 222—83

17 Claims



1. A dispensing assembly unit for use with a carton having a flexible plastic lining pouch, the pouch having a fitting bonded to one wall of the same, the fitting having an opening there-through and a sealing membrane normally closing the opening, the membrane when disrupted permitting discharge of liquid within the pouch, the assembly unit comprising means forming a separate housing, a dispensing tap normally accommodated within the housing, means for attaching the housing to one side wall of the carton near the bottom of the same with the interior

of the housing being accessible from the exterior of the carton, the dispensing tap having a portion at one end of the same formed to pierce the sealing membrane when forced against the same and having a dispensing valve at the other end of the tap, the tap also having a flow passage for conveying liquid from said one end to the valve, and means for attaching the tap to said housing for swinging movement of the tap between a normal position in which it is accommodated within the housing to a dispensing position in which said one end of the tap is disposed within the opening of the pouch fitting and within the housing to thereby pierce the sealing membrane and the valve disposed exterior of the housing and carton.

4,314,655

SEALING MEMBER FOR A DEVICE FOR MELTING SOLID ADHESIVE MATERIAL

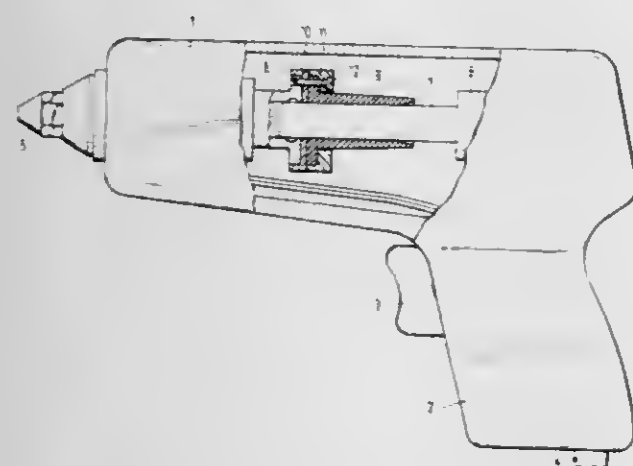
Erich Leibhard; Erwin Schiefer, both of Munich, and Peter Stirnweiss, Maisach, all of Fed. Rep. of Germany, assignors to Hilti Aktiengesellschaft, Schaan, Liechtenstein
Filed Oct. 12, 1979, Ser. No. 84,103

Claims priority, application Fed. Rep. of Germany, Oct. 16, 1978, 2844932

Int. Cl.³ B67D 5/62

U.S. Cl. 222-146 HE

5 Claims



1. Device for melting a body of a solid thermoplastic adhesive material, and for providing for the dosed discharge of the molten material comprising a housing, a melting chamber located with and spaced inwardly from said housing, said melting chamber having an inlet end through which the adhesive material is supplied into said melting chamber, an annular gasket located at the inlet end of said melting chamber for effecting a seal around the adhesive material as it is fed into the melting chamber so that the molten material cannot leak out of the inlet end of said melting chamber, the interior of said gasket being shaped and sized to provide sealed contact with the surface of the solid body of adhesive material, wherein the improvement comprises that said annular gasket is an axially elongated, tubular member aligned with and extending axially away from the inlet end of said melting chamber, said tubular member forming an elongated bore communicating directly into said melting chamber so that the body of thermoplastic adhesive material extends continuously from said gasket into said melting chamber an insulator ring positioned between and completely separating the inlet end of said melting chamber and said gasket, the opening in said ring forming a continuation of the bore in said gasket into said melting chamber, said insulator ring is formed of a thermostable poor heat conducting material for limiting the passage of heat from said melting chamber to said gasket, means in contact with said insulating ring for fixing said gasket to said inlet end of said melting chamber and said means is formed of a material for preventing a thermal bridge between said melting chamber and said annular gasket and including a screw member extending through said means in contact with insulating ring, said gasket, said

insulator ring and said melting chamber for securing said gasket to said melting chamber.

4,314,656

CHILDPROOF PUSH-PULL CONTAINER CLOSURE

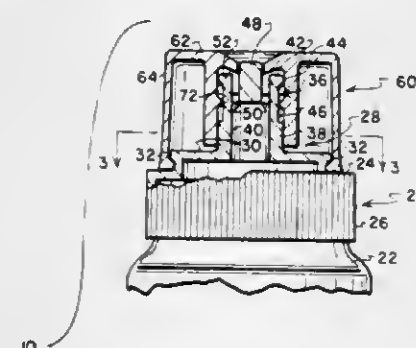
Milton Kessler, 6690 Harrington Ave., Youngstown, Ohio 44512

Filed Nov. 1, 1979, Ser. No. 90,467

Int. Cl.³ B67D 5/32

U.S. Cl. 222-153

18 Claims



1. A protective closure for a container, the closure including a cap adapted to be displaced relative to the container to selectively permit or prevent the discharge of container contents from the container, cap displacement being permitted only in response to a deliberate distortion of the cap under the influence of forces greater than that which a child is capable of generating and/or in response to a sequence of cap movements which a child cannot accomplish, comprising:

- (a) a body portion extending from the container, the body portion having an opening through which container contents may be discharged from the container;
- (b) a protective cap, the cap adapted to be secured to the body portion to seal the opening in the body portion when so secured, the cap including a top wall and a skirt depending from the top wall, at the periphery of the top wall, the cap being movable with respect to the body portion;
- (c) connecting means included as part of the body portion and the cap for permitting movement of the cap into and out of a sealing position atop the body portion, the connecting means being shielded from view by the cap, the connecting means including:
 - (i) a first locking portion carried by the body portion, the first locking portion extending from the body portion toward the skirt when the cap is in a container-closed position, the first locking portion including spaced recesses located near the periphery of the body portion, the recesses being radially outwardly directed; and,
 - (ii) a second locking portion included as part of the cap, the second locking portion being located near the lower inner periphery of the skirt and including an annular, radially inwardly directed flange, the flange having a diametric extent such that a mechanical, interlocking fit with the recesses exists when the cap is in a container-closed position atop the body portion and the skirt must be acted upon in a deliberate manner to move the flange and recesses out of engagement with each other; and,
- (d) the cap is formed of a relatively rigid, relatively friction-free material, the skirt being distortable under the influence of radially inwardly directed forces applied to the skirt at locations spaced 180 degrees from each other, whereby the flange will be moved outwardly with respect to the recesses to disengage the flange and recesses and thereby permit displacement of the cap to a container-open position.

4,314,657

MEASURING DISPENSER

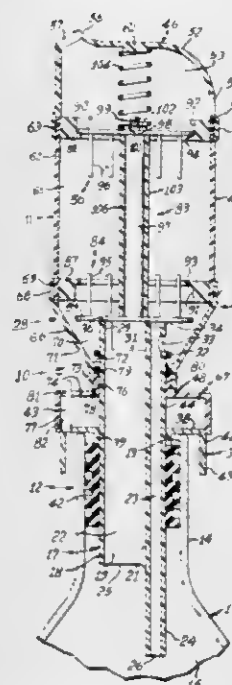
Mike Perakis, 1740 N. Atlantic Ave., Daytona, Fla. 32018, and Henry J. DeBenedictis, Ormond Beach, FL, assignors to Mike Perakis, Daytona Beach, Fla.

Filed Jun. 30, 1980, Ser. No. 164,595

Int. Cl.³ G01F 11/28

U.S. Cl. 222-162

21 Claims



1. In a liquid measuring dispenser: a fixed assembly having a tube with a top portion and a bottom portion; abutment means on said top portion of said tube; external guide means on said tube spaced below said abutment means; attaching means secured and sealed to said tube between said top and bottom portions and immediately adjacent said external guide means adapted for securing and sealing said fixed assembly to a storage container with said tube extending through a pouring opening to locate said bottom portion in the storage container; air passage means and liquid passage means, each having an axial portion extending axially through said tube and a lateral portion extending between said abutment means and said external guide means respectively at the upper side and the lower side in inverted pouring position; a slidable assembly including a container with inlet and outlet ends having a central measuring chamber, a pouring chamber at said outlet end, and a connecting chamber at said inlet end surrounding said lateral portions of said air and liquid passage means in said tube; said container having a pouring hole at its lower side and an external air hole at said upper side connected to said pouring chamber; internal guide means secured and sealed to said container at said inlet end and axially slidably mounted on and sealed to said external guide means to mount said slidable assembly for limited axial sliding movement on and relative to said fixed assembly and a manual operator member attached to said container at said inlet end and projecting laterally outward for manually sliding said slidable assembly relative to said fixed assembly from a normal position toward said bottom portion of said tube to a dispensing position; valve means including an inlet valve between said connecting and measuring chambers and an outlet valve between said measuring and pouring chambers; said inlet valve and outlet valve respectively having an inlet seal and an outlet seal mounted and sealed on the inside of said container at the oppositely located inlet and outlet openings of said measuring chamber and an inlet disc and an outlet disc; rod and guide means connecting said inlet and outlet discs and maintaining alignment for seating with said respective inlet and outlet seals forming a disc assembly and spring means compressed between said container and disc assembly and coaxing with said rod and guide means to maintain said discs in fixed spaced relation with said disc assembly normally abutting said abutment means to provide reaction for raising said slidable assembly away from said bottom end of said tube to normal position, closing said outlet valve and opening said

inlet valve, to fill said measuring chamber when in inverted pouring position and on manually moving said manual operator member and slidable assembly toward said bottom end against the bias of said spring means to dispensing position closing said inlet valve and opening said outlet valve to pour a measured quantity of liquid when in inverted pouring position.

4,314,658

VISCOUS PRODUCT DISPENSING SQUEEZE BOTTLE HAVING A SELF-VENTING AUTOMATIC SHUT-OFF VALVE

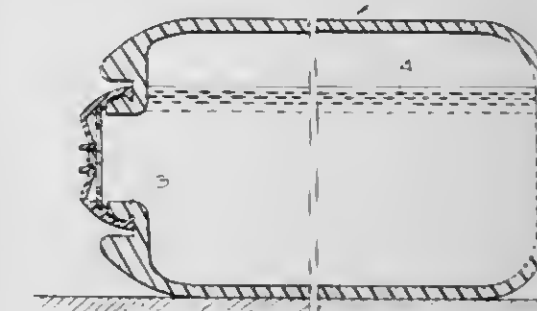
Robert H. Laauwe, 237 Green Ridge Rd., Franklin Lakes, N.J. 07417

Filed Jan. 30, 1980, Ser. No. 116,853

Int. Cl.³ B05B 11/04

U.S. Cl. 222-213

3 Claims



1. A viscous product dispensing package comprising a squeeze bottle made of elastic material and containing the viscous product, said bottle having a mouth provided with a dispensing valve that is elastically biased normally closed and opened by the pressure of said product when the product is displaced to the valve by squeezing and at least partially collapsing the bottle so as to dispense at least a portion of the product through the valve, elastic return of the bottle to its uncollapsed condition after said squeezing requiring the venting of air into the bottle to replace said portion of the product, said valve having at least one permanently open passage extending from the outside of the bottle to its inside and having a flow area related to the viscosities of air and said product so as to permit air to be sucked therethrough to permit said elastic return to the bottle and block gravitational flow of said product through the passage, said valve having a rigidly positioned rigid valve head having a periphery, and an elastically flexible diaphragm having a central opening with a periphery normally pressed on said periphery of the valve head by the elasticity of the diaphragm when the valve is in its normally closed condition, said passage being formed through said rigid valve head and the valve head having an outside exposed substantially directly to the ambient air outside of said valve.

4,314,659

ROTARY VALVE

Earl P. Shapland, Sarasota, Fla., assignor to Flo-Con Systems, Inc., Champaign, Ill.

Continuation of Ser. No. 916,467, Jun. 19, 1978, abandoned.

This application Jul. 7, 1980, Ser. No. 166,589

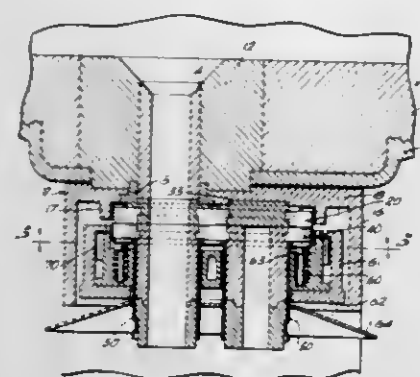
Int. Cl.³ B22D 41/08

U.S. Cl. 222-590

34 Claims

13. A top plate for a rotary gate valve comprising, in combination, a metallic housing for containing the ceramic pieces, a formed ceramic plate having a centrally disposed semi-circular section for retaining a further ceramic member, perforate ceramic member for insertion between said semi-circular sections, said insertion member being a pouring member having a central aperture like teeming opening.

a mechanical interlock means for securing said pouring member between the ceramic plates, each of said ceramic plates being identical in configuration,



whereby a single plate member can be employed with a variety of pouring members selected from the appropriate ceramic for the intended pour.

4,314,660

METHOD FOR THE MANUFACTURE OF AXIAL SEALING RINGS

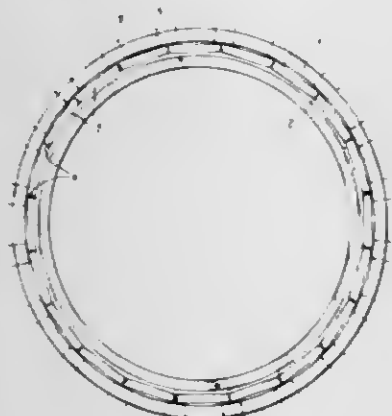
Teunis Visser, Slidrecht, Netherlands, assignor to IHC Holland N.V., Papendrecht, Netherlands

Filed Dec. 20, 1979, Ser. No. 105,529

Int. Cl.³ B23K 1/08

U.S. Cl. 228—140

1 Claim



1. Method for the manufacture of axial sealing rings from hard-metal blocks, said blocks being disposed in an annular groove of a carrier and being mutually secured and mounted therein by means of a solder, characterized in that in a bath filled with liquid solder, provided in the groove, the blocks are pressed against each other with their radial end faces in the direction of the circumference of the groove by means of radial clamp bolts before the solder sets.

4,314,661

HOMOGENEOUS, DUCTILE BRAZING FOILS

Nicholas J. DeCristofaro, Chatham, N.J., and Peter Sexton, Weston, Conn., assignors to Allied Corporation, Morristown, N.J.

Division of Ser. No. 68,266, Aug. 20, 1979, which is a continuation-in-part of Ser. No. 8,370, Feb. 1, 1979, abandoned, which is a continuation-in-part of Ser. No. 912,667, Jun. 5, 1978, Pat. No. 4,148,973, which is a continuation of Ser. No. 751,000, Dec. 15, 1976, abandoned. This application Apr. 9, 1981, Ser. No. 252,673

Int. Cl.³ B23K 35/30

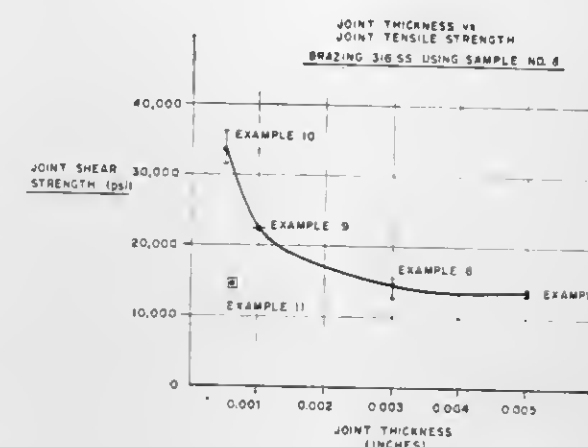
U.S. Cl. 228—263 R

3 Claims

1. An improved process for joining together two or more metal parts which comprises:

(a) interposing a filler metal between the metal parts to form

an assembly, the filler metal having a melting temperature less than that of any of the metal parts;
(b) heating the assembly to at least the melting temperature of the filler metal; and
(c) cooling the assembly, wherein the improvement comprises employing at least one homogeneous, ductile filler metal foil having a composition consisting essentially of about 0 to about 4 atom percent iron, 0 to about 21 atom



percent chromium, 0 to about 19 atom percent boron, 0 to about 12 atom percent silicon, 0 to about 22 atom percent phosphorous and the balance essentially nickel and incidental impurities, wherein the composition is such that the total of iron, chromium and nickel ranges from about 76 to 84 atom percent and the total of boron, phosphorous and silicon ranges from about 16 to 24 percent, said foil having a thickness less than about 0.0025 inch.

4,314,662

SWINGING TYPE ROTORS OF CENTRIFUGAL MACHINES

Tadahiro Uchida, Tokyo, Japan, assignor to Kabushiki Kaisha Kubota Seisakusho, Tokyo, Japan

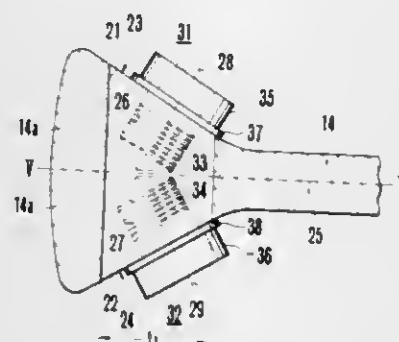
Filed Sep. 22, 1980, Ser. No. 189,178

Claims priority, application Japan, Dec. 31, 1979, 54-183043

Int. Cl.³ B04B 9/12

U.S. Cl. 233—26

6 Claims



1. A swinging type rotor of a centrifugal machine comprising a plurality of radial arms equally spaced apart in the circumferential direction, each arm being provided with a through opening near an outer end thereof, said through opening extending at a right angle with respect to a longitudinal axis of said arm and to an axis of rotation of said rotor; a holding shaft fitted into said through opening, said through opening having a noncircular cross-sectional shape so as to prevent rotation of said holding shaft relative to said arm, opposite end surfaces of said holding shaft inclining away from said longitudinal axis of said arm; and a pair of trunnion pins threaded into said opposite end surfaces to hang buckets, and the directions of screw threads of said trunnion pins being selected such that threadings of said trunnion pins are tightened when said buckets are swung under centrifugal force to cause said trunnion pins to rotate.

4,314,663 SWINGING TYPE ROTORS OF CENTRIFUGAL MACHINES

Yoshiichi Ouchi, Tokyo, Japan, assignor to Kabushiki Kaisha Kubota Seisakusho, Tokyo, Japan

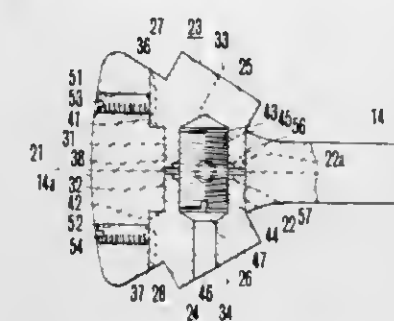
Filed Sep. 22, 1980, Ser. No. 189,179

Claims priority, application Japan, Dec. 31, 1979, 54-183045

Int. Cl.³ B04B 9/12

U.S. Cl. 233—26

4 Claims



1. A swinging type rotor of a centrifugal machine comprising a plurality of radial arms equally spaced apart in the circumferential direction, each arm being provided with a through opening near an outer end thereof, said through opening extending at right angles with respect to a longitudinal axis of said arm and to an axis of rotation of said rotor; a pair of trunnion pins inserted into opposite ends of said through opening, said trunnion pins having cylindrical portions inclining towards said longitudinal axis of said arm and adapted to hang buckets and having flanges eccentric with respect to said through opening, portions of said trunnion pins inserted into said through openings having cylindrical openings provided with oppositely directed screw threads; a threaded pin mating with the screw threads of said trunnion pins; at least one of said trunnion pins being provided with a tool inserting opening reaching one end of said threaded pin for inserting a tool for rotating the same; and the directions of said screw threads of said trunnion pins and those of said threaded pin being selected such that when the buckets are swung above said trunnion pins under centrifugal force threadings of said trunnion pins are tightened.

4,314,664

THERMOSTAT ASSEMBLY

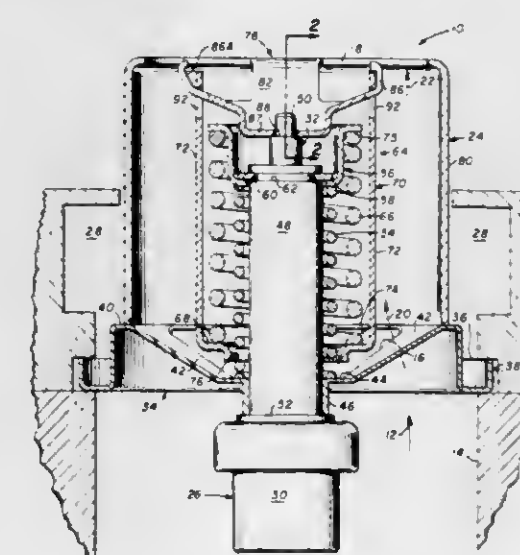
Thomas W. Wisyanski, c/o Century Brass Products, Inc., 59 Mill St., Waterbury, Conn. 06720

Filed Dec. 19, 1979, Ser. No. 105,235

Int. Cl.³ G05D 23/12

U.S. Cl. 236—34.5

8 Claims



1. A fluid thermostat comprising a fixed annular valve seat, a hollow open-ended shell movable toward and away from the valve seat and serving as a valve member for metering fluid flow between the shell and valve seat, the shell including a tubular sidewall and a web formed on one end of the sidewall,

a thermally responsive actuator including a longitudinally extending piston guide, an axially reciprocable piston supported for movement in the piston guide and movable in a first direction for driving the shell in a corresponding direction away from the valve seat in response to fluid temperature increase, and a return spring assembly urging the shell in the opposite direction toward the valve seat, the return spring assembly including a bracket having a generally U shaped profile with spaced arms and an interconnecting annular base in symmetrical surrounding relation to the piston guide, and a return spring coaxially coiled about the piston guide with one end of the spring seated in fixed relation to the piston guide and the opposite end of the spring seated on the annular base of the bracket, the web of the shell having a center hub disposed between the bracket arms and coaxially supported on the piston in driving engagement therewith, the web center hub having a pair of diametrically opposed locking hooks, each of the bracket arms having a hook receiving opening in an end of the arm opposite the annular base of the bracket, the locking hooks of the web center hub extending through the openings of the bracket arms and being respectively reversely bent toward the other hook in engaged locking relation with their respective arms and connecting the return spring to the shell for effecting transfer of return spring load directly to the shell.

7. A fluid thermostat comprising a fixed annular valve seat, a hollow open-ended shell movable toward and away from the valve seat and serving as a valve member for metering fluid flow between the shell and valve seat, the shell including a tubular sidewall and web formed on one end of the sidewall, a thermally responsive actuator including an axially reciprocable piston, the actuator including a longitudinally extending piston guide supporting the piston for movement in the guide, the piston being movable in a first direction for driving the shell in a corresponding direction away from the valve seat in response to fluid temperature increase, and a return spring assembly urging the shell in the opposite direction toward the valve seat, the return spring assembly including a bracket having a generally U shaped profile with spaced arms and an interconnecting annular base in symmetrical surrounding relation to the piston guide and a return spring coaxially coiled about the piston guide, one end of the spring being seated in fixed relation to the piston guide and the opposite end of the spring being seated on the annular base of the bracket which serves as a return spring seat, the ends of the bracket arms opposite the annular base being directly connected to the web of the shell in fixed assembly therewith.

4,314,665

ELECTRONIC THERMOSTAT

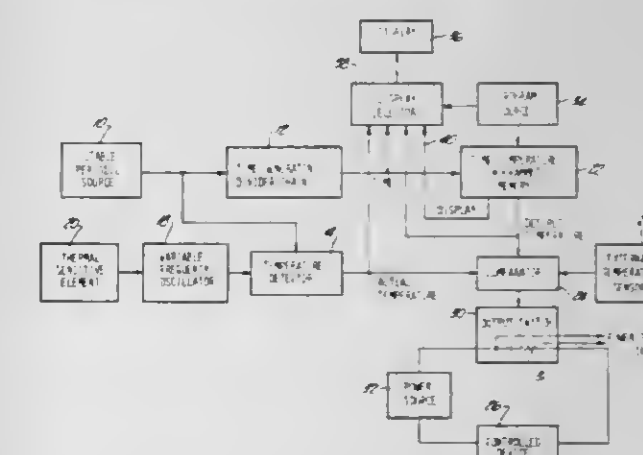
Michael R. Levine, 3605 Frederick Dr., Ann Arbor, Mich. 48105

Continuation of Ser. No. 778,376, Mar. 17, 1977, Pat. No. 4,206,872. This application Jan. 28, 1980, Ser. No. 116,064

Int. Cl.³ F23N 5/20

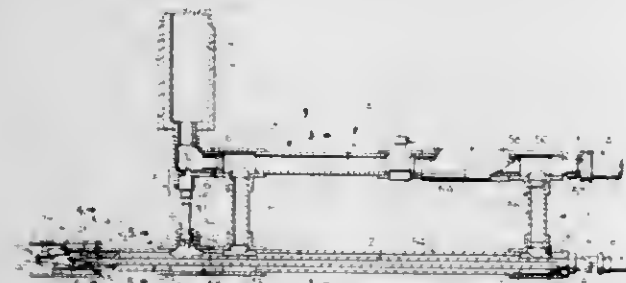
U.S. Cl. 236—46 R

14 Claims



1. A thermostat for controlling the application of electrical

- inches in diameter disposed concentrically of said passageway, said nozzle means having a tapered bore communicating with the passageway at the outlet end thereof and with surfaces thereof converging to said restricted orifice;
- (c) means to connect said inlet end to a pressurized water supply source and having a flow control means therein;
- (d) an elongate tube mounted concentrically in said passageway and spaced inwardly thereof whereby the water flow passageway is between the tube and body member, said tube having an air flow passageway therein with an inlet end and an outlet end;
- (e) said water flow passageway having a cross-sectional area in the nature of one to three times the cross-sectional area of the air flow passageway;
- (f) means to connect said tube inlet end to a pressurized air



supply source delivering a pressure of 50 to 125 pounds per square inch and having a flow control means therein; and

- (g) an air nozzle means at said outlet end of said tube and having a restricted air discharge orifice in the nature of 0.060 to 0.080 inches in diameter, said air nozzle means having a tapered bore communicating with said air flow passageway with surfaces thereof converging toward the air discharge orifice, said air nozzle means having the respective discharge orifice spaced longitudinally upstream from said first discharge orifice in the nature of 0.900 to 1.375 inches and a tapered outer surface spaced inwardly from the surfaces of the tapered bore of said first nozzle means defining a venturi with air from the air nozzle mixing with and impelling water and air from the restricted discharge orifice of said first nozzle means.

4,314,672

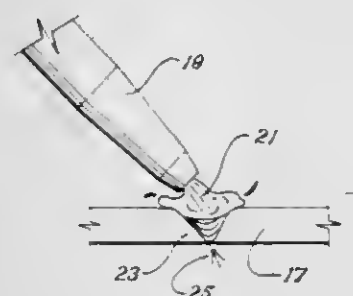
BEVELING TIP

Tommy J. Madewell, Argyle, and Ben F. Jezek, Jr., Tioga, both of Tex., assignors to Victor Equipment Co., Denton, Tex. Continuation of Ser. No. 57,401, Jul. 13, 1979, abandoned. This application Sep. 22, 1980, Ser. No. 189,340

Int. Cl.³ B05B 7/06

U.S. Cl. 239—424

3 Claims



1. A cutting torch tip for cutting torch for beveling steel cuts comprising:

- a. an inner piece having a plurality of grooves spaced equally around the periphery of its effluent end and extending toward its other end a sufficient distance to terminate in a chamber to which an admixture of preheat fuel and oxygen are supplied in operation; said inner piece having a plurality of longitudinally extending apertures for supplying the preheat fuel and oxygen; said inner piece being conformingly fitted at each end interiorly of an outer

shell; said inner piece having a centrally disposed cutting oxygen passageway penetrating longitudinally therethrough; said cutting oxygen passageway having a diameter dco; said inner piece terminating in a squared effluent end and having its other end conformingly coengaging a longitudinally inner end of an outer shell and adapted to be sealingly received within the cutting torch;

- b. an outer shell having a generally tubular configuration with an outer frusto conical section toward its effluent end, having its other end coengaging said other end of said inner piece and adapted to be sealingly received within said cutting torch; said outer shell having a chamber passageway larger in diameter than said inner piece therealong so as to define an outer annular said chamber for fuel and oxygen for preheating; said outer shell having a second passageway conformably receiving said first end of said inner piece and said grooves so as to define preheat apertures; said outer shell extending beyond the effluent end of said inner piece so as to define an effluent chamber and having an effluent aperture having an exit diameter de smaller than the upstream diameter du of said effluent chamber; said outer shell having a portion defining said effluent chamber including a first section at a first angle and defining a diameter du and having at least one frusto conical section converging radially inwardly toward said effluent aperture at a second angle greater than said first angle, said angles being measured with respect to longitudinal axis of said outer shell and being in the range of 0°-30°, inclusive, and making the transition from said effluent chamber diameter du to said effluent diameter de; said effluent chamber having a length L no greater than the effluent chamber diameter du; such that operationally said tip produces a bulbous flame that will satisfactorily smoothly cut steel at a bevel angle within the range of 45°-90° with respect to the perpendicular line at the line of beveling.

4,314,673

MIXING FAUCET VALVE WITH DIVERTER AND STOP CHECK SYSTEM

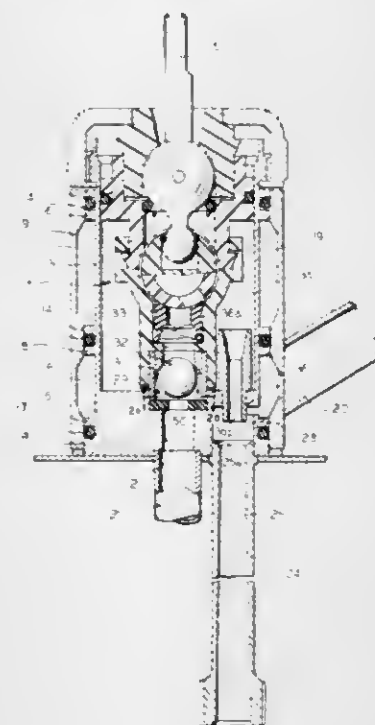
John Rudelick, Milwaukee, Wis., assignor to Universal-Rundle Corporation, New Castle, Pa.

Filed May 23, 1980, Ser. No. 152,880

Int. Cl.³ F16K 19/00

U.S. Cl. 239—443

6 Claims



1. An anti-syphoning mixing faucet valve comprising, an outer casing having an outlet communicating with a spout, a generally cylindrical body portion having a bottom wall defin-

ing a valve chamber and a discrete auxiliary chamber, said auxiliary chamber having a discharge opening communicating with said spout, said bottom wall having a pair of inlet passages each adapted to be connected to a liquid supply line, a check valve received in each of said inlet passages and adapted to close opposite to the direction of normal flow through said passages, a control valve received in said valve chamber and having a pair of inlet passages each communicating with a respective one of said bottom wall inlet passages, a nozzle in said body portion providing communication between said valve chamber and said auxiliary chamber, a Venturi tube communicating with said auxiliary chamber and having its mouth proximately spaced below and in substantial coaxial registration with said nozzle, a spray head having a manually operable valve connected to said Venturi tube and the flow from said nozzle passing directly into said Venturi tube and to said spray head when said manually operable valve is opened.

4,314,674

PROCESS FOR SEPARATING THE PAPER FROM THE PLASTIC EXISTING IN THE URBAN SOLID WASTE

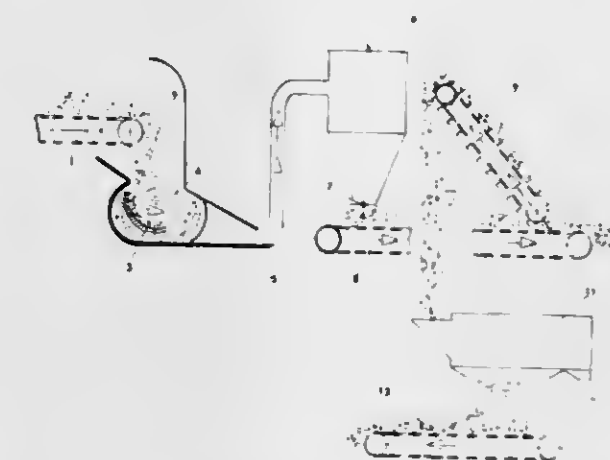
Manlio Cerroni, Via Bruxelles, 53 Roma, Italy

Continuation of Ser. No. 52,457, Jun. 27, 1979, abandoned. This application Nov. 12, 1980, Ser. No. 205,897

Claims priority, application Italy, Jul. 10, 1978, 50220 A/78 Int. Cl.³ B02C 19/12

U.S. Cl. 241—14

3 Claims



1. A substantially dry process for separating a waste mixture comprising relatively large size pieces of paper and plastic film into its primary components for recycle, said process comprising the steps of:

- tritulating said mixture under conditions wherein the paper component is reduced to small particles while the plastic film remains substantially unchanged in size so as to provide differentially tritulated waste;
- subjecting the differentially tritulated waste to a combing separation to recover the paper and plastic film as generally separate components; and
- subjecting the recovered plastic film component to a screening separation to recover a substantially small paper particle-free plastic film component and a substantially plastic film-free small paper particle component.

4,314,675

GRAIN BIN DISCHARGE GUARD

Rodney Grossman, New Paris, Ind., assignor to Brock Manufacturing, Inc., Milford, Ind.

Filed Jan. 7, 1980, Ser. No. 110,327

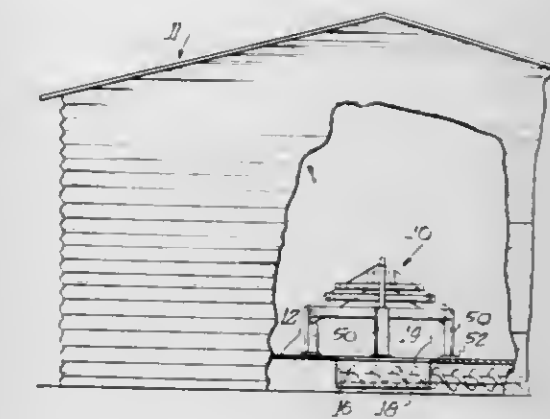
Int. Cl.³ B02C 18/00

U.S. Cl. 241—95

19 Claims

1. A guard apparatus for the discharge opening of a grain bin to preclude blockage of said opening by compacted grain or the like comprising: knife means including a plurality of knife units, each said knife unit defining a closed perimeter, and said knife units being concentrically arranged with respect to each other, each knife unit having a plurality of spaced apart blades

adapted to be disposed over said discharge opening, said blades extending substantially perpendicularly to said discharge open-



ing and having grain engaging cutting edges for cutting and breaking up compacted grain over said discharge opening to enable free flow of grain through said opening.

4,314,676

CRUSHING AND PULVERIZING APPARATUS

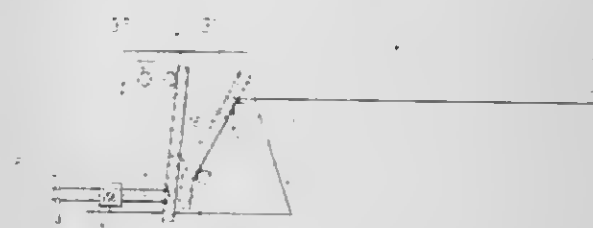
Torry F. MacLean, P.O. Box 512, Trona, Calif. 93562

Filed Jan. 21, 1980, Ser. No. 114,119

Int. Cl.³ B02C 1/04

U.S. Cl. 241—169

10 Claims



1. Crushing and pulverizing apparatus including a base portion, a jaw portion and a force applying portion; said base portion including a pair of generally vertically disposed, spaced base members, said jaw portion being disposed between said base members of said base portion, said jaw portion including a fixed jaw member and a movable jaw member extending between said base members of said base portion, said fixed jaw member being fixed with respect to said base members, said fixed jaw member including a lower first section and an upper second section extending upwardly therefrom, said upper second section having a vertical dimension substantially larger than the vertical dimension of said lower first section, said lower first section being disposed at a slight angle to the vertical and said upper second section extending upwardly therefrom at an angle to the vertical substantially greater than the angle of said first section, said movable jaw member of said jaw portion being disposed adjacent said fixed jaw member, said movable jaw member being disposed at a slight angle to the vertical approximating that of the lower first section of said fixed jaw member, the lower section of said movable jaw member being disposed adjacent to the lower first section of said fixed jaw member, said lower section of said movable jaw member engaging means for adjusting the spacing between the lower sections of said movable jaw member and said fixed jaw member, said adjusting means being disposed between said base members and pivotally connected thereto, said force applying portion including a handle member disposed adjacent the upper sections of said base members and pivotally connected thereto, said handle member extending from said pivotal connection a substantial distance beyond said base portion, said movable jaw member being pivotally connected to said handle member adjacent the upper section of said movable jaw member, said pivotal connection between said movable jaw member and said handle member being spaced from said pivotal connection between said handle member and said base

members, whereby movement of said handle member downwardly toward a horizontal position provides a crushing action between the upper sections of said movable and fixed jaw members and movement of said handle member upwardly toward a horizontal position provides a pulverizing action between the lower sections of said movable and fixed jaw members.

4,314,677

JOURNAL AND END CLOSURE FOR TUBULAR VESSELS

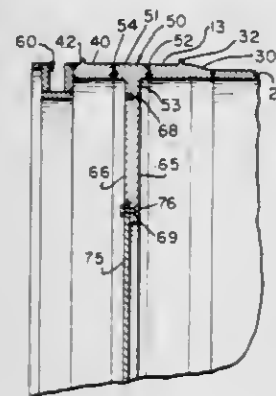
Bal K. Sareen, Northampton, Pa., assignor to Fuller Company, Bethlehem, Pa.

Filed Jun. 9, 1980, Ser. No. 158,025

Int. Cl.³ B02C 17/18; B65D 8/08

U.S. Cl. 241—176

10 Claims



1. A tubular article of manufacture designed to be rotated about its own axis comprising:
a first, hollow, open ended cylindrical member;
a second, hollow, open ended cylindrical member;
a hollow, open ended ring member secured by welding to said first and second cylindrical members intermediate and coaxially aligned with said first and second cylindrical members;
said ring member having a projection extending circumferentially around its inside; and
an annular plate secured by welding to the projection of said ring member;
said projection having a length sufficiently long to permit the welded junction of said ring member and said annular plate to be positioned away from the area of highest cyclical hoop stress and radial stress when the rotary tubular article is rotated about its own axis.

4,314,678

APPARATUS FOR ROTATABLY SUPPORTING DEFORMABLE TUBULAR ROLLER BASE MEANS

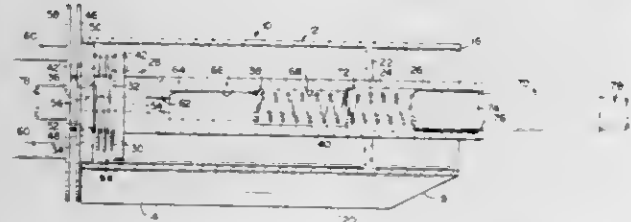
Lewis E. Upchurch, 204 S. Venus Ave., Clearwater, Fla. 33515

Filed Jun. 12, 1980, Ser. No. 147,935

Int. Cl.³ B65H 19/00

U.S. Cl. 242—55.2

9 Claims



1. An assembly for rotatably supporting deformable tubular roller means of differing diameters, comprising,
a spindle means of generally tubular configuration and having a diameter less than the diameter of said tubular roller means,
a plurality of at least two circumferentially spaced fin members projecting radially from said spindle means, said fin

means extending at least a major portion of the length of said spindle means,
each of said fin means tapered downwardly at one end thereof so that said tubular roller means can be easily slidably inserted on said spindle means attendant deformation of said roller means if the inner diameter of said roller means is less than the diameter of an imaginary circle defined collectively by the outer edges of said circumferentially spaced fin means,
an internal spring return mechanism for urging said fin-carrying spindle and hence said roller means into an equilibrium position when an external force is applied to said roller means to impart rotation thereto,
said mechanism comprising an end plate means synchronously rotatable with said spindle means,
said mechanism further comprising a longitudinally disposed first bias means having opposed first and second ends, said first end of said first bias means anchored to said end plate means,
said second end of said first bias means anchored to a non-rotating means so that rotation of said deformable roller means and hence of said spindle means and hence of said end plate means operates to load said first bias means to the end that said first bias means returns said spindle to its equilibrium position when said external force effecting rotation of said spindle is removed.

4,314,679

ROLL HOLDER AND DISPENSER

Dennis J. Paul, and Lloyd J. Speedy, both of Devonport, New Zealand

Filed Oct. 9, 1979, Ser. No. 83,153

Claims priority, application New Zealand, Oct. 12, 1979, 188643

Int. Cl.³ B65H 19/04

U.S. Cl. 242—55.3

1 Claim



1. A roll holder and dispenser comprising:
(a) a container having a first aperture through which a roll can be inserted into said container and having a second smaller aperture through which a web of roll material can be withdrawn wherein;
(b) said first aperture comprising the back side of said container, an inward retaining flange on said back side to retain the roll inside said container, hinging means on one side of said container to allow said container to be hinged to a wall allowing said container to swing away from the wall to expose said first aperture and to allow said container to swing back into the wall to block said first aperture, a locking means to keep said container in the closed position;
(c) a roll impeding means for impeding the passage of a roll within said container towards the second aperture; and
(d) a roll releasing means whereby a roll can be pushed

towards the second aperture against the urging of said impeding means.

4,314,680

INERTIA RESPONSIVE ACTUATING DEVICE FOR SAFETY BELT RETRACTORS

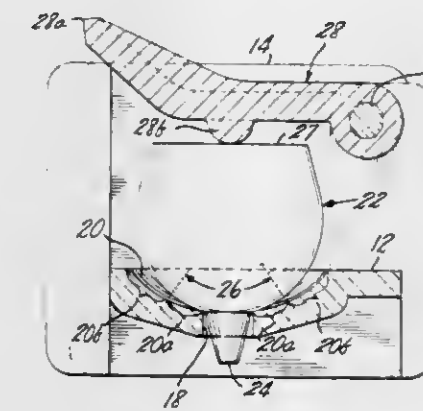
Juichiro Takada, 3-12-1, Shinmachi, Setagayaku, Tokyo, Japan

Filed Jun. 20, 1980, Ser. No. 161,224

Int. Cl.³ A62B 35/02; B65H 75/48

U.S. Cl. 242—107.4 A

9 Claims



1. In inertia responsive actuating device for safety belt retractors comprising a support having a substantially circular hole and an upwardly facing surface of revolution about the axis of the hole surrounding the hole and sloping upwardly in all directions from the hole, an inertia mass supported on the support and having a locating projection received in the hole and a spherical surface surrounding the projection and adapted to roll up the upwardly facing surface of the support in any direction in response to an inertial force on the mass, an actuator having a portion that engages an upwardly facing surface on the mass and is displaceable generally upwardly in response to rolling motion of the mass, and coaxing cam and cam follower means on the upper surface of the mass and said portion of the actuator for vertically displacing said portion of the actuator by an amount substantially greater than the vertical displacement of the mass itself when it rolls up the upwardly facing surface of the support.

4,314,681

DRAG-REDUCING COMPONENT

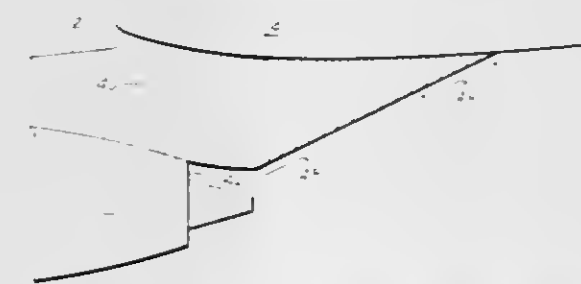
John T. Kutney, Cincinnati, Ohio, assignor to General Electric Company, Cincinnati, Ohio

Filed Aug. 31, 1979, Ser. No. 71,524

Int. Cl.³ B64D 27/00; B64C 21/10

U.S. Cl. 244—54

8 Claims



1. In an aircraft of the type having a wing-mounted gas turbine engine attached to a pylon that extends downward and forward of said wing, said pylon presenting an essentially narrow and aerodynamic forward profile with broad outwardly curved inboard and outboard surfaces forming tapered forward and aft ends on said pylon, an improvement comprising:
a modified nonaxisymmetric pylon contour, wherein the inboard surface of said pylon is provided with a broadly curved outward fairing added to existing pylon contour for the purpose of preventing surrounding ambient air-

flow from attaining supersonic velocities during subsonic aircraft flight conditions, and
wherein said fairing is positioned upon an aft region of said pylon from approximately a mid-span position on the pylon to a trailing edge of the pylon.

4,314,682

DEPLOYABLE SHIELD

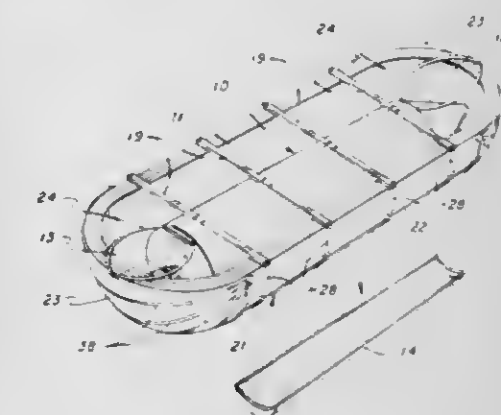
Burton Barnett, Rossmore; Martin R. Kinsler, Los Angeles, and Lyle A. Nelson, Tarzana, all of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Filed Feb. 24, 1969, Ser. No. 802,306

Int. Cl.³ B64G 1/22, 1/52

U.S. Cl. 244—158 R

9 Claims



1. A combination comprising:
a space vehicle, and
a deployable shield at least partly surrounding said space vehicle, said shield comprising:
a plurality of curved ribs collectively defining an outside periphery of said shield, said ribs being temporarily deformable from a first deployed position spaced apart from said space vehicle to a second stowed position adjacent said space vehicle;
a plurality of flexible sheets connected to said ribs and spaced between said ribs and said space vehicle;
a plurality of springs tangentially mounted on said space vehicle and having an end of a rib connected to an end of each spring, said springs being temporarily elastically deformable from a first deployed position extending outwardly from said space vehicle to a second stowed position lying along a cylindrical surface of said space vehicle, said springs being pivotally connected to said space vehicle at a common pivot for deploying in the manner of a folding fan;
the ribs connected to said portion of springs having ends opposite to the ends connected to said springs pivotally mounted at a common pivot for deploying with said springs to form a surface having compound curvature;
a plurality of arcuate ribs interconnected at each end at a pair of common pivots, said arcuate ribs being elastically deformable from a stowed position adjacent the space vehicle to an intermediate position spaced apart from the space vehicle in a compact bundle, and pivotable from the intermediate position to a deployed position with the ends of the ribs contiguous at the pivots and the midpoints of the ribs mutually spaced apart for defining an outside periphery having compound curvature; and
a loop connected to said space vehicle and to an intermediate portion of one of said ribs, said loop being movable for pivoting said one rib from the intermediate position to the deployed position.

4,314,683

GUTTER HANGER

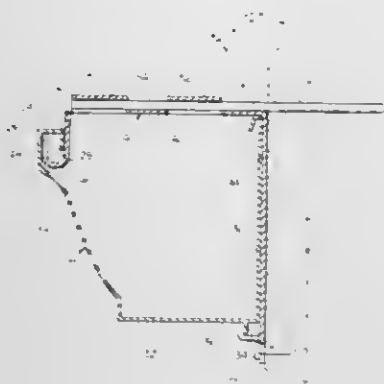
Joseph M. Cuning, Cohasset, Mass., assignor to Bird & Son, Inc., East Walpole, Mass.

Filed Apr. 7, 1980, Ser. No. 137,563

Int. Cl.³ E04D 13/06

U.S. Cl. 248—48.2

3 Claims



1. A gutter hanger for attachment to the wood fascia of a building for supporting a horizontal, generally U-shaped gutter having a front wall with an inwardly and downwardly turned flange providing an open bottom recess extending continuously along its horizontal upper edge, a horizontally extending, generally straight vertical rear wall and a bottom wall having a downwardly projecting, horizontal flange extending continuously therealong adjacent said rear wall

said gutter hanger comprising

a rigid, one piece, generally L-shaped bracket of sheet material of greater horizontal width than thickness having integrally connected, mutually perpendicular, upper forwardly extending and rear downwardly extending legs said upper forwardly extending bracket leg being adapted to extend in a horizontal plane across the top of said gutter and having on its forward end a downwardly, forwardly and upwardly turned flange having an upwardly turned, horizontal, free end adapted to be positioned within the open bottom recess on the horizontal upper edge of the front wall of said gutter to support said upper edge of said gutter from beneath, and

said rear downwardly extending bracket leg being adapted to be located between said fascia and the rear wall of said gutter parallel thereto with the lower end of said downwardly extending leg extending downwardly beyond said rear wall of said gutter, said downwardly extending bracket leg having on its lower end forwardly and upwardly turned horizontal flange means adapted to be positioned beneath and in front of said downwardly projecting bottom wall flange to support said gutter from beneath with its rear wall parallel to said fascia

said bracket legs cooperating to support said gutter for horizontal adjustment relatively thereto in a direction parallel to said fascia

said upper forwardly extending bracket leg having integral support ferrule means extending upwardly therefrom defining a single open-bottomed extended nail receiving opening means having an axis extending therealong from a location adjacent its free end to a location adjacent said rear downwardly extending bracket leg for slideable receiving a single nail above portions of said upper forwardly extending bracket leg and above said gutter for free driving of said nail into said fascia to support said gutter hanger thereon, while allowing rotational adjustment of said gutter hanger around said nail for alignment of said gutter hanger with the gutter supported thereby.

4,314,684

SANITARY GLASS HOLDER

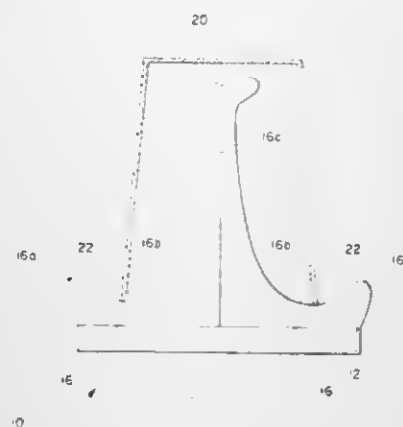
Henry F. Bergdolt, 1200 Watergate Ct., Raleigh, N.C. 27609

Filed Sep. 13, 1979, Ser. No. 75,101

Int. Cl.³ A47G 23/02

U.S. Cl. 248—146

6 Claims



1. A sanitary glass holder for supporting a glass in an upside down position where air can freely reach the interior thereof, comprising: a base structure extending around a defined area; at least three support legs having upper support edges and extending inwardly in a radial fashion from said base structure generally towards a central area of said defined area, said support legs being generally equally spaced apart about said base structure and form a resting and support surface about the upper edges thereof for supporting the lip of a glass disposed thereon in an upside down orientation; said support legs, interiorly of the resting and support surface, extending upwardly to form an integral elevated knock off protector that generally prohibits the glass from being inadvertently knocked from the glass holder; and said base structure and said legs cooperating to define an open area between the lip of a glass supported in an upside down orientation thereon and said base structure for allowing air to circulate into and through the interior of said upside down supported glass.

4,314,685

DEVICE FOR MOUNTING A SHELF ON A COLUMN

Erich Schwan, Wecholder Str. 136, D-2800 Bremen 61, Fed. Rep. of Germany

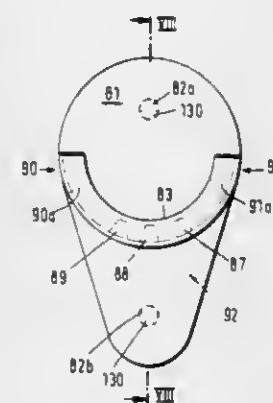
Filed May 16, 1979, Ser. No. 39,519

Claims priority, application Fed. Rep. of Germany, May 17, 1978, 2821470

Int. Cl.³ A47B 57/04, 57/20, 57/24

U.S. Cl. 248—242

12 Claims



1. Device for the detachable anchoring of a merchandise deposit base on a column, which has recesses, of an indoor furnishing system having a connection plate, which carries on the back side fastening elements engaging in the recesses and is provided on the front side with a pan-shaped support device open toward the top, and having a carrier disk with a circular outline for the merchandise deposit base which can be inserted

in the support device at a selectable slant around its longitudinal axis relative to the horizontal and is secured by locking means, characterized by the fact that the carrier disk is a circular disk and that the locking means consists of at least one projection on the support device and of several recesses on the periphery of the carrier disk each of proper size for selectively receiving said projection.

4,314,686

FOLD-FLAT

Helmut März, Haydnweg 3, 7141 Beilstein, Fed. Rep. of Germany

Filed Aug. 27, 1979, Ser. No. 70,046

Claims priority, application Fed. Rep. of Germany, Aug. 28, 1978, 2837430

Int. Cl.³ B65D 19/12

U.S. Cl. 248—346

11 Claims



1. A fold-flat for supporting goods to be transported, comprising a floor plate; two end walls, said end walls being arranged to be folded when the fold-flat is transported in empty state or to be mounted in upright position when the fold-flat is loaded; and means for locking said end walls in the upright position, said locking means including at least one wedge, a lever having a first arm and a second arm connected to said first arm, and an axle mounted on said floor plate and extending substantially horizontally and through said lever in the region of connection of said first and second arms thereof, each of said walls being formed with at least one slot, said wedge being pivotable about said first arm and said lever being pivotable about said axle to move said wedge between a closed position in which said wedge is locked within said slot and an open position in which said wedge is out of register with said slot whereby said end walls can be locked in the upright position and braced relative to each other.

4,314,687

SOUND ISOLATING DEVICE FOR SUSPENDING PLUMBING PIPES

Daniel D. Logsdon, Fullerton, Calif., assignor to The Logsdon Foundation, Stanton, Calif.

Filed May 9, 1980, Ser. No. 148,390

Int. Cl.³ F16M 13/00

U.S. Cl. 248—610

12 Claims

1. A device for suspending a pipe holding component or pipe elbow from a support and retarding sound propagation between said component or elbow and said support which comprises:

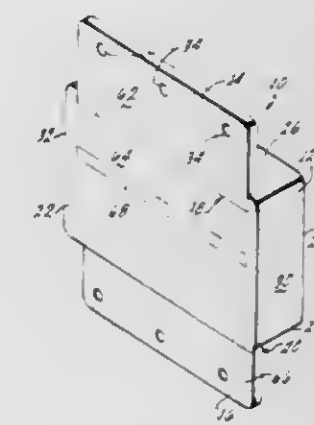
a first member, at least a portion of which is essentially planar, said planar portion including a support attaching

means capable of being utilized in attaching said first member to said support;

a second member, at least a portion of which is essentially planar, said planar portion including a component or elbow attaching means capable of being utilized in attaching said component or elbow to said support;

a semi-resilient body essentially incapable of transmitting sound from a first location in said body to a second location in said body;

connecting means capable of fixedly connecting said first member at said first location in said body and said second member at said second location in said body and locating said first and second members with respect to one another such that said planar portion of said first member and said



planar portion of said second member are essentially parallel with each other but are not coplanar with each other; said first member includes a mounting portion, said mounting portion and said planar portion forming a unified structure, said connecting means connecting said mounting portion of said first member to said body;

said second member includes a mounting portion, said mounting portion and said planar portion forming a unified structure, said connecting means connecting said mounting portion of said second member to said body; said connecting means includes said body having a first cavity and a second cavity, said mounting portion of said first member fitting within said first cavity and said mounting portion of said second member fitting with said second cavity.

4,314,688

GATE VALVE

A. Louis Leman, Jr., Magnolia, Tex., assignor to Southwest Oilfield Products, Inc., Houston, Tex.

Filed Sep. 4, 1979, Ser. No. 71,996

Int. Cl.³ F16K 25/00

U.S. Cl. 251—191

10 Claims

1. An improved gate valve comprising

A. valve housing,

B. means defining aligned inlet and outlet passages in said housing,

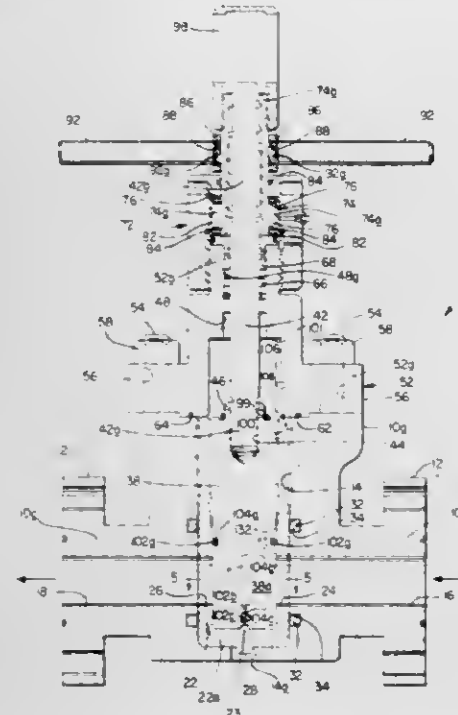
C. means defining a well intercepting the inlet and outlet passages, said well being closed at one end and open at its opposite end,

D. a piston-type gate slidably positioned in the well, said gate being slidable between an open position wherein it is positioned away from the closed end of the third passage and does not intercept the inlet and outlet passages to a closed position wherein the gate seats against the closed end of the third passage and blocks said passages,

E. first seal means extending around the perimeter of the gate above said inlet and outlet passages to prevent fluid flow from the inlet passage past one end of the gate adjacent the open end of the well,

F. second seal means extending lengthwise along the gate at opposite sides thereof, said second seal means extending from the first seal means to the other end of the gate opposite the closed end of the well, said second seal means

defining a plane which separates the inlet and outlet passages in the housing so as to prevent fluid flow from the inlet passage around the perimeter of the gate,
 G. means defining a slot in said other end of the gate and extending between the free ends of the second seal means,
 H. third seal means positioned in the slot and having its opposite ends connected to the free ends of the second seal means,



- I. a raised key projecting out from the closed end of the well toward the gate, said key being in register with the gate slot and substantially coextensive with the third seal means so that when the gate is moved to its fully closed position after having intercepted the inlet and outlet passages, the third seal means is compressed against the key preventing fluid flow from the inlet passage past said other gate end, and
- J. means for moving the gate between its open and closed positions.

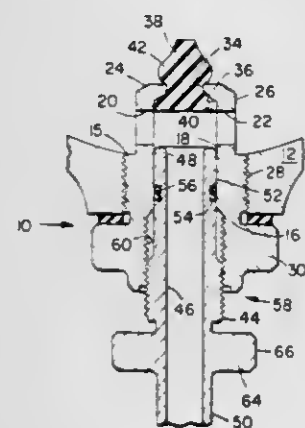
4,314,689 DRAIN VALVE

Michael E. Wilson, Modesto, Calif., assignor to Racor Industries, Inc., Modesto, Calif.

Filed Dec. 19, 1979, Ser. No. 105,095
 Int. Cl.³ F16K 31/58

U.S. Cl. 251—351

1 Claim



1. A drain valve adapted for insertion into a port of a source of fluid to be drained comprising:
 a substantially cylindrical body having:
 (4) a groove defined about the external surface of said plug between said one end of said plug and said external thread;
 a seal means for preventing contamination of said internal

thread of said body and said external thread of said plug, said seal means disposed in said groove, wherein said seal means moves with said plug between and without contacting said drain port, and said internal thread of said body as said plug is actuated selectively to a drain port closing position and to a drain port opening position.

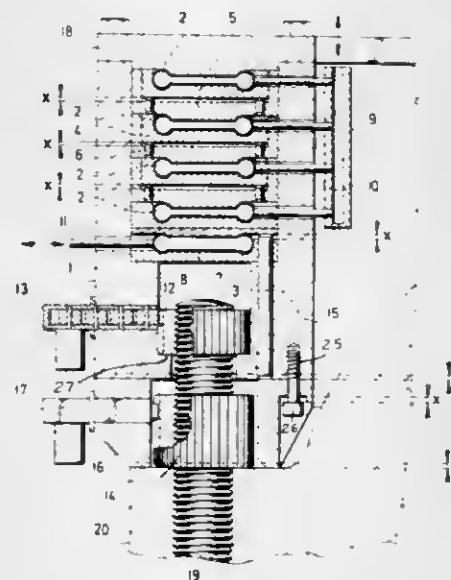
4,314,690 HYDRAULIC APPARATUS FOR THE GENERATION OF LARGE TENSILE FORCES

Jan Mlynarik, Josef Novak, and Jiri Gregor, all of Plzen, Czechoslovakia, assignors to Skoda, oborovny podnik, Plzeň, Plzen, Czechoslovakia

Filed Oct. 31, 1979, Ser. No. 89,898
 Claims priority, application Czechoslovakia, Oct. 31, 1978, 7083-78

Int. Cl.³ B23P 11/02; E21B 19/00
 U.S. Cl. 254—29 A

4 Claims



1. A hydraulic apparatus for the generation of large tensile forces, comprising a housing having a cavity therein, a plurality of expansible, compressive force generating units disposed in the cavity of the housing in stacked relationship, each of said units comprising an expansible power cell having spaced first and second diaphragms connected by a circumferential edge closure so as to present a closed space therewithin, a first plate engaging the first diaphragm of the power cell, a second plate engaging the second diaphragm of the power cell, the second plates of the successive units being disposed parallel and spaced from each other in said stack of units, first plungers disposed between the successive second plates of the units to transfer compressive forces therebetween, a support, means to connect an elongated member to be subjected to tension to said support with a portion of said member projecting from the support, means presenting a flange on the outwardly projecting portion of the member, means on the housing engaging the axially inward circumferential surface of said flange on the member, a plurality of second plungers slidably disposed in the housing in alignment with the stack of power units, said second plungers exerting compressive forces from the second plate of the power unit disposed nearest said support upon the support, and means for subjecting the spaces within the cells of the units to fluid pressure, whereby to subject the housing and the support to a force which urges them apart and subjects the elongated member to tension.

4,314,691 JACK

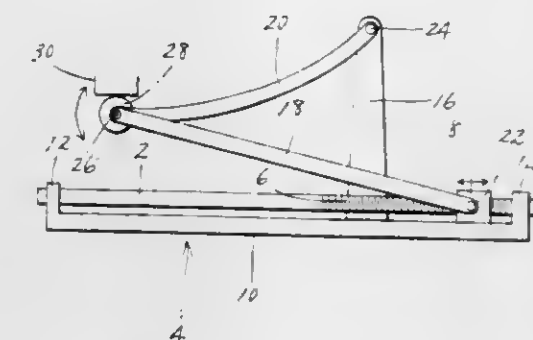
Shichiro Sato, 172-14, Shimooichihigashimachi, Nishinomiya, Hyogo, Japan

Filed May 7, 1980, Ser. No. 147,638

Claims priority, application Japan, May 18, 1979, 54-61178
 Int. Cl.³ B66F 3/00

U.S. Cl. 254—126

8 Claims



1. A jack for lifting an object comprising:
 a member movable in one direction relative to the object;
 a lift member to engage the object and movable generally perpendicular to said one direction between extended and retracted positions in response to movement of said member;
 first and second links for moving said lift member, said first link being pivotally connected at one end to said member, and said second link being pivotally connected at one end to the other end of said first link and at the other end to a fixed point above said first link, said first and second links forming an angle between them which is maintained substantially constant throughout the range of movement of said lift member.

first and second links for moving said lift member, said first link being pivotally connected at one end to said member, and said second link being pivotally connected at one end to the other end of said first link and at the other end to a fixed point above said first link, said first and second links forming an angle between them which is maintained substantially constant throughout the range of movement of said lift member.

4,314,692

ELECTRIC MOTOR-DRIVEN ROPE PULL HOIST FOR MOTOR VEHICLE DOORS

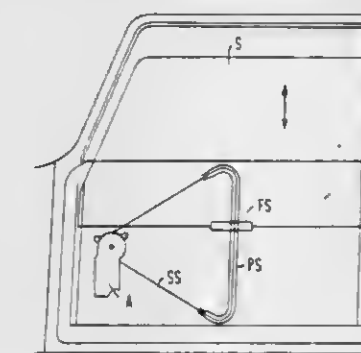
Gerhard Brauer, Oberbiel; Peter Adam, Höchberg, and Werner Seuffert, Bergrheinfeld, all of Fed. Rep. of Germany, assignors to Küster & Co. GmbH, Ehringhausen and Siemens Aktiengesellschaft, Munich, both of, Fed. Rep. of Germany

Filed Sep. 4, 1979, Ser. No. 72,311

Claims priority, application Fed. Rep. of Germany, Sep. 5, 1978, 2838678

Int. Cl.³ B66D 1/12; E05F 11/48
 U.S. Cl. 254—362

22 Claims



1. In a rope pull hoist, useful for operating motor vehicle doors, windows, and sliding roofs, and driven by a permanent magnet motor having a flat housing, the motor having a shaft extending into a gear box and carrying a worm, a worm gear driven by the worm and coupled to a rope drum for engaging a closed rope loop, the improvement comprising:
 the motor comprising a rotor mounted in an axially oriented, magnetically nonconductive frame along with at least one permanent magnet;
 pole plates for the motor being in close contact with either

side of the frame and serving as flat housing halves, the housing so formed having a given thickness;
 the worm wheel and the rope drum coupled to it being rotatably mounted on a shaft in the gear box; and
 the gear box having a thickness less than the given thickness of the electric motor housing.

4,314,693

DEVICE FOR ARBORIST CONTRACTORS

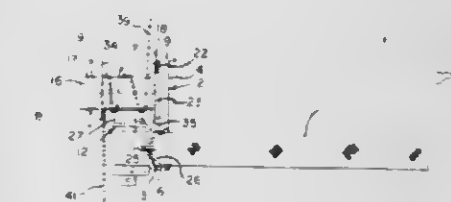
Edwin L. Hobbs, P.O. Box 295, Moraga, Calif. 94556

Filed Jun. 13, 1980, Ser. No. 159,103

Int. Cl.³ B66D 3/00

U.S. Cl. 254—376

4 Claims



1. A load handling device for arborists attachable temporarily to a tree trunk for lowering tree limbs and main stems on a rope comprising:

- a. a base having a cross member and a vertical member including an elongated leg protruding from said cross member adapted for frictional engagement with said tree trunk;
- b. a cylindrical member mounted on said vertical member above said elongated leg and positioned with its longitudinal axis generally at right angles to said base; and adapted for receiving one or more turns of said rope for selectively holding said rope and for providing sliding frictional engagement therewith;
- c. an upper flange connected to said vertical member above said cylindrical member protruding from said base a distance greater than said leg and adapted for resting against said tree trunk so as to tilt said longitudinal axis of said cylindrical member at an angle below a horizontal plane;
- d. an elongated flexible member connected to said cross member and adapted for encircling said tree trunk; and
- e. cinch means mounted on said cross member for engaging said elongated member for securely holding said elongated member and said device to said tree.

4,314,694

METHOD FOR CONTROLLING EXHAUST GASES IN OXYGEN BLOWN CONVERTER

Yuziro Ueda; Toru Yoshida, both of Sakai, and Michiyasu Honda, Chihayaakasaka, all of Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Continuation of Ser. No. 752,288, Dec. 20, 1976, Pat. No.

4,192,486. This application Nov. 8, 1979, Ser. No. 92,361

Int. Cl.³ C21B 7/22

U.S. Cl. 266—44

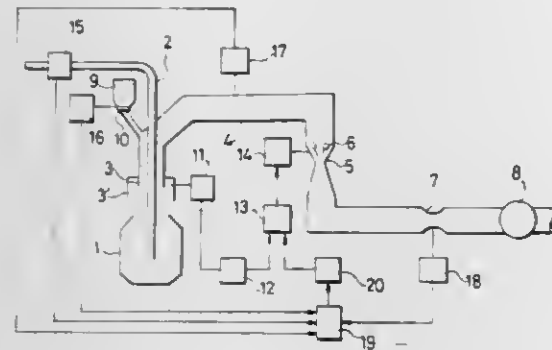
1 Claim

1. A method of recovering combustible gases exhausted during the operation of an oxygen blown converter, comprising the steps of:

- (a) detecting a pressure differential between the hood of the converter and atmospheric pressure, comparing the detected pressure differential with a predetermined safe pressure differential to provide a steady-state exhaust gas damper control signal which maintains said safe pressure

differential using the actual generated gases in the converter;

- (b) detecting the quantity of oxygen fed to the converter, the quantity of raw material charged to the converter, the composition of the exhaust gases and the flow rate of the exhaust gases to provide a modified exhaust gas damper control signal which maintains said safe pressure differential based upon the expected generated gases in the converter;



- (c) selecting said modified exhaust gas damper control signal during ingredient modification to the converter, and selecting said steady-state exhaust gas damper control signal during steady-state operation; and
- (d) adjusting the exhaust damper in the converter using the selected control signal, so as to reduce the loss of combustible gases.

4,314,695

COOLING ELEMENTS FOR FURNACES

Colin F. Widmer, Middlesbrough, England, assignor to James Brown & Sons, Middlesbrough, England

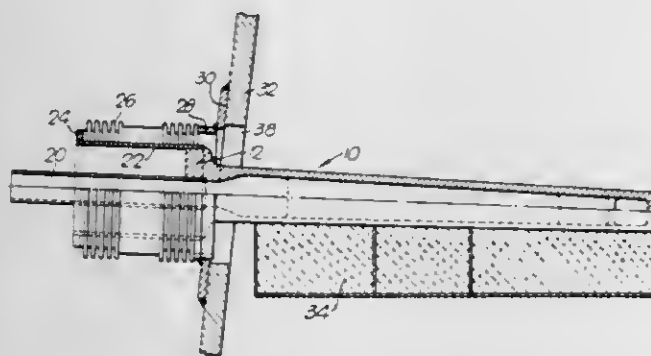
Filed Jan. 7, 1980, Ser. No. 110,225

Claims priority, application United Kingdom, Jan. 17, 1979, 01721/79

Int. Cl.³ F27B 1/24

U.S. Cl. 266—194

8 Claims



1. A cooling element for a furnace with a refractory lining comprising a body adapted to be inserted through a hole in the wall of said furnace and to lie within the refractory lining, said element having at least one projecting portion extending from said furnace and embodying at least two conduits, for passage of coolant to said body, an outwardly extending collar at the end of said projecting portion, a bellows surrounding said projecting portion and having a rear and a forward end, the rear end of said bellows being attached to said collar and the forward end of said bellows being adapted for attachment to the wall of said furnace.

4,314,696

PAPER CURRENCY TRANSPORT CONSTRUCTION

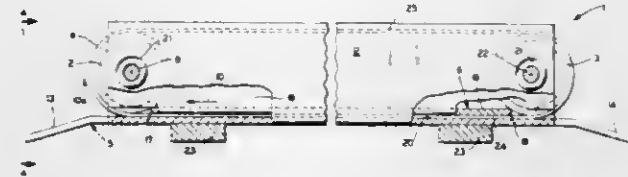
Harry T. Graef, Dover, Ohio, assignor to Diebold, Incorporated, Canton, Ohio

Filed Nov. 15, 1979, Ser. No. 94,151

Int. Cl.³ B65H 5/02

U.S. Cl. 271—275

13 Claims



1. Transport mechanism for conveying paper money bills from place to place in automatic banking equipment currency dispensers including:

- (a) a pair of spaced belt conveyor rolls having longitudinal axes,
- (b) a flat longitudinally and laterally continuous endless rubber belt looped and tensioned around said conveyor rolls and having inner and outer surfaces,
- (c) means operatively connected with at least one of said rolls to rotate such one roll to move the belt,
- (d) a rigid flat platen,
- (e) a rigid flat backup plate spaced from and parallel with said platen,
- (f) said platen and backup plate extending between the rolls and being wider than the belt and also being parallel with the axes of said spaced rolls,
- (g) the surfaces of said spaced platen and backup plate facing each other which define the space therebetween each having a low friction characteristic,
- (h) one flight of the belt being located in the space between the platen and backup plate with the low friction backup plate surface engaging the inner belt surface and the low friction platen surface engaging the outer belt surface, and
- (i) said one flight of the belt being movable between the rolls pressed by the backup plate against the platen substantially throughout the space between the rolls.

4,314,697

PHYSICAL EXERCISING DEVICE

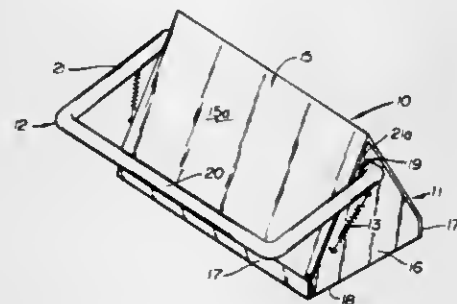
Maxine L. Brumfield, and Jesse E. Brumfield, both of 654 Miner Ave., Columbus, Ohio 43223

Filed Feb. 19, 1980, Ser. No. 122,598

Int. Cl.³ A63B 21/04

U.S. Cl. 272—136

13 Claims



1. A physical exercising device comprising a base unit of elongated, wedge-shaped configuration having a generally triangular cross-section, said base unit including two upwardly inclined body supporting surfaces converging at an apex a predetermined distance above a bottom adapted to rest on a supporting surface, and an exercise bar pivotably mounted on said base unit for swinging movement about a horizontal pivot axis extending longitudinally of said base unit, said exercise bar including a gripping portion extending longitudinally of said base unit and supported at a predetermined distance with

respect to the horizontal pivot axis of said bar and to a body supporting surface of said base unit to permit swinging of said bar from one body supporting surface to the other of said base unit over the apex thereof in an arc about said pivot axis such that said gripping portion will contactingly engage with the uppermost surface portions of a person's leg adjacent the ankles when a person's legs are extended over the base unit with the knees disposed at approximately the apex thereof.

4,314,699

GAME RACQUET

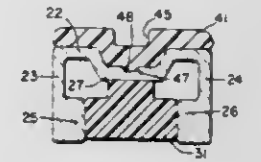
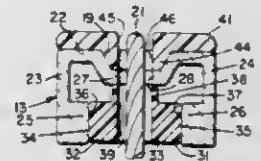
Raymond M. Bayer, San Diego, Calif., and Robert E. Rodgers, Houston, Tex., assignors to Leach Industries, San Diego, Calif.

Filed Jan. 28, 1980, Ser. No. 116,213

Int. Cl.³ A63B 49/12

U.S. Cl. 273—73 D

4 Claims



4,314,698

ACTION SEQUENCING GAME

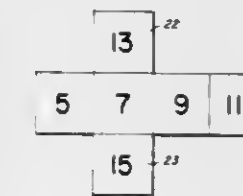
Diva Van Dolah, 318 N. Winthrop Cir., Mesa, Ariz. 85203

Filed Mar. 20, 1980, Ser. No. 132,189

Int. Cl.³ A63F 9/00

U.S. Cl. 273—1 R

5 Claims



1. A method for playing a game with two or more players each of whom has a playing piece having a plurality of surfaces, upon each of which surfaces sensibly appear at least a different one member of a recognizable sequential pattern, at least alternate members of said recognizable sequential pattern being omitted, comprising the steps of:

- (a) issuing a playing piece to each player;
- (b) vocalizing said recognizable sequential pattern by all players as each player passes a playing piece to an adjacent player as each member of the sequential pattern is vocalized;
- (c) hesitating in the passage of said playing piece as the member of said sequential pattern sensibly appearing on a designated surface of said playing piece is reached in the vocalization of said sequential pattern whereby the piece is not released to the adjacent player but is returned to the passing player as the next member of said sequential pattern is vocalized, the piece being actually passed to the adjacent player upon vocalization of the next following selected member of said sequential pattern;
- (d) repeating the sequence of steps (b) and (c) while each player silently vocalizes said recognizable sequential pattern;
- (e) designating a new surface of said playing piece indicative of another member of said sequential pattern as sensibly appears on said newly designated surface and thereby designating a new member of said sequential pattern at which the hesitating movement set forth in step (c) shall be initiated;
- (f) repeating steps (b) through (e) until all-but-one surface of said playing pieces has been designated and the play advanced to a final repetition of step (d); and
- (g) designating the remaining surface of said playing piece to indicate end of play.

4,314,700

CARD COUNTING PREVENTION APPARATUS FOR BLACKJACK

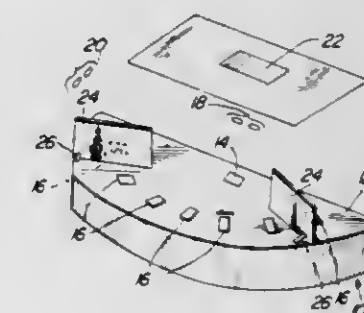
Kenneth C. Dylag, 705 W. 65th St., Westmont, Ill. 60559

Filed Oct. 3, 1980, Ser. No. 193,419

Int. Cl.³ A63F 1/06

U.S. Cl. 273—148 R

26 Claims



1. Apparatus for preventing card-counting in blackjack played at a blackjack card table comprising a table, a dealer

station on one side of said table having a dealer vantage point above and behind said dealer station from which a dealer may view said table, a plurality of player stations on the opposite side of said table, each said player station having a player vantage point above and behind each of said player stations for viewing said table, said player stations partially surrounding said dealer station, a checker vantage point over said table from which a checker may view said table, and means for obstructing the view of at least one of the said player stations from each of said player vantage points without obstructing the view of any of said player stations from said dealer vantage point, said dealer station from any of said player vantage points, and said dealer station and each of said player stations from said checker vantage point.

4,314,701

PUTTER CLUB

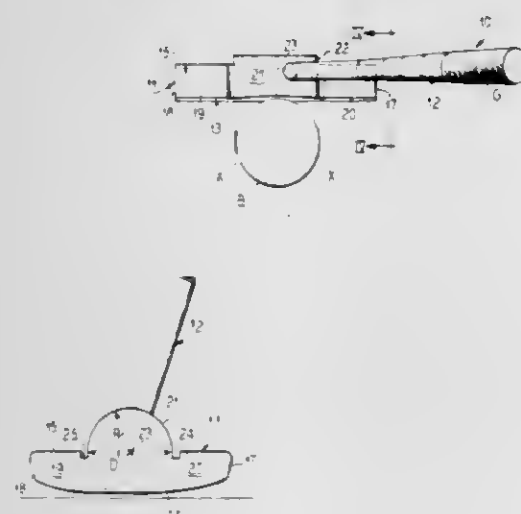
Arthur P. Swanson, 1454 Estate La., Glenview, Ill. 60025

Filed Dec. 5, 1980, Ser. No. 213,367

Int. Cl.³ A63B 53/04

U.S. Cl. 273-164

9 Claims



1. A golf putter comprising a generally rectangular blade head with a flat planar front putting face, a bottom sole, heel and toe end portions with top faces, a raised central enlarged height fragmental mid-section above said top faces and coplanar with said front putting face, said mid-section having an exposed greater than semi-cylindrical top cylindrical periphery visible to the full diameter thereof, said mid-section having an axis normal to said putting face at a level adjacent the top faces and above the bottom of the exposed periphery, said mid-section having a radius the same as the golf ball to be putted, a substantially flat bottom on said sole intersecting an imaginary continuation of said cylindrical portion, and a shaft having a bottom end projecting upwardly from said mid-section with an axis intersecting said axis of said mid-section whereby alignment of the exposed top periphery vertically and horizontally behind the golf ball positions the sole off of the putting surface, accommodates variations in the positions of the golfer's eyes and causes the putting face to impact the ball on said axis of said mid-section.

4,314,702

PORTABLE FOLDING INDOOR-OUTDOOR HORSESHOE COURT

Harold K. Updike, 946 E. 6th St., and Kenneth N. Updike, 1737 E. 5th St., both of Fremont, Nebr. 68025

Filed Feb. 15, 1980, Ser. No. 121,930

Int. Cl.³ A63B 67/00

U.S. Cl. 273-336

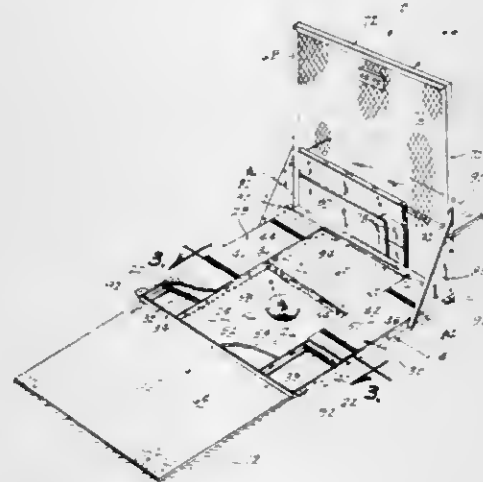
5 Claims

1. A portable horseshoe court, comprising:
a horizontally disposed frame means including spaced-apart front and rear frame members having opposite ends, a first side frame member secured to and extending between said front and rear frame members at one end thereof, a second

side frame member secured to and extending between said front and rear frame members at the other end thereof, a first intermediate frame member secured to and extending between said front and rear frame members inwardly of said first side frame member, a second intermediate frame member secured to and extending between said front and rear frame members inwardly of said second side frame member,

a first pitcher's platform positioned between said first side frame member and said first intermediate frame member extending between said front and rear frame members,

a second pitcher's platform positioned between said second side frame member and said second intermediate frame member extending between said front and rear frame members,



a pan means extending between said intermediate side frame member and said front and rear frame members to define an area capable of receiving dirt,

a stake extending upwardly from said pan means equidistantly between said platforms,

a normally upstanding backstop means having upper and lower ends, said backstop means having its lower end pivotally connected to the rearward end of said frame means whereby said backstop means may be selectively pivoted from its normal upstanding position behind said frame means to a substantially horizontal transport position at least partially over said platforms and pan means, and means selectively maintaining said backstop means in its said upstanding position.

4,314,703

DART GAME AND BOARD

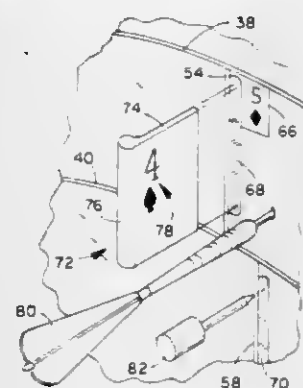
Oreste P. Grottola, 9305 S. Velare St., Anaheim, Calif. 92804

Filed Jun. 13, 1980, Ser. No. 159,046

Int. Cl.³ F41J 3/00

U.S. Cl. 273-408

11 Claims



5. A dart board comprising:

a front face of material suitable for receiving and detachably

retaining the point of a dart, said front face being divided into fifty-two target spaces;
an indicia in each of said target spaces, each of said indicia corresponding to a different one of the indicia on a standard bridge deck of playing cards;
an opening in the face of said board in association with each of said target spaces and an insert removably positioned within each of said openings an indicia on each of said inserts, said indicia being positioned to be hidden when said insert is within its opening, each of said indicia on said inserts being different and each corresponding to one of the indicia on playing cards in a standard bridge deck.

4,314,704

ROTARY MECHANICAL FACE SEALS

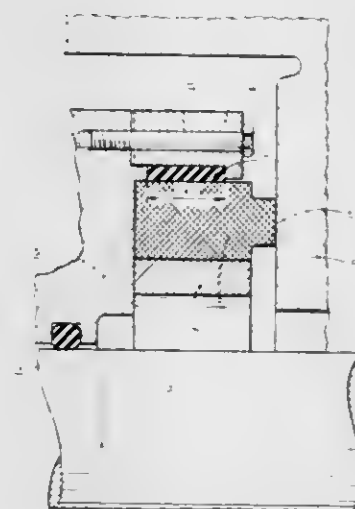
Colin A. Wichall, Hampshire, England, assignor to Crane Packing Limited, Slough, England

Filed Mar. 10, 1980, Ser. No. 128,880

Int. Cl.³ F16J 15/38, 15/48

U.S. Cl. 277-27

4 Claims



1. A face seal assembly comprising a rotatable shaft, a seat member located about the shaft, a seal face member located about the shaft with the seal face thereof in intimate sealing contact with the seat member, the seal face member and the seat member being arranged such that rotation of the shaft causes relative rotation between the seal face member and the seat member, said seal face member having a first side which in use is subject to a variable fluid pressure, and a second side which is opposite to said first side with said seal face lying between said first and second sides, a rigid support ring located about said shaft and being movable relative thereto, said support ring being disposed adjacent to said second side of the seal face member, and pre-stressing means arranged to press against said first side of the seal face member such as to pre-stress said seal face member against said support ring with a load related to said variable fluid pressure so that any distortion of said seal face member produced by variation in fluid pressure is substantially counter-acted.

4,314,705

OIL SEAL DEVICE

Masami Shimizu, Chiba, Japan, assignor to Ishikawajima-Harima Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed May 19, 1980, Ser. No. 150,804

Claims priority, application Japan, May 23, 1979, 54-69224[U]; Jul. 10, 1979, 54-94991[U]

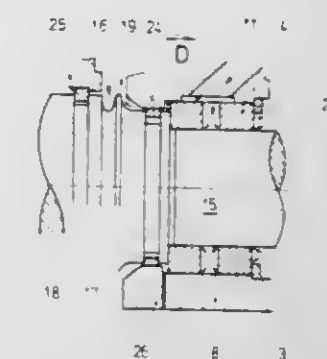
Int. Cl.³ F16J 15/42

U.S. Cl. 277-67

6 Claims

1. In a high speed rotating machine, in combination:
(a) a common rotating turbine and blower shaft;
(b) a bearing casing having a bearing portion and an oil discharge chamber formed below said bearing portion;
(c) an oil thrower laterally spaced from said casing and mounted on said shaft;

(d) a floating metal structure supported in said casing bearing portion and supporting said shaft;
(e) first and second oil seal rings, the first of said oil seal rings being mounted in said casing between and laterally spaced from said oil thrower and one end of said floating metal structure and the second of said oil seal rings being



mounted in machine structure on an opposite side of said thrower; and
(f) structural means forming oil release and gap openings enabling oil accumulating between said first oil seal ring and said floating metal structure to be communicated to said oil discharge chamber.

4,314,706

CHUCKS OF CONSTANT JAW FORCE

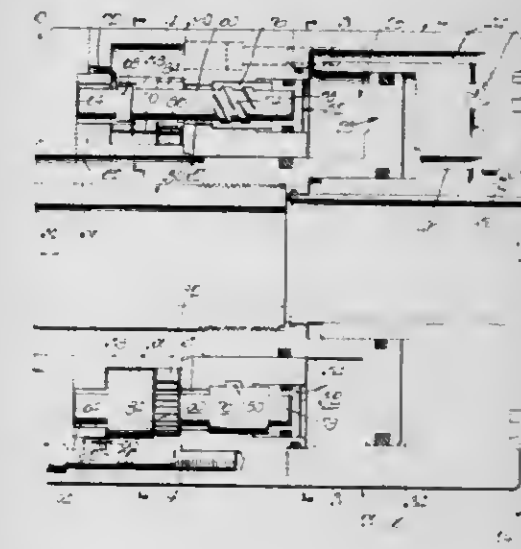
Samuel H. Pruden, East Hartford, Conn., assignor to Cushman Industries, Incorporated, Hartford, Conn.

Filed May 7, 1979, Ser. No. 36,739

Int. Cl.³ B23B 31/14, 31/30

U.S. Cl. 279-1 C

8 Claims



1. In a chuck having a body with a through-hole about an axis and being turnable about said axis and carrying radially movable jaws, the combination of jaw operating means including a cylinder and piston in said body for closing the jaws on work on admission of operating fluid under pressure into one end of the cylinder, a plunger in said body ring-shaped about said axis and projecting with one end into said cylinder end and being axially movable in opposite directions to decrease and increase the volume of said cylinder end, and other means, including a weight in said body formed in separate sections angularly spaced about said axis and individually movable inwardly toward and outwardly away from said axis within a ring-shaped zone about said axis, with said sections being yieldingly urged toward said axis, and operative to move said plunger in one of said directions on outward movement of said weight sections under centrifugal force to thereby change the pressure of the operating fluid in said cylinder end for counter-acting the effects of centrifugal force on said jaws, said cylinder and piston are ring-shaped about said axis and surround said through-hole, said plunger is within the inner and outer

diametric confines of said cylinder, and said zone surrounds said through-hole.

4,314,707

TOE GUARD FOR ROLLER SKATES

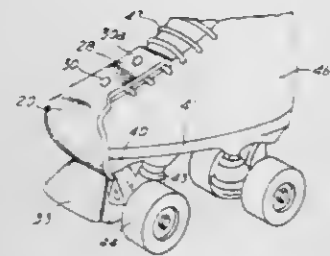
Don Welch, P.O. Box 337, Vail, Colo. 81657

Filed Feb. 25, 1980, Ser. No. 124,427

Int. Cl.³ A63C 17/26

U.S. Cl. 280—11.2

9 Claims



1. A replaceable toe protector for use in connection with a shoe-type roller skate having a lace closure and a toe stop fixed to the skate adjacent to the toe of the shoe, comprising:

an elongated flexible body having a strap portion at a first end of the body, a skate attaching portion at a second end of the body, and a toe covering portion interconnecting the strap portion and the skate attaching portion, the strap portion being adapted to be reversibly folded back on itself to form a loop for encasing at least a portion of the lace closure of the shoe-type roller skate and including means for fastening the folded back strap portion into the loop, and the skate attaching portion including a bolt hole adapted to receive a bolt of the toe stop and further including a series of depending position holding elements adapted to cooperate with corresponding bores in the toe stop to prevent turning of the toe covering portion away from its toe covering position when the skate attaching portion is attached between the skate and the toe stop by the bolt and when the strap portion is attached to the skate by the lace closure.

4,314,708

ICE SKATE BLADE

Peter F. Zuuriog, Baie d'Urfe, Canada, assignor to PFZ Enterprises Inc., Quebec, Canada

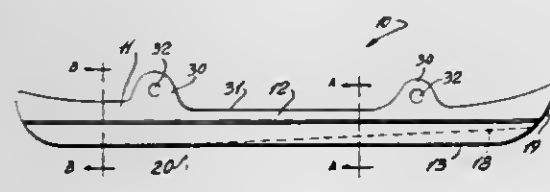
Filed Jun. 22, 1979, Ser. No. 51,042

Claims priority, application Canada, Jun. 7, 1979, 329428

Int. Cl.³ A63C 1/32

U.S. Cl. 280—11.18

18 Claims



1. An ice skate blade for use on a surface of ice and characterized by a reduced coefficient of friction between said blade and said surface of ice comprising an elongated flat blade body having opposed side walls and a support bottom edge, said bottom edge having a single elongated slot in at least a forward half portion thereof intermediate said opposed side walls, a remaining rear portion of said bottom edge constituting a solid support rear portion and wherein said slot collects ice and snow from said surface of ice so as to form a lubricating film between said blade and said surface thereby providing said reduced coefficient of friction between said blade and said surface of ice.

4,314,709

LOAD TRANSFER TRAILER FOR TRANSIT MIXER

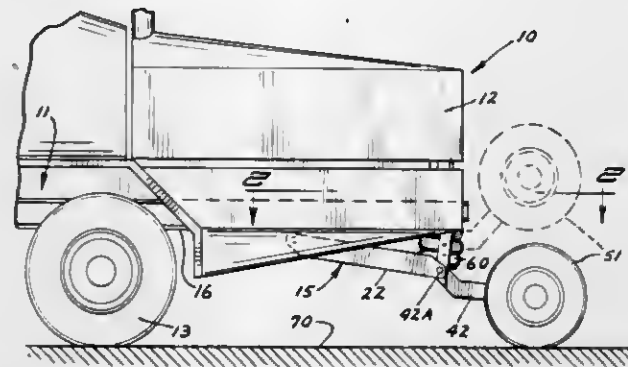
Frederick J. Silbernagel, 148-7th SE., Huron, S. Dak. 57350

Filed Aug. 4, 1980, Ser. No. 175,062

Int. Cl.³ B62D 61/12

U.S. Cl. 280—81 A

13 Claims



1. In combination with a motor vehicle attachment having a body frame, the improvement comprising an auxiliary frame mounted to said body frame to the rear portion of said body frame, said auxiliary frame including a first frame portion pivotally mounted to said body frame, said first frame portion having a rearwardly extending end, and a second frame portion pivotally mounted to the rearwardly extending end of said first frame portion, wheel means mounted on said second frame portion, first fluid pressure cylinder means for controlling the pivoting of said second frame portion relative to said first frame portion about a generally horizontal axis, and second fluid pressure cylinder means controlling movement of said first frame portion relative to said body frame about an axis generally parallel to the first mentioned axis, spring means mounted between said body frame and said first frame portion operable to urge said first frame portion to an upward position, and control means to control the fluid pressure in said second mentioned fluid pressure cylinder means, and to control pivoting of said second frame portion relative to said first frame portion.

4,314,710

RACK AND PINION STEERING GEAR HOUSING MOUNTING STRUCTURE

Akio Kamoshita; Akibiko Matsumoto, and Takashi Kurihara, all of Yokohama, Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

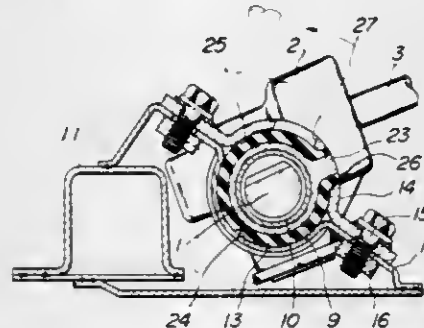
Filed Aug. 30, 1979, Ser. No. 71,123

Claims priority, application Japan, Sep. 5, 1978, 53-121125[U]

Int. Cl.³ B62D 1/00

U.S. Cl. 280—96

7 Claims



1. In a rack and pinion steering gear housing mounting structure for an automotive vehicle including a steering gear housing having a housing mounting portion, a support bracket on a vehicle frame for supporting said housing mounting portion and a clamp plate for clamping said housing mounting portion to said support bracket, the improvement comprising said housing mounting portion having a cylindrical wall rotatably seated in a cylindrical cavity on the support bracket, positioning means on said housing mounting portion arranged oppositely to said cylindrical cavity, and engaging means

provided on said clamp plate for cooperating with said positioning means to rotatably fix said housing mounting portion at a selected angle relative to said support bracket.

4,314,711

GAS CUSHION APPARATUS

Gail F. Westendorf, Decatur, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

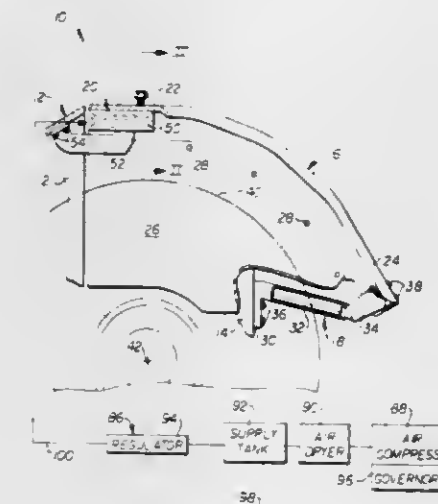
PCT No. PCT/US79/00472, § 371 Date Jul. 2, 1979, § 102(e) Date Jul. 2, 1979

PCT Filed Jul. 2, 1979, Ser. No. 89,778

Int. Cl.³ B62B 9/16

U.S. Cl. 280—154

13 Claims



1. A gas cushion apparatus (10) for a vehicle (12), comprising:

a vehicle structural member (14) having a relatively large effective mass that vibrates in use;
a vehicle fender (16) connected to the structural member (14) and being of a construction sufficient for vibrating at less than about 60 cycles per second with operation of the vehicle;
another member (21); and
cushion means (20) for controllably distributing a gas to a preselected region (80) between the fender (16) and the another member (21) and reducing the transmission of vibratory forces from the fender (16) into the another member (21).

4,314,712

POLE TRAILER

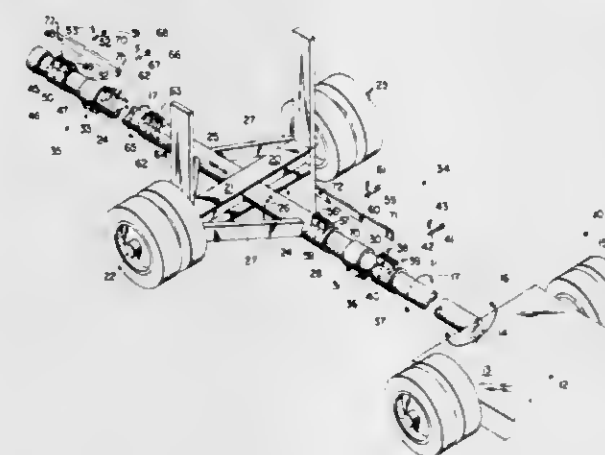
Edward E. Owen, Hwy. 49, Bond, Miss. 39550, and James F. Loveless, Rte. 1, Box 189, Brooklyn, Miss. 39425

Filed Sep. 10, 1979, Ser. No. 73,631

Int. Cl.³ B62D 53/00

U.S. Cl. 280—404

18 Claims



1. In a trailer for an automotive draft vehicle, said trailer including an elongated coupling member having a longitudinally extending axis, means adapted to connect a forward end

of said coupling member to said vehicle, and a rear axle assembly mounted on said coupling member for slidable movement along said axis and rotatable movement about said axis, the improvement comprising:

stop means fixed to said coupling member forward of said axle assembly, said stop means limiting forward sliding movement of said axle assembly by abutment therewith; a coupling element mounted on said coupling member forward of said stop means for slidable movement along said axis and rotatable movement about said axis; first attaching means on said axle assembly; second attaching means on said coupling element; an elongated removable connecting member; first detachable means for connecting one end of said connecting member to said first attaching means; and second detachable means for connecting the other end of said connecting member to said second attaching means, said connecting member and said stop means being shaped such that with said connecting member attached to said axle assembly and said coupling element, said axle assembly and said coupling element are free to rotate about said axis relative to said stop means through an arc substantially greater than 180° and the rearward sliding movement of said axle assembly is limited by said coupling element abutting said stop means.

4,314,713

BINDING FOR FASTENING A BOOT TO A SKI

Armand Kreyenbuhl, Samoens, France, assignor to Adidas Fabrique De Chaussures De Sport, Landersheim, France

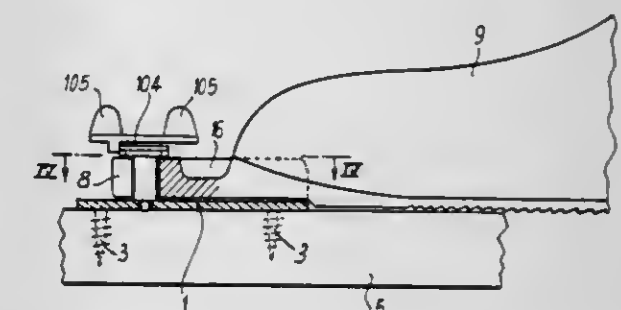
Filed May 2, 1979, Ser. No. 35,386

Claims priority, application France, May 10, 1978, 7813880

Int. Cl.³ A63C 9/18

U.S. Cl. 280—615

8 Claims



1. A ski binding of the type in which a boot is fastened to a ski by an extension of the sole of the boot and which extension engages an arch plate fixed to the ski, the arch plate having a shape corresponding in width and height to that of the extension, the extension having a recess comprising an inlet at the front of the extension communicating with an opening formed in the extension and of a size larger than inlet, the boot being secured to the ski by a locking means which locks the extension in the arch plate, said locking means comprising, a bar rotatable around an axis and extending vertically in the arch plate, said bar being rotatable, between a first angular position in which the binding is unlocked and said bar can pass through the inlet of the extension during forward insertion of the extension into the arch plate, and a second angular position in which the binding is locked and said bar engages a wall of said opening in the extension to prevent rearward withdrawal of the extension from the arch plate.

4,314,714

SAFETY SKI BINDING

Ulrich Gertsch, Brungasse 92, 3800 Matten, Interlaken, Switzerland, assignor to Ulrich Gertsch, Matten b. Interlaken and Ernst Gertsch, Wengen, both of, Switzerland

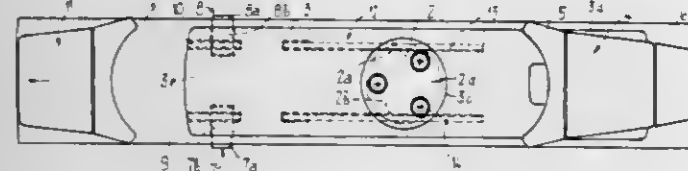
Filed Aug. 6, 1979, Ser. No. 63,834

Claims priority, application Switzerland, Aug. 24, 1978, 8974/78

Int. Cl.³ A63C 9/082

U.S. Cl. 280—630

13 Claims



1. A safety ski binding for use with a ski comprising, in combination:

- a release plate;
- means for pivotably mounting the release plate at the ski for movement between a normal skiing position and a laterally pivoted position in the event that the skier suffers a torsional fall;
- a heel holder for holding the heel of a ski boot used with the safety ski binding;
- a sole holder for holding the sole of the ski boot;
- one of said holders being capable of being fixedly arranged at the ski;
- the other of said holders being secured at the release plate;
- entrainment means provided for said release plate and cooperating with said ski boot for releasably retaining the ski boot at the release plate;
- said release plate, when in its normal skiing position, being decoupled from the ski fixed-holder and freely pivotable to both sides;
- return means for resetting said release plate, after pivoting thereof, back into its normal skiing position;
- said entrainment means is movably connected with said release plate;
- said entrainment means being movable out of an effectual position where it releasably retains the ski boot at the release plate, following pivoting of the release plate, into a release position where it releases the ski boot from the release plate;
- said entrainment means comprises at least two oppositely situated entrainment elements;
- each of said entrainment elements being rotatably connected by a shaft with the release plate;
- each of said entrainment elements, when in its effectual position, protruding upwardly from the release plate and bearing laterally at the sole of the ski boot; and
- each of said entrainment elements being tiltable about its related shaft downwardly into its release position.

4,314,715

AUTOMOBILE VEHICLE SEAT STRUCTURE PROVIDED WITH A DEVICE FOR HOOKING SAFETY BELTS

Pierre Duguet, Feucherolles, and Christian Robert, Rueil Malmaison, both of France, assignors to Automobiles Peugeot and Societe Anonyme Automobiles Citroen, both of Paris, France

Filed Feb. 13, 1980, Ser. No. 121,227

Claims priority, application France, Feb. 21, 1979, 79 04410

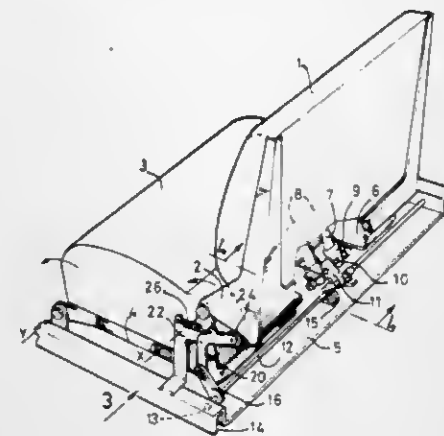
Int. Cl.³ B60R 21/10

U.S. Cl. 280—801

6 Claims

1. An arrangement comprising in combination with a vehicle having a floor, a hooking device for safety belts, a seat structure comprising a backrest and a seat, the backrest being mounted at the base thereof on a rear part of the seat to pivot about a first transverse axis between an operative position and an inoperative position, the seat being pivotally mounted on

the floor in the vicinity of the front part of the seat to pivot about a second transverse axis, and connecting means for connecting the hooking device to the floor, said connecting means comprising a latch carried by the hooking device, a



4,314,716

BOOK BINDERS WITH TABS

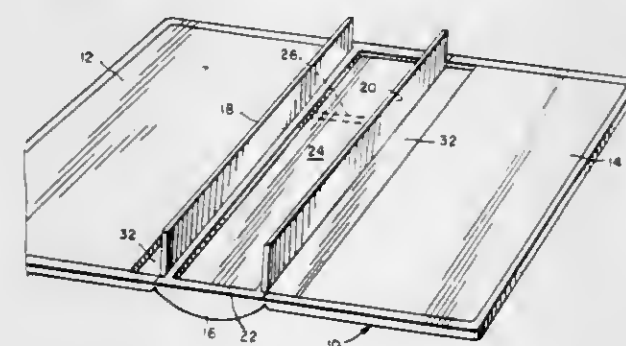
Dominic R. Errichiello, 389 Meadowlark Rd., Bloomingdale, Ill. 60108

Filed Aug. 6, 1979, Ser. No. 63,830

Int. Cl.³ B42D 3/00

U.S. Cl. 281—29

2 Claims



1. A book binder comprising a front cover panel, a rear cover panel, and a spine; said spine comprising a cross wall hingedly connected along opposite longitudinal edges thereof to said front cover panel and said rear cover panel; a first, rectangular strip or tab having three free sides, extending at right angles to and longitudinally along the inner face of said spine; a second, rectangular strip or tab, having three free sides, extending at right angles to and longitudinally along said inner face in spaced, parallel relationship to said first strip or tab, whereby edge portions of pages of a book may be inserted between said strips or tabs and mounted in said book by stitching, stapling or the like through said strips and said edge portions, each of said panels having a shallow, elongated, rectangular cavity adjacent its spine-contiguous edge to form a pocket into which fits said strips or tabs when the book binder is closed.

4,314,717

RESILIENT SPRINKLER NIPPLE

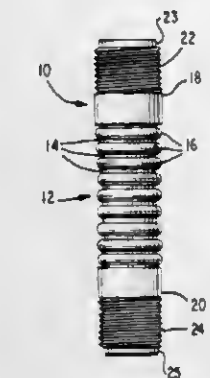
James M. Bjurman, Salt Lake City, Utah, assignor to Multi-Flex Corporation, Salt Lake City, Utah

Filed May 16, 1980, Ser. No. 150,306

Int. Cl.³ F16L 55/00

U.S. Cl. 285—5

4 Claims



1. A flexible plastic nipple for coupling a sprinkler head to a sprinkler system pipeline comprising:

- a generally elongated single plastic molded tubular piece having a pair of end sections and a resilient center section defined by an outer wall carrying annular undulations including recesses and protrusions;
- said recesses having relatively thin walls for flexibility and said protrusions having relatively thicker walls for strength and stability so that said center section is sufficiently rigid to maintain said elongated tubular piece in a fixed position under the normal operation of a sprinkler system and is responsive to a deflecting force greater than the rigidity of said center section for bending and for subsequently rebounding to its original position when said deflecting force is removed;
- each end section including a rigid portion, positioned adjacent said center section, a flexible threaded section connected to said rigid portion for mating the nipple with a connector fitting on the sprinkler head or pipeline, and a snub portion connected to said threaded section for leading said threaded section into the connector fitting, said threaded section having sufficient flexibility to prevent rupturing or stripping when a force is transmitted thereto and said center section bending before the force transmitted to said threaded section becomes excessive.

4,314,718

TENSILE RING COMPOSITE PIPE COUPLING

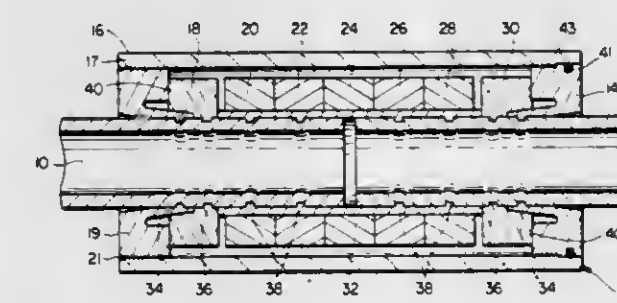
Harry C. Broyles, Sunnyvale, and Laszlo Szalvay, San Carlos, both of Calif., assignors to Raychem Corporation, Menlo Park, Calif.

Filed Nov. 28, 1979, Ser. No. 98,088

Int. Cl.³ F16L 13/04

U.S. Cl. 285—114

4 Claims



1. A composite pipe coupling comprising:
- (a) a liner means having an opening therethrough capable of receiving the ends of the pipes to be connected;
 - (b) driver means of heat-recoverable metallic material having an opening therethrough mounted concentrically around said liner means, said driver means constricting radially inwardly upon heat recovery to grip said liner

- means and to deform said liner means into a sealing condition with pipes to be connected;
- (c) a pair of tensile rings of heat-recoverable metallic material, one of said tensile rings being axially mounted adjacent and in axial contact with one end of said liner means, and the other of said tensile rings being axially mounted and in contact with the other end of said liner means, said tensile rings constricting radially inwardly upon heat recovery to each grip a pipe to be connected; and
- (d) external support means having an opening therethrough mounted concentrically around said liner, driver means and said tensile rings to axially contain and support said tensile rings and the liner means positioned between said tensile rings.

4,314,719

SLIDING PANEL LATCHING MECHANISM

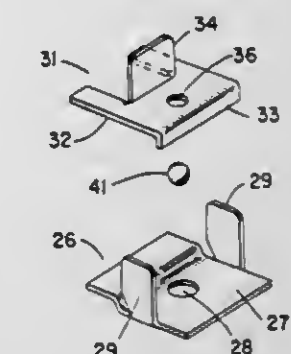
Donald Hawkins, P.O. Box 1203, Tracy, Calif. 95376

Filed Feb. 12, 1980, Ser. No. 120,777

Int. Cl.³ E05C 19/00, 1/04

U.S. Cl. 292—252

9 Claims



1. In a channel-like track construction for receiving a sliding member, a latch assembly for releasably locking in said track and preventing translation of said sliding member thereby, said latch assembly including one or more detent depressions spaced longitudinally along and formed in the base panel of said track; a slide member secured in said track and adapted for longitudinal translation therealong, said slide member including a first aperture extending vertically therethrough and registerable with any one of said detent depressions; a ball seated in said aperture and adapted to fall gravitally therethrough into any of said detents; a latch member including a second aperture extending vertically therethrough, said second aperture being smaller in diameter than said ball; first means for joining said latch member to said slide member for longitudinal translation therewith, said latch member being translatable with respect to said slide member transverse to said track to move said second aperture into and out of alignment with said first aperture; second means for spacing said latch member above said slide member to retain said ball therebetween, said latch member and slide member being spaced apart a distance less than the diameter of said ball.

4,314,720

SPLIT RING LOCKING ASSEMBLY

Cesar Santoni, Hamilton, Canada, assignor to Grelf Bros. Corporation, Delaware County, Ohio

Filed Oct. 16, 1979, Ser. No. 85,262

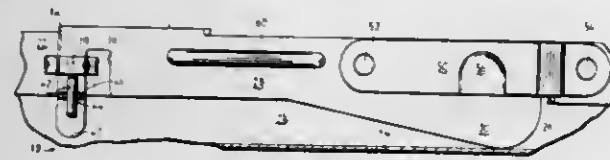
Int. Cl.³ E05C 19/08

U.S. Cl. 292—256.69

20 Claims

1. A locking rim assembly for use in releasably holding a cover in an assembled relationship with a container comprising: a split ring having two ends positioned substantially adjacent to one other; a locking lever having a base end which is pivotally connected to one end of the split ring; a connecting link pivotally connected at one of its ends to the split ring and at its other end pivotally connected to the locking lever; the pivotal connections being so constructed and arranged so that

the locking lever is shiftable from an open position at which the split ring is in an expanded position to a closed position at which the split ring is in a contracted position; said locking lever having at its end opposite to that which connects directly with the split ring a tongue; said tongue having a receiving means capable of receiving a sealing wire; a receptacle located



on said split ring for the tongue when the locking lever is in its closed position; wherein when said locking lever shifts from its open to its closed position said tongue and receiving means pass through said receptacle so that a sealing wire may be secured to said receiving means to inhibit unauthorized opening of the locking rim assembly.

4,314,721

SECURITY BAR FOR SLIDING DOOR OR WINDOW

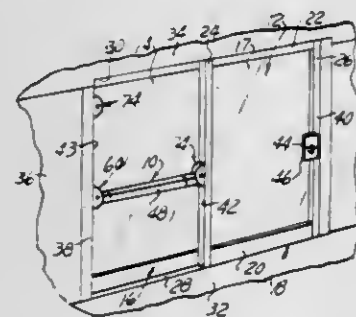
John D. Clark, Mt. Clemens, Mich., assignor to Larry Raymond Praet, Port Huron, Mich., a part interest

Filed Nov. 5, 1979, Ser. No. 91,096

Int. Cl.³ E05D 13/04

U.S. Cl. 292—262

9 Claims



1. A security bar for holding in a closed position a sliding panel provided with a frame dorsal surface adapted to be displaced substantially parallel to a jamb surface toward and away from said jamb surface during opening and closing of said panel, said safety bar comprising a bar member having each end formed with a curvilinear cylindrical face, and means at each end of said bar member for holding said bar member in an operative position preventing said frame dorsal surface of said sliding panel from being displaced towards said jamb surface with the longitudinal axis of said bar member substantially perpendicular to said frame dorsal surface and said jamb surface, wherein said means holding said bar member in said operative position comprises a pivotal support attached to one of said surfaces and a clip attached to the other of said surfaces, said pivotal support comprising a substantially U-shaped bracket member attached to said one of said surfaces and a pair of substantially parallel sidewalls one disposed on each side of said bar member at an end thereof, and a pivot pin member engaged through aligned apertures in said sidewalls and through said bar member proximate one of said curvilinear cylindrical end faces, and said clip comprises a generally U-shaped member having a mounting portion fastened to said other of said surfaces, said generally U-shaped member having a pair of opposite substantially parallel sidewalls each disposed on one side of said bar member and means in said clip sidewalls engageable with said bar member proximate the other of said curvilinear cylindrical end faces for supporting said bar member, wherein said apertures in said bracket member sidewalls, said pivot pin member and said supporting means in said clip are arranged to allow each curvilinear cylindrical end face of said bar member to provide line engagement with a planar surface corresponding to one of said surfaces and for opposing motion of one of said surfaces toward the other, and to cause

said bar member to absorb in compression forces causing said motion, with said lines of engagement aligned substantially with said bar member longitudinal axis.

4,314,722

TIMING APPARATUS FOR DELAYING OPENING OF DOORS

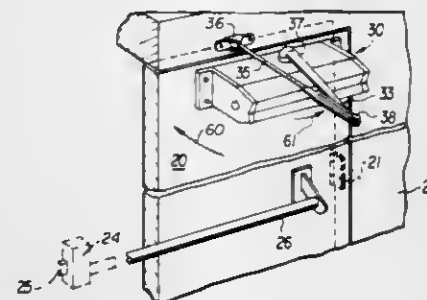
Emanuel L. Logan, Jr., Silver Spring, Md., assignor to Reliable Security Systems, Inc., Cockeysville, Md.

Continuation-in-part of Ser. No. 65,491, Aug. 20, 1979. This application Oct. 30, 1979, Ser. No. 89,398

Int. Cl.³ E05C 17/32

U.S. Cl. 292—263

7 Claims



1. In a door securing system wherein the door is hinged along one edge to a door frame and is secured by a latch along at least one other edge to the door frame and wherein the latch is operated by a panic bar to unlatch the door; the improvement comprising:

an attachment mounted between the door and door frame for operation in two modes wherein the first mode prevents opening of the door even when the door is unlatched and wherein the second mode permits opening of the door when the door is unlatched; the attachment comprising:

a hydraulic cylinder with a piston mounted therein for displacing fluid from the hydraulic cylinder;

means for driving the piston to displace the fluid from the hydraulic cylinder;

linkage means for connecting the driving means between the door frame and door whereby force on the door is transmitted through to the piston for displacing the piston;

means for delaying transition of the attachment means from the first mode to the second mode wherein the delaying means includes:

electrical switch means for providing a signal indicating that an attempt to open the door is occurring;

timing means started by the signal of the electrical switch means for emitting a trigger signal after a predetermined interval;

means operated by the trigger signal for allowing transition of the attachment means from the first mode to the second mode; the means operated by the trigger signal including a throttle connected to the hydraulic cylinder which throttle permits the fluid to gradually displace from the cylinder; a normally open valve; a solenoid for operating the valve, and a drop-out relay for de-energizing the solenoid wherein the normally open valve is held closed by the solenoid when the solenoid is energized and wherein the solenoid is connected to the timing means via the drop-out relay; whereby when the trigger signal is emitted, the drop-out relay opens, de-energizing the solenoid and allowing the closed normally open valve to open so that the fluid can be displaced and the door opens if pushed; and

means for indicating that an attempt has been made to open the door.

4,314,723

APPARATUS FOR REMOVING AND INSTALLING A LIGHT BULB IN A LIGHT FIXTURE

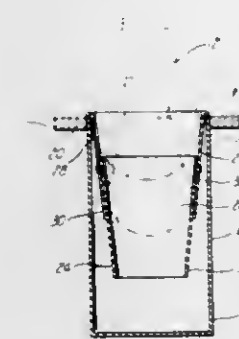
Robert R. Vermillion, 302 S. Martinson, Wichita, Kans. 67213

Filed Mar. 5, 1980, Ser. No. 127,409

Int. Cl.³ H01K 3/32

U.S. Cl. 294—20

1 Claim



1. An apparatus for removing and installing a light bulb in a light fixture, the apparatus comprising:

a tubular housing having an open first end portion and a second end portion;

a balancer disposed around the outside of the open first end portion of the tubular housing to aid in balancing the apparatus when removing and installing the light bulb;

a first tubular shaped cup having an open first end portion and a second end portion, the sides of the cup tapered inwardly from the first end portion to the second end portion, the first cup received inside the open first end portion of the housing with the first end portion of the first cup secured to the inside of the open first end portion of the housing; and

a second tubular shaped cup having an open first end portion and a second end portion, the second cup tapered inwardly from the first end portion to the second end portion, the second cup received inside the first cup and extending through the second end portion of the first cup, the first end portion of the second cup secured to the sides of the first cup; and

the cups adapted for receipt around the light bulb and gripping the sides thereof, whereby by rotating the second end portion of the housing the light bulb can be removed and installed.

4,314,724

HAND HELD TONGS

Stephen L. Barna, 1129 N. State Rd., Ionia, Mich. 48846

Filed Sep. 17, 1979, Ser. No. 76,262

Int. Cl.³ A47J 19/02; B25B 9/02

U.S. Cl. 294—99 R

2 Claims



2. A pair of tongs comprising:
a pair of substantially rigid arms having first and second ends;

said second arm ends being shaped to grasp an object there-between;

a flexible leaf spring having a resilient body and first and second ends;

means connecting said first and second leaf spring ends with a different one of said arm first ends, and comprising:

a plug connected with one of said arm first ends and said leaf spring ends, and having a pair of prongs positioned in a spaced apart and substantially parallel relationship; said prongs having free ends which are converged along a plane during use, and have opposing barbs thereon projecting outwardly of said prongs along said plane;

a receptacle connected with the other of said arm first ends and said leaf spring ends, and comprising a sleeve having a central aperture shaped to receive said prongs therein in a locked position, and anchor means disposed adjacent opposing sides of said prongs in the locked position, and abuttingly engaging said barbs and preventing inadvertent withdrawal of said plug from said receptacle; and wherein said leaf spring has a substantially linear shape in a free condition and is elastically flexed into a U-shaped configuration in a tensed condition when connected with said tong arms, whereby said leaf spring both pivotally interconnects said tong arms and resiliently urges the same apart.

4,314,725

RING DAMPED COMPOSITE TRANSIT WHEEL

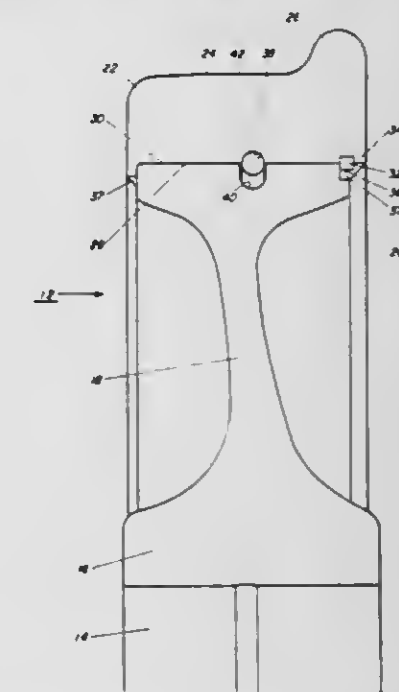
John J. Mede, Lewistown, Pa., assignor to Titanium Metals Corporation of America, Pittsburgh, Pa.

Filed Feb. 25, 1980, Ser. No. 124,180

Int. Cl.³ B60B 17/00

U.S. Cl. 295—11

8 Claims



1. A transit wheel comprising:

a generally disk-shaped metallic body having a bore through the center thereof, a hub about the bore extending through a web to an outer portion, said web having a reduced cross-sectional thickness with respect to the hub in the outer portion,

a separate metallic annular rim having a circular inside surface, generally planar in cross section, disposed against a circular outside surface, generally planar in cross section, of the outer portion,

said inside surface of the annular rim and said outside surface of the outer portion each provided with a circumferential groove, which grooves are substantially aligned when the inside surface of the annular rim is disposed against the outside surface of the outer portion, and

a rigid damping rod formed into a ring and disposed within the aligned grooves in the inside surface of the annular rim and the outside surface of the outer portion, said ring

traversing at least about 95% of the circumference of the aligned grooves.

4,314,726

CABIN STRUCTURE DISPLACEABLY MOUNTABLE ON A VEHICLE

Wolfgang Artweger, Windischgarsten, and Otfried Reitz, Saalfelden, both of Austria, assignors to "Wohn-Art" Freizeitartikel Gesellschaft m.b.H., Windischgarsten, Austria

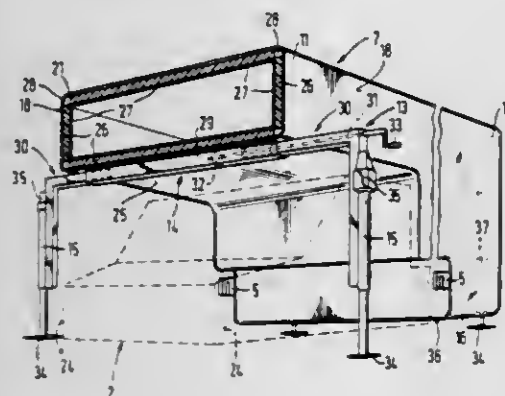
Filed Jan. 14, 1980, Ser. No. 111,947

Claims priority, application Austria, Jan. 25, 1979, 578/79

Int. Cl.³ B60P 1/64, 3/34

U.S. Cl. 296—164

3 Claims



1. A van comprising a vehicle having two side walls and a driver's cab; a cabin displaceably mountable on the vehicle, the cabin having sections of different cross sectional areas, adjacent ones of the cabin sections of different cross sectional areas abutting at transition zones and one of the cabin sections fitting over the driver's cab when the cabin is mounted on the vehicle, the cabin having an integral wall of synthetic resin material with an aluminum skin over the transition zones and the cabin wall including a roof portion and two side wall portions; two support jacks mounted on the one cabin section and associated with the two side wall portions; means for adjustably positioning the support jacks transversely to the vehicle into an operating position outwardly adjacent the side walls of the vehicle, the jack positioning means comprising a transverse guide means arranged on the one cabin section, the guide means comprising a tubular carrier element of polygonal cross section mounted on the one cabin section and a respective tubular guide element telescopically guide in the tubular carrier element, the guide elements having a first part telescopically guided in the tubular carrier element and of circular cross section, and a second part carrying the support jacks and of polygonal cross section, the polygonal tubular carrier element being arranged to envelop the first and second parts of the guide elements and the tubular elements extending substantially perpendicularly to the side walls; and means for adjustably mounting and retaining the cabin on the vehicle.

4,314,727

ALL-PURPOSE WEATHER GUARD

James H. Potts, 220 S. 43rd St., Tacoma, Wash. 98408

Filed May 5, 1980, Ser. No. 144,484

Int. Cl.³ A47C 7/00

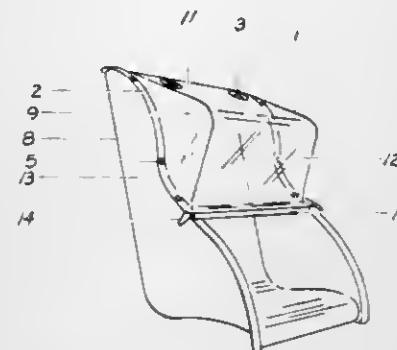
U.S. Cl. 297—184

3 Claims

1. A weather guard assembly for quick-releasable attachment to the forward face of the sides and top of a child's car seat, comprising in combination:

a transparent shatterproof guard having a top and front panel and two opposing sides, with their base of a configuration complementary to that of the corresponding sides of the child's car seat, and having a lip perpendicular to the sides and front of the guard, running its entire length and width, with a concave upper surface, ending at a flexible spout, protruding perpendicular to the side of the child's car seat, at the bottom front corners of the guard,

and having the underside of the lip across the front panel covered with a padding material of suitable resiliency; a triple orifice air vent, at both rear corners of the guard top panel, with said openings having a common axis to which is rotatably attached an impervious cover, having openings cooperable with the openings in the guard top panel when aligned therewith and corresponding solid portions opposing the openings in the guard top panel when aligned therewith; and



means on the undersurface of the lips on the sides of said weather guard to quick-releasably attach the guard to a cooperable positioned means, permanently affixed to the forward face of the sides of the child's car seat, with said means regularly spaced along the sides of the car seat and correspondingly spaced along the undersurface of the lip on the sides of the guard.

4,314,728

CHAIR CONTROL

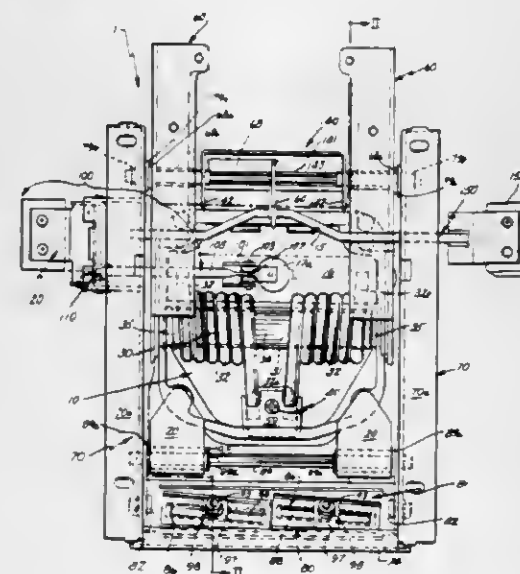
Frederick S. Faiks, Greenville, Mich., assignor to Steelcase Inc., Grand Rapids, Mich.

Filed May 1, 1980, Ser. No. 145,439

Int. Cl.³ A47C 3/00, 1/00

U.S. Cl. 297—300

9 Claims



1. In a synchrotilt chair control having a stationary control housing, resilient biasing means mounted in said stationary control housing, chair back support means pivotally mounted on said stationary control housing and operably interconnected with said resilient biasing means, and chair seat support means mounted on said stationary control housing and operably connected to said chair back support means for rearwardly tilting with said chair back support means, but at a different rate with respect thereto, against the biasing action of said resilient biasing means in response to a person leaning back in a chair to which said control is mounted, the improvement comprising: said chair seat support means having a forward portion located towards the front of a seat of a chair, when said control is mounted on a chair, and having a rearward portion located towards the rear of such a chair seat; said rearward

portion of said chair seat support means being pivotally connected directly to said chair back support means; said stationary housing including track means located towards the front thereof; said seat support means being slidably mounted in said track means at said forward portions of said seat support means, whereby said seat support means is free to shift relative to said stationary housing when a user tilts rearwardly in a chair mounted on such chair control yet whereby wear and tear on moving components is minimized by reason of said slidable interconnection between said chair seat support means and said stationary housing being located towards the front of said chair seat support means.

4,314,730

MINERAL MINING MACHINE WITH HIGH PRESSURE FLUID NOZZLE AND INTENSIFIER

Norman A. Plumptre, and Malcolm G. Tomlin, both of Burton-on-Trent, England, assignors to Coal Industry (Patents) Limited, London, England

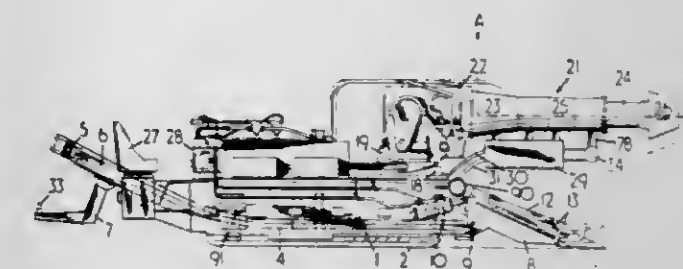
Filed Mar. 14, 1979, Ser. No. 20,462

Claims priority, application United Kingdom, Mar. 17, 1978, 10657/78

Int. Cl.³ E21C 27/24, 37/06

U.S. Cl. 299—75

2 Claims



1. A mineral mining machine comprising: a rotatable cutting head mounted on a rotatable shaft and having at least one pick mounted thereon and at least one high pressure water nozzle in the head; boom means mounting said cutting head for swingable movement over a coal face including a rigid shaft and bearings therefore; intensifier means for producing high pressure water at a pressure from 700 to 2100 Kg/cm², said intensifier means being directly connected to said boom means and movable therewith with a conduit within the rotatable shaft which connects to at least one conduit in the head leading to the nozzle.

4,314,729

HINGE MOUNT FOR SEATS HAVING RECLINEABLE BACK RESTS, PARTICULARLY FOR MOTOR VEHICLE SEATS

Bernd Klueting, Radevormwald, Fed. Rep. of Germany, assignor to Keiper Automobiltechnik GmbH & Co. KG, Remscheid, Fed. Rep. of Germany

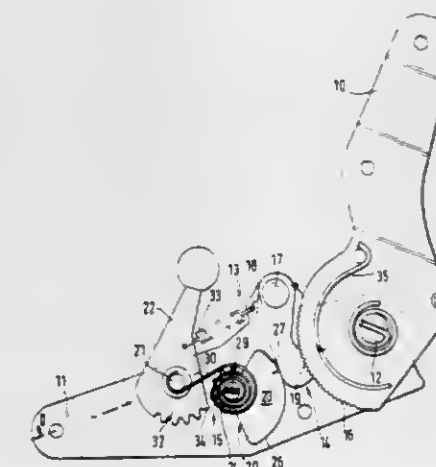
Filed Jun. 20, 1980, Ser. No. 162,036

Claims priority, application Fed. Rep. of Germany, Aug. 7, 1979, 2931915

Int. Cl.³ A47C 1/025

U.S. Cl. 297—366

9 Claims



1. A hinge mount for a seat having a reclineable back rest particularly a motor vehicle seat, said mount comprising a fixed hinge part assigned to the seat and a tiltable hinge part pivotally connected to the fixed hinge part and being assigned to the back rest; arresting means including a serrated segment arranged on said tiltable hinge part and a pawl pivotally mounted on said fixed hinge part opposite said serrated segment; a driven gear segment pivotally mounted on said fixed hinge part, said driven gear segment supporting for joint rotation a cam in the form of a spiral segment cooperating with said pawl, a spring arranged for rotating said driven gear segment together with said cam into an arresting position in which the spiral segment urges said pawl into engagement with said serrated segment; and control means including a driving gear engageable with said driven gear to rotate the same and said cam from said arresting position into a releasing position in which said pawl is disengaged from said serrated segment.

4,314,731

CONTROL VALVE ASSEMBLY

Glyn P. R. Farr, Birmingham, England, assignor to Girling Limited, Birmingham, England

Division of Ser. No. 963,159, Nov. 22, 1978, Pat. No. 4,245,868.

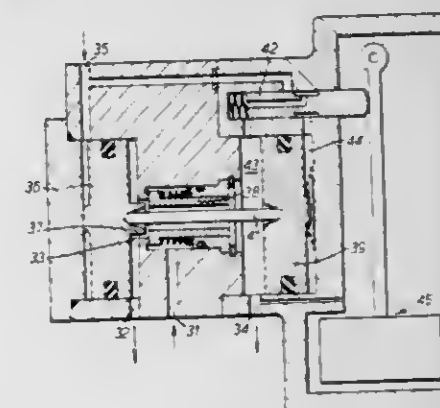
This application Apr. 30, 1980, Ser. No. 145,351

Claims priority, application United Kingdom, Nov. 25, 1977, 49051/77

Int. Cl.³ B60T 8/00

U.S. Cl. 303—24 A

5 Claims



1. A control valve assembly for a vehicle braking system, comprising an inlet, an outlet, a valve to control communication between said inlet and said outlet, a control member movable to open and close said valve, and inertia-responsive means responsive to deceleration of the vehicle to effect operation of said control member to reduce the pressure at said outlet after said valve has closed, said inertia-responsive means comprising an inertia responsive device which supplies a signal in dependence upon deceleration, and a force-applying means which applies a force to said control member in response to said signal to move said control member in a direction to reduce said outlet pressure, said force applying means comprising a servo-

system for amplifying said signal from said inertia responsive device, wherein said servo system comprises an auxiliary valve operable in response to movement of said inertia responsive device, a pressure operable member subjected to a pressure in dependence upon operation of said auxiliary valve, and means coupling said pressure operable member in force-transmitting relation with said control member, whereby said control member is subjected to a force which is dependent upon said deceleration.

4,314,732

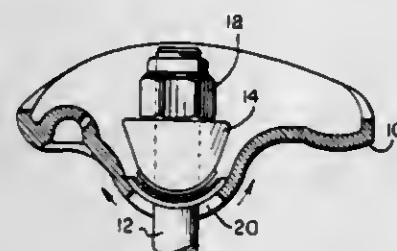
OSCILLATING BEARING

William W. Murphy, Goshen, Conn., assignor to The Torrington Company, Torrington, Conn.

Filed May 23, 1980, Ser. No. 152,750

Int. Cl.³ F01L 1/18; F16C 32/00

U.S. Cl. 308—2 R



1. An oscillating bearing for a stud comprising: an arcuate inner raceway; and arcuate outer raceway; and an arcuate retainer between said inner raceway and said outer raceway, the inner raceway, the outer raceway and the retainer having aligned openings for receiving a stud, said retainer having an arcuate roller pocket on each side of said opening and spaced from the opening, each roller pocket being long enough in the oscillating direction to receive a plurality of rollers; and a plurality of rollers in each pocket.

4,314,733

SPECIALIZED FILING CABINET

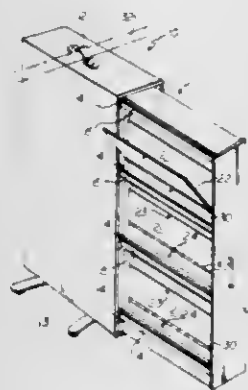
Clark K. Smith, 5406 Wedding Ct., Waldorf, Md. 20601

Filed Sep. 19, 1979, Ser. No. 77,134

Int. Cl.³ A47B 63/00, 91/02

U.S. Cl. 312—183

16 Claims



1. A filing cabinet comprising: outer cabinet means, inner cabinet means, drawer means on said inner cabinet means to provide access to an inner filing area of said filing cabinet and plural stabilizer bars pivotally connected to a bottom face of said outer cabinet characterized by plural horizontal legs each pinned at an extremity thereof which when fanned out in a substantially horizontal plane form a cross-shaped support, wherein said inner cabinet means connected to said outer cabinet means through an open sided rectangular track placed on said outer cabinet, a T-shaped rail slideably disposed in said track and fastened to said inner cabinet, and inner cabinet formed as an open-sided rectangle and carrying said rails, wherein said drawer means comprises a rectangular box hav-

ing upper truncated edge portions, said drawer means connected to said inner cabinet means through upper and lower track wheels carried on said drawer means fastened within upper and lower grooves on said inner cabinet.

4,314,734

CABINET DRAWER SUPPORT

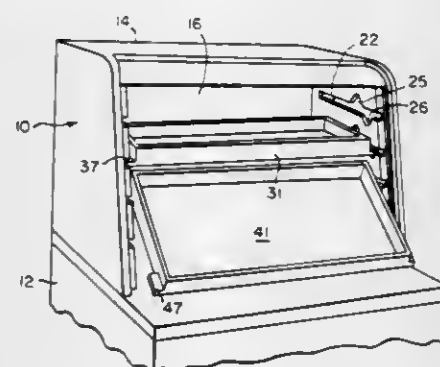
Hans C. Grunert, Adelberg, Fed. Rep. of Germany, assignor to Sybron Corporation, Rochester, N.Y.

Filed May 7, 1980, Ser. No. 147,362

Int. Cl.³ A47B 88/18; A47F 5/12

U.S. Cl. 312—322

6 Claims



1. In a system for supporting one or more drawers within a cabinet including upper and lower guide rails fixed within the cabinet to define a guide slot at each side of the cabinet, and support members projecting from the drawers and into the slots, the improvement comprising:

- said lower guide rail having a first notch formed therein adjacent the front of said slot, the front edge of said notch being vertical and a section of said lower guide rail in front of said front edge being higher than the section of said lower guide rail to the rear of said notch;
- said upper guide rail having a second notch therein spaced rearward of said first notch;
- a front support member projecting laterally from said drawer and into said slot at a position located just behind said higher section of guide rail when said drawer is closed, said front support being wider than said first notch so as to rest on said lower guide rail when said drawer is closed;
- an intermediate support member projecting laterally from said drawer and into said slot at a position behind the midpoint of said drawer, said intermediate support member being narrower than said first notch and adapted to drop into said first notch when said drawer is pulled outward from said cabinet to an open position;
- a rear support member projecting laterally from said drawer and into said slot adjacent the rear of said drawer, said rear support member being positioned with respect to said intermediate support member so as to pivot upwardly into said second notch when said intermediate support member drops into said first notch whereby the portion of said drawer pulled from said cabinet pivots downwardly about said intermediate support member to an inclined position; and
- the rear edge of said upper notch defining a guide ramp for controlling the pivotal movement of said rear support member about said intermediate support member and into said upper notch.

4,314,735

BED LOCATOR HAVING AN INTEGRAL ELECTRIC SOCKET AND A PLUG EJECTOR

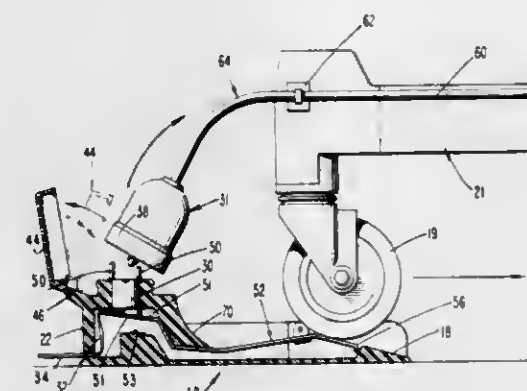
Eugene Fullenkamp, Batesville, and Dale Foster, Brookville, both of Ind., assignors to Hill-Rom Company, Inc., Batesville, Ind.

Filed Apr. 3, 1980, Ser. No. 136,505

Int. Cl.³ H01R 13/62

U.S. Cl. 339—45 R

13 Claims



1. A bed locator for use with a bed of the type which includes a leg to be removably retained by the locator and which carries electrically powered means having a first electrical connector, said locator comprising:

- a second electrical connector electrically connectible to said first connector to connect the electrically actuable means to a source of electric power, and
- disconnecter means actuated in response to removal of said leg from the locator for disconnecting said first and second connectors.

4,314,736

ZERO INSERTION FORCE CONNECTOR FOR A PACKAGE WITH STAGGERED LEADS

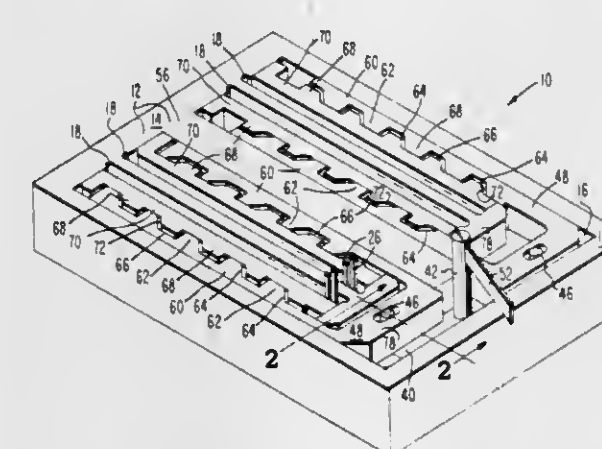
Eugene F. Demnianiuk, San Diego, Calif., assignor to Burroughs Corporation, Detroit, Mich.

Filed Mar. 24, 1980, Ser. No. 133,099

Int. Cl.³ H01R 13/62

U.S. Cl. 339—74 R

6 Claims



1. A zero insertion force connector for receiving an integrated circuit package with staggered leads, comprising: a connector body defining a recess, resilient conductive connector means for receiving and engaging said staggered leads to form an electrical contact therewith, camming actuator means mounted in said recess, camming means connected to said camming actuator means for sliding movement relative to said connector body on actuation of said camming actuator means, and connector engaging means responsive to said camming means for moving transverse to the sliding movement of said camming means to cause said connector means to

engage said staggered leads when inserted in said connector means, said connector means actuating said connector engaging means for transverse movement to said camming means to move said engaging means out of engagement with said staggered leads or to receive said staggered leads.

4,314,737

CABLE ASSEMBLY HAVING SHIELDED CONDUCTOR AND METHOD OF MAKING SAME

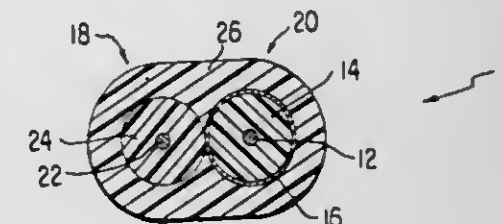
Charles E. Bogese, Roanoke County, and Stephen B. Bogese, II, Roanoke, both of Va., assignors to Virginia Patent Development Corp., Roanoke, Va.

Filed Jun. 14, 1979, Ser. No. 48,636

Int. Cl.³ H01R 13/38; H01B 7/34

U.S. Cl. 339—99 R

18 Claims



1. A flat multi-conductor cable which comprises: a conductive wire adapted to transmit an electrical signal; cylindrical insulation covering said wire along its length; means for shielding said wire against outside electrical interference which comprises a thin metallic layer of conductive material bonded to said insulation; a ground wire having a cylindrical semi-conductive material covering same and in contact with said thin layer of conductive material along its length; and an insulating jacket covering said semi-conductive material and said conductive material for maintaining physical and electrical contact therebetween; wherein the outer diameters of said semi-conductive material and said conductive material are approximately the same so that said insulating jacket forms an easily terminated substantially planar multi-conductor cable array.

4,314,738

AUXILIARY EQUIPMENT ENCLOSURE UNIT FOR WATTHOUR METER SOCKETS

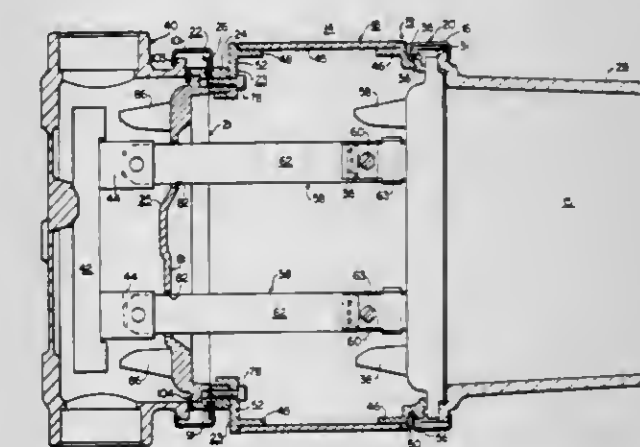
Steven B. Davis, St. Matthews Township, Wake County, N.C.; Forrest E. Coyle, Penn Hills, and Denis E. Bedel, Ross Township, Allegheny County, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Mar. 7, 1980, Ser. No. 128,222

Int. Cl.³ H01R 13/52; H02B 9/00

U.S. Cl. 339—156 R

19 Claims



1. An auxiliary equipment enclosure unit mountable at watt-hour meter sockets each having one of at least two detachable

meter mounting arrangements, said enclosure unit comprising: a hollow body defining a housing portion adapted to receive separate equipment devices therein; and an adaptive socket attachment assembly including a mounting extension extending axially from the rear end of said housing portion along an outer periphery circumscribing an area less than the vertical cross sectional area of said housing portion with said mounting extension including a recessed portion having opposed radial sides disposed in said mounting extension, and said adaptive socket attachment assembly further including a removable retainer means receivable over said extension and rotatably, positionable into said recessed portion so as to be axially confined by said radial sides and upon said enclosure unit being mounted to either one of the at least two meter mounting arrangements of the meter sockets, said retainer member is maintained in a predetermined radially overlapping relationship therewith for retaining said enclosure unit at the meter socket.

4,314,739

HOLOGRAPHIC METHOD FOR CONVERSION OF WAVES

Even Meblum, and Odd Lovhaugen, both of Oslo, Norway, assignors to Sentralinstitutt for industriell forskning, Oslo, Norway

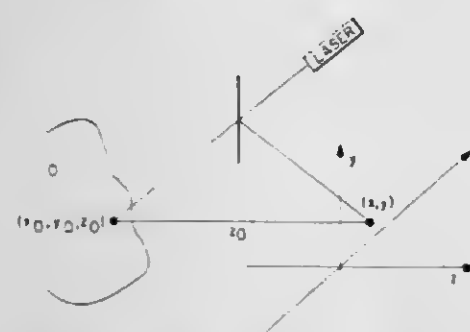
Filed May 25, 1979, Ser. No. 42,510

Claims priority, application Norway, May 30, 1978, 781868

Int. Cl.³ G03H 3/00

U.S. Cl. 350—3.66

9 Claims



1. A holographic method for converting a first wave which is emitted at a given wavelength from a first three dimensional object into a second wave which may be of another physical nature than said first wave and which is identical to, or approximately equal to, a wave that another, possibly scaled in size, but geometrically similar object would emit at a chosen wavelength which may be different from said given wavelength, said method comprising producing a hologram and, during such production, mixing said first wave with a reference wave whose wavefront in the hologram recording plane is different from that of the actual reconstruction wave in the same recording plane, and combining at least the phases of these two wavefronts so as to compensate for imaging errors due to mutual inconsistencies between the wavelength ratio, the hologram scaling and the object scaling, and any displacement of the reconstructed object relative to the hologram.

4,314,740

OPTICAL FIBER BEAM SPLITTER COUPLER

Gary W. Bickel, Roanoke, Va., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed May 7, 1980, Ser. No. 147,641

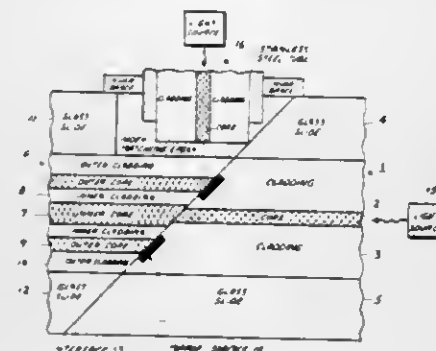
Int. Cl.³ G02B 5/172

U.S. Cl. 350—96.15

22 Claims

1. An optical fiber beam splitter coupler comprising: a first optical fiber having a first core coaxial of a longitudinal axis and a first cladding concentric to and outside said first core, one end of said first fiber making a given angle with respect to said axis; a second optical fiber having an inner core coaxial of said axis, an inner cladding concentric to and outside said inner core, an outer core concentric to and outside said inner

cladding and an outer cladding concentric to and outside said outer core, one end of said second fiber making an angle with respect to said axis complementary to said given angle and abutting said one end of said first fiber to provide an interface therebetween; a mirror surface disposed at said interface to cover the adjacent end of one of said inner core and said outer core to



reflect light impinging thereon into or out of said first fiber; and

a selected one of an input means and a utilization means in an operative relationship with said mirror surface, said input means providing light for reflection into said first fiber and said utilization means receiving light reflected out of said first fiber.

4,314,741

INTRUSION-FREE OPTICAL CABLE

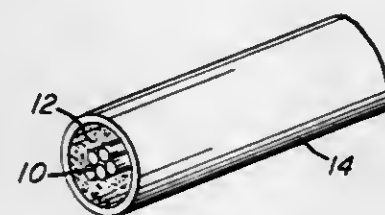
Czeslaw Deminet, and James F. Kenney, both of Kent, Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Dec. 17, 1979, Ser. No. 104,476

Int. Cl.³ G02B 5/14

U.S. Cl. 350—96.33

8 Claims



1. An intrusion-free optical cable for optical communication comprising at least one optical fiber adapted to carry an optical intelligence signal, and an outer cladding for said optical fiber formed of materials which will self-destruct when an attempt is made to penetrate it for the purpose of signal extraction from the optical fiber, the interior of said outer cladding being at a pressure other than the ambient pressure such that upon self-destruction of said cladding, a pressure change will occur within the interior of the cladding to indicate that a penetration has been made.

4,314,742

HIGH PERFORMANCE COOLED LASER MIRROR

John A. Dye, Lake Park, and Peter E. Weber, North Palm Beach, both of Fla., assignors to United Technologies Corporation, Hartford, Conn.

Filed Jun. 2, 1980, Ser. No. 155,737

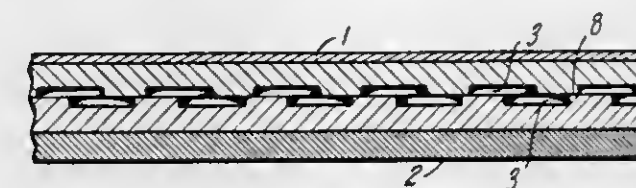
Int. Cl.³ G02B 5/08

U.S. Cl. 350—310

6 Claims

1. A high power, cooled, laser mirror comprising: a mirror surface; a heat exchanger in heat transfer communication with the mirror surface; the mirror surface and the heat exchanger supported on a mirror substrate; wherein the heat exchanger contains

fluid cooling channels formed by, in combination, the opposing cooling channels of a first plate and second plate, the cooling channels in each plate being angularly offset with respect to the nearest adjacent cooling channel



of the opposing plate thereby forming a criss-cross cooling channel pattern and the opposing, angularly offset cooling channels disposed in direct fluid flow communication with each other.

4,314,743

OPTICAL GAIN CONTROL DEVICE

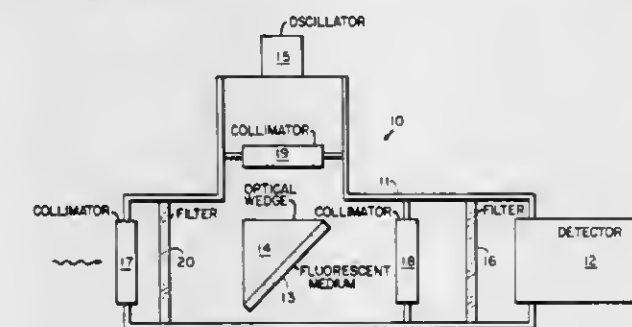
Howard E. Rast, Solana Beach, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 19, 1979, Ser. No. 95,869

Int. Cl.³ G02B 5/23

U.S. Cl. 350—354

17 Claims



1. An apparatus for automatically limiting high energy bursts of monitored electromagnetic energy from impinging on a processing device such as a photodetector comprising: means located to intercept monitored electromagnetic energy for providing responsive radiation levels that project onto the processing device when signals of a predetermined frequency impinge thereupon and means disposed adjacent the radiation providing means for emitting electromagnetic energy in a frequency range different than the predetermined frequency signals to raise an excitation state of the radiation providing means to a first level in a given concentration to assure that the radiation providing means projects responsive radiation levels onto the processing device, the radiation providing means includes a fluorescent material having the property of being raised to a first lower excitation state when the electromagnetic energy in a frequency range different than the predetermined frequency signals impinges on it and the fluorescent material further has the property of fluorescing not beyond a certain magnitude as determined by an intensity of the electromagnetic energy impinging on it from the electromagnetic energy emitting means irrespective of magnitudes of said predetermined frequency signals.

4,314,744

MULTIPURPOSE FILM HANDLING CASSETTE HAVING PRELIMINARY ASSEMBLY CONDITION

Donald E. Moodie, Marblehead, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Aug. 22, 1980, Ser. No. 180,375

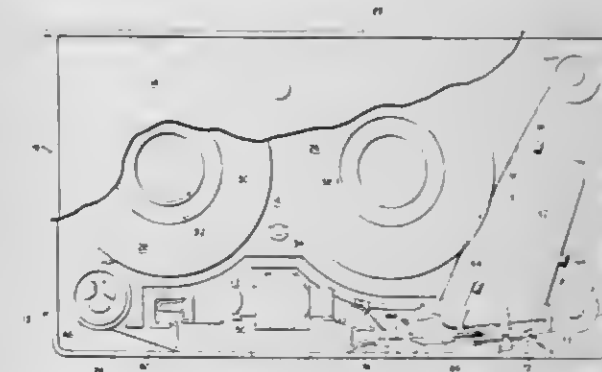
Int. Cl.³ G03C 11/00

U.S. Cl. 352—130

4 Claims

1. In a multipurpose film handling cassette of the type having a housing containing for exposure and processing a strip of

photographic film, said housing also containing a modular fluid processing means; said modular fluid processing means comprising a fluid reservoir filled with processing fluid, said reservoir being initially sealed by a releasable tear tab closure which is removable from said reservoir after film strip exposure for deposition of the processing fluid on the film strip during movement of the film strip along a given path; said processor having a fluid deposition nozzle supported in spaced relation with said reservoir with said tear tab closure initially positioned therebetween, said modular processing means having a fixed final assembly condition within the cassette housing in which a part of said nozzle and one or more other components of said processing means are in positive contact with a portion of said film strip lying in said given path, the improvement comprising:



structural support means within said cassette housing for supporting said modular processor in a preliminary assembly position wherein said nozzle and said one or more other components of said modular processor are spaced from said given path of said film strip, thereby facilitating threading of the film strip therepast, said modular processor being displaceable responsive to an external force from said preliminary assembly position to a final position wherein said nozzle and said one or more other components of said modular processor are in engagement with said film strip following threading of the film strip therepast, thereby putting said modular processing means in its fixed final assembly condition.

4,314,745

MICROFILM READING DEVICE

Günter Freiberg, Munich, Fed. Rep. of Germany, assignor to Agfa-Gevaert AG, Leverkusen, Fed. Rep. of Germany

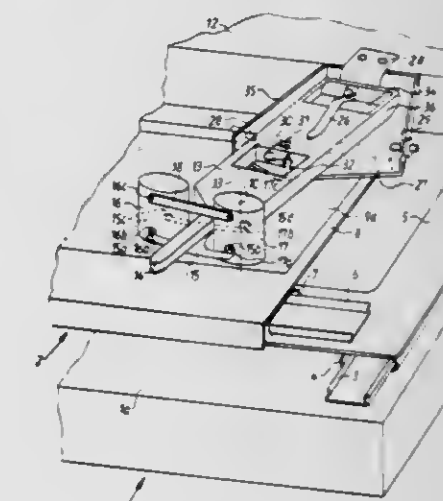
Filed Mar. 18, 1980, Ser. No. 131,356

Claims priority, application Fed. Rep. of Germany, Mar. 21, 1979, 2911090

Int. Cl.³ G03B 21/11

U.S. Cl. 353—101

14 Claims



1. In a microfilm reader of the type having a film table for supporting a microfilm and a light source behind the film table

so that the light rays pass through the microfilm in a predetermined path, a combination comprising a lens carrier above the film table; a pair of projecting lenses mounted on said carrier; means mounting said carrier for pivotal movement about an axis inclined to said predetermined path between two end positions in each of which a different one of said lenses is interposed in said path; a H-shaped support having a cross bar fixed to the lens carrier and two longitudinal bars each having two ends, each of said ends being provided with a tab; and a number of pins arranged on the respective projecting lenses at a distance from each other for engaging with the respective tabs, so that said projecting lenses are resiliently fixed and supported in a floating manner.

4,314,746

REAR WALL CONSTRUCTION OF A PHOTOGRAPHIC CASSETTE CAMERA

Carl Koch, Im Santenhühl, CH-8211 Stetten, Switzerland

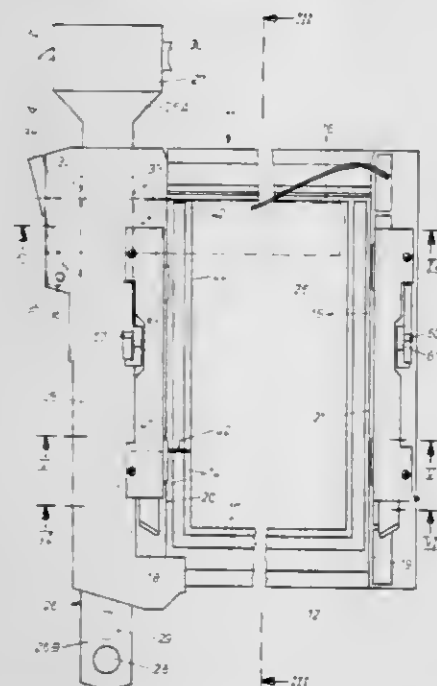
Filed Feb. 25, 1981, Ser. No. 237,953

Claims priority, application Fed. Rep. of Germany, Jul. 11, 1980, 3026306

Int. Cl.³ G03B 7/08, 17/26, 17/02

U.S. Cl. 354—23 R

10 Claims



1. In a photographic cassette camera having a cassette guide frame and an attachable ground-glass frame supporting a ground-glass for observation of a subject to be photographed, one of said frames defining an image field of the camera, a rear wall construction of the camera wherein said cassette guide frame has planar support elements defining a support plane and being surrounded by lateral support surfaces, said ground-glass frame having support runners which fit against said elements for mounting the ground-glass parallel to said support plane at a focal distance therefrom, a bar-shaped exposure measuring probe having at one end an opto-electric transducer and being mounted on a holding device on one of said frames for sliding and pivotal movement adjacent one of said lateral support elements, said one lateral element and one of said support runners lying adjacent thereto having recesses therein permitting movement of said probe between a selectively adjustable measuring position within the field on a front side of the ground-glass and a rest position completely out of the image field, said probe having a dimension perpendicular to said planar support elements which exceeds said focal distance, said probe engaging said recesses whenever it is adjusted for a measuring position.

4,314,747 LIGHT SHIELDING DEVICE FOR AUTOMATIC FOCUS DETECTING

Keisuke Haraguchi, Ranzan, and Harumi Aoki, Kiyose, both of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

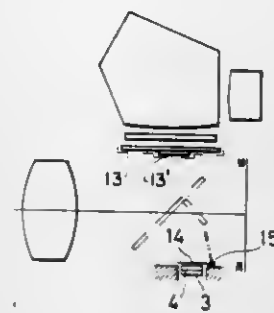
Filed Feb. 5, 1980, Ser. No. 118,700

Claims priority, application Japan, Feb. 16, 1979, 54-18642[U]

Int. Cl.³ G03B 3/00, 7/099

U.S. Cl. 354—25

6 Claims



1. A light shielding device of an automatic focus detecting element in an automatic focus detecting device of a single-lens reflex camera comprising: an automatic focus detecting element positioned in said camera to receive incoming light; means for shielding said automatic focus detecting element from light before the shutter curtain of said camera is opened and so long as it remains opened; and means for releasing said light shielding means after the shutter curtain of said camera is closed.

4,314,748 CAMERA HAVING A SEMI-AUTOMATIC FOCUS ADJUSTING DEVICE

Takashi Kawabata, Kamakura; Kazuyas Hosoe, Machida; Nobuhiko Shinoda, Tokyo; Shinji Sakai, Tokyo, and Takao Kinoshita, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

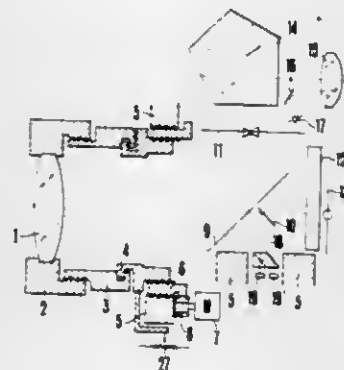
Filed May 19, 1980, Ser. No. 151,100

Claims priority, application Japan, May 23, 1979, 54-63374

Int. Cl.³ G03B 3/10

U.S. Cl. 354—25

22 Claims



12. For use with a photographic optical system having at least a portion manually movable along an optical axis for focusing from close-up to infinity when used with a camera body, a camera body comprising:

- (a) film receiving means for receiving film and defining a focal plane;
- (b) automatic adjusting means for displacing the manually movable portion along the optical axis from its manually adjusted position over a given range less than the overall range needed to focus from close-up to infinity when the optical system is used with the body, said adjusting means including a motor;
- (c) focus control means for detecting the focused condition of an image on the focal plane and for driving the motor

to displace the portion toward a focused condition within the given range when the optical system is used with the body;

(d) said control means including reset means for resetting the portion to a predetermined intermediate position in the given range.

4,314,749

LENS MOUNT BARREL FOR PHOTOGRAPHING WITH FLASH LAMP

Shinsuke Komoto, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

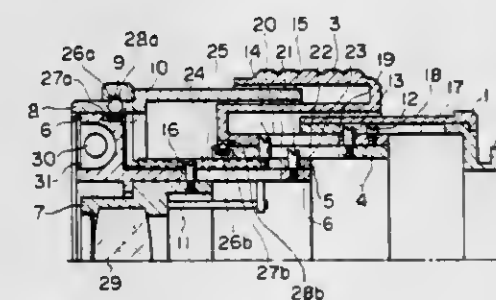
Filed Jul. 24, 1980, Ser. No. 171,782

Claims priority, application Japan, Jul. 25, 1979, 54-94596

Int. Cl.³ G03B 15/03, 9/02

U.S. Cl. 354—139

7 Claims



5. A flash photographing lens mount barrel comprising: first rotatable means for adjusting a magnification value; second rotatable means for adjusting a stop down value; and coupling means for providing a predetermined non-unity degree of rotational coupling between said first and second rotatable means whereby an angular rotation of one of said first and second rotatable means will result in a different angular rotation of the other of said first and second rotatable means, said predetermined degree of coupling being selected to maintain a desired relationship between said magnification and stop down values.

4,314,750

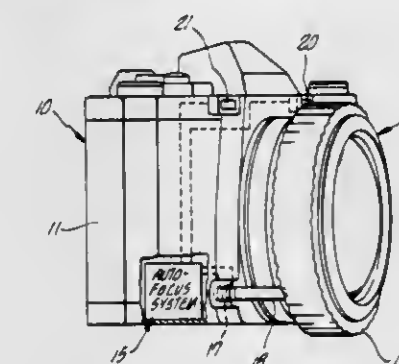
TACTILE INDICATION AND CONTROL SYSTEM
John M. Orban, Santa Monica, Calif., assignor to Vivitar Corporation, Santa Monica, Calif.

Filed Jan. 12, 1981, Ser. No. 224,076

Int. Cl.³ G03B 3/00, 9/02, 17/18

U.S. Cl. 354—198

14 Claims



1. A tactile indicator and control system for a camera for providing a tactile indication to the camera operator upon the occurrence of a desired exposure condition comprising camera apparatus for forming images of objects to be recorded, said camera apparatus having adjusting means movable over a range of positions by the hand of the operator for varying said exposure condition, control system means including sensor means for sensing the exposure condition and providing an electrical signal indicative that a desired state of the exposure condition has occurred, and electromechanical means responsive to said electrical signal

for physically affecting said adjusting means in a manner to impart to the hand of the operator a tactile indication that the desired exposure condition has occurred.

4,314,751

TAKE-UP SPOOL ADVANCING MECHANISM FOR A PHOTOGRAPHIC CAMERA

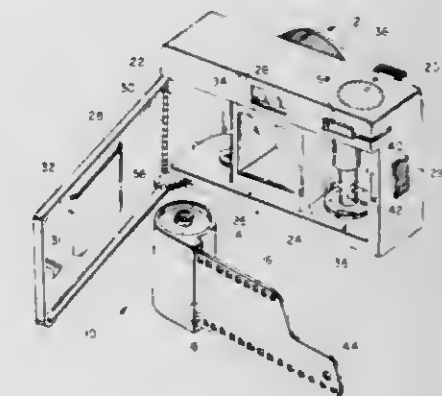
Donald M. Harvey, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 12, 1981, Ser. No. 223,956

Int. Cl.³ G03B 1/06

U.S. Cl. 354—212

5 Claims



1. In a photographic camera adapted for use with a supply of strip film, the camera having (1) a housing, (2) a film take-up spool rotatably mounted in the housing and provided with a film attaching means for securing the leading end of the film to the take-up spool, and (3) a cover door hinged to the housing and movable between an open position wherein the camera interior is accessible for loading and unloading a film supply and a closed position, the improvement comprising:

take-up spool rotating means interconnecting the cover door and the take-up spool and (1) responsive to movement of the cover door to its open position for rotating the take-up spool to a predetermined rotational position to thereby orient the film attaching means for securing the leading end of the film supply to the take-up spool, and (2) responsive to movement of the cover door to its closed position for rotating the take-up spool through a predetermined angle to thereby wind film on the take-up spool.

4,314,752

MOUNT DEVICE OF A FOCAL LENGTH CHANGING AUXILIARY LENS

Sunao Ishizaka, and Toshiaki Hozumi, both of Tokyo, Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

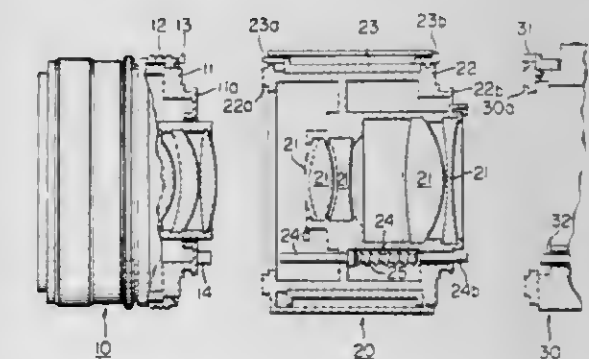
Filed Aug. 28, 1980, Ser. No. 182,070

Claims priority, application Japan, Sep. 17, 1979, 54/126840[U]

Int. Cl.³ G03B 7/20, 9/02

U.S. Cl. 354—286

9 Claims



1. In an auxiliary lens capable of being mounted between an objective lens having on the mount thereof means for generat-

ing a minimum F-number signal and a camera including means for detecting said signal on a mount to which said objective lens may be mounted and a circuit receiving as input the detected signal and information based on the light passed through said objective lens to effect an exposure operation, a composite focal length of the objective lens with said auxiliary lens being different from the focal length of said objective lens, the improvement comprising:

transmitting means capable of being coupled to each of said minimum F-number signal generating means and said detecting means when the auxiliary lens is mounted between said camera and said objective lens, said transmitting means transmitting said signal to said detecting means by said coupling; and

means for generating a correction signal having information corresponding to a variation in said F-number caused by the mounted auxiliary lens and capable of transmitting said correction signal to said circuit.

4,314,753

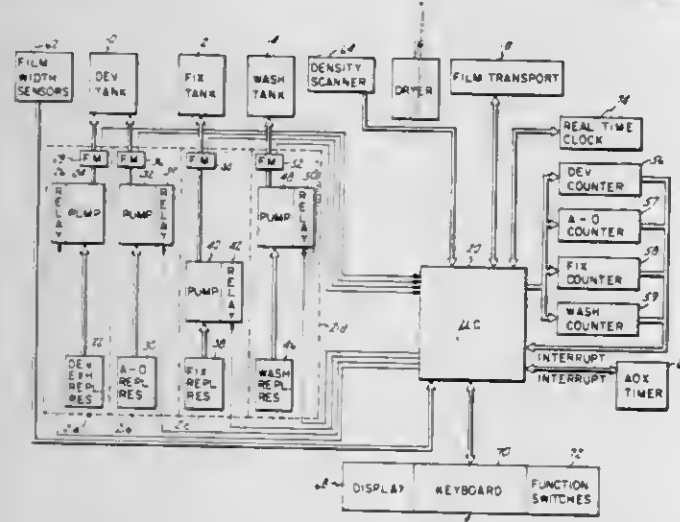
AUTOMATIC INVERSE FIX REPLENISHMENT CONTROL
Kenneth M. Kaufmann, Minneapolis, Minn., assignor to Pako Corporation, Minneapolis, Minn.

Filed Jul. 14, 1980, Ser. No. 168,025

Int. Cl.³ G03D 3/06

U.S. Cl. 354—321

4 Claims



1. In a processor of strips of photosensitive material having a developer tank for containing developer fluid; a fix tank for containing fix fluid; a wash tank for containing wash fluid; a dryer for drying the strips; means for sequentially transporting the strips through the developer tank, the fix tank, the wash tank, and the dryer; means for determining area of a strip transported through the processor; means for sensing density of the strip after the strip has been transported through the developer tank and the fix tank; means for storing a developer exhaustion rate; means for automatically determining a developer exhaustion replenishment value as a function of a product of the determined area of the strip, the sensed density of the strip, and the stored developer exhaustion rate; means for supplying a quantity of developer exhaustion replenishment fluid to the developer tank as a function of the developer exhaustion replenishment value; the improvement comprising:

means for storing a fix replenishment rate;
means for automatically determining a fix replenishment value as a function of a product of the determined area of the strip, an inverse of the sensed density of the strip, and the stored fix replenishment rate; and
means for supplying a quantity of fix replenishment fluid to the fix tank as a function of the fix replenishment value.

4,314,754
IMAGE FORMING APPARATUS
Katsuichi Shimizu, Tokyo; Osamu Sawamura, Atsugi; Shunichi Masuda, Tokyo; Masahiro Tomosada, Kawasaki, and Hisashi Sakamaki, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

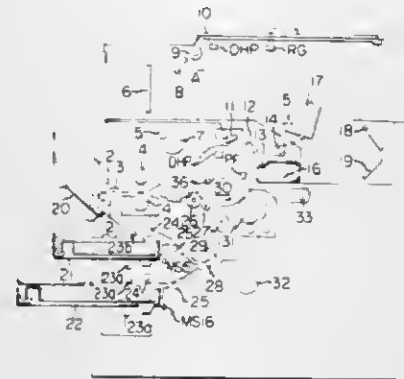
Filed Mar. 1, 1978, Ser. No. 882,626

Claims priority, application Japan, Mar. 2, 1977, 52-22982

Int. Cl.³ G03G 15/00

U.S. Cl. 355—14 C

20 Claims



- I. An image forming apparatus having
 - (a) active loads for forming an image upon a recording medium,
 - (b) input means for entering copying operation instruction and sense signals,
 - (c) control means for controlling said active loads in response to the signals from said input means, said control means consisting of a semiconductor element including first memory means for storing therein a program for sequentially controlling said active loads, second memory means for storing therein input data, a processing unit for processing said input data and said program, input ports for receiving the signals from said input means, and output ports for providing control signals to said active loads, wherein at least one of said output ports provides a latch signal during the time of operation of one of the active loads, said first and second memory means, said processing unit and said input and output ports being integrally formed, and
 - (d) gate means for connecting another one of the active loads to said latch signal to provide a said output port for controlling said active loads which are larger in number than said output ports.

4,314,755
BIAS VOLTAGE CONTROLLED DEVELOPING SYSTEM IN AN ELECTROPHOTOGRAPHIC COPYING MACHINE

Hiroshi Kinashi, Uji, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Oct. 29, 1979, Ser. No. 89,235

Claims priority, application Japan, Oct. 31, 1978, 53-134976

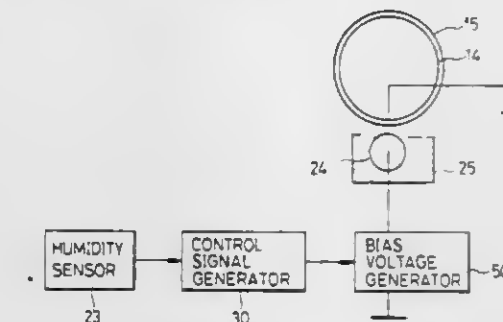
Int. Cl.³ G03G 15/00

U.S. Cl. 355—14 D

10 Claims

4. A developing system for developing an electrostatic latent image formed on a photosensitive material in a copying machine, said photosensitive material having an insulator layer formed thereover, said developing system comprising:

a developing device for applying a toner to said electrostatic latent image formed on said photosensitive material;
bias voltage application means for applying a bias voltage between said developing device and said photosensitive material;
humidity sensor means for sensing the humidity in said copying machine;
control signal generator means for developing a control signal in accordance with the humidity sensed by said humidity sensor means; and



bias voltage variation means responsive to said control signal for varying the level of said bias voltage in response thereto, said bias voltage variation means increasing the bias voltage when the humidity sensed by said humidity sensor means increases above a particular value and decreasing the bias voltage when the humidity sensed by said humidity sensor means decreases below said particular value.

4,314,756

CLEANING DEVICE

Joji Amitani, Yokohama; Takashi Ito, Kawasaki, and Kazuhiro Hirayama, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

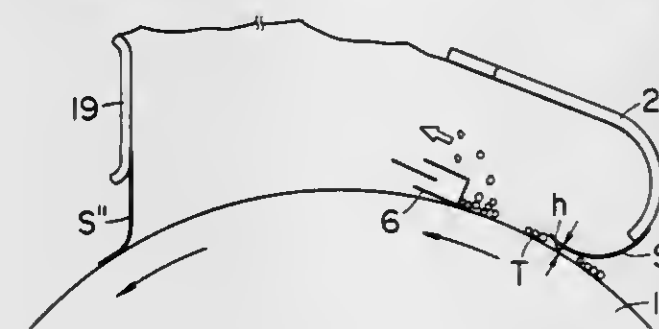
Filed Aug. 30, 1979, Ser. No. 70,983

Claims priority, application Japan, Sep. 1, 1978, 53-107881

Int. Cl.³ G03G 21/00

U.S. Cl. 355—15

14 Claims



1. A cleaning device for removing developer remaining on an image bearing member, which comprises an elastic cleaning blade contacting the image bearing member, hood means for covering the vicinity where the blade bears against the image bearing member, means for creating a suction within said hood means, and means for guiding air flow to strike against said blade bearing portion, said air flow guiding means having a sheet like member which is of a flexible material.

4,314,757

PHOTOGRAPHIC PRINTER WITH AUTOMATIC PAPER SPLICE DETECTOR

Richard D. Anderson, Maple Grove; Jess F. Fauchler, II, Crystal, and Francis M. Laciak, Brooklyn Park, all of Minn., assignors to Pako Corporation, Minneapolis, Minn.

Filed Sep. 11, 1980, Ser. No. 186,215

Int. Cl.³ G03B 29/00, 27/52

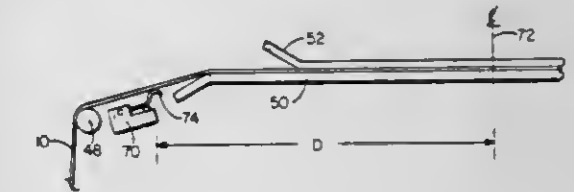
U.S. Cl. 355—29

5 Claims

1. A photographic printer of the type in which photographic images are recorded on a web of photographic paper, and in

which the photographic paper web may contain a paper splice, with a splice warning slot preceding the splice, the photographic printer comprising:

means for defining a printing aperture;
paper feed means for advancing the photographic paper web a predetermined feed length during each paper feed cycle to advance an unexposed portion of the web to the printing aperture;
exposure means for exposing the web at the printing aperture to record a photographic image during each exposure cycle;
splice sensor means positioned along the path of the web upstream from the printing aperture for sensing the presence of the splice warning slot and providing a signal indicative of the presence of a paper splice in the web; and



control means for controlling the paper feed means and the exposure means in response to a signal from the splice sensor means to cause the paper splice to be advanced past the printing aperture by moving the print paper in integral feed lengths without a photographic image being recorded on a portion of the web containing the paper splice, wherein the control means determines the number of paper feed cycles which can be completed before the splice warning slot reaches the printing aperture, and permits normal operation of the printer until the determined number of exposure and paper feed cycles has been completed; and then advances the paper, while inhibiting exposure cycles, by causing the paper feed means to initiate an additional number of paper feed cycles to advance the paper splice past the printing aperture.

4,314,758

SPECIAL EFFECTS PHOTOGRAPHIC PRINTING EASEL ARRANGEMENT

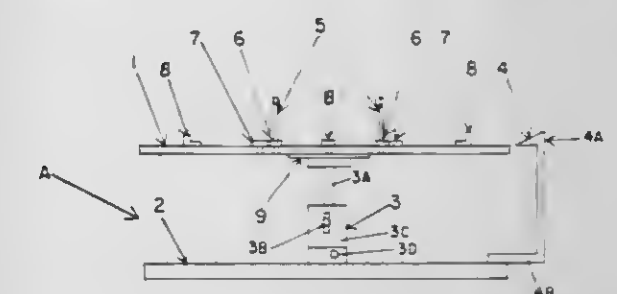
William E. Kazierod, 130 E. Bernice Dr., Northlake, Ill. 60164

Filed Nov. 15, 1978, Ser. No. 960,920

Int. Cl.³ G03B 27/52

U.S. Cl. 355—40

8 Claims



1. A photographic printing easel device comprising:
a circular bed mounted for rotational movement about its central axis and defining a generally planar top surface against which photographic printing paper may be laid, means for indexing the printing paper centrally of the bed when the paper is applied thereto in its exposing position, a mask of circular form having its outer rim edge of a diameter less than that of said bed,
said bed having on said surface a plurality of indexing elements radially spaced about said bed and at equal distances from said bed axis, which distances equal the radius of said mask,
said indexing elements being formed on their sides facing said axis to comprise said indexing means and including means for seating the printing paper against said bed sur-

face and in movement restraining relation with said indexing elements when the printing paper is applied in its exposing position.

said indexing elements being further formed to define like coplanar seating lands paralleling and above said bed surface and like upstanding outer guide walls struck on an arc that complements that of said mask edge for seating the mask on said bed over the printing paper, when in its exposing position, in engagement with said seating lands and between said guide walls for journalling the mask on the bed for rotational movement about said bed axis, relative to said bed,

said mask being formed from light opaque material and being shaped to define an open sector defining spaced apart side edges that are radially disposed with respect to said mask and that are at an angle that divides into 360 with an equal whole number quotient,

said bed surface having delineated thereon a scale comprising a plurality of angular subdivisions extending radially of said bed of which adjacent of said subdivisions are at said angle at said bed axis,

said bed surface being further delineated to define a zero datum extending radially of said bed surface and bisecting the space between two of said angular subdivisions to form an initial printing position of said bed with which said mask sector may be aligned for photographic printing exposure purposes over the printing paper by aligning the mask sector side edges with those of said angular subdivisions next adjacent to said datum zero on either side of said datum zero,

and a datum marker adjacent the bed rim with which said bed surface angular subdivisions may be consecutively aligned to orient said bed and said mask at consecutive printing positions of said bed corresponding in number to said quotient number,

whereby the printing paper may have applied thereto consecutively in a circular pattern about said bed axis a number of images equal in number to said quotient number by, after one of said image exposure has been made on the paper, consecutively shifting said easel about its axis in one direction about said axis to consecutively dispose said angular subdivisions in alignment with said datum marker and then shifting said mask about said axis in the other direction to expose through the mask sector the next adjacent sector of the printing paper that is to have the next image to be applied thereto.

8. The method of forming a plurality of images of a predetermined number on photographic printing paper in a circular manner about the center of the paper, which method comprises:

taking a photographic easel bed mounted for rotational adjustment movement about a vertical axis and having an upwardly facing surface formed to define a scale comprising a plurality of angular subdivisions extending radially of said bed of which adjacent of said subdivisions are at an angle at said bed axis that divides into 360 with a whole number quotient equal to said number,

said bed surface being further delineated to define a zero datum extending radially of said bed surface and bisecting the space between two of said angular subdivisions to form an initial printing position of said bed,

applying the printing paper on the bed in centered relation thereto,

taking a circular mask proportioned to cover said paper and formed to define an open sector defining spaced apart side edges that are radially disposed relative to the mask and at said angle with respect to each other, and shiftably positioning said mask on the bed over the paper in said initial printing position with the mask axis aligned with the bed axis, and the mask sector aligned with said one angular subdivision, by aligning the mask sector side edges with those of said angular subdivisions next adjacent to said datum zero on either side of said datum zero,

making the initial printing exposure on the paper through the mask sector,

and then consecutively shifting the easel bed about its axis in one direction to consecutively dispose said angular subdivisions in alignment with a stationary datum marker, shifting the mask about said axis in the other direction to expose through the mask sector the next adjacent sector of the paper that is to have the next image to be applied thereto, and forming such image on the paper to complete the formation of said number of images on said paper.

4,314,759

PLATE ELEMENT FOR HOLDING AN ORIGINAL, IN A REPRODUCTION DEVICE

Heinz Webersik, Munich, Fed. Rep. of Germany, assignor to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

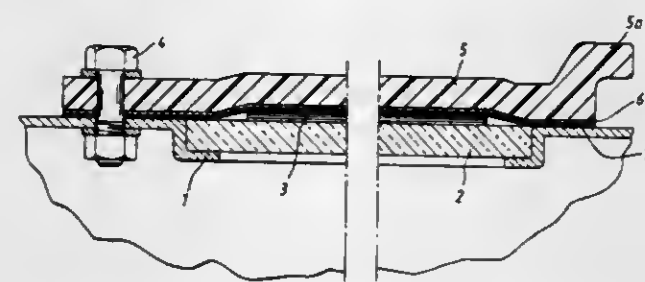
Filed Jan. 30, 1980, Ser. No. 116,873

Claims priority, application Fed. Rep. of Germany, Feb. 23, 1979, 2907037

Int. Cl.³ G03B 27/62

U.S. Cl. 355—75

7 Claims



1. A plate element for holding an original in a reproduction device, comprising a flexible body part having a lower surface facing toward an original; and means forming a light-colored upper reflecting face on said lower surface of said body part, said forming means including a light-reflecting white paper layer which has an inner surface facing toward and connected with said lower surface of said body part, and an outer surface facing away from the same and lined with a pellucid synthetic plastic foil.

4,314,760

OPTICAL SENSING DEVICE

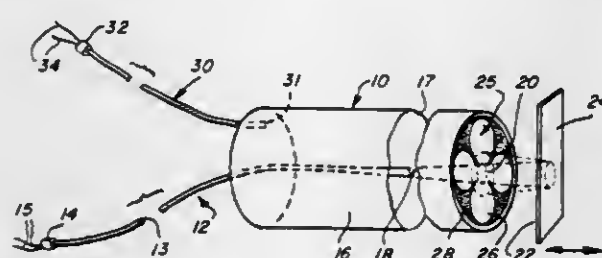
Malcolm H. Hodge, Claymont, Del., and Leroy Tabb, Jr., Glen-side, Pa., assignors to TRW Inc., Elk Grove Village, Ill.

Filed Aug. 27, 1979, Ser. No. 69,680

Int. Cl.³ G01C 3/08

U.S. Cl. 356—4

14 Claims



1. In an optical sensing system for measuring distances to a light-reflecting surface to be sensed, the combination comprising a light source for emitting a cone of light signal to a light-reflecting surface to be sensed; light-sensitive means for translating light received from a light-reflecting surface into signals corresponding to the light quantity received; light-masking means positioned between a light-reflecting surface to be sensed which is disposed on one side of said light-masking means, and said light-sensitive means which is disposed on the other side of said light-masking means and positioned at a designed distance from said light sensitive means; said light-masking means having a first translucent area through which said

cone of light and light reflecting from a light-reflecting surface to be sensed pass; said masking means having a second area surrounding said first area which is partially translucent for allowing a portion only of reflected light striking the same to pass therethrough to said light-sensitive means; said second area also having an opaque portion predeterminedly formed for masking out increased quantities or reflected light with increased light-masking means to reflecting surface distance until the reflected light from such light-reflecting surface extends beyond the outer periphery of said masking means such that the quantity of reflected light reaching said light sensitive means varies as a predesigned function of the distance between said masking means and such reflecting surface.

4,314,761

ARRANGEMENT FOR LOCATING RADIATING SOURCES

Jean C. Reymond; Jean L. Hidalgo, and Claude Skenderoff, all of Paris, France, assignors to Thomson-CSF, Paris, France

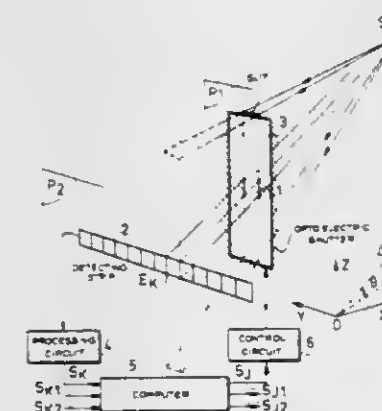
Filed Apr. 1, 1980, Ser. No. 136,333

Claims priority, application France, Apr. 6, 1979, 79 08786

Int. Cl.³ G01B 11/26; G02F 1/03

U.S. Cl. 356—141

8 Claims



1. A sensor system for location of radiation sources comprising:

an optical mask for allowing penetration of radiation from the source solely along transparent zones of predetermined shape;

detection means constituted by linear detecting arrays of photo-sensitive elements disposed in a detection plane parallel to the mask for detection of the said source radiation transmitted through the said transparent zones;

circuits for processing the signals detected by said linear arrays and producing control signals identifying the positions of elements sensitized by the radiation transmitted through the mask;

ancillary computing means for computing the source location from the said position identifications;

optoelectrical shutter means for dividing each of the transparent zones into juxtaposed regions and for opacifying said zones except the regions which substantially transmit light from the said radiation source to the said detection plane solely onto photosensitive elements of the said linear arrays, said optoelectrical shutter means comprising electrically controlled optical shutter elements which correspond to said regions respectively and selection means for selecting shutter elements corresponding to the said transmitting regions by means of said control signals produced by the said computing means.

4,314,762

FOCUSED, SINGLE STRAND, OPTICAL FIBER ROTATIONAL ALIGNMENT IMAGE-SENSING AND COMPARING SYSTEM

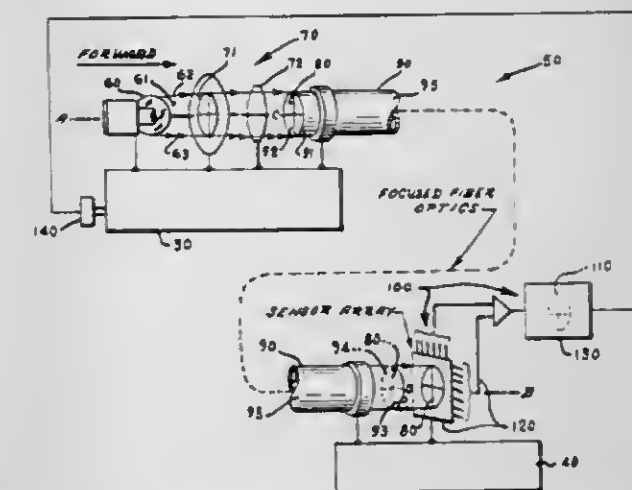
Laurence S. Gresko, Long Beach, Calif., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed May 30, 1980, Ser. No. 154,718

Int. Cl.³ G01B 11/26

U.S. Cl. 356—150

4 Claims



1. A focused, single strand, optical fiber rotational alignment image-sensing and comparing system for determining if a first member and a second member are rotationally aligned, wherein this system has an optical axis, comprising:

a. a light source attached to said first member and emitting a light beam;

b. means for intercepting said emitted light beam, forming an image with said intercepted beam, and transmitting said formed image, wherein this means is attached to said first member and is disposed forward of and in optical alignment with said emitted light beam;

c. a single strand of focused optical fiber having an optical axis coincident with said optical axis of this rotational alignment image-sensing and comparing system, a first end with a flat face that is perpendicular to said axis, a second end with another flat face that is perpendicular to said axis, a peripheral surface, and a parabolic refractive index which is largest at said axis and continuously decreases toward said peripheral surface, wherein this single strand of focused optical fiber is attached at said first end to said first member and is attached at said second end to said second member, and wherein said single strand of focused optical fiber is disposed forward of and in optical alignment with said light beam-intercepting and image-forming and transmitting means, and also wherein said signal strand of focused optical fiber is concurrently disposed such that said flat face at said first end thereof is in optical alignment with said light beam-intercepting and image-forming and transmitting means, thereby said image transmitted by this means impinges upon said first end flat face, is transmitted through this single strand of focused optical fiber to said second end flat face thereof, and is emitted from and is transmitted at said second end flat face;

d. and, means for sensing said formed image that is emitted from and is transmitted at said second end flat face of said single strand of focused optical fiber, and for comparing this emitted and transmitted formed image to a stored identical image whose rotational position, relative to said optical axis of this rotational alignment image-sensing and comparing system, has been preselected to indicate correct alignment of said first and second members; whereby a rotational displacement of said formed image as compared to said stored image can be ascertained, and

thereby a rotational mis-alignment of said first member as compared to said second member can be determined.

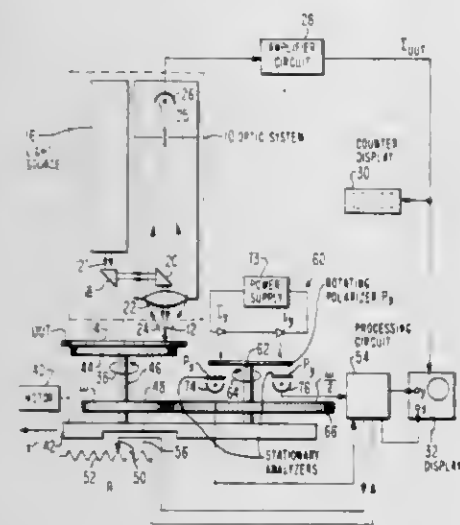
4,314,763

DEFECT DETECTION SYSTEM

Edgar F. Steigmeier, Hedingen, and Karl Knop, Zurich, both of Switzerland, assignors to RCA Corporation, New York, N.Y.
Filed Jan. 4, 1979, Ser. No. 813
Int. Cl.³ G01N 21/88

U.S. Cl. 356—237

13 Claims



1. In a system for optically detecting microscopic defects in a certain specularly reflecting surface of a given object, said system comprising first means for scanning said surface with an incident beam of light that illuminates a relatively small spot area of said entire surface area, which spot area is large relative to the area of any microscopic defect, and second means for detecting substantially only non-specularly reflected light from said surface; the improvement:

wherein said first means includes third means for directing said incident beam substantially normal to said surface, whereby substantially all said specularly reflected light is reflected in a direction substantially normal to said surface, and

wherein said second means includes a focusing device having a large aperture area relative to said spot area, said device being situated in spaced relationship with said spot area to subtend a certain solid angle disposed about a normal to said spot area, whereby substantially all reflected light within said certain solid angle may be captured by said device, and

wherein said second means further includes a photo detector located in an image plane of said device for receiving light reflected by said surface, and a spatial filter having a small aperture area relative to that of said device situated between said device and said detector in the path of said received reflected light for removing that portion thereof which is specularly reflected.

4,314,764

CHEMICAL ANALYSIS SAMPLE CONTROL

Peter R. Liddell, North Bayswater; Antony S. Pearl, deceased, late of Griffith, Australia, and by Edmund Calvert, administrator, Canberra, Australia, assignors to Varian Tectron Party Ltd., Victoria, Australia

Filed Oct. 17, 1978, Ser. No. 952,176

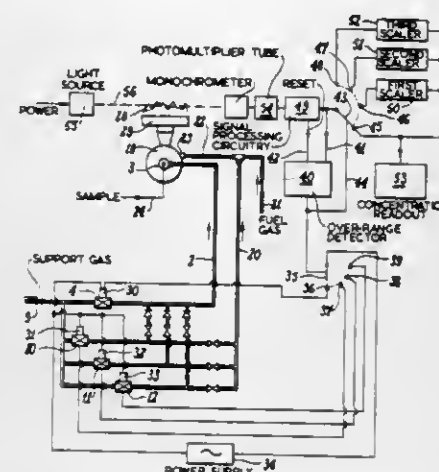
Claims priority, application Australia, Oct. 18, 1977, PD2098
Int. Cl.³ G01N 21/72

U.S. Cl. 356—315

22 Claims

1. A method of controlling dilution of sample concentration for spectroscopic analysis of a sample including the steps of, receiving light in a photodetector characteristic of said sample, feeding a sample in liquid concentrate form to a nebulizer, said sample including an element of interest, feeding a support gas under pressure to the nebulizer to nebulize said sample and to

carry the nebulized sample into an analysis zone, and controlling the flow of said support gas to said nebulizer to regulate the rate of said sample to said analysis zone and to thereby control the density of atoms of said element present in said analysis zone so as to be within a measurable range, controlling



said flow of support gas to said nebulizer in response to said photodetector response, said control providing division of said support gas before said nebulizer so that part of said support gas only influences the uptake of said sample at said nebulizer, and the remainder of said support gas flow is fed to said analysis zone through a pass by-passing said nebulizer.

4,314,765

DEGASSER ON A WORM-TYPE MELTING AND CONVEYING DEVICE FOR A PLASTIC INJECTION MOLDING MACHINE

Alfons Hotz, Näfels, Switzerland, assignor to Netstal-Maschinen AG, Switzerland

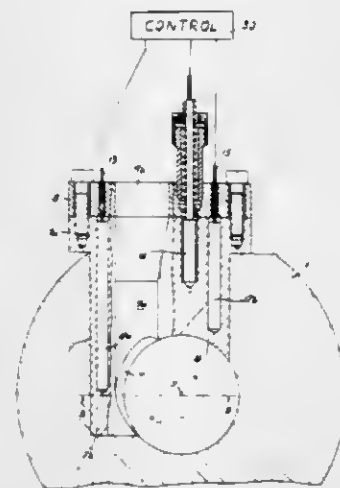
Filed Feb. 15, 1980, Ser. No. 121,980

Claims priority, application Switzerland, Mar. 7, 1979, 2204/79

U.S. Cl. 366—75

Int. Cl.³ B29B 1/10

5 Claims



1. In a melting and conveying device for a plastic injection molding machine, having a melting cylinder with a cylindrical bore therein and a worm member in the cylindrical bore, a degasser, comprising, a vent pin extending into the melting cylinder in a degassing zone of the cylindrical bore, said vent pin having a charging pocket communicating with the cylindrical bore and a vent opening communicating the pocket with the atmosphere, and heat means connected to said vent pin for heating the pocket and vent opening separately of any other heating in the plastic injection molding machine, said heat means comprising at least one heating element extending into said vent pin parallel to a major axis of said vent pin, said heating element extending into the vicinity of said charging pocket.

4,314,766

SPECTACLE CLEANING DEVICE FOR DOMESTIC USE

Guy Lapeyre, Paris, and Jean Thiebaut, Creteil, both of France, assignors to Essilor International (Compagnie Generale d'Optique), Paris, France

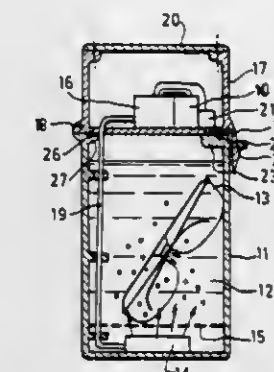
Filed Jan. 4, 1980, Ser. No. 109,462

Claims priority, application France, Jan. 30, 1979, 79 02273

Int. Cl.³ B01F 13/02; B08B 11/00

U.S. Cl. 366—101

3 Claims



1. A spectacle cleaning device comprising: an open top container for containing a liquid detergent and spectacles, a cover movable between a first position spaced from said open top of the container and a second position where it covers said open top, an air diffuser mounted in the container below the level of the liquid for air agitating said liquid detergent, an electrically energizable pressurized air generator for feeding pressurized air to said diffuser, an electric voltage supply, a push-button switch for controlling the energization of said generator by said supply, and fixed abutment means for depressing said push-button switch when the cover is moved to its second position, so as to activate said air generator.

4,314,767

DISPENSER OF HOT BEVERAGES PREPARED FROM WATER SOLUBLE EXTRACTS

Luigi Milani, via Spano 6/16, Turin, Italy

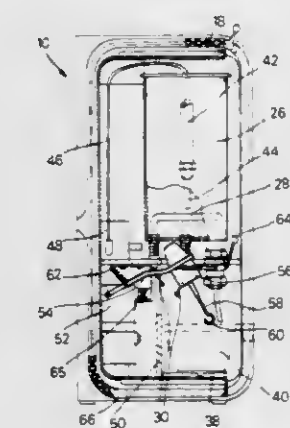
Filed Feb. 6, 1980, Ser. No. 119,133

Claims priority, application Italy, Feb. 6, 1979, 67252 A/79

Int. Cl.³ B01F 15/06

U.S. Cl. 366—148

5 Claims



1. A dispenser for hot beverages prepared from water soluble extracts, said dispenser comprising a frame containing a water tank having a thermostatically controlled heater and a spigot for discharging heated water into a cup, a motor, a beating shaft coupled to and driven by said motor, an arm coupled to said beating shaft and pivotally coupled to the said frame, means for moving said arm downwardly until one extremity of said beating shaft is immersed in the heated water in the cup, said motor and said beating shaft being controlled by

a normally open switch that is actuated by said arm at the end of its downward movement and, a return spring for maintaining said arm in a normally raised position to permit the removal of the cup from the dispenser.

4,314,768

SYRUP FEED SYSTEM FOR DRINK DISTRIBUTION APPARATUS OF THE AFTER-MIXING TYPE

Luigi Goglio, Via Frua 11, and Aldo Bassetti, Via Serbelloni 1, both of Milano, Italy

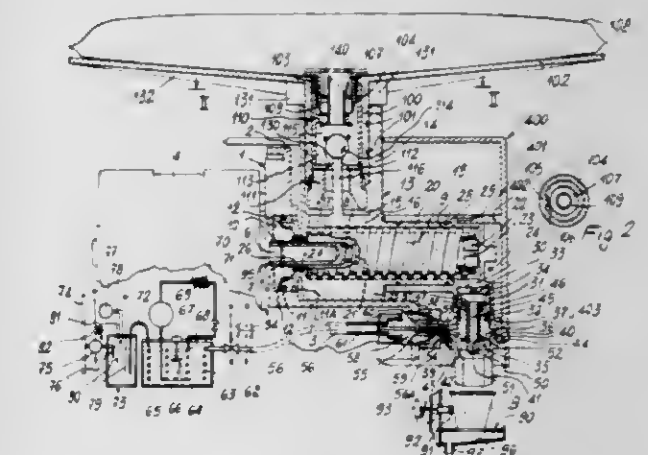
Filed May 7, 1979, Ser. No. 36,735

Claims priority, application Italy, May 5, 1978, 21739/78[U]; May 16, 1978, 21876/78[U]; Mar. 7, 1979, 20806 A/79

Int. Cl.³ B01F 15/02

U.S. Cl. 366—156

33 Claims



1. A syrup feed system for drink distribution apparatus of the after-mixing type, comprising a mixing zone, means for dispensing syrup to said zone and means for simultaneously feeding water to said zone with which to dilute the syrup, the system comprising a flexible container containing syrup and provided with apierceable nozzle, support means for said container, means for receiving at least part of said nozzle, means for piercing said nozzle and means for conveying the syrup from the pierced nozzle to said syrup dispensing means.

4,314,769

ACOUSTICAL TONE GENERATOR

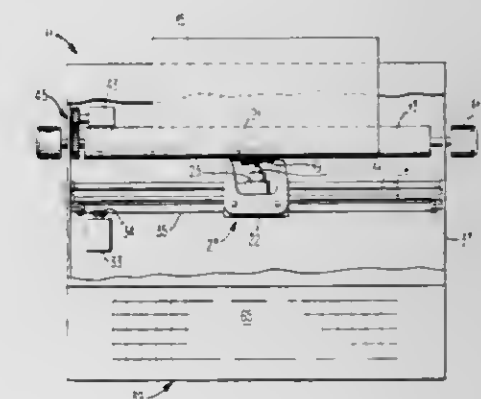
Edmund H. James, III, Lexington, Ky., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 2, 1980, Ser. No. 155,289

Int. Cl.³ B41J 1/30, 29/46

U.S. Cl. 400—144.2

4 Claims



1. In a typewriter/printer comprising a daisy wheel typefont driven by a variable reluctance selection stepper motor having stacked laminates, and control means for controlling the rotation of said stepper motor, the improvement comprising means for generating at least one acoustical tone of predetermined frequency for signaling at least one predetermined event, including:

detecting means within said control means for detecting the occurrence of said predetermined event and for identifying this event;

selecting means responsive to said detecting means for selecting said at least one of said acoustical tones;

generating means within said control means and responsive to said detecting and selecting means, for generating the selected tone, said generating means including:

(a) means for driving the stepper motor for rotating said stepper motor in one direction;

(b) delay means responsive to said means for driving, for maintaining said driving during a given time delay which at least proximates to one over twice the frequency of the selected acoustical tone, said delay means including a delay table storing digitally coded delay values;

(c) means responsive to said delay means for subsequently driving the stepper motor for rotating said stepper motor in the reverse direction and during the same given time delay; and

(d) control means connected to said means for driving, to said delay means and to said means for subsequently driving, for repetitively and sequentially controlling the operation of said means for driving, delay means and means for subsequently driving for a predetermined number of times;

whereby the daisy wheel is made to vibrate the surrounding air and generate said selected tone.

4,314,770

DETACHABLE CONNECTION ASSEMBLY FOR A PRINTING ELEMENT IN AN ELECTRIC OFFICE MACHINE

Kurt J. S. Harre, Karlshamn, Sweden, assignor to Aktiebolaget Electrolux, Stockholm, Sweden

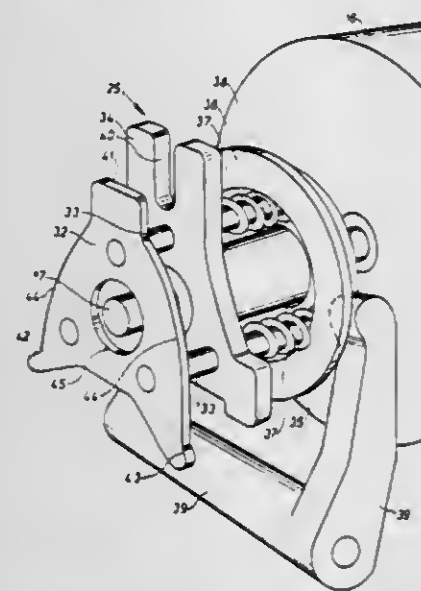
Filed Jan. 8, 1980, Ser. No. 110,533

Claims priority, application Sweden, Jan. 12, 1979, 7900299

Int. Cl.³ B41J 1/30

U.S. Cl. 400—175

13 Claims



1. In an electric motor-driven office machine the improvement comprising: an assembly for detachably connecting a print element to a motor shaft, said print element being of the general shape of a circular plate having flexible, radially extending arms each of which supports a character on the extreme peripheral end thereof, a dog member rigid with the motor shaft, a fixing means rotating with said shaft for supporting the print element, an actuation means for moving the fixing means along the motor shaft between a working position in which said fixing means is situated coaxially about said motor shaft and in which the print element is connected with and centered by the motor shaft and a loading position in which the fixing means is situated outside the end of said motor shaft, said print element being provided with attachment shoulders coacting with cooperating surfaces on said fixing means to detach-

ably return said print element on said fixing means, the print element in the working position of the fixing means being clamped between axially opposite surfaces on the fixing means and the dog member respectively.

4,314,771

EXTENSION CONNECTOR

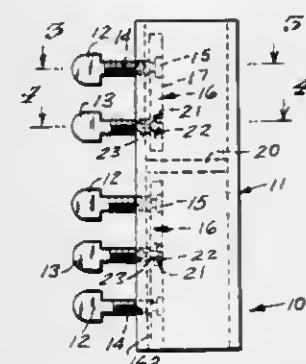
Hubert L. Lambert, Apt. A, 3512 Arcadia St., P.O. Box 413, Norfolk, Va. 23501

Filed Oct. 2, 1979, Ser. No. 81,112

Int. Cl.³ F16B 7/00

U.S. Cl. 403—305

5 Claims



1. An extension connector for coupling the ends of a first and second shaft comprising an open ended sleeve for receiving the ends of said first and second shafts, at least one threaded opening in said sleeve, the central axis of said threaded opening being substantially normal to the central axis of said sleeve, a threaded actuator means rotatably mounted in said threaded opening for movement into and outwardly of said sleeve, said threaded actuator means having an inner end positioned within said sleeve, a pair of arcuate-shaped arms each having a first free end and a second end, mounting means for mounting said arcuate-shaped arms for pivotal movement on and connection to the inner end of said actuator means, said arcuate shaped arms extending from opposite sides of the inner end of said actuator means, and fulcrum means mounted within said sleeve and between said sleeve and mounting means to contact said arcuate shaped arms and pivot said arms about the inner end of said actuator means to move the first free ends thereof toward one another and inwardly of said sleeve as said actuator means is moved outwardly relative to said sleeve.

4,314,772

GROUND HEATING SYSTEM

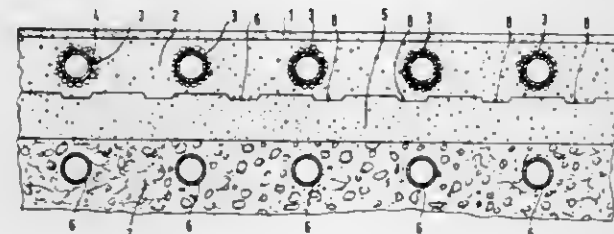
Jakobus W. Lestrade, Nachtegall, 4, Sassenheim, Netherlands

Filed Dec. 13, 1979, Ser. No. 103,161

Int. Cl.³ E01C 3/06

U.S. Cl. 404—27

6 Claims



1. A ground heating system particularly for tracks such as runways, take-off and landing strips, parking lots and the like comprising a supply system for heat and a supply system for water to control the ground humidity wherein a porous stabilization layer is provided between the systems for the heat supply and the water supply to function as a water distributor and heat storage medium.

4,314,773

HIGH DENSITY CONCRETE PLACER

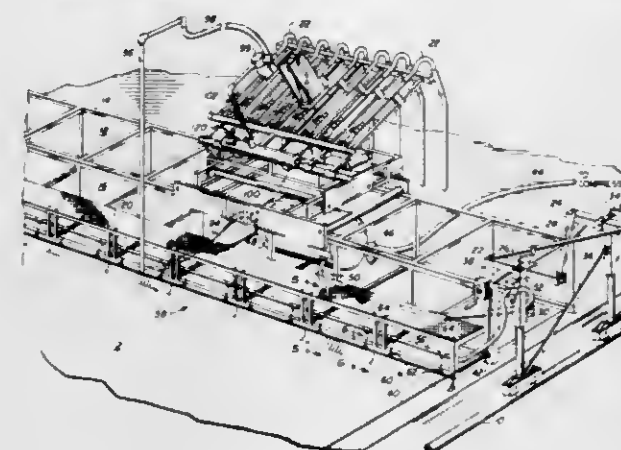
J. Dewayne Allen, Paragould, Ark., assignor to Allen Engineering Corporation, Paragould, Ark.

Filed Dec. 21, 1979, Ser. No. 105,938

Int. Cl.³ E01C 19/38

U.S. Cl. 404—116

53 Claims



36. A high density concrete placer longitudinally translatable along a pair of parallel oriented support rails positioned adjacent to an area in which wet concrete has been poured comprising:

- a bridge having first and second ends;
- first and second roller assemblies coupled to the first and second ends of said bridge and contacting the support rails for supporting said bridge above the upper surface of the wet concrete and for enabling said bridge to be longitudinally translated along the support rails;
- means coupled to the first and second ends of said bridge for controlling the elevation of said bridge with respect to the surface of wet concrete;
- a table having front and rear sides and including:
 - a subframe having a front side pivotally coupled to the front side of said table;
 - a plurality of immersible vibrator units coupled at spaced apart intervals to the rear side of said subframe and descending vertically downward therefrom for vibrating a segmental width of said wet concrete, wherein said segmental width is substantially less than the width of said concrete;
 - means coupled to said table and to said subframe for vertically displacing the rear side of said subframe between a first and a second position wherein said vibrator units are elevated above the surface of the wet concrete in the first position and are immersed in the wet concrete in the second position; and
- means coupled to said bridge and to said table for enabling said table to be incrementally laterally translated between the first and second ends of said bridge; whereby said table may be laterally translated an incremental distance along said bridge when said vertical displacing means is in the first position; a segmental width of said concrete is vibrated when said vertical displacement means is in the second position; and the entire width of said wet concrete may be vibrated after at least one lateral translation of said table with respect to said bridge.

4,314,774

PNEUMATICALLY INFLATABLE FLEXIBLE ENVELOPE TYPE DAM

Yoshiomi Tsuji; Akio Matsuda; Tamaki Ikeda, and Kenji Mori, all of Osaka, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Oct. 29, 1979, Ser. No. 88,915

Claims priority, application Japan, Oct. 31, 1978, 53-134756

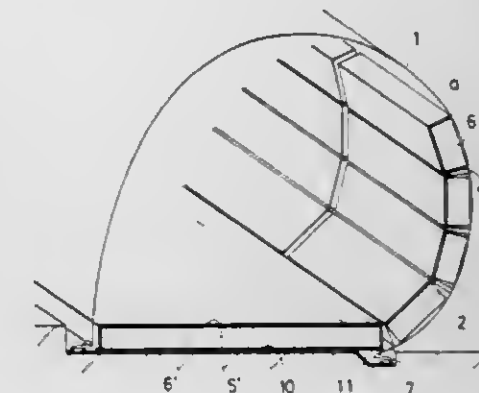
Int. Cl.³ E02B 7/02

U.S. Cl. 405—115

13 Claims

1. In an inflatable flexible envelope dam for damming a river,

including a flexible envelope having an open end fixed to a river bed, said envelope being inflatable with a fluid to form an upstanding dam, and being deflatable so that said envelope falls down upon discharge of said fluid therefrom, whereby following said discharge, a residual amount of said fluid remains in



said envelope, the improvement comprising at least one attaching piece attached to said envelope, said attaching piece having a large specific gravity, the combined weight of said envelope, attaching piece, and residual amount of fluid being greater than the weight of said river displaced by said envelope, attaching piece, and fluid.

4,314,775

METHOD OF SITE CASTING TUNNELS, CULVERTS, PRESSURE PIPES WITH MINIMUM FORMING

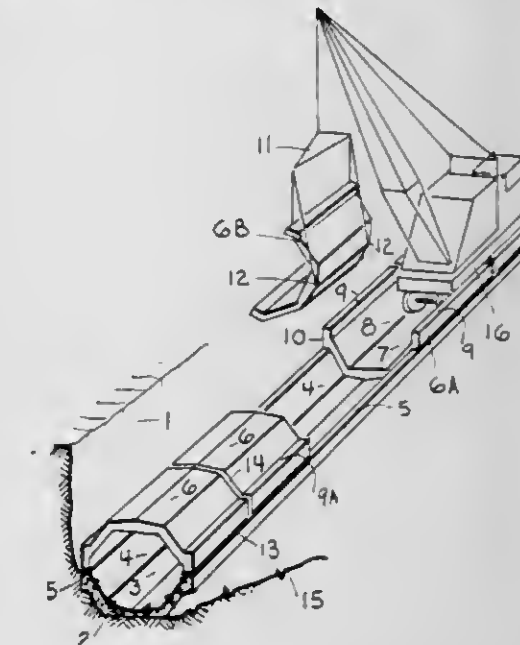
Delp W. Johnson, 240 Oakview Dr., San Carlos, Calif. 94070

Filed Sep. 10, 1979, Ser. No. 74,084

Int. Cl.³ E02D 29/10

U.S. Cl. 405—155

34 Claims



1. Methods of constructing a hollow structure in situ, comprising the steps of first casting a material to form a lower portion of the structure, said portion comprising a bottom and walls extending upward from said bottom, and; utilizing this first portion of the structure as a mold, casting therein a material to form a second portion, said second portion comprising a second bottom and walls extending upward from said second bottom; and lifting said second portion of the structure from said first portion; and inverting said second portion, and; lowering said second portion onto said first portion, position lower edges of walls of said second portion in position to support second portion of structure over said first portion of structure.

4,314,776

OFFSHORE DRILLING AND PRODUCTION
STRUCTURE

Harry E. Palmer; David G. C. Stenning, both of Calgary, Canada, and Ray K. Crockett, Perth, Australia, assignors to Dome Petroleum Limited, Calgary, Canada

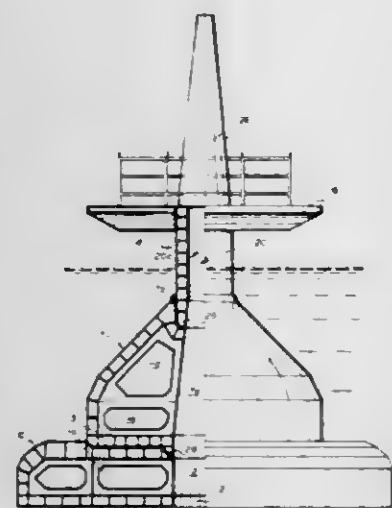
Filed Jun. 21, 1979, Ser. No. 50,607

Claims priority, application Canada, Jun. 21, 1978, 305916

Int. Cl.³ E02D 23/02

U.S. Cl. 405—205

14 Claims



1. A marine structure adapted to be located offshore in a body of water so as to provide elevated support for a working platform, said structure being of composite construction and comprising:

- (1) a first selectively floatable and submergible base section, adapted to be installed on the floor of said body of water;
- (2) a second selectively floatable and submergible, substantially conical section constructed and arranged to be locatable on and releasably engagable with said base section, to extend vertically therefrom and to be vertically separable therefrom such that the conical section can be buoyantly elevated and removed independently of said base section and temporarily or permanently, so as to permit removal and transporting of said second section when conditions so dictate, and return of said second section and re-engagement with said base section when desired;
- (3) support means adapted to extend substantially vertically between said second section and said platform and to operably interconnect said second section and said platform; and
- (4) means operably associated with said support means to selectively effect elevation of said platform to a stable position above the surface of said body of water.

4,314,777

TENSION PILE SPLICE

Don S. Henderson, 2357 Dora Dr., Clearwater, Fla. 33515

Filed Jul. 2, 1979, Ser. No. 54,263

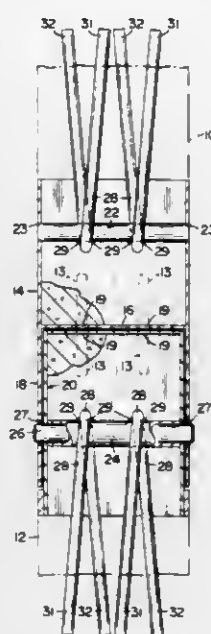
Int. Cl.³ E02D 5/30

U.S. Cl. 405—251

9 Claims

1. A tension pile splice joining a first and second concrete pile in axial alignment comprising:
- a bail sleeve closely fitted to the first pile and extending beyond the exterior of the end of the pile as a female socket;
- a first shear pin means comprising at least one rod extending transversely through the first pile for securing the pile to said bail sleeve, said rod being secured to said bail sleeve;
- anchor means secured to said shear pin means within the body of the pile for transfer of stress from said pin means to the interior of the first pile;
- said second pile having an end section fitted within the female socket of said bail sleeve;
- a second shear pin means being a composite comprising at least one pile sleeve extending transversely through the end section and a rod extending through said pile sleeve and be-

yond to engage said bail sleeve, said rod being secured to said socket portion of said bail sleeve; and



anchor means secured to said pipe sleeve within the body of the pile to transfer stress from said pin composite to the interior of the second pile, whereby said piles are aligned for compression and anchored against separation under tension.

4,314,778

FRICTION ROCK STABILIZER AND METHOD FOR
INSERTING THEREOF IN AN EARTH STRUCTURE
BORE

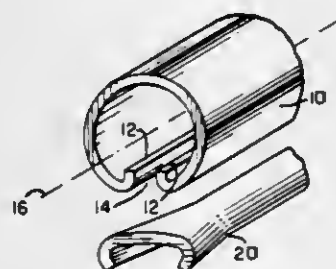
James F. Cantrel, Easton, Pa., assignor to Ingersoll-Rand Co., Woodcliff Lake, N.J.

Continuation of Ser. No. 95,375, Nov. 19, 1979. This application Feb. 12, 1981, Ser. No. 233,975

Int. Cl.³ E21D 21/00, 20/00

U.S. Cl. 405—259

4 Claims



1. A friction rock stabilizer, for insertion in a bore formed in an earth structure for stabilizing the structure comprising:
- a generally tubular body;
- said body having an elongate central axis and wall means for frictionally engaging the surface of an earth structure bore;
- said body further having a first, free, relaxed, transverse dimension predetermined to be larger than the transverse dimension of a bore into which it is to be inserted, and an axial length which is considerably greater than said transverse dimension; and
- said body also having an axially-extended slit formed through said wall means thereof to permit said body to assume a second, constrained, transverse dimension which is smaller than both said first transverse dimension and the transverse dimension of a bore into which it is to be inserted; wherein
- said wall means has overlapping, axially-extended and spaced-apart surfaces which: (1) define said slit therebetween, and (2) have axially extended, substantially parallel ribs formed adjacent to said surfaces for: (a) receiving contraction forces thereat, and (b) responsive to such

forces, for moving said ribs away from each other; wherein

said ribs project substantially radially, relative to said elongate axis, and extend axially along substantially the full length of said body; and

at least one of said ribs projects inwardly, from said wall means, generally toward said axis of said body.

4,314,779

METHOD OF AQUIFER RESTORATION

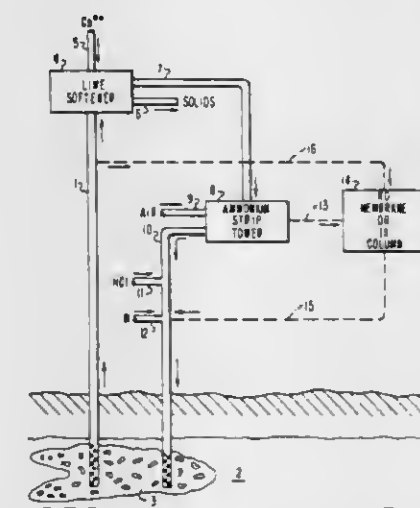
Parameswaran S. Sundar, Pittsburgh, Pa., and Erich W. Toppel, Littleton, Colo., assignors to Wyoming Mineral Corp., Lakewood, Colo.

Continuation of Ser. No. 25,513, Mar. 30, 1979, abandoned. This application Nov. 3, 1980, Ser. No. 203,308

Int. Cl.³ E21B 43/27, 43/28

U.S. Cl. 405—263

14 Claims



1. A method of restoring a clay-containing aquifer which has been solution mined with a solution containing ammonium ions comprising:

- (1) precipitating calcium carbonate from a solution pumped through said aquifer by the addition of calcium oxide, calcium hydroxide, or a mixture thereof in quantities sufficient to raise the pH to at least about 9.5;
- (2) separating said precipitated calcium carbonate from said solution;
- (3) removing ammonium ion from said solution;
- (4) recycling said solution through said aquifer and repeating steps (1), (2), and (3) until the bicarbonate ion concentration in said solution has been reduced to an extent such that step (5) can be performed without plugging said aquifer;
- (5) adding at least one soluble salt of calcium, magnesium, potassium, sodium, or mixtures thereof to said solution;
- (6) recycling said solution through said aquifer and repeating steps (1), (2), (3), and (5) until the ammonium ion level is reduced to a desired level; and
- (7) removing residual amounts of said salts introduced in step (5) from said aquifer.

4,314,780

TUBULAR KEY DUPLICATING MACHINE

Aaron M. Fish, Hampstead, Canada; Joseph H. Schlessel, and Seymour B. Minski, both of Rocky Mount, N.C., assignors to Unican Security Systems Corporation, Rocky Mount, N.C.

Filed Feb. 11, 1980, Ser. No. 120,731

Int. Cl.³ B23C 1/16

U.S. Cl. 409—81

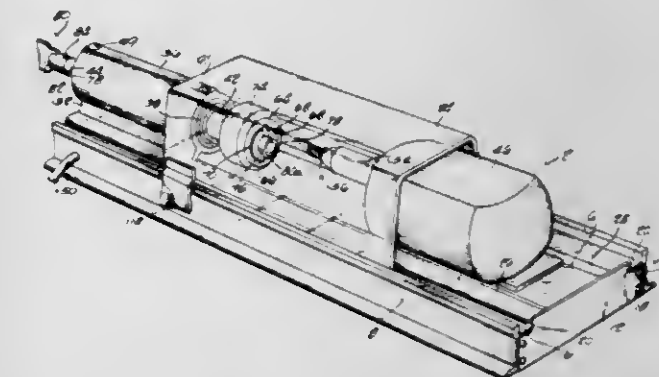
3 Claims

1. A key cutting machine for duplicating in the barrel of a tubular key blank the notches in the barrel of an original key, comprising
- a chassis,
- an end mill mounted on said chassis,
- a plunger having front and rear ends respectively disposed

towards and away from the end mill, and having on said front end a chuck for holding the keys blank,

plunger support means mounting said plunger on said chassis for endwise advancing and retracting reciprocating movement between advanced and retracted positions, respectively along an axis towards and away from the end mill and for rotation about said axis,

a key mounting on the rear end of the plunger for coaxially engaging the open end of the barrel of the original key for rotation therewith,



original key notch-engaging locator means on said plunger support means for entering original key notches in registry therewith, whereby angular orientation of the original key so as to register a notch with the locator means identically orients the key blank angularly with respect to the end mill, and

cooperative indexing means on said plunger and plunger support means for indexing the plunger to a predetermined angular position in the retracted position thereof.

4,314,781

COPYING MACHINE WITH AN OPTIC READING
DEVICE

Paul Willemin, Bassecourt, Switzerland, assignor to Willemin Machines S.A., Bassecourt, Switzerland

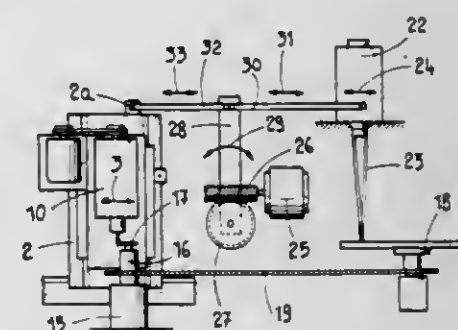
Filed Feb. 1, 1979, Ser. No. 8,240

Claims priority, application Switzerland, Feb. 6, 1978, 1269/78

Int. Cl.³ B23Q 35/10, 35/128, 35/40

U.S. Cl. 409—96

3 Claims



1. A copying machine including a frame, a movable workpiece support and a worktool, the worktool being mounted on a worktool support which is movable on the frame of the machine in at least three different directions relative to the workpiece support, the machine comprising:
- at least three separate, continuous and planar line curves moving in synchronism with one another and the workpiece support;
- at least three optical reading heads, each head cooperating with one of the curves simultaneously with the other heads and each head including means for displacing the head to follow the line of its associated curve;
- first connection means between the worktool support and a first one of the reading heads for moving the worktool

support in a first direction of the three directions of movement in response to displacement of the first reading head; second connection means between the worktool support and a second one of the reading heads for moving the worktool support in a second direction of the three directions of movement in response to displacement of the second reading head; and

third connection means between the worktool support and a third one of the reading heads for rotating the worktool support in a third direction of the three directions of movement in response to displacement of the third reading head;

so that displacements of the optical reading heads effected by their following the lines of the curves move the worktool support in all of the three different directions of movement with each line curve serving to control movement of the worktool support in one direction the worktool support including a first member linearly slidable along said first direction, a second member linearly slidable on the first member along said second direction, the first and second direction being perpendicular to one another, and an element articulated around an axis on the second member in said third direction, and further including a quill having an axis and being mounted on the element with the axis of the quill perpendicular to the axis on the second member so that the quill may rotate in said third direction around the axis of the second member and may linearly move in the first two directions.

4,314,782 TOOL GUIDE

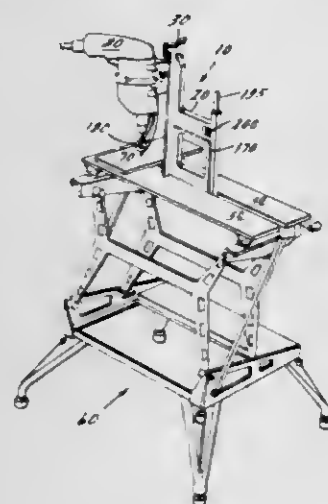
Gerald Beekenkamp, Mississauga, Canada, assignor to Black & Decker Inc., Newark, Del.

Filed Aug. 6, 1979, Ser. No. 63,845

Int. Cl.³ B23B 45/14, 49/00

U.S. Cl. 408—16

9 Claims



1. A tool guide system comprising:
a workbench;
a vise connected to said workbench;
said workbench having a worksurface lying in a first plane;
a tool guide including a substantially U-shaped body having first and second leg portions and a transverse portion connecting said two leg portions;
said transverse portion and said leg portions lying in a second plane;
said first leg portion having an outer longitudinal edge;
a longitudinal slideway of predetermined width connected along said outer longitudinal edge of said first leg portion;
said transverse portion extending beyond said slideway in the longitudinal direction;
said second leg portion and said transverse portion having a substantially uniform thickness less than the width of said slideway;
at least a part of said transverse portion being clamped in said

vise below said first plane with said slideway disposed above and at a predetermined angle relative to said first plane; said predetermined angle being in the range of from 0° through 90°; and
a tool holder slidably engaged with said slideway for securing a portable power tool to said tool guide.

4,314,783

QUICK RELEASE LOAD SECUREMENT DEVICE

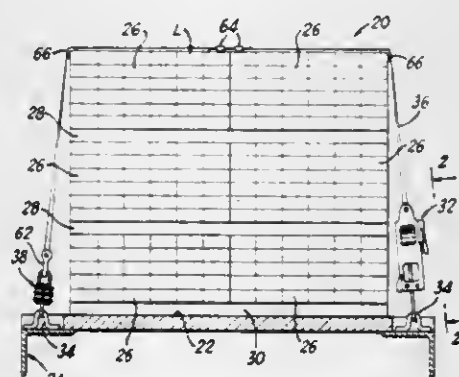
Lyle J. Parnell, Wheaton, and James L. Fabio, Crystal Lake, both of Ill., assignors to MacLean-Fogg Company, Mundelein, Ill.

Filed May 14, 1979, Ser. No. 38,643

Int. Cl.³ B60P 7/10; B61D 3/16, 45/00

U.S. Cl. 410—34

7 Claims



1. A load securement system for securing a load to a vehicle including:

an elongated load securement element engaged with the load;

anchor means on the vehicle;

a quick release load securement device having first and second attachment structures for connection of the device between the anchor means and the load securement element;

said load securement device being operable between set and released conditions wherein the spacing between said attachment structures is changed to apply tension to and release the tension in said elongated load securement element;

and the improvement in accordance with which said device is characterized by:

an elongated generally tubular housing;

a slide member slidable axially in said housing between the set and released positions;

said first and second attachment structures being connected respectively to said housing and said slide member and extending from opposite ends of said housing;

an opening extending transversely entirely through said slide member;

a lock pin supported in said slide member opening for transverse movement;

the wall of said tubular housing including a lock aperture receiving a first end of the lock pin when the slide member is in the set position;

spring means in said slide member opening for biasing said lock pin toward said lock aperture;

a release element supported on said housing and having a portion movable into said lock aperture for moving the lock pin out of the aperture; and

an elongated slot in the wall of said tubular housing opposite said lock aperture;

said lock pin being longer than the distance between said aperture and said slot, where a second end of said pin is received in said slot for guiding the sliding movement of said slide member in said housing when the lock pin is moved out of the aperture.

4,314,784

SEAFLOOR ATTACHMENT BOLTS

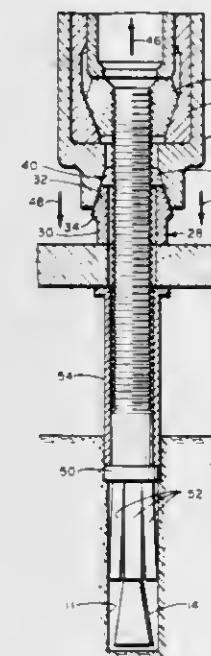
Wayne R. Tausig, Oxnard, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 22, 1980, Ser. No. 152,456

Int. Cl.³ F16B 13/06

U.S. Cl. 411—57

2 Claims



1. A fastener assembly for securing structures to the seafloor, said fastener assembly being used in a prepared borehole in said seafloor and installable with a push-pull type riveting mechanism, and which comprises:

a. a unitary shaft of circular cross-section having a frusto-conically shaped head on a leading end for insertion into the borehole, said frusto-conically shaped head widening from a first diameter to a second diameter at the end of the shaft, said shaft including a non-threaded mandril section at the other end having annular grooves which form serrated edges around its perimeter; said shaft also including a waist section immediately adjacent said frusto-conically shaped head, said waist section being of said first diameter, said shaft further including a shank section between said mandril section and said waist section and having a diameter larger than said first diameter;

b. expandable means disposed around the waist section of said shaft above said frusto-conically shaped head for insertion into the borehole, said expandable means being in interference fit with said borehole; said expandable means including a cylindrical ring having a plurality of fingers in a cylindrical arrangement disposed with said fingers directed toward said frusto-conical head; the outer diameter of said cylindrical ring above said plurality of fingers being greater than the diameter of said shank section and the inner diameter of said cylindrical ring being smaller than the diameter of said shank section; the outer diameter of said expandable means in the area of said plurality of fingers being less than the outer diameter of said cylindrical ring;

c. a cylindrical reaction spacer disposed about said shaft between the bottom surface of said structure and said expandable means; the end of said cylindrical reaction spacer adjacent said expandable means preventing said expandable means from sliding past said cylindrical spacer on said shaft and operating to push said expandable means downward onto said frusto-conically shaped head by action of said riveting mechanism pulling on said unitary shaft;

d. a malleable collar adapted to be swaged onto said mandril section by said riveting mechanism; when the frusto-conically shaped head of said shaft and said expandable means are inserted into the borehole, and the mandril section of the shaft is disposed through an aperture in said structure and the malleable collar is disposed against the top surface of the structure, said shaft being operable to be pulled by said riveting mechanism without torquing to draw the frusto-

conical head into said expandable means to cause said expandable means to expand so that an anchoring grip is obtained on the wall of the borehole, and said riveting mechanism simultaneously pushing on said malleable collar operating to swage said collar to the grooved mandril to maintain a non-slip anchoring grip.

4,314,785

STACKING AND PACKAGING APPARATUS

Paul J. LaFleur, Jr., Wilbraham, and Francis C. Crescenzo, Springfield, both of Mass., assignors to Package Machinery Company, East Longmeadow, Mass.

Filed Dec. 26, 1979, Ser. No. 107,175

Int. Cl.³ B65G 57/30

U.S. Cl. 414—46

23 Claims



23. In a packaging apparatus having a stacking mechanism for receiving an article at one level and moving the article to another level, said stacking mechanism including a pair of upwardly extending stacking spirals supported for rotation about transversely spaced apart axes, and first drive means for continuously rotating said stacking spirals in unison about said axes, the improvement comprising said first drive means including a gear train having elliptical gears for varying the speed of rotation of said continuously rotating stacking spirals during at least a portion of each rotation of said stacking spirals.

4,314,786

METHOD AND APPARATUS FOR HANDLING CATHODE PLATE SUPPORT RODS

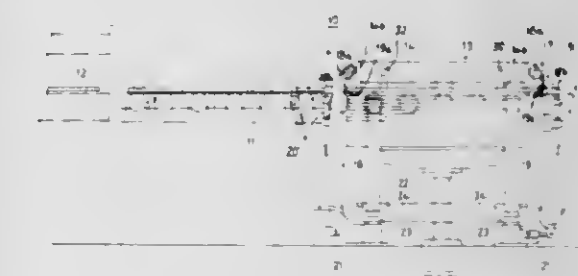
Leo Uusitalo, Tampere, and Pertti Tuominen, Kaaro, both of Finland, assignors to Outokumpo Oy, Finland

Filed Jan. 14, 1980, Ser. No. 111,641

Int. Cl.³ B65G 57/18

U.S. Cl. 414—57

15 Claims



1. A method for handling support rods which have been detached from cathode plates in an electrolytic refining plant comprising the steps of:
moving the support rods subsequent to their detachment from

the cathode plate in a longitudinal direction to a support rod grouping station;
arranging the support rods in the grouping station to form a group thereof having a predetermined size by moving the support rods one by one in a transverse direction a distance substantially equal to the breadth of a support rod with the exception of the last support rod in one group thereof and onto guide members on which the rods are supported so that the rods are in side by side relationship; and
packing each group of support rods, one above the other in layers, in a transporting and storage crate.

4,314,787

CHARGING CAR FOR COKE OVENS

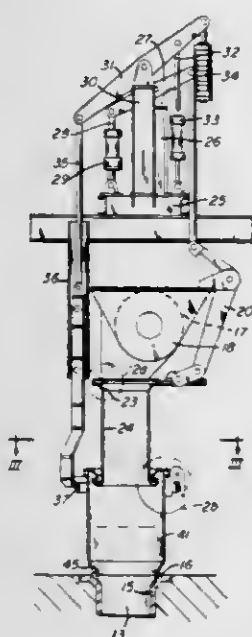
Hans-Jürgen Kwasnik, Herne, and Hans-Günter Piduch, Bochum, both of Fed. Rep. of Germany, assignors to Dr. C. Otto & Comp. GmbH, Bochum, Fed. Rep. of Germany
Filed Jan. 29, 1980, Ser. No. 116,439

Claims priority, application Fed. Rep. of Germany, Jun. 2, 1979, 2922571

Int. Cl.³ C10B 31/02

U.S. Cl. 414—163

5 Claims



1. A coal-charging apparatus adapted to move along the top of a battery of coke ovens wherein the roof for each coking chamber includes spaced-apart charging holes with frames normally covered by lids that are removed to feed a charge of coal into the coking chamber, the coal-charging apparatus including a charging car with charging bins to discharge coal into an oven chamber,

a feed screw to convey coal from the bottom of each charging bin,
a trough communicating with the charging bin for conveyance of coal by said feed screw,
filling tubes carried by said charging car to receive coal from said trough, said filling tubes including fixed and movable tubes for communication with the charging hole after removal of the lid therefor, each movable tube having hooks on the outside thereof and a downwardly-extending seal lip on the inside thereof, each fixed tube having a peripheral trough containing sealant material on the outside thereof,
a support ring to engage the hooks of each movable tube, a vertically-movable stirrup coupled for pivotal movement about a horizontal axis to each support ring to vertically position the movable tube of a filling tube,
a vertical guide on the outside wall of said trough, and
a linkage guided by said vertical guide for raising and lowering a stirrup.

4,314,788
CROP HANDLING APPARATUS

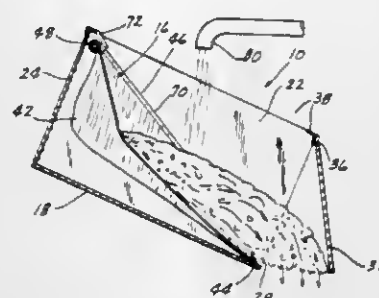
Rodney B. Williams, Sbandon Star Rte., Penman Springs Rd., Paso Robles, Calif. 93446, and Jerry A. Taylor, 600 W. "H" St., Dixon, Calif. 95620

Filed Jan. 24, 1980, Ser. No. 114,886

Int. Cl.³ B65G 65/23

U.S. Cl. 414—425

12 Claims



1. A container having a floor and a plurality of walls, including a divider wall providing the container with a pair of side-by-side compartments, each compartment having a discharge opening in side-by-side relationship and each having a movable wall selectively operative to open and close its discharge opening, a pair of flexible, bag-like liners, one disposed in each compartment, each liner having a lower edge thereof affixed to the floor along the respective discharge opening and having its opposite, upper edge disposed adjacent the top of the wall opposite said discharge opening, a pair of separate rollers journaled at and along the respective opposite walls and connected respectively to the liner upper edges, said rollers being coaxially disposed, and a pair of means connected respectively to the rollers for selectively rotating the rollers to wind and unwind the liners to facilitate loading and unloading of the compartments.

4,314,789

EQUIPMENT FOR LATERAL EXCAVATION

Accossato Luigi, Castelrotto Di Guarene, Regione Pieve, Cuneo, Italy

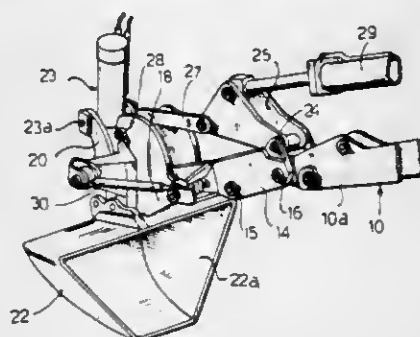
Filed Jun. 4, 1979, Ser. No. 44,845

Claims priority, application Italy, Jun. 20, 1978, 68440 A/78

Int. Cl.³ E02F 3/32

U.S. Cl. 414—694

2 Claims



1. Equipment for lateral digging, said equipment being applicable to hydraulic excavators provided with a maneuver arm including a first arm element, hinged at its base on an anchor pivot carried by the excavator and parallel to the supporting surface thereof, and a second arm element hinged to the free end of the first arm element by an articulation pivot the axis of which is substantially parallel to the axis of the anchor pivot, the free end of said arm element being provided with means for supporting a bucket, characterized in that the means for supporting the bucket comprises:

a fastening element rigidly secured to the free end of the second arm element of the maneuver arm
a first bearing structure hingedly coupled to the fastening element by a bearing pivot having an axis that is substantially parallel to the axis of the anchor pivot, a rigid one-piece second bearing structure supported by the first

bearing structure for rotation around a positioning pivot having an axis that is substantially perpendicular to the axis of said anchor pivot, the bottom end of the bucket being connected to said second bearing structure through a working pivot having an axis that is substantially parallel to the axis of the anchor point,

a rigid tie-rod laterally displaced relatively to the axis of said positioning pivot and connecting said second bearing structure to the fastening element by means of ball joint elements, whereby the angle of the bucket is adapted to be corrected with respect to the first and second arm elements in a plane parallel to the supporting surface of the excavator to thereby correct the bucket angle in a plane perpendicular to the supporting surface of the excavator, said tie-rod including means for varying its length, said last-mentioned means comprising a first hydraulic jack and an operator actuated jack drive means for adjusting the position of the jack,

the equipment further comprising crank assembly means for rotating the first bearing structure about the axis of the bearing pivot, said crank assembly means being formed by a connecting rod and a crank, and joining said structure with the fastening element, said connecting rod and the crank of said crank assembly means being respectively hinged to the first bearing structure and to the fastening element, and a second hydraulic jack having one end pivotally connected to the crank and the opposite end pivotally connected to the second element of the maneuver arm, means for varying, in any predetermined position of the first bearing structure relative to the fastening element, the angular position of the tie-rod with respect to the first bearing structure, and means for rotating the bucket about the axis of the working pivot,

the positioning pivot connecting the first and second bearing structures lying substantially in the plane containing the two elements of the maneuver arm,
the plane passing through the axis of the positioning pivot and containing the point connecting the tie-rod with the second bearing structure being substantially perpendicular to the central plane of the bucket, and
the distance of the axis of the bearing pivot from the connection between the tie-rod and the fastening element being substantially one third of the distance of the axis of the positioning pivot from the connection of the tie-rod with the second structure.

4,314,790

METHOD OF AND DEVICE FOR SHIPPING HOT METAL GOODS

Paul Metz, Luxembourg, Luxembourg, assignor to Arbed S.A., Luxembourg, Luxembourg

Filed Aug. 22, 1979, Ser. No. 68,665

Claims priority, application Luxembourg, Aug. 22, 1978, 80145

Int. Cl.³ B60P 3/00

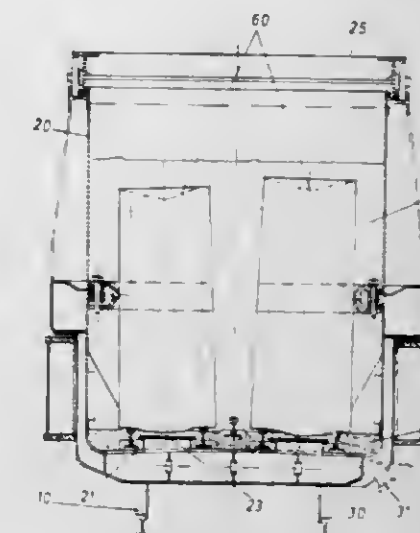
U.S. Cl. 414—786

15 Claims

1. A method of shipping hot metal goods, comprising the steps of:

(a) introducing a granular insulating material into an open-top wheeled container;
(b) fluidizing said material in said container with a pressurized gas introduced into said container at the bottom thereof;
(c) lowering the hot metal goods into said container during the fluidization of said material to enable said metal goods to rest upon the bottom of said container;
(d) terminating the fluidization of said material in said container upon introduction of said metal goods into said container in step (c), thereby permitting said material to

pack around and envelop the metal goods in said container;



(e) covering said container; and
(f) displacing said container on its wheels.

4,314,791

VARIABLE STATOR CASCADES FOR AXIAL-FLOW TURBINES OF GAS TURBINE ENGINES

Wolfgang Weiler, Dachau, Fed. Rep. of Germany, assignor to Motoren- und Turbinen-Union München GmbH, Munich, Fed. Rep. of Germany

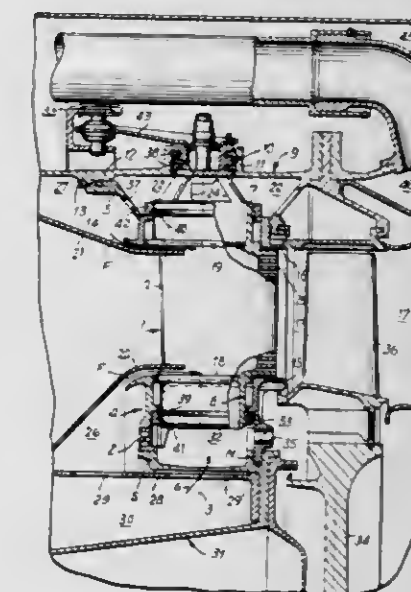
Filed Mar. 6, 1979, Ser. No. 18,221

Claims priority, application Fed. Rep. of Germany, Mar. 9, 1978, 2810240

Int. Cl.³ F01D 7/00, 25/12

U.S. Cl. 415—115

9 Claims



1. A variable stator cascade apparatus for axial-flow turbines, particularly for high-pressure turbines of gas turbine engines comprising: nozzle vanes each pivotally arranged about an axis of rotation and having cooling means when in operation; the variable stator cascade being formed of circumferentially interlocking inner and outer ring segments providing circumferential sealing action so that at least one turbine nozzle vane is pivotally arranged and disconnectable connected by respective root and tip side pivot pins in association with each respective inner and outer ring segment; a continuous inner stator ring centrally located at inner ring segments of the stator cascade by way of attachment means comprising teeth and a slot-and-key arrangement so that each outer ring segment arranged at the turbine casing cooperates with said attachment means to radially guide said at least one turbine nozzle vane and associated inner ring segment; said nozzle

vanes secured in radial, axial and circumferential position by said outer ring segment; said nozzle vanes having at their respective root and tip sides, vane plates arranged in the area of the inner and outer walls of a turbine duct, said pivot pins being attached to said vane plates and arranged outside the turbine duct, said pivot pins comprising further tubular cylindrical cooling air ducts communicating with the interior of the vane.

4,314,792

TURBINE SEAL AND VANE DAMPER

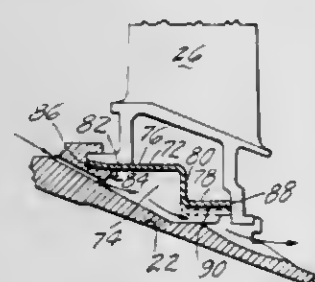
Gary F. Chaplin, Vernon, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Dec. 20, 1978, Ser. No. 971,287

Int. Cl.³ F01D 11/08

U.S. Cl. 415—116

15 Claims



1. In a gas turbine engine of the type having a stator assembly including an engine case and a plurality of vanes extending inwardly therefrom, the improvement which comprises:

a ring extending circumferentially about the interior of the case to form a chamber therebetween and having, a first end which engages the engine case, a second end which engages at least one of said vanes, and a radial center section between the first end and the second end, which is free to deflect axially and which extends radially to impart axial flexibility,

wherein the ring has a free length between the ends and an installed length between the ends that is smaller than the free length and wherein each end is adapted to exert a sealing force against the adjacent stator assembly in a generally axial direction.

4,314,793

TEMPERATURE ACTUATED TURBINE SEAL

Francis L. DeTolla, and Gary F. Chaplin, both of Vernon, Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Dec. 20, 1978, Ser. No. 971,290

Int. Cl.³ F01D 11/00, 9/04

U.S. Cl. 415—135

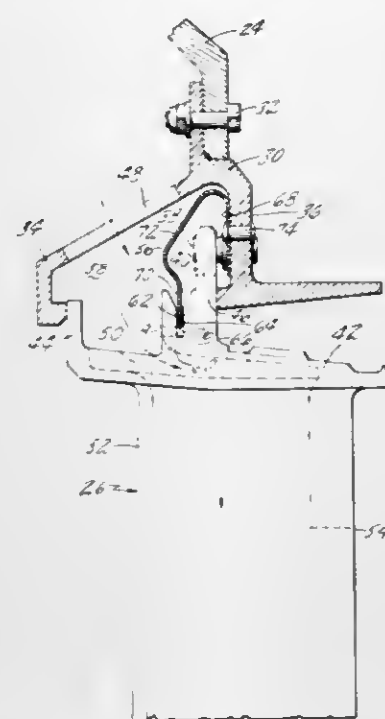
11 Claims

1. In a gas turbine engine of the type having a nonrotating structure inwardly of an annular flow path for working medium gases and a nonrotating structure outwardly of the engine flow path, the improvement which comprises:

a plurality of vanes extending inwardly across the flow path from the outward structure; and a diaphragm which extends from the inward structure into proximity with the vanes, and which is spaced radially from said plurality of vanes leaving a gap therebetween, and

wherein each of said vanes has a coefficient of thermal expansion causing the vanes to grow inwardly in response to engine operating temperatures and said diaphragm has a coefficient of thermal expansion causing the diaphragm to grow outwardly in response to engine operating tem-

peratures such that each of said vanes and said diaphragm are adapted to grow radially a distance larger than the gap



to engage in intimate contact in response to engine operating temperatures.

4,314,794

TRANSPARATION COOLED BLADE FOR A GAS TURBINE ENGINE

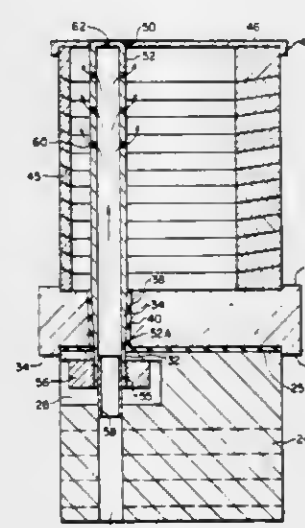
Abe N. Holden, deceased, late of Broomall, Pa., and by Joyce A. Holden, executrix, Half Moon Bay, Calif., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Oct. 25, 1979, Ser. No. 88,245

Int. Cl.³ F01D 5/18

U.S. Cl. 416—97 A

10 Claims



1. A blade for a gas turbine engine comprising: a plurality of hollow ceramic washers having an airfoil cross-section and radially stacked upon each other to form the airfoil portion of the blade; a metal cap covering the radially outermost washer and defining the blade tip; a metal blade root defining a shank portion and rotor disc engaging projections; a ceramic platform member interposed between the radially innermost washer and the blade root; a perforated metal tie tube secured to said cap and extending generally radially therefrom through the airfoil portion and radially aligned apertures in the platform and shank portion is terminate within a cavity in said root portion to provide coolant flow communication from within said root to within said air-foil portion; means within said cavity for tensioning said tie tube; and wherein said ceramic washers include coolant flow channels extending therethrough for effusion of the coolant from within the airfoil portion to the

external side thereof for transpiration cooling of said airfoil portion of the blade.

4,314,795

ADVANCED AIRFOILS FOR HELICOPTER ROTOR APPLICATION

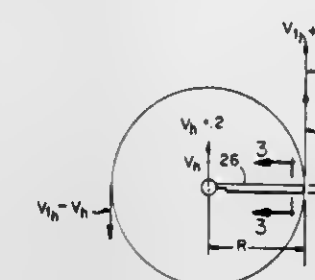
Leone U. Dadone, West Chester, Pa., assignor to The Boeing Company, Seattle, Wash.

Filed Sep. 28, 1979, Ser. No. 79,706

Int. Cl.³ B64C 27/46

U.S. Cl. 416—223 R

24 Claims



1. A rotor blade for a rotorcraft which comprises: a spanwise member, said spanwise member having an airfoil shaped cross section having a curved leading edge and a sharp trailing edge and having a pitching element coefficient at zero lift within the range of ± 0.01 , a maximum coefficient of lift greater than 1.2, and a drag divergence mach number at zero lift greater than 0.78, wherein the values of the coefficient of lift are at mach numbers of approximately 0.4 and the pitching moment coefficient at zero lift is at a low speed.

4,314,796

SCROLL-TYPE COMPRESSOR WITH THRUST BEARING LUBRICATING AND BYPASS MEANS

Kiyoshi Terauchi, Isesaki, Japan, assignor to Sankyo Electric Company Limited, Isesaki, Japan

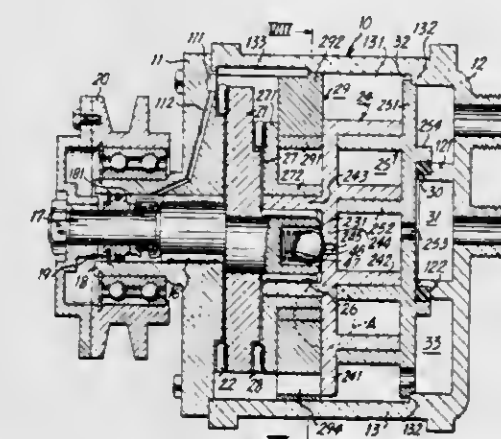
Filed Aug. 29, 1979, Ser. No. 70,870

Claims priority, application Japan, Sep. 4, 1978, 53/108411; Sep. 4, 1978, 53/108413; Sep. 4, 1978, 53/108415; Sep. 4, 1978, 53/108416; Oct. 30, 1978, 53/134172; Oct. 30, 1978, 53/134174

Int. Cl.³ F04C 18/02, 29/00, 29/02; F04B 49/02

U.S. Cl. 417—294

13 Claims



1. In a scroll-type fluid compressor unit including a compressor housing having a front end plate and a rear end plate, a fixed scroll member fixedly disposed within said compressor housing and having first end plate means to which first wrap means are affixed, an orbiting scroll member orbitally mounted within said compressor housing and having second end plate means to which second wrap means are affixed, said first and second wrap means interfitting at a predetermined angular relationship to make a plurality of line contacts to define at least one sealed off fluid pocket, a drive mechanism connected to said orbiting scroll member for transmitting the orbital motion to said orbiting scroll member, means for preventing

rotation of said orbiting scroll member, and means for supporting a thrust force, the improvement which comprises: said drive mechanism including a drive shaft supported by first radial bearing means in said front end plate and extending outwardly through said front end plate, a disk rotor member mounted on an inner end of said drive shaft and supported by first thrust needle bearing means on an inner surface of said front end plate, and a drive pin axially projecting from a rear surface of said disk rotor member and being radially offset from said drive shaft, said orbiting scroll member being provided with an axial boss formed on a surface of said second end plate member opposite said second wrap means and rotatably mounted on said drive pin which is fitted into said boss through second radial bearing means, said axial boss having a projecting end proximate to said drive pin, a radial flange member extending radially from and disposed on said projecting end of said axial boss and being supported by second thrust needle bearing means on the rear surface of said disk rotor member, a hollow member non-rotatably fitted onto said axial boss and extending axially over an axial space between said radial flange member and said second end plate, whereby the axial force is supported on the inner surface of said front end plate through said hollow member, said radial flange member, said second thrust needle bearing means, said disk rotor member and said first thrust needle bearing means so that deflection of said drive shaft may be prevented, and said rotation preventing means are disposed around said axial boss.

4,314,797

METERING PISTON PUMP

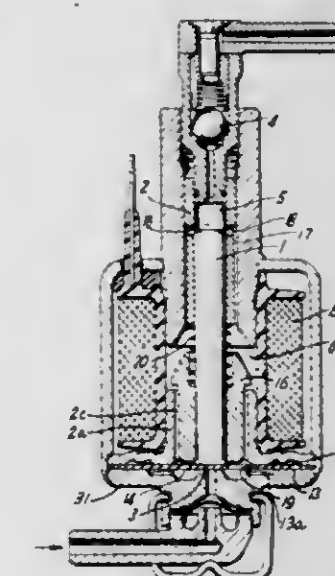
Reinhard Gerwin, Stuttgart, Fed. Rep. of Germany, assignor to J. Eberspacher, Esslingen am Neckar, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 876,505, Feb. 9, 1978, abandoned, which is a continuation of Ser. No. 739,050, Nov. 5, 1976, abandoned, which is a continuation of Ser. No. 547,498, Feb. 6, 1975, abandoned. This application Mar. 28, 1979, Ser. No. 24,666

Int. Cl.³ F04B 7/04, 17/04, 21/02

U.S. Cl. 417—491

3 Claims



1. A metering pump particularly suitable for feeding fuel to a furnace comprising: means defining a pumping chamber; piston means movable through an operating stroke within said pumping chamber in a first direction and in a second direction opposite thereto; said pumping chamber being configured to define a fluid inlet chamber including fluid inlet means on one side of said piston means and a fluid outlet chamber including fluid outlet means on the opposite side of said piston means; first valve means in said fluid inlet means, said first valve means comprising a resilient flap member formed on a fixedly clamped disc of elastic material; second valve means in said fluid outlet means; said first valve means and said second valve means being arranged to simultaneously open when said piston means is moved in said first direction and to simultaneously

close when said piston means is moved in said second direction; hydraulic accumulator means; and means establishing flow communication between said accumulator means and said pumping chamber; said pump being arranged such that when said piston means is moved in said first direction, fluid is drawn into said inlet chamber from a source thereof with fluid being simultaneously pumped from said outlet chamber, and such that when said piston means is moved in said second direction, fluid is pumped under pressure into said accumulator means from said inlet chamber during an initial portion of the movement of said piston means in said second direction; said communication means being arranged to establish flow communication with said outlet chamber during a latter portion of the movement of said piston means in said second direction to enable fluid in said accumulator means to flow into said outlet chamber; and a body portion comprising said means defining said pumping chamber with a cavity defined in said body portion adapted to constitute said hydraulic accumulator, said cavity being defined in part by said clamped disc such that when said piston means moves in said second direction, the clamped disc is deformed and fluid is forced into said cavity from said inlet chamber.

4,314,798

APPARATUS FOR ARRANGEMENT OF COMBINED STATIONARY AND SLIP FORM CASTING OF CONCRETE

John P. Pettersson, Pl. 1130, 760 15 Gräddö, Sweden

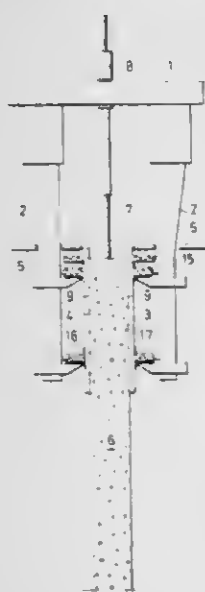
Filed Mar. 17, 1980, Ser. No. 130,610

Claims priority, application Sweden, Mar. 16, 1979, 7902383

Int. Cl.³ B28B 17/00

U.S. Cl. 425—63

5 Claims



1. An apparatus for combined stationary form and slipform casting in one direction comprising:

- A. A slipform yoke having a pair of substantially parallel depending legs;
- B. A pair of form halves carried between the yoke legs, each form half having a support wall facing the other support wall, a form panel on the facing sides of each support wall between which the concrete may be poured, and the form halves including means which are upwardly expansible in said one direction to substantially increase the area of the support walls by a factor of about two, each support wall

having an upper and lower portion movable with respect to each other and each formed from a plurality of generally parallel boards extending vertically, the boards of the two portions being interdigitated to permit said upward expansion

4,314,799

COMPRESSION MOLDING MACHINE FOR ORGANIC THERMOPLASTIC MATERIALS

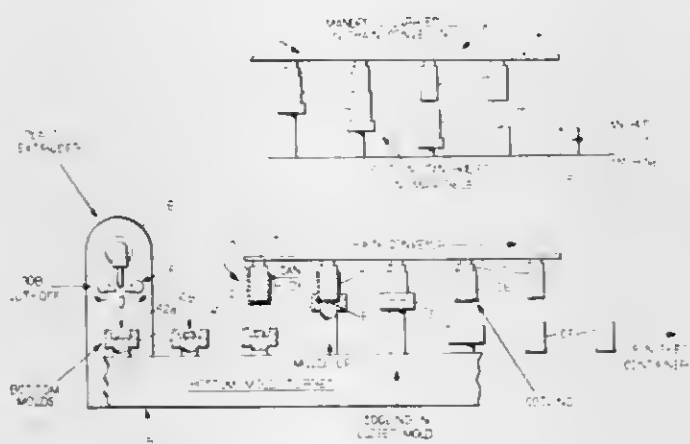
Stephen W. Amberg, Toledo, Ohio, and Ralph G. Amberg, Youngs Mountain South, N.C., assignors to Owens-Illinois, Inc., Toledo, Ohio

Filed Mar. 19, 1980, Ser. No. 131,713

Int. Cl.³ A23G 1/20

U.S. Cl. 425—296

12 Claims



1. In an apparatus for press forming organic thermoplastic material into molded parts having an extruder continuously producing a rodlike formation of hot moldable organic thermoplastic material and gob feeding means periodically engaging said formation to sever same into discrete gobs of substantially the same quantity of material, the improvement comprising:

- (1) a plurality of mold members having exposed molding cavities;
- (2) means for moving said mold members in timed relationship to said feeding means along a closed loop path intersecting the gravity path of said severed gobs, whereby each gob is deposited in a molding cavity;
- (3) a plurality of molding plungers respectively cooperable with said mold members to close said molding cavity and compress the inserted gob into conformity with the closed cavity;
- (4) means mounting said plungers for movement in timed relationship with said mold members along a closed loop path having a portion parallel and adjacent to the path of said mold members after receiving the severed gobs therein;
- (5) means for relatively vertically displacing said plungers respectively into engagement with said mold members for a period of time sufficient to mold a respective inserted gob to conform to the closed molding cavity, and
- (6) means for successively separating the plungers and molding members for respectively removing the molded plastic articles.

CHEMICAL

4,314,800

METHOD FOR TREATING PELTS AND LEATHER

Rolf Monsheimer; Ernst Pfeiderer, both of Darmstadt; Werner Siol, Pfungstadt; Hanns Boessler, Darmstadt, and Hans Trautzsch, Seeheim-Jugenheim, all of Fed. Rep. of Germany, assignors to Röhm GmbH, Darmstadt, Fed. Rep. of Germany

Filed Apr. 8, 1981, Ser. No. 252,164

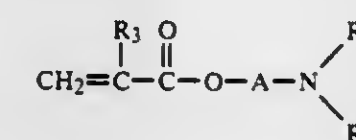
Claims priority, application Fed. Rep. of Germany, Apr. 11, 1980, 3013912

Int. Cl.³ C14C 11/00

U.S. Cl. 8—94.1 R

20 Claims

1. A method for treating pelts or leather in the beamhouse, for tanning, or as an after-treatment, which method comprises contacting said pelts or leather with an aqueous dispersion of a copolymer comprising from 5 to 25 percent by weight of a compound of the formula



wherein R₁ and R₂ are each alkyl having 1 to 4 carbon atoms, R₃ is hydrogen or methyl, and A is alkyl having up to 10 carbon atoms or is an unsubstituted or alkyl-substituted carbocyclic or N- or O-heterocyclic group having up to 10 carbon atoms; from 67 to 92 percent by weight of an acrylate or methacrylate ester of an alkanol having 1 to 14 carbon atoms; and from 1 to 8 percent by weight of acrylic acid or methacrylic acid, whereby portions of said polymer are deposited in the grain layer without formation of a superficial film.

4,314,801

SOAKING METHOD

Rolf Monsheimer, and Ernst Pfeiderer, both of Darmstadt, Fed. Rep. of Germany, assignors to Röhm GmbH, Darmstadt, Fed. Rep. of Germany

Filed Oct. 27, 1980, Ser. No. 201,049

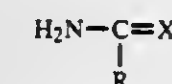
Claims priority, application Fed. Rep. of Germany, Nov. 3, 1979, 2944462

Int. Cl.³ C14C 1/04

U.S. Cl. 8—94.14

11 Claims

1. A method for soaking dried or salted fur pelts which consists essentially of soaking said pelts in an aqueous bath containing at least one compound selected from the group consisting of compounds of the formula



and acid addition salts of such compounds, wherein R taken alone is —H, —NH₂, —CH₃, or —NHCN, X taken alone is =O, =S, or =NH, and R and X taken together form a five- or six-membered heterocyclic ring having conjugated double bonds therein and containing only nitrogen as a hetero atom.

4,314,802

PROCESS FOR PRODUCING LEATHER

William C. Beier, Short Hills, N.J., and James J. Hodder, Doylestown, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Filed Aug. 24, 1979, Ser. No. 69,470

Int. Cl.³ C14C 3/06, 1/08, 3/22, 3/28

U.S. Cl. 8—94.26

12 Claims

1. A multiple-stage tanning process for producing an improved, tanned, heavy leather, comprising the steps, carried out in a series of aqueous tanning baths, of:

- (1) providing a piece of wet leather stock selected from the group consisting of pickled leather stock, bated leather stock, and limed leather stock;

- (2) adjusting the pH of the leather stock provided in step (1) to obtain a pH of the leather stock in the range of 4.5–5.5;
- (3) treating the leather stock from step (2), while establishing and maintaining the pH thereof at 4.5–5.5, with 1–50% by weight, based on the initial wet weight of the leather stock, of a first tanning composition comprising an aqueous dispersion or solution of a polymer polymerized from a monomer mixture comprising at least one member selected from a group consisting of acrylic acid, methacrylic acid, mixtures of acrylic acid and methacrylic acid, and mixtures of a major proportion of at least one member selected from the group consisting of acrylic acid and methacrylic acid with a minor proportion of at least one member selected from the group consisting of alkyl esters of acrylic acid, alkyl esters of methacrylic acid, and partially sulfated unsaturated drying oils, until the leather stock is penetrated therewith;
- (4) adjusting the pH of the leather stock from step (3) to 1.5–3.3 to exhaust the first tanning composition and to obtain an optimal pH for the subsequent second tanning treatment;
- (5) treating the leather stock of step (4), while establishing and maintaining the pH thereof at 1–3.3, with 5.5–20% by weight, based on the initial wet weight of the leather stock, of a second tanning composition comprising a zirconium tanning compound having 0–45% basicity calculated on the Schorlemmer scale, the amount of the zirconium tanning compound being sufficient to provide an amount of zirconium calculated as the oxide of about 1.8–6.6% by weight, based on the initial wet weight of the leather stock, until the leather stock is tanned to the desired extent;
- (6) neutralizing the tanned leather stock from step (5) to a pH of 3.5–5 by the addition to the tanning bath of an aqueous solution of a weak base; and
- (7) washing the tanned leather stock from step (6) with water, optionally further treating the washed tanned leather stock with conventional adjuvants, and drying the tanned leather stock in conventional operations.

4,314,803

TANNING METHOD

Tobru Okabe, Hyogo; Shigeaki Mizutani, Himeji, and Saburo Hayashi, Kakogawa, all of Japan, assignors to Seitetsu Kagaku Co., Ltd., Japan

PCT No. PCT/JP79/00041, § 371 Date Oct. 23, 1979, § 102(e) Date Oct. 17, 1979, PCT Pub. No. WO79/00712, PCT Pub. Date Oct. 4, 1979

PCT Filed Feb. 21, 1979, Ser. No. 187,857

Claims priority, application Japan, Feb. 23, 1978, 53-20517; Jan. 22, 1979, 54-6763

Int. Cl.³ C14C 3/06

U.S. Cl. 8—94.26

13 Claims

1. A chrome-tanning method comprising subjecting a hide which has completed beamhouse work to a pickling treatment in the presence of hexamethylenetetramine wherein the pickling composition consists essentially of acid, neutral salt and water; and then subjecting the hide to a chrome-tanning.

4,314,804

PROCESS FOR WASHING DYED OR PRINTED TEXTILE MATERIAL

Peter Fennekels, and Ernst Waltmann, both of Krefeld, Fed. Rep. of Germany, assignors to Girmes-Werke AG, Grefrath, Fed. Rep. of Germany

Filed Jan. 25, 1980, Ser. No. 115,415

Claims priority, application Fed. Rep. of Germany, Jan. 27, 1979, 2903134

Int. Cl.³ B08B 7/04; C11D 9/42, 1/02, 1/86

U.S. Cl. 8—137

6 Claims

1. A process for washing dyed or printed textile pile fabric to remove unwanted residual substances from the dyeing or printed process of the fabric, comprising the steps of:

applying to the side of the fabric opposite the pile a foam which is produced from a liquid consisting essentially of at least one surface active agent and polyvinylpyrrolidone, said foam having a temperature of between about 60° C. and 95° C. during application to said fabric; and removing the foam by applying suction to the pile side of fabric wherein said process is carried out in a continuous manner.

4,314,805

LAUNDRY PROCESS AND METHOD FOR TREATING TEXTILES

Eugene A. McKnight, 7727 Meadow Rd., #229, Dallas, Tex. 75230

Continuation of Ser. No. 88,873, Oct. 29, 1979, abandoned, which is a continuation of Ser. No. 871,678, Feb. 16, 1978, abandoned, which is a continuation-in-part of Ser. No. 828,757, Aug. 29, 1977, abandoned. This application Dec. 11, 1980, Ser. No. 215,454

Int. Cl.³ B08B 3/00

U.S. Cl. 8—137

5 Claims

1. A method for laundering a textile to give it improved soil resistance comprising contacting said textile with a pre-solubilized aqueous solution of a polyvinyl alcohol in the last bath of the laundry process and thereafter drying said textile.

4,314,806

TEXTILE FINISH AND PROCESSES FOR ITS PREPARATION AND USE

Harro Petersen, Frankenthal, Fed. Rep. of Germany; Panamalgare S. Pai, and Manfred Reichert, both of Charlotte, N.C., assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Sep. 8, 1980, Ser. No. 184,814

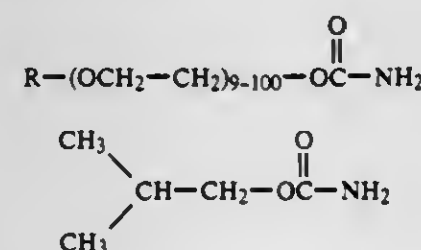
The portion of the term of this patent subsequent to Jun. 10, 1997, has been disclaimed.

Int. Cl.³ D06M 15/54

U.S. Cl. 8—187

3 Claims

1. A finish for textiles containing cellulose, which comprises an aqueous solution of from 30 to 70 percent strength by weight of a mixture of the conventionally methylolated derivatives of carbamates I and II



where R is hydrogen or alkyl of 1 to 4 carbon atoms in the weight ratio I:II of from 1:1 to 1:20.

4,314,807

HAIR DYE COMPOSITION CONTAINING A HAIR DYE FORMULATION PACKAGED IN TWO PARTS

Jean-Francois Grollier, Paris; Christian Monnais, Neuilly-sur-Seine, and Lyonnell Peritz, Boulogne-sur-Sein, all of France, assignors to L'Oreal, Paris, France

Filed Nov. 15, 1976, Ser. No. 742,117

Claims priority, application Luxembourg, Nov. 13, 1975, 73793; Nov. 13, 1975, 73794; Nov. 13, 1975, 73795

Int. Cl.³ A61K 7/13

U.S. Cl. 8—406

1 Claim

1. A composition for dyeing hair comprising a combination of two formulations, one to be applied to the hair immediately after the other, the first to be applied formulation being an effective amount of a hair dye formulation comprising a mixture of an oxidation hair dye composition containing at least one hair dye or dye precursor and a hair dye carrier, an oxidizing agent and at least one cationic polymer and the last to be

applied formulation being an effective amount of a shampoo formulation comprising an anionic detergent, said hair dye formulation being packaged into two parts, one part comprising said hair dye carrier and said hair dye or dye precursor, and said other part comprising said cationic polymer alone or in solution in a solvent, said two parts being admixed at the time of use.

4,314,808

DYE POLYMERS, THEIR PREPARATION AND THEIR USE IN DYE COMPOSITIONS

Bernard Jacquet, Antony; Gerard Lang, Epinay-sur-Seine, and Serge Forestier, Claye Souilly, all of France, assignors to L'Oreal, Paris, France

Filed May 20, 1980, Ser. No. 151,620

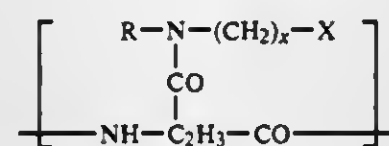
Claims priority, application France, May 25, 1979, 79 13347

Int. Cl.³ C09B 1/28, 69/10

U.S. Cl. 8—405

21 Claims

1. A dye polymer, or a mixture thereof, comprising units of the formula



defined as A units wherein

R represents hydrogen or alkyl,

x is a whole number equal at least to 2, and

X represents the residue of a molecule of a dye or a dye precursor.

4,314,809

NOVEL COUPLER COMPONENTS FOR OXIDATION HAIR DYES, THE MANUFACTURE THEREOF, AND HAIR COLORANTS

David Rose, Hilden; Peter Busch, Erkrath-Unterbach; Edgar Lieske, Düsseldorf, and Günther Konrad, Hilden, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Düsseldorf-Holthausen, Fed. Rep. of Germany

Filed Nov. 14, 1979, Ser. No. 94,276

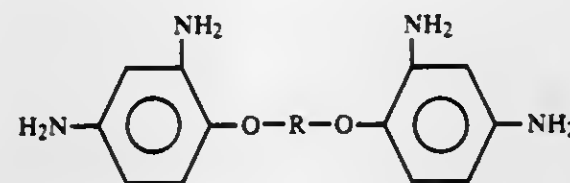
Claims priority, application Fed. Rep. of Germany, Dec. 2, 1978, 2852156; Aug. 10, 1979, 2932460

Int. Cl.³ A61K 7/13; D06P 1/32, 3/08

U.S. Cl. 8—406

6 Claims

1. An aqueous preparation of the developer-coupler type for the dyeing of hair, consisting essentially of (A), as coupler, a bis-(2,4-diaminophenoxy)-alkane of formula



wherein R is a linear or branched alkylene radical of from 1 to 12 carbon atoms, or an inorganic or organic acid salt thereof, and (B), as developer, one of the conventional developer substances.

4,314,810

COMPOSITIONS SUITABLE FOR USE IN DYEING HAIR OBTAINED FROM THE REACTION OF A POLYHYDROXYBENZENE AND AN OXIDATIVE DYESTUFF PRECURSOR OF THE PARA TYPE

Chantal Fourcadier, and Jean F. Grollier, both of Paris, France, assignors to L'Oreal, Paris, France

Filed Jul. 26, 1979, Ser. No. 61,035

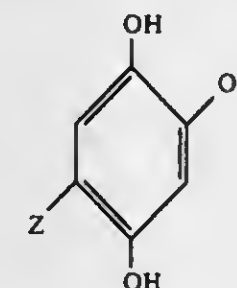
Claims priority, application France, Jul. 27, 1978, 78 22296

Int. Cl.³ A61K 7/13

U.S. Cl. 8—410

27 Claims

1. Process for the preparation of a composition suitable for use in dyeing human hair, which comprises the following steps in sequence: (1) reacting in an anaerobic medium (a) at least one polyhydroxybenzene of the formula:



in which Z denotes an alkoxy or alkyl radical containing 1 to 4 carbon atoms or a hydrogen atom, and (b) at least one oxidative dyestuff precursor of the para type in a first solvent, said first solvent being dioxane, tert.-butyl alcohol, benzyl alcohol, cyclohexanol or a mixture or aqueous solution thereof, or solvents which do not give eutectics with water; (2) freezing the reaction to obtain a reaction mixture containing said at least one polyhydroxybenzene, said at least one oxidative dyestuff precursor of the para type and at least one leuco derivative; (3) lyophilising the reaction mixture thereby removing the first solvent; and (4) dissolving the lyophilised product of step (3) in a second solvent, said second solvent being ethyl, butyl, isopropyl, benzyl or phenylethyl alcohol, ethylene glycol, propylene glycol, butylglycol or a mono-, di- or tri-ethylene glycol monoalkyl ether, or an aqueous mixture thereof.

4,314,811

TWO-PHASE PRINTING PROCESS FOR PREPARING CONVERSION ARTICLES AND DISCHARGE RESIST PRINTS

Erich Feess, Hofheim am Taunus, and Friedrich Reinhardt, Bad Soden am Taunus, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Jul. 1, 1980, Ser. No. 165,028

Claims priority, application Fed. Rep. of Germany, Nov. 8, 1979, 2945095

Int. Cl.³ D06P 5/15

U.S. Cl. 8—457

7 Claims

1. A two-phase process for preparing conversion articles with reactive and vat dyestuffs or discharge resist prints with reactive dyestuffs or a mixture of reactive and vat dyestuffs on cellulosic materials, which comprises

- (a) printing or padding the material with a weakly acidic printing paste or padding liquor containing the reaction dyestuff or the mixture of reactive and vat dyestuffs,
- (b) overprinting the material with a neutral printing paste containing formidine sulfonic acid,
- (c) drying the material,
- (d) contacting the material with an aqueous strongly alkaline liquor,
- (e) steaming the material and
- (f) finishing the article.

4,314,812

TWO-PHASE PRINTING PROCESS FOR PREPARING CONVERSION ARTICLES AND DISCHARGE RESIST PRINTS

Erich Feess, Hofheim am Taunus, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Jul. 1, 1980, Ser. No. 165,029

Claims priority, application Fed. Rep. of Germany, Jul. 2, 1979, 2926651

Int. Cl.³ D06P 5/15

U.S. Cl. 8—457

10 Claims

1. A two-phase process for preparing conversion articles with reactive and vat dyestuffs or discharge resist prints with reactive dyestuffs or a mixture of reactive and vat dyestuffs on cellulosic materials, which comprises

- (a) printing or padding the material with a weakly acidic printing paste or padding liquor the pH of which is sufficiently low as to ensure that the reactive dyestuff is not fixed on the cellulose and which contains the reactive dyestuff or the mixture of reactive and vat dyestuffs,
- (b) overprinting the material with a neutral printing paste containing a stable reducing agent of an alkali metal or an alkaline earth metal salt of a sulfonic acid,
- (c) drying the material,
- (d) contacting the material with an aqueous strongly alkaline liquor,
- (e) steaming the material and
- (f) finishing the article.

4,314,813

FLOCK TRANSFER SHEET AND FLOCK TRANSFER PRINTING PROCESS

Yasuzi Masaki, No. 11-3, Shin-Ohashi 1-chome, Koto-ku, Tokyo, Japan

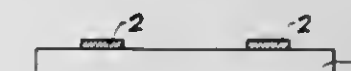
Filed Sep. 29, 1980, Ser. No. 191,726

Claims priority, application Japan, Nov. 16, 1979, 54-148477

Int. Cl.³ D06P 5/00; B44C 3/02

U.S. Cl. 8—468

28 Claims



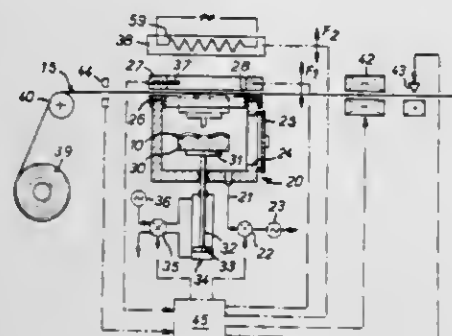
1. A flock transfer sheet comprising a heat-resistant base sheet, a pattern layer overlaid on said base sheet to form a pattern and containing a heat-sublimable or heat-vaporizable dye and a binder as main ingredients, a thickener layer overlaid on said pattern layer to cover at least said pattern and containing as a main ingredient a water-soluble high polymer selected from the group consisting of cellulose derivatives, processed natural rubbers, processed starches, synthetic high polymers and sodium alginate, a pile layer of short fibers electrostatically overlaid on said thickener layer and having dyeability to be dyed with said dye, and a hot melt adhesive layer overlaid on said pile layer for adhering to a matter to which the pattern is transferred, said base sheet being not substantially dyeable with said dye but having multiplicity of gas permeable micropores for allowing the dye to penetrate and pass therethrough when the dye is sublimated or vaporized by heating, said thickener layer being reduced in bonding strength to said pile layer to readily release said pile layer when heated, and said dye passing through said thickener layer and dyeing the short fibers of said pile layer to form a dyed pattern to be transferred onto said matter.

4,314,814

METHOD OF AND APPARATUS FOR DECORATING SUBSTRATES

Jean R. Deroode, Lesigny, France, assignor to Essilor International, Cie Generale d'Optique, Creteil, France
Filed Jan. 28, 1980, Ser. No. 115,626

Claims priority, application France, Jan. 30, 1979, 79 02331
Int. Cl.³ B44C 31/00; B29C 17/00; B30B 5/02, 5/04
U.S. Cl. 8—471 3 Claims



1. A method for decorating a substrate in which a flexible support skin is provided carrying an inked pattern, the ink of said inked pattern being sublimable at a temperature below the destruction temperature of the support skin, and an enclosure having an opening in a wall and having means for connecting the opening of the enclosure to a suction source, said method comprising the steps of:

arranging the support skin to sealingly close off the opening in the enclosure with the inked pattern facing inwardly of the enclosure, and disposing in the enclosure the substrate in the immediate proximity of the opening; bringing the suction source into communication with the enclosure to provide an effective suction force and producing at least local intimate contact between the support skin and the substrate and heating the flexible support to a temperature at or above the sublimation temperature of the ink but below the destruction temperature of the support skin; and maintaining the support skin in contact with the substrate for sufficient time to permit sublimation of the ink and transfer of the inked pattern to the substrate.

4,314,815

PROCESS FOR THE PRODUCTION OF DYESTUFF PREPARATIONS

Hans Mollet, Bottmingen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.
Continuation of Ser. No. 880,253, Feb. 22, 1978, abandoned, which is a continuation of Ser. No. 633,340, Nov. 19, 1975, abandoned, which is a continuation of Ser. No. 473,046, May 24, 1974, abandoned, which is a continuation of Ser. No. 224,936, Feb. 9, 1972, abandoned. This application Mar. 14, 1980, Ser. No. 130,305

Claims priority, application Switzerland, Feb. 19, 1971, 2447/71

Int. Cl.³ C09B 67/42, 67/04

U.S. Cl. 8—524

13 Claims

1. A process for the production of dyestuff compositions, comprising the sequential steps of

- subjecting an aqueous suspension of a water-soluble dyestuff and a dispersing agent to a mechanical particle-size-reducing treatment until the dyestuff has a maximum particle size of 10 microns,
- drying the dyestuff, and
- mixing the dry dyestuff with a basic carbonate or bicarbonate material and a solid acid material.

4,314,816

DIRECT BLUE DYES FROM THE CONDENSATION OF DIAMINOSTILBENEDISULFONIC ACID WITH N-ALKYL OR N-HYDROXYALKYL-8-AMINO-1-NAPHTHOL-3,6-DISULFONIC ACID

Victor Tullio, Wilmington, Del., assignor to Mobay Chemical Corporation, Pittsburgh, Pa.

Filed May 30, 1980, Ser. No. 154,868
Int. Cl.³ D06P 67/00

U.S. Cl. 8—527

17 Claims

1. A dye obtained from the coupling of N-alkylated or N-hydroxyalkylated 8-amino-1-naphthol-3,6-disulfonic acid or its sulfonic acid salts with tertiary amines or alkali metals to the tetrazonium salt of 4,4'-diaminostilbene-2,2'-disulfonic acid whose sulfonic acid groups may have been neutralized with water solubilizing cations after coupling.

4,314,817

MONOAZO COMPOUNDS HAVING A SUBSTITUTED THIAZOLIUM-5 DIAZO COMPONENT RADICAL AND A SUBSTITUTED 1,4-PHENYLENE COUPLING COMPONENT RADICAL

Berthold Gertisser, Münchenstein, Switzerland, assignor to Sandoz Ltd., Basel, Switzerland

Filed Aug. 11, 1980, Ser. No. 177,016

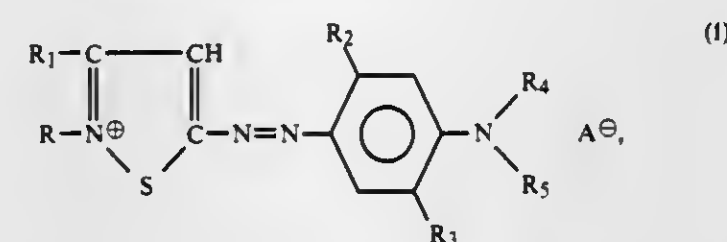
Claims priority, application Switzerland, Aug. 16, 1979, 7518/79

Int. Cl.³ C09B 29/22; D06P 3/00

U.S. Cl. 8—539

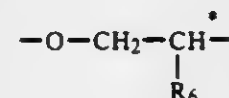
12 Claims

1. A compound of the formula



wherein

R is —CH₃, —C₂H₅, —CH₂CH₂OH, —CH₂CH(OH)CH₃,
or —CH₂CH=CH₂,
R₁ is —H or —CH₃,
R₂ is —H or —CH₃,
R₃ is —OCH₃ or —OC₂H₅,
R₄ is —H, —CH₃, —C₂H₅, n-C₃H₇, i-C₃H₇, —CH₂CH₂OH
or —CH₂CH=CH₂,
R₅ is —H, —CH₃, —C₂H₅, n-C₃H₇ or i-C₃H₇ or
R₃ and R₅ taken together are



wherein

R₆ is —H or —CH₃, and
the * indicates the atom attached to the nitrogen atom,
and
A[⊖] is an anion.

4,314,818

1-AMINO-7-[3'-(5''-CHLORO-2'',4''-DIFLUOROPYRIMIDYL-6''-AMINO)-6''-SULFOPHENYL-AZO]-8-HYDROXY-2-SULFAMOYL OR SUBSTITUTED SULFAMOYL-PHENYL-AZO NAPHTHALENE-3,6-DISULFONIC ACIDS

Alfred Courtin, Basel, Switzerland, assignor to Sandoz Ltd., Basel, Switzerland

Filed Aug. 11, 1980, Ser. No. 177,017

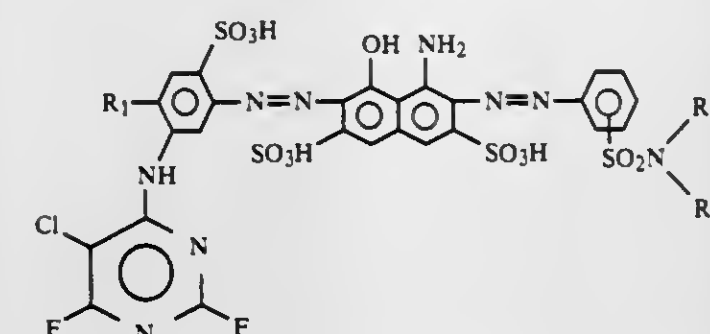
Claims priority, application Switzerland, Aug. 6, 1979, 7517/79

Int. Cl.³ C09B 62/00, 33/02

U.S. Cl. 8—549

18 Claims

1. A compound of the formula



or a salt thereof each cation of which is non-chromophoric, wherein

R₁ is hydrogen or methyl,

R₂ is hydrogen; C₁₋₆alkyl; C₁₋₄alkyl monosubstituted by halo or phenyl; C₂₋₄alkyl monosubstituted in the 2-, 3- or 4-position by hydroxy or C₁₋₂alkoxy; C₅₋₇cycloalkyl; C₅₋₇cycloalkyl substituted by one to three C₁₋₄alkyl groups; phenyl; phenyl substituted by one or two substituents selected from the group consisting of halo, C₁₋₄alkyl and C₁₋₄alkoxy; or —CH₂CH₂SO₃H, and

R₃ is hydrogen or C₁₋₆alkyl, or

R₂ and R₃, taken together and with the nitrogen atom to which they are bound, form a saturated 5- or 6-membered heterocyclic ring containing no further hetero atom or a saturated 5- or 6-membered heterocyclic ring containing a further hetero atom,

wherein each halo is independently fluoro, chloro or bromo, or a mixture of such compounds in free acid or salt form.

4,314,819

FIXATION OF REACTIVE DYES ON CELLULOSIC FIBERS

Christian Osebatz, Schallbach, Fed. Rep. of Germany, assignor to Sandoz Ltd., Basel, Switzerland

Filed Sep. 28, 1978, Ser. No. 946,476

Claims priority, application Switzerland, Sep. 29, 1977, 11913/77

Int. Cl.³ D06P 1/38, 1/673

U.S. Cl. 8—630

20 Claims

1. In a process wherein a substrate comprising cellulose fibers is dyed or printed with a reactive dyestuff and then subjected to a treatment under alkaline conditions to effect fixation of the dyestuff, the improvement whereby the alkaline conditions are achieved by treating the substrate with a dyeing liquor or printing paste having present therein both the reactive dyestuff and an aqueous solution of an alkaline system having a pH of 9 to 13 and consisting essentially of 2.5 to 110 g/l of alkali metal silicate 0.1 to 10 g/l of alkali metal borate, 0 to 100 g/l of alkali metal bicarbonate and 0 to 100 g/l of alkali metal carbonate.

4,314,820

DISTYRYLBENZENE FLUORESCENT BRIGHTENING AGENTS

Kurt Weber, Basel, and Hans R. Meyer, Binningen, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Apr. 2, 1980, Ser. No. 136,615

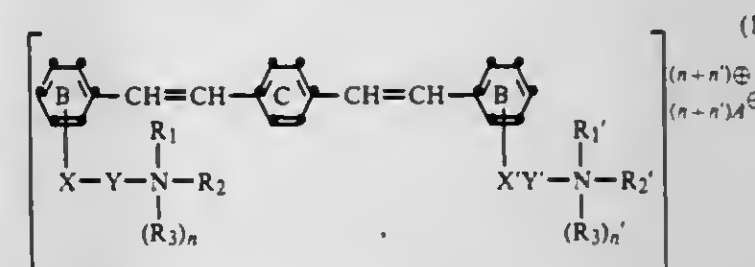
Claims priority, application Switzerland, Apr. 11, 1979, 3479/79; Jun. 26, 1979, 5951/79

Int. Cl.³ C09K 11/06

U.S. Cl. 8—648

25 Claims

1. A distyrylbenzene of the formula



in which X and X' independently of one another are —COO— or —CON(R₄)— in the o-position, a direct bond, oxygen, sulfur, —O—C₁₋₃alkylene—CON(R₄)—, —SO₂N(R₄)—, —O—C₁₋₃alkylene—COO— or —OCO—, Y and Y' independently of one another are C₁₋₂₀alkylene, R₁ and R_{1'} independently of one another are unsubstituted or substituted C₁₋₈alkyl or C₃₋₄alkenyl, or R₁ together with R₂, or R_{1'} together with R_{2'}, is a heterocyclic ring, R₂ and R_{2'} independently of one another are unsubstituted or substituted C₁₋₈alkyl or C₃₋₄alkenyl, or R₂ together with R₁, or R_{2'} together with R_{1'}, is a heterocyclic ring, or R₁ and R₂, or R_{1'} and R_{2'}, together with R₃ are a pyridine or picoline ring, R₃ is hydrogen, unsubstituted or substituted C₁₋₄alkyl or C₃₋₄alkenyl, or together with R₁ and R₂ or with R_{1'} and R_{2'} is a pyridine or picoline ring, R₄ is hydrogen or unsubstituted or substituted C₁₋₆alkyl, A[⊖] is a colourless anion and n and n' independently of one another are the number 0 or 1, and the benzene nuclei B and C can also be substituted by non-chromophoric substituents.

4,314,821

SANDWICH IMMUNOASSAY USING PIEZOELECTRIC OSCILLATOR

Thomas K. Rice, White Bear Lake, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Continuation-in-part of Ser. No. 28,348, Apr. 9, 1979, Pat. No. 4,236,893. This application Jul. 28, 1980, Ser. No. 172,755
The portion of the term of this patent subsequent to Dec. 6, 1997, has been disclaimed.

Int. Cl.³ G01N 33/54; H01L 41/00

U.S. Cl. 23—230 B

12 Claims

1. In a method for determining the total amount of an immunologically-reactive substance in a liquid sample containing interfering material capable of binding to an antigen comprising the steps of: (1) contacting a liquid sample containing or suspected of containing an antibody with the surface of a piezoelectric oscillator having a layer of antigen specific for said antibody attached thereto; (2) washing and drying said oscillator; and (3) measuring the resonance frequency of said oscillator, the improvement comprising the further steps of: (4) contacting said surface of said oscillator with a liquid reagent containing an excess amount of a substance specifically reactive with all of said antibody bound to said oscillator in step (1); (5) washing and drying said oscillator; and (6) measuring the change in resonance frequency of said oscillator from said first measurement whereby the amount of total antibody bound to said oscillator in step (1) is distinguished from said interfering material bound in said step (1).

8. A diagnostic test kit for the quantitative determination of the total amount of an immunologically-reactive substance in a

liquid sample containing interfering material capable of binding to an antigen comprising:

- a piezoelectric oscillator having a layer of antigen attached thereto; and
- a reagent containing an excess amount of a substance reactive with all of the antibody reactive with said antigen.

4,314,822

METHOD FOR CHECKING THE INTENSITY OF DESTRUCTION OF MALIGNANT CELLS IN THE HUMAN BODY

Ivan Dolejší, and Miloslav Spür, both of Dvůr Králové, Czechoslovakia, assignors to Polytechna, podnik zahraničního obchodu pro zprostředkování technické spolupráce, Prague, Czechoslovakia

Continuation-in-part of Ser. No. 24,665, Mar. 28, 1979, abandoned. This application Jul. 11, 1980, Ser. No. 167,428
Claims priority, application Czechoslovakia, Jan. 9, 1979, 199-79

Int. Cl.³ G01N 31/02, 33/50

U.S. Cl. 23—230 B

8 Claims

1. Method for monitoring the destruction of malignant cells in the human body by determining the presence of alcoholate metabolites of malignant cells secreted in urine by the human body which comprises the steps of

- adding a predetermined quantity of an aliphatic acid selected from the group consisting of palmitic and stearic acid to a urine sample, the urine having a pH value within the range of 5.6–5.85, and
- maintaining the resultant mixture at a temperature within the range of 80°–85° C. for a predetermined period of time; the presence of alcoholate metabolites of malignant cells being determined quantitatively by esterification of the aliphatic acid thereby.

4,314,823

COMBINATION APPARATUS AND METHOD FOR CHROMATOGRAPHIC SEPARATION AND QUANTITATIVE ANALYSIS OF MULTIPLE IONIC SPECIES

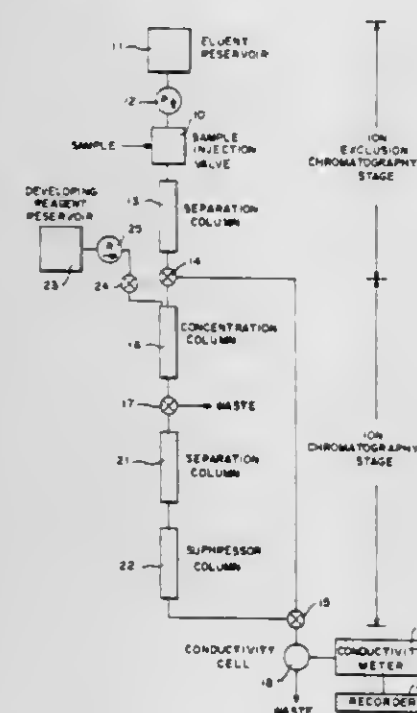
William E. Rich, Jr., Mountain View; Frank C. Smith, Felton, and Janet L. McNeill, Sunnyvale, all of Calif., assignors to Dionex Corporation, Sunnyvale, Calif.

Continuation-in-part of Ser. No. 17,575, Mar. 5, 1979, abandoned. This application Sep. 13, 1979, Ser. No. 75,260

Int. Cl.³ G01N 31/04, 31/08

U.S. Cl. 23—230 R

27 Claims



1. The method of chromatographic separation and quantita-

tive analysis of a plurality of anionic species in a sample solution, said method comprising

- directing a sample solution containing a plurality of anionic species and an eluent through a first resin column, said first column containing a cationic or non-ionic chromatographic resin in a form to substantially resolve at least a first weak anionic species member, having a pK_A value of about 2 to 7, from a group of anionic species including at least first and second strong anionic species members, having pK_A values of about 0 to 2, on elution from said column in said eluent,
- directing a solution of at least said substantially resolved first weak anionic species through a conductivity cell having associated readout means and measuring the conductivity of said last named solution,
- directing the first and second strong anionic species and a highly ionized developing reagent solution through a second resin column, said second resin column containing a chromatographic anion exchange resin in a form to substantially resolve at least said first and second strong anionic species on elution from said second column,
- directing said substantially resolved first and second strong anionic species to a third resin column, said third resin column containing a cation exchange resin of a type which substantially precludes passage of the developing reagent in highly ionized form and which permits passage of said resolved first and second strong anionic species without substantial interruption of the resolution, and P1
- directing a solution of the resolved first and second strong anionic species from said third resin column through a conductivity cell having associated readout means and measuring the conductivity of said last named solution.

4,314,824

PROGRAMMABLE, CONTINUOUS FLOW ANALYZER

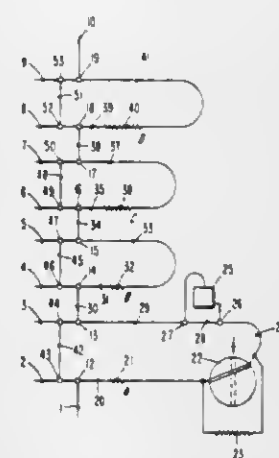
Elo H. Hansen, Lyngby, and Jaromir Ruzicka, Naerum, both of Denmark, assignors to Bifok AB, Sollentuna, Sweden

Continuation of Ser. No. 878,265, Feb. 16, 1978, Pat. No. 4,224,033. This application May 6, 1980, Ser. No. 147,331
Claims priority, application Sweden, Feb. 16, 1977, 7701692
The portion of the term of this patent subsequent to Sep. 23, 1997, has been disclaimed.

Int. Cl.³ G01N 1/18

U.S. Cl. 23—230 R

9 Claims



1. A method of preparing a sample for treatment in which a continuous flow of liquid carrier receives sample portions, said method comprising: passing said carrier through a conduit in a manner such that flow of said carrier is laminar, unsegmented and continuous, introducing sample portions into said carrier, controlling dispersion of said sample portion in said carrier by varying at least one of the following: the volume of said sample portion, the flow velocity of said carrier, or the dimensions of said conduit conducting said sample and said carrier.

4,314,825

PROCESS OF PREPARING COMBUSTIBLE SOLID FUEL

Gerald J. Paquette, 2716 - 29th Ave. Northeast, Minneapolis, Minn. 55418

Filed Aug. 26, 1980, Ser. No. 181,487

Int. Cl.³ C10L 5/44

U.S. Cl. 44—10 A

4 Claims

1. The process of preparing a combustible solid fuel from grain residue which comprises the steps of:

- passing grain residue through a pelletizing zone wherein the said residue is subjected to a compaction pressure of greater than about 500 psi with said compaction pressure being maintained while passing live steam therethrough, with these conditions being maintained for a period of time sufficient to cause the insitu cellulose to become cohesive.

2. The process as defined in claim 1 being particularly characterized in that said grain residue is subjected to said compaction pressure and live steam simultaneously for a period of about one second.

4,314,826

COAL GASIFICATION APPARATUS

Frohmut Vollhardt, Siegen-Bürbach, Fed. Rep. of Germany, assignor to M.A.N. Maschinenfabrik Augsburg-Nürnberg Aktiengesellschaft, Fed. Rep. of Germany

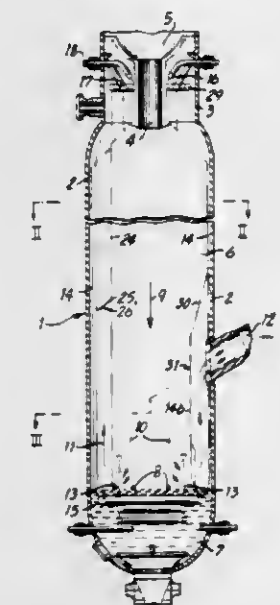
Filed Aug. 18, 1980, Ser. No. 178,902

Claims priority, application Fed. Rep. of Germany, Aug. 18, 1979, 2933514

Int. Cl.³ C10J 3/48, 3/52

U.S. Cl. 48—77

10 Claims



1. Apparatus including a coal gasification reactor and a device for the treatment of synthesis gas produced in the coal gasification reactor comprising a vertically extending shell forming a gas distribution space within said shell connected with the interior of the coal gasification reactor and operating under an internal pressure related to the pressure in the reactor, heat exchanger tubes located within said shell and including first heat exchanger tubes arranged along the inside wall of said shell, wherein the improvement comprises that said first heat exchanger tubes form a cylindrically shaped wall lining the interior of said shell and extend in the vertical direction of said shell, said heat exchanger tubes including second heat exchanger tubes coextensive with said first heat exchanger tubes and in combination therewith forming a plurality of upwardly extending individual chambers projecting radially inwardly toward and angularly spaced apart about the vertical axis of said cylindrically shaped wall and extending for substantially the vertical height of said heat exchanger tubes in said cylindrically shaped wall, means within said chambers for conducting a cleaning medium therethrough under a higher pressure than the pressure in said gas distribution space and said means being arranged for directing the cleaning medium approximately

tangentially of said first heat exchanger tubes located between adjacent said chambers for cleaning the surfaces of said tubes.

4,314,827

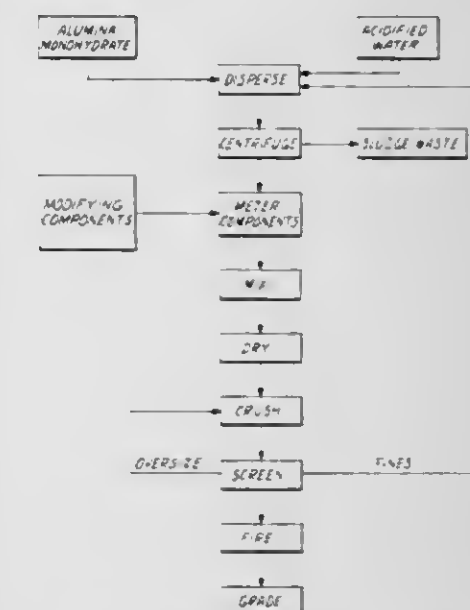
NON-FUSED ALUMINUM OXIDE-BASED ABRASIVE MINERAL

Melvin A. Lelthier, Stillwater, and Harold G. Sowman, Maplewood, both of Minn., assignors to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Continuation-in-part of Ser. No. 53,347, Jun. 29, 1979, abandoned. This application May 13, 1980, Ser. No. 145,383
Int. Cl.³ C04B 35/10

U.S. Cl. 51—298

22 Claims



1. Method of making dense, synthetic, aluminum oxide-based granular abrasive mineral having a substantially homogeneous microcrystalline structure of randomly oriented crystallites comprising modifying component in a dominant continuous alumina phase comprising alpha-alumina, said

- gelling a substantially calcium ion- and alkali metal ion-free homogeneous mixture of an alumina source component and at least one precursor of at least one modifying component selected from

- zirconia, hafnia, or a combination of zirconia and hafnia, and
- a spinel derived from alumina and at least one oxide of a metal selected from cobalt, nickel, zinc, or magnesium,

said precursor being present in an amount to provide in said mineral a dominant continuous alumina phase comprising alpha-alumina and a modifying component content, on a volume percent of fired solids of the mineral, of either (a) at least 10% of said (i), (b), at least 1% of said (ii), or (c) at least 1% of said (ii) and 1–45% of said (i),

- drying the gelled mixture to form chunky pieces of solid material, and

(c) firing said solid material in a non-reducing atmosphere to a temperature of at least 1250° C., but not above the melting point of said mineral, to remove fugitive materials and to nondestructively convert said solid material to a dense aluminum oxide-based mineral.

4,314,828

METHOD AND SYSTEM FOR REGENERATING DEHUMIDIFIER FOR USE IN CHARCOAL ADSORBER

Toru Saito, and Masaki Takeshima, both of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 14, 1980, Ser. No. 121,460

Claims priority, application Japan, Feb. 14, 1979, 54-15907
Int. Cl.³ B01D 53/04, 59/26

U.S. Cl. 55—26

15 Claims

1. A method of regenerating a dehumidifier, of the type

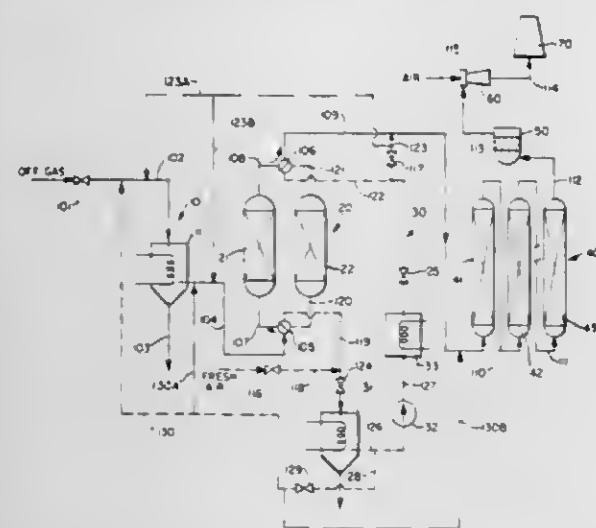
which absorbs moisture from an off-gas including radioactive noble gas such as xenon and krypton to remove moisture therefrom, after said dehumidifier has been used to remove moisture from said off-gas, said method comprising:

purging the dehumidifier by passing a first supply of purging gas therethrough to blow away radioactive materials retained in the dehumidifier after use of the dehumidifier to remove moisture from said off-gas, said first supply of purging gas being separate from the off-gas and being substantially free of radioactive components prior to passing through said dehumidifier,

regenerating the dehumidifier by passing a second supply of gas in a heated state to remove moisture absorbed in the dehumidifier, said second supply of gas being separate from the off-gas and being substantially free of radioactive components prior to passing through said dehumidifier and constituting a regenerating gas for the dehumidifier, and

subjecting the first and second gas supplies, after passage through said dehumidifier, to further treatment in a charcoal adsorber system so that regeneration of the dehumidifier can be completed without leaving any substantial amount of radioactive materials in the dehumidifier.

10. A system for regenerating a dehumidifier, for use in a charcoal adsorber system wherein radioactive noble gases are adsorbed from off-gases, comprising:



dehumidifiers, which include desiccant and through which off-gas including radioactive noble gases such as xenon or krypton is dehumidified,

charcoal adsorbing means, where dehumidified off-gas is introduced and radioactive materials are adsorbed until radioactivity of the off-gas is decayed,

first supply means for supplying a first gas through said dehumidifier for purging radioactive materials retained in the dehumidifier after passage of off-gas therethrough, said first gas being separate from the off-gas and being substantially free of radioactive contaminants, and means for passing said first gas from said first supply means through the dehumidifier,

regenerating means for regenerating said dehumidifier, said regenerating means including a second supply means for supplying a second gas through the dehumidifier and means for passing the second gas from said second supply means in a heated state through said dehumidifier so that the moisture retained in said dehumidifier after passage of the off-gas therethrough is removed with the heated second gas, said second gas being separate from the off-gas and being substantially free of radioactive components, and

means for introducing the first gas to said charcoal adsorbing means after the first gas has been used to purge said dehumidifier, and means for introducing the second gas to said charcoal adsorbing means after the second gas has been used to regenerate said dehumidifier.

4,314,829

PARTICULATE FILTER METHOD

James B. Madsen, Marietta, and Daniel R. Brown, Atlanta, both of Ga., assignors to International Minerals & Chemical Corporation, Terre Haute, Ind.

Filed Jun. 26, 1980, Ser. No. 163,448

Int. Cl.³ B01D 43/30

U.S. Cl. 55—98

10 Claims

1. In a method of removing finely dispersed, particulate material suspended in a gaseous atmosphere in a facility for making a blended solid, granular fertilizer product consisting essentially of inorganic salts selected from the group consisting of phosphorus, potassium and nitrogen and mixture thereof, said finely dispersed, particulate material being generated from the product being blended during blending, the improvement comprising the step of circulating the gaseous atmosphere having finely dispersed, particulate material suspended therein through a dry filter bed consisting essentially of dry, gas permeable particles of at least one inorganic salt component of the blended solid, granular fertilizer product.

4,314,830

SIDE STREAM SEPARATOR FOR BOILER PARTICULATE EMISSION CONTROL

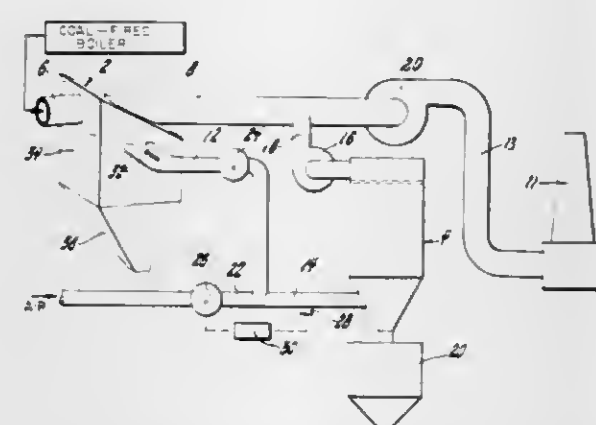
David A. Skiven, Plymouth Township, Wayne County; Charles J. Sortor, St. Clair Shores, and Raymond J. Tessier, Allen Park, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Apr. 23, 1980, Ser. No. 142,972

Int. Cl.³ B01D 50/00; C21B 7/22

U.S. Cl. 55—217

1 Claim



1. In combination with a coal-fired boiler emitting a hot, effluent rich in large and small particulates above and below about 10 microns respectively, a separator system for substantially removing said particulates from said effluent prior to discharging said effluent to a stack, said system comprising: a primary separator including a housing, inlet and outlet chambers in said housing, a particulate collection chamber beneath said inlet chamber, a partition separating the collection chamber from the inlet chamber and a plurality of cyclonic separator tubes extending through the partition providing effluent flow communication between said inlet, outlet and collection chambers, said cyclonic tubes each comprising spaced-apart inner and outer concentric tubes for whirling said particulate-rich effluent downwardly therebetween to centrifugally separate primarily said large particulates from said effluent for collection in said collection chamber and to yield a particulate-lean effluent containing primarily said small particulates for passage into said outlet chamber through said inner tube; and exhaust duct means communicating said outlet chamber with said stack; first suction means for drawing said effluent from said outlet chamber and through said exhaust duct means for discharge to said stack; and a secondary separator for substantially completely removing said small particulates from a minor portion of said particulate-lean effluent, said secondary separator comprising a vestibule chamber, an exhaust chamber, porous, effluent-sensitive filter media between said vestibule and exhaust chambers for entrapping said small particulates

from said portion and substantially preventing their passage from said vestibule chamber into said exhaust chamber so as to yield a substantially particulate-free effluent from said exhaust chamber; a first conduit communicating said collection chamber with said vestibule chamber for passing said portion to said vestibule chamber; valve means positioned and arranged in said first conduit for controlling the flow of said minor portion through said secondary separator; a second conduit communicating said exhaust chamber with said exhaust duct means for passing said particulate-free effluent to said stack; second suction means for drawing said portion from said collection chamber through said secondary separator and said first and second conduits for discharge to said exhaust duct means and said stack, said second suction means being positioned and arranged such that it additionally creates a downward pull in said collection chamber for enhancing the collection efficiency of said primary separator with respect to said large particulates and reducing reentrainment of said small particulates in said particulate-lean effluent; inlet duct means positioned and arranged for admitting ambient air into said first conduit; motorized valve means positioned and arranged in said inlet duct means for modulating the admission of ambient cooling air into said first conduit for dilution cooling of said portion; means for sensing the temperature of the portion in said first conduit; and control-means connected to said sensing and said motorized valve means for controlling said motorized valve means in response to the temperature of said portion and such as to maintain the temperature of the gas entering said second separator above its acid dew point and below the thermal degradation temperature of said media.

4,314,831

AIR FILTER ASSEMBLY IN COMBINATION WITH MOTOR VEHICLE GENERATOR

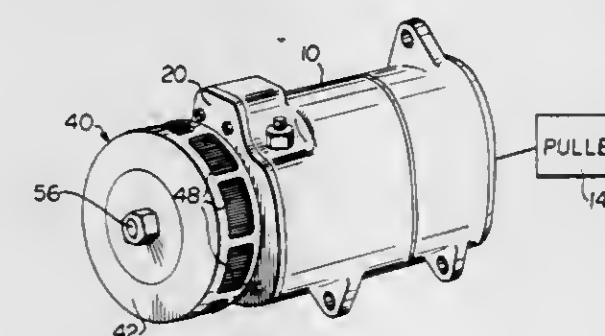
Mato Barbic, #613-2012 Fullerton Ave., North Vancouver, British Columbia, Canada (V7P 2E3)

Filed Jun. 9, 1980, Ser. No. 157,475

Int. Cl.³ B01D 46/52; H02K 9/26

U.S. Cl. 55—385 R

16 Claims



1. An air filter assembly in combination with and joined to a motor vehicle generator, said air filter assembly comprising:

(a) an adaptor plate and connecting means rigidly connecting said adaptor plate to one end of said generator, said adaptor plate including an aperture positioned and arranged to provide air flow communication between the assembly and said generator;

(b) an air filter element; and,

(c) a housing enclosing a chamber, said housing including: (i) an air outlet aperture communicating between said chamber and said adaptor plate aperture; (ii) a plurality of air inlet apertures communicating between said chamber and the atmosphere surrounding said housing; and, (iii) a circular threaded collar threadably engaged to said adaptor plate;

said air filter element being removably disposed in said chamber between said air outlet aperture and said plurality of air inlet apertures for directing cooling air flow to said generator, while excluding particulate foreign matter from said cooling air flow.

10. An air filter assembly in combination with and joined to a motor vehicle generator, said air filter assembly comprising:

(a) an adaptor, including:

(i) a sleeve joined to one end of said generator;

(ii) an adaptor plate having a first side, a second side, and an aperture positioned and arranged to provide air flow communication between the assembly and said generator, said first side being circumferentially affixed to an end of said sleeve; and,

(iii) a first threaded collar affixed to said second side of said plate around said aperture;

(b) an air filter element; and,

(c) a housing enclosing a chamber, said housing including:

(i) an air outlet aperture communicating between said chamber and said adaptor plate aperture;

(ii) a plurality of air inlet apertures communicating between said chamber and the atmosphere surrounding said housing; and

(iii) a second threaded collar affixed around said air outlet aperture and threadably engaged to said first collar;

said air filter element being disposed in said chamber between said air outlet aperture and said plurality of air inlet apertures for directing cooling air flow to said generator, while excluding dust from said cooling air flow.

4,314,832

AIR CLEANER WITH CARTRIDGE SUSPENSION

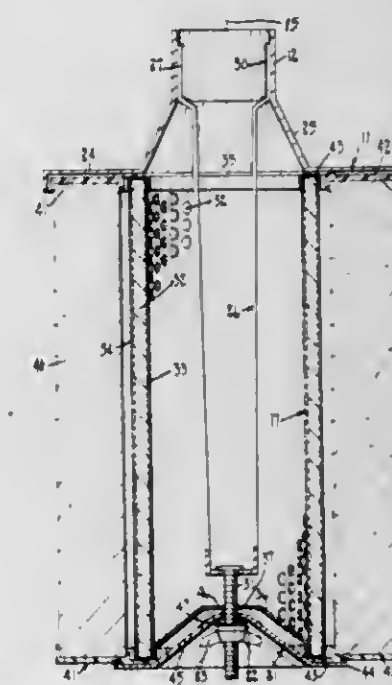
Michael E. Fox, Minneapolis, Minn., assignor to Donaldson Company, Inc., Minneapolis, Minn.

Filed Jul. 24, 1980, Ser. No. 171,658

Int. Cl.³ B01D 46/52, 50/00

U.S. Cl. 55—482

6 Claims



1. An air cleaner comprising, in combination:

a support member having an axis, an axial air flow connection, and mounting means extending along said axis for applying compressive force in a direction generally towards said connection;

a first hollow filter cartridge having a first flat surface;

clamping means constructed and arranged to cooperate with said mounting means for securing said first filter cartridge to said support member with said flat surface extending generally transversely with respect to said axis;

a second hollow filter cartridge having an end with a radially extending lip; and

a second flat surface on one of said support member and said clamping means, said second flat surface apposed to said first flat surface, said lip being disposed between said flat surfaces such that said flat surfaces cooperate to grip therebetween said lip of said second filter cartridge so as to provide a seal.

to suspend said second filter cartridge from said support member.

4,314,833

METHOD OF PRODUCING OPTICAL FIBERS

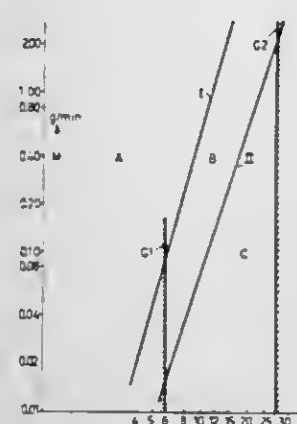
Dieter Küppers, Aachen, Fed. Rep. of Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jul. 16, 1980, Ser. No. 169,348

Claims priority, application Fed. Rep. of Germany, Jul. 19, 1979, 2929166

Int. Cl.³ C03B 37/075

U.S. Cl. 65—3.12



4. A method of producing internally coated glass tubes by depositing a coating of glass layers on the interior of the tube, said method comprising the steps of:

introducing a reactive gas mixture into the tube; and forming a nonisothermal plasma zone within a portion of the tube;

CHARACTERIZED IN THAT the deposition rate, M, in grams per minute is less than or equal to the product of 5.0836 times 10^{-4} grams/minute-millimeter times the inside diameter of the tube, d, in millimeters at the time of deposition.

4,314,834

COATING APPARATUS FOR MANUFACTURING OPTICAL FIBERS

Johannes Feenstra; Marius A. F. Klop; Wilhelmus C. P. M. Meerman; Jan G. J. Peele, and Hermanus N. Tuin, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

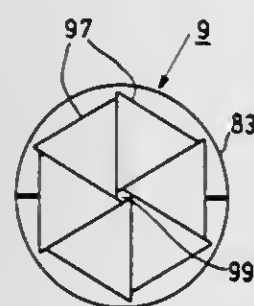
Division of Ser. No. 132,470, Mar. 19, 1980. This application Jun. 2, 1980, Ser. No. 155,696

Claims priority, application Netherlands, Mar. 21, 1979, 7902201

Int. Cl.³ C03C 25/02; C03B 37/025

U.S. Cl. 65—11.1

7 Claims



1. An apparatus for manufacturing optical fibers comprising: means for holding and feeding a preform; means for heating the preform received from the holding and feeding means; means for drawing an optical fiber from the heated preform,

said optical fiber having a substantially circular cross-section; and

means for providing a protective coating on the fiber, said coating means comprising a funnel provided with a nozzle opening at an outlet end, said nozzle having a polygonal shape and having suitable dimensions such that a circle, having a diameter greater than the outside diameter of the fiber to be coated, may be inscribed in the nozzle opening.

4,314,835

METHOD OF PRODUCING FOAMED CONSTRUCTION MATERIALS

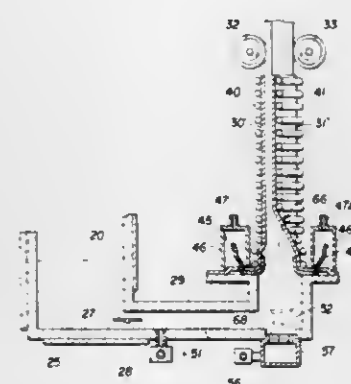
Robert S. Pelton, 1400 S. Joyce St., Apt. A-1603, Arlington, Va. 22202

Filed Mar. 10, 1980, Ser. No. 128,887

Int. Cl.³ C03B 19/08

U.S. Cl. 65—22

11 Claims



1. The method of making a foamed article providing uniform density and cell size, insulation properties, long life without protective coatings when exposed to the atmosphere, strength and fracture resistance suitable for weight bearing construction applications having the properties in combination to achieve the foregoing features comprising,

(a) a solid poreless material that is meltable at high temperatures moldable into predetermined shapes and temperable in the cooling process,

(b) produced in a configuration having a solid skin surface of said material of predetermined thickness toughened by tempering to withstand impact and to resist shattering of the skin over areas outside the impact region, and

(c) further having an interior structural skeleton of said material interconnected in a substantially non-symmetrical pattern interspersed by a myriad of low density pockets of substantially uniform size wherein the skeleton provides a bearing weight distribution network that disperses impact shock over widely dispersing skeletal paths encompassing the pockets and further prevents any common pathway through the body of the object than can support a fracture line through the object, whereby there is an ability of the configuration to absorb shock and impact and to support substantial bearing weight while being light and having substantial insulating capacity over a long life by introducing means forming the low density pockets of predetermined substantially constant size into molten material confined in a mold tempering and forming said skin surface from the molten material, permitting the pockets to rise through the molten material in said mold to a position being cooled and hardened thereby to form the bubbles in said interior structural skeleton by hardening of the molten material about the pockets, continuously moving the article through said mold while controlling the mold temperature to cool the skin of the article in a predetermined manner thereby to temper the outer surfaces of the article, and providing a stream of molten material from a furnace into said mold to replenish the material continuously withdrawn by said article.

4,314,836

GLASS SHEET TEMPERING APPARATUS WITH NOZZLE ARRANGEMENT PROVIDING FLUID ESCAPE PATHS AND METHOD OF TEMPERING GLASS SHEETS

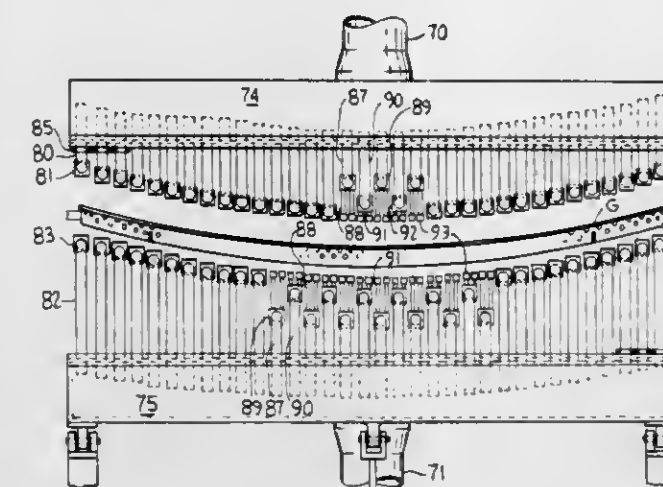
Samuel L. Seymour, Oakmont, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Aug. 4, 1980, Ser. No. 174,961

Int. Cl.³ C03B 27/04

U.S. Cl. 65—114

13 Claims



1. In a method of tempering a glass sheet, wherein the method includes the steps of heating a sheet to a temperature sufficient for tempering; applying streams of tempering medium over major surfaces of the sheet at a rate sufficient to impart at least a partial temper to the sheet, the tempering medium escaping along a plurality of adjacent paths, each of the paths having a depth as measured along a line generally normal to the major surface of the glass sheet, and a width as measured along a line generally parallel to the major surface of the glass sheet, the improvement comprising: increasing the width and depth of the path adjacent central portion of the sheet to a fixed width and depth during the practice of the applying step, the fixed width and depth being greater than the width and depth of the paths adjacent sheet portions outside the central portion to increase the volume of tempering medium escaping from adjacent the central portion of the sheet to improve the temper of the sheet and provide a more uniform break pattern.

6. An apparatus for tempering a glass sheet, comprising: first means for directing a tempering medium; second means for directing a tempering medium; means for mounting said first and second directing means in spaced relation to one another to direct tempering medium toward one another through a common tempering position; and

each of said directing means comprising:

a central fixed array of delivery means, said central fixed array of delivery means spaced a fixed distance from the common tempering position;

a plurality of spaced fixed outer array of delivery means about said central array of delivery means, said spaced fixed outer array spaced a distance from the common tempering position that is less than the fixed distance of the central fixed array; and

a plurality of elongated pipes having a cross-sectional dimension substantially less than the surface dimension of said fixed outer array facing the common tempering position, each of said pipes extending from said central fixed array of delivery means toward the common tempering position and terminating short of the common tempering position a distance approximately equal to the spaced distance from the common tempering position as the spaced outer fixed array of delivery means, said plurality of elongated pipes and spaced central fixed array of delivery means provides increased volumetric tempering medium escape path in a direction generally parallel to and normal to the common

tempering position for central portion of said directing means as compared to outer portions.

4,314,837

REACTANT DELIVERY SYSTEM METHOD

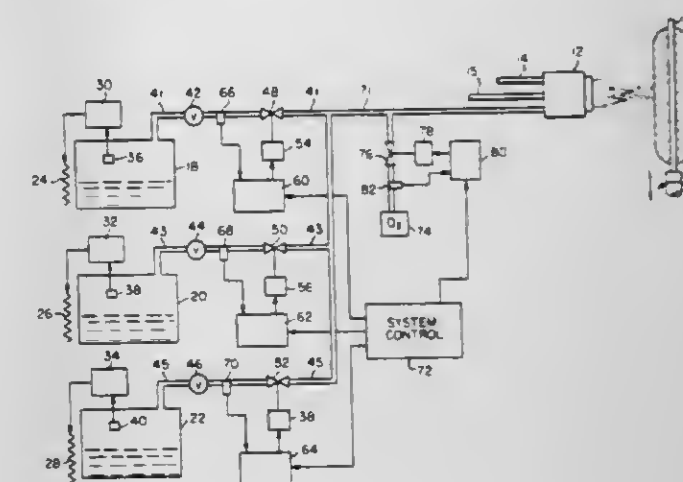
Michael G. Blankenship, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed Mar. 1, 1979, Ser. No. 16,446

Int. Cl.³ C03C 25/02

U.S. Cl. 65—3.12

3 Claims



1. A method for forming an optical fiber preform by depositing on a substrate by means of the oxidation a mixture of at least two reactants in vapor form, said method comprising the steps of

providing a heated reaction zone adjacent said substrate surface, supplying first and second reactants in liquid form in first and second pressurized containers, respectively, heating each of said containers to a temperature sufficient to maintain within each said container a predetermined minimum vapor pressure, supplying vapors from said containers to said reaction zone, sensing the rate of flow of vapors from each of said containers,

controlling the flow of vapors from each of said containers in response to the sensed flow rate of vapors therefrom, combining the vapors from said first and second containers, and

mixing oxygen with said vapors after the flow of said vapors has been controlled, whereby a precisely metered amount of constituent vapors can be obtained from a container without passing oxygen through said container.

4,314,838

BIOCIDAL THIADIAZOLYLMECAPTO-SUBSTITUTED HALOACRYLONITRILE COMPOUNDS

Raymond A. Felix, Richmond, Calif., assignor to Stauffer Chemical Company, Westport, Conn.

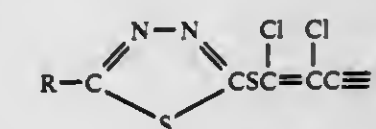
Division of Ser. No. 172,355, Jul. 25, 1980. This application Mar. 2, 1981, Ser. No. 239,281

Int. Cl.³ A01N 43/82

U.S. Cl. 71—67

4 Claims

1. A biocidal composition of matter comprising
a. a biocidally effective amount of a compound having the structural formula



wherein R is selected from the group consisting of methyl, ethyl, propyl, butyl,

4,314,845

N⁴-PHENOXYALKANOYLSULFANILAMIDES AND HERBICIDAL COMPOSITION CONTAINING THE SAME

Kanji Ito, Hirakata; Kenji Ikawa, Osaka; Hisajiro Yukinaga, Kusatsu, and Jitsuo Sugita, Ikeda, all of Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan

Filed Sep. 9, 1980, Ser. No. 185,965

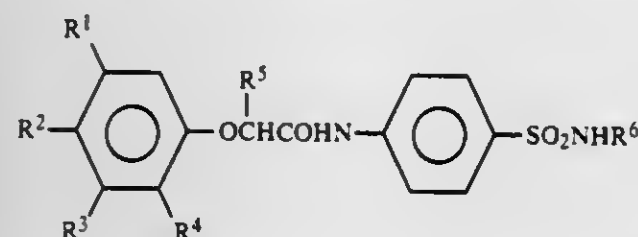
Claims priority, application Japan, Sep. 21, 1979, 54-122423

Int. Cl.³ A01N 37/24; C07C 103/22

U.S. Cl. 71-103

24 Claims

1. N⁴-Phenoxyalkanoylsulfanilamides of the formula:



wherein R¹, R², R³, and R⁴ each independently represents hydrogen, halogen, nitro or lower alkyl, R⁵ represents hydrogen or lower alkyl and R⁶ represents hydrogen, lower alkoxy-carbonyl, lower alkanoyl or carbamoyl, provided that when R¹, R³, R⁴, and R⁵ are H and R² is H or Cl, R⁶ is not acetyl or hydrogen, or alkali metal, alkaline earth metal or ammonium salts thereof.

24. A herbicidal composition containing an effective herbicidal amount of at least one of the compounds defined in claim 1 and at least one inert diluent, carrier and/or adjuvant.

4,314,846

METHOD FOR CARBOTHERMIC PRODUCTION OF ALUMINUM

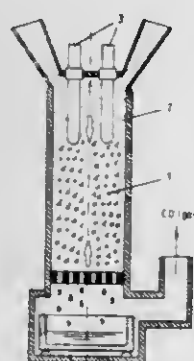
Ketil Motzfeldt, Kjemi Lab. K, 7034 Trondheim-NTH, Norway

Filed Jul. 13, 1979, Ser. No. 57,308

Int. Cl.³ C22D 7/02

U.S. Cl. 75-10 R

5 Claims



1. A method of producing aluminium and aluminum alloys by carbothermally reducing an oxide selected from the group consisting of alumina and alumina-containing oxide admixtures which comprises:

- supplying carbonaceous material and said oxide separately along mutually covering paths and
- exposing said carbonaceous material and said oxide to a predetermined high temperature by supplying electrical heat energy to a reaction zone located at a position where said paths meet thereby to effect said carbonaceous reduction of said oxide, said carbonaceous material proceeding along its path to said reaction zone by an ascending movement adapted to the rate of consumption of said material in said zone and being supported in containers made of similar material, said containers being moved substantially vertically to be at least partially and progressively consumed along with said carbonaceous material on reducing said oxide in said zone.

4,314,847

PROCESS FOR DEPHOSPHORIZATION AND DENITRIFICATION OF CHROMIUM-CONTAINING IRON

Shigeaki Maruhashi; Morihiro Hasegawa, and Takashi Yamachi, all of Yamaguchi, Japan, assignors to Nisshin Steel Company, Ltd., Tokyo, Japan

Filed Jun. 23, 1980, Ser. No. 161,815

Int. Cl.³ C21C 7/02

U.S. Cl. 75-151

15 Claims

1. A process for dephosphorization-denitrification of molten pig iron containing not less than 3% Cr, comprising maintaining the C concentration of said molten pig iron at not less than 2% by weight, contacting said pig iron with a slag comprising more than 30% to 70% by weight of at least one selected from fluorides and chlorides of alkaline earth metals, 1.5 to less than 30% by weight of at least one of oxides, hydroxides and carbonates of sodium and potassium, 5-50% by weight of at least one of oxides of iron and nickel and from 0% to less than 40% by weight of at least one of oxides and carbonates of alkaline earth metals, while controlling oxidation of Cr.

4,314,848

SILVER ALLOY FOR A SLIDING CONTACT

Tsunebiko Todoroki, Yamatokooryama, and Hyogo Hirohata, Neyagawa, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

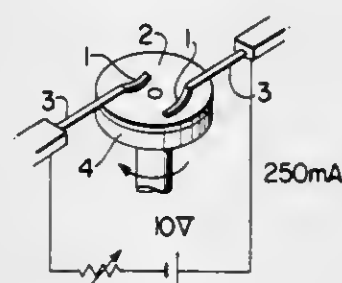
Filed Nov. 19, 1979, Ser. No. 95,791

Claims priority, application Japan, Nov. 17, 1978, 53-142674

Int. Cl.³ C22C 5/08

U.S. Cl. 75-173 C

4 Claims



1. Silver alloy for sliding contact, containing 2% to 8% molybdenum, 3% to 10% copper, up to 10% palladium and remainder silver.

4,314,849

MAXIMIZING THE CORROSION RESISTANCE OF TIN CONTAINING STAINLESS STEEL POWDER COMPACTS

David H. Ro, Cleveland Heights; Erhard Klar, Beachwood, and C. I. Whitman, Bay Village, all of Ohio, assignors to SCM Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 10,956, Feb. 9, 1979, Pat. No. 4,241,831. This application Jan. 21, 1980, Ser. No. 113,584

Int. Cl.³ B22F 3/00; C22C 33/02, 38/02

U.S. Cl. 75-228

13 Claims

1. A process for maximizing the corrosion resistance of a low carbon stainless steel powder compact containing at least about 0.5% silicon and a predetermined amount of tin of at least about 0.01% which comprises, sintering said compact at a temperature not substantially below about 2300° F. at a dew point of at least about -60° F. for a time sufficient for establishing a tin:silicon ratio on the surface of said compact of at least about 1:1, while substantially preserving the microstructure of the powder contained therein, said time being at least 1 hour.

9. An irregularly-shaped, low-carbon, corrosion-resistant stainless steel powder atomized in an oxidizing atmosphere containing at least about 0.01% tin, at least about 0.5% silicon, about 0.6-1.0% oxygen, and up to about 3% copper.

4,314,850

ANTIFOULING COATING COMPOSITION

Takashi Watanabe; Katsushi Yamano; Kunio Yamamoto, and Shigeo Inomata, all of Hiratsuka, Japan, assignors to Kansai Paint Co., Ltd., Hyogo, Japan

Continuation of Ser. No. 953,252, Oct. 20, 1978, abandoned.

This application Feb. 6, 1980, Ser. No. 119,146

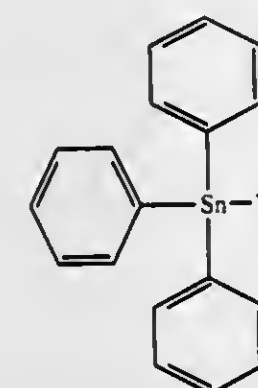
Claims priority, application Japan, Oct. 26, 1977, 52/128528

Int. Cl.³ C09D 5/14

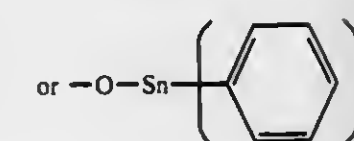
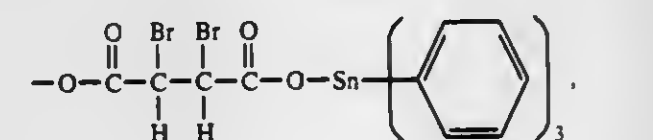
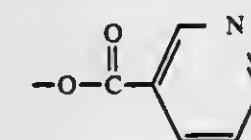
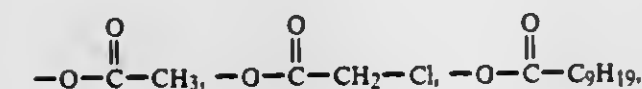
U.S. Cl. 106-15.05

14 Claims

1. An antifouling coating composition comprising (A) an antifouling agent composed of (i) 10 parts by weight of a triphenyltin compound of the formula



wherein Y represents -OH, halogen,



and (ii) 10 to 60 parts by weight of cuprous oxide and/or cuprous thiocyanate,

- a resinous vehicle composed of a resin having an acid value of not more than 10 as a main ingredient, and
- an organic solvent, said resinous vehicle being present in an amount of 6 to 9 parts by weight per 10 parts by weight of the triphenyltin compound, said antifouling agent amounting to 37 to 75% by weight based on the weight of the coating composition, and said composition having a pigment volume concentration of 50 to 80% by volume.

4,314,851

ANTIFOULING COATING COMPOSITIONS

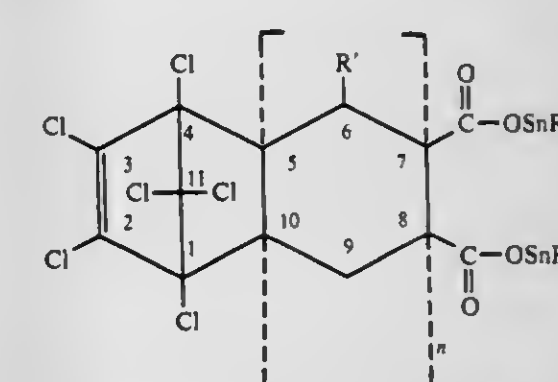
Togrol N. ogy Shakhhtakhtinsky, ulitsa 28 Aprelya, 11. kv. 38, Baku; Zakir M. ogy Rzaev, 1 mikroraion, 1^b/6, kv. 8, Sumgait; Svetlana G. kzy Mamedova, ulitsa Avakiana, 45, kv. 22, Baku; Akhmed D. ogy Dunyamaliyev, 13 mikroraion, 42, kv. 39, Sumgait; Mustafa S. ogy Salakhov, 1 kvartal, 24A, kv. 66, Sumgait, and Mustafa M. ogy Guseinov, prospekt Narimanova, kvartal 522, G, kv. 30, Baku, all of U.S.S.R. Division of Ser. No. 11,039, Feb. 9, 1979, Pat. No. 4,261,914. This application Aug. 21, 1980, Ser. No. 179,977

Int. Cl.³ C09D 5/14

U.S. Cl. 106-16

6 Claims

1. In an antifouling coating composition comprising an antifouling agent, a polymeric binder, a filler, a pigment, and a solvent, the improvement comprising as the antifouling agent, a bis-trialkylstannyl derivative of chlorinated polycyclic dicarboxylic acids, having the general formula (I)



where R is a lower alkyl, R' is H or CH₃, and n is 0 or 1.

4,314,852

SILICON CARBIDE FIBER REINFORCED GLASS COMPOSITES

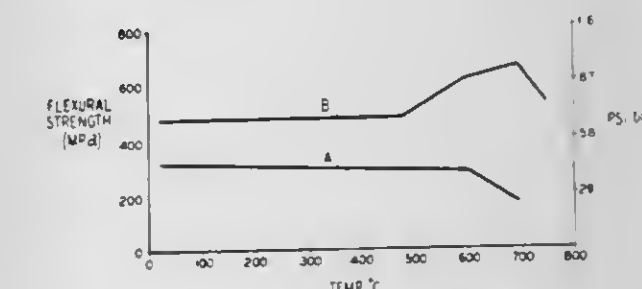
John J. Brennan, Portland, and Karl M. Prew, Vernon, both of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed May 7, 1980, Ser. No. 147,672

Int. Cl.³ C04B 35/56; C03C 3/04, 3/08

U.S. Cl. 501-88

10 Claims



1. A silicon carbide fiber reinforced glass composite consisting essentially of about 30% to about 70% by volume silicon carbide fibers in a glass matrix selected from the group consisting of borosilicate glass, high silica content glass, aluminosilicate glass and mixtures thereof, the composite having a fracture toughness exemplified by a critical stress intensity factor above about 15,000 psi (inch)^{1/2}.

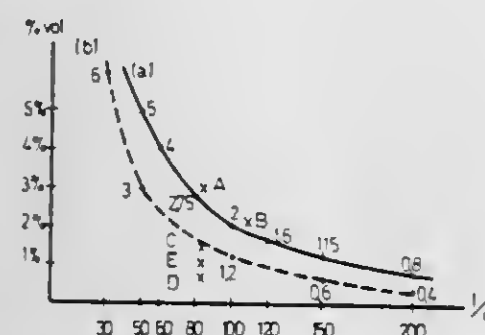
4,314,853

PROCESS OF MIXING REINFORCING ELEMENTS WITH CASTABLE MATERIAL

Joris Moens, Kortrijk, Belgium, assignor to N.V. Bekaert S.A., Zwevegem, Belgium
Division of Ser. No. 850,246, Nov. 10, 1977, Pat. No. 4,224,377, which is a division of Ser. No. 456,592, Apr. 1, 1974, abandoned.
This application Jan. 18, 1980, Ser. No. 113,303
Claims priority, application United Kingdom, Apr. 16, 1973, 18322/73

U.S. Cl. 106—99 Int. Cl.³ C04B 7/02

12 Claims



1. A process of preparing a mixture of cementitious castable material such as mortar or concrete, which mixture comprises a multiplicity of small elongate fiber reinforcing elements made of steel, iron or an iron alloy, the process comprising preparing a mixture of ingredient material for said castable material, introducing into said mixture a plurality of reinforcing members being in the form of groups of said reinforcing elements, having a thickness between about 0.1 and 1 mm and a length-to-thickness ratio between about 50 and 200, bound together in a group by a binder affectable by a disintegration ingredient, then mixing said mixture, causing thereby said reinforcing members to be substantially uniformly distributed therein, and further mixing said mixture, causing thereby said reinforcing members to be disintegrated by means of said disintegration ingredient into separate elements, which are further substantially uniformly distributed in the mixture.

4,314,854

METHOD FOR THE TREATMENT OF CELLULOSIC SUBSTANCES WITH HYDROGEN PEROXIDE

Motoyoshi Takagi, Toda, Japan, assignor to Bio Research Center Company Ltd., Saitama, Japan

Filed Mar. 5, 1981, Ser. No. 240,713

Claims priority, application Japan, Oct. 3, 1980, 55-30109

Int. Cl.³ C13K 1/02

U.S. Cl. 127—37

4 Claims

1. A method for treating cellulosic materials to be enzymatically converted to sugars which comprises contacting an aqueous suspension of the material with 0.1 to 10 weight percent of hydrogen peroxide in the presence of 1/10 to 1/1000 mole ratio against hydrogen peroxide of a Mn^{+2} ion producing material.

4,314,855

METHOD OF CLEANING TEST PROBES

Chuan C. Chang, Berkeley Heights, and Jitendra Kumar, Bridgewater, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 17, 1979, Ser. No. 104,379

Int. Cl.³ B08B 3/08, 3/10

U.S. Cl. 134—3

5 Claims

1. In a method of removing contaminants from electrically conductive test probes that are utilized to contact aluminum pad regions on an integrated circuit chip, the improvement comprising the step of cleaning said probes after multiple such contacts by immersing the probes in boiling water to remove

contaminants accumulated during contacting of said aluminum pad regions.

4,314,856

PROCESS FOR SEQUENTIALLY DEGREASING, TUMBLING, WASHING AND DRYING OBJECTS

Richard Steimel, Frankfurt Strasse 134, 5202 Hennef, Sieg, Fed. Rep. of Germany

PCT No. PCT/DE78/00030, § 371 Date Jun. 29, 1979, § 102(e) Date Jun. 25, 1979, PCT Pub. No. WO79/00244, PCT Pub. Date May 3, 1979

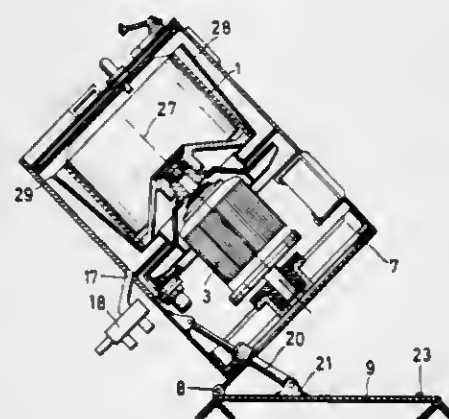
PCT Filed Oct. 27, 1978, Ser. No. 114,091

Claims priority, application Fed. Rep. of Germany, Oct. 29, 1977, 2748615

U.S. Cl. 134—25.4

Int. Cl.³ B08B 7/04

3 Claims



1. A process of degreasing, tumbling and washing of industrially manufactured objects, comprising the following steps performed in order providing a centrifuge drum having a vertical axis of rotation; arranging the drum in a vertical position; filling the drum with the objects to be treated; rotating the centrifuge drum about said vertical axis of rotation so that the objects are degreased and oil is removed therefrom; braking the centrifuge drum down and tilting the same into an inclined position; rotating the drum in said inclined position at reduced speed so that the objects contained in the drum are tumbling in said drum filling the drum with a cleaning or rinsing agent; increasing the speed of rotation of the drum while maintaining the rotation of the same in said inclined position; discharging at least in part the cleaning and rinsing agent from the drum, the objects being treated readjusting their positions within the drum during the rotation thereof in said inclined position so that larger imbalances are avoided; returning the centrifuge drum to its vertical position; and increasing the speed of rotation of the drum and driving the same to discharge the remaining cleaning and rinsing agent and to dry the objects contained in the drum.

4,314,857

METHOD OF MAKING INTEGRATED CMOS AND CTD BY SELECTIVE IMPLANTATION

Alan Aitken, Cowansville, Canada, assignor to Mitel Corporation, Kanata, Canada

Filed Nov. 8, 1979, Ser. No. 92,609

Claims priority, application Canada, Jul. 31, 1979, 332884

Int. Cl.³ H01L 21/263, 7/54, 27/04

U.S. Cl. 148—1.5

13 Claims

1. A method of fabricating a semiconductor device comprising:

(a) providing a semiconductor substrate containing one impurity polarity type, having a silicon nitride mask over its upper surface for defining field effect device channel regions and charge transfer device storage regions, and a photoresist mask which is open over predetermined portions of the silicon nitride mask and the substrate surface for defining field effect device and charge transfer device

4,314,859

PROCESS FOR DYEING ZINC AND ZINC ALLOYS

Nohuyoshi Kasahara, Sayama, and Koutarou Nonomura, Kunitachi, both of Japan, assignors to Mitsui Mining & Smelting Co., Ltd., Nihonbashi, Japan
Continuation-in-part of Ser. No. 18,324, Mar. 7, 1979, Pat. No. 4,238,250. This application Nov. 5, 1980, Ser. No. 204,205
Claims priority, application Japan, May 4, 1978, 53/52807
The portion of the term of this patent subsequent to Dec. 9, 1997, has been disclaimed.

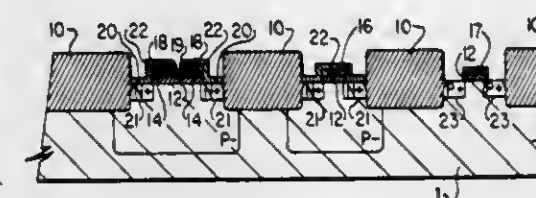
Int. Cl.³ C23F 7/26, 5/04

U.S. Cl. 148—6.1

5 Claims

1. A process for chemically coloring zinc or zinc alloy in multi-color, which comprises the steps of (1) dyeing with a dyestuff zinc or zinc alloy having a dyeable chromate film bonded thereonto, (2) polishing locally the dyed surface to expose the surface of zinc or zinc alloy, (3) making the chromate film on the exposed surface, (4) dyeing with same dyestuff in a different color density the chromate film on the exposed surface, and then the steps (2), (3) and (4) may successively be repeated.

regions of similar polarity type, which is opposite to said one polarity type,
(b) applying a low dosage high energy implantation of opposite polarity type impurity into regions of the substrate not covered by the photoresist mask sufficient to form high



resistivity regions of the field effect and charge transfer devices, and using the same said masks

(c) applying a high dosage low energy implantation of said opposite type impurity into regions of the substrate not covered by both said masks sufficient to form low resistivity regions of the field effect and charge transfer devices.

4,314,860

METHOD FOR DIRECT HEAT TREATING HOT ROLLED STEEL WIRE ROD

Jiro Tominaga, Hikari, Japan, assignor to Nippon Steel Corporation, Tokyo, Japan

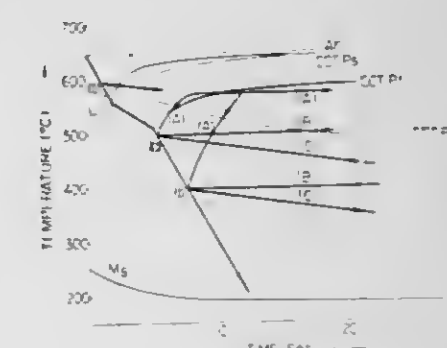
Filed Sep. 5, 1980, Ser. No. 184,324

Claims priority, application Japan, Sep. 6, 1979, 54-113562; Sep. 7, 1979, 54-114894; Sep. 10, 1979, 54-115938

Int. Cl.³ C21D 9/52

U.S. Cl. 148—12 B

6 Claims



1. Method for direct heat treating a hot rolled steel wire rod in direct sequence with the final finishing stand of a rod hot rolling mill which comprises a series of steps consisting of subjecting said rod to a controlled cooling at such a temperature as not below M_s at a cooling rate so as to form the sorbite structure in said rod by utilizing the retained heat of said rod as it emerges from the final stand of said hot rolling mill, reheating said rod to a temperature substantially equal to the nose temperature of TTT or time temperature transformation diagram of said rod, and holding said rod at said temperature for a period of sufficiently extended time to secure substantially complete transformation of untransformed austenite to the sorbite structure.

4,314,861

MANUFACTURING METHOD OF ELBOWS MADE OF CAST STAINLESS STEEL

Shinichi Murakami, Hisakatsu Nishihara, Arata Yoshimitsu, and Sueyoshi Noji, all of Hirakata, Japan, assignors to Kubota Ltd., Osaka, Japan

Filed Jun. 2, 1980, Ser. No. 155,187

Claims priority, application Japan, Jun. 5, 1979, 54-70843

Int. Cl.³ C22F 26/00

U.S. Cl. 148—12 E

5 Claims

1. A manufacturing method of elbows made of cast stainless steels comprising the steps of providing a cast stock tube made

4,314,858

METHOD OF MAKING A FULLY INTEGRATED MONOLITHIC OPTICAL RECEIVER

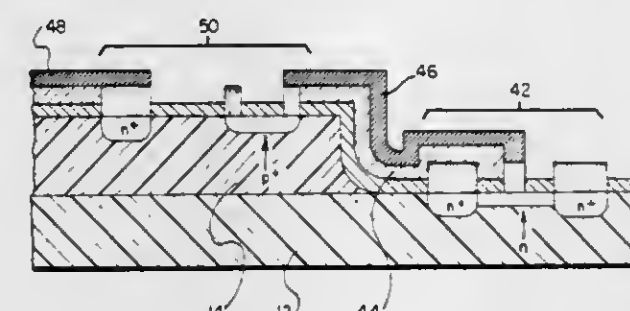
Louis R. Tomasetta, and H. David Law, both of Thousand Oaks, Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Filed Nov. 23, 1979, Ser. No. 96,872

Int. Cl.³ H01L 33/00, 27/14, 29/161

U.S. Cl. 148—1.5

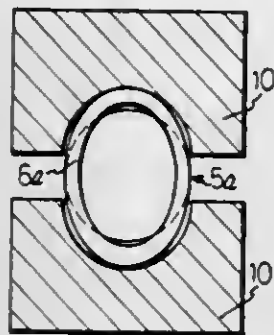
4 Claims



1. A method of manufacturing a fully integrated monolithic optical receiver, comprising the steps of:

- (a) providing a semi-insulating III-V alloy substrate having a major surface;
- (b) fabricating an optical detector on the major surface by
 - (1) growing an epitaxial semiconducting layer of a first conductivity type III-V alloy over the major surface,
 - (2) selectively removing the epitaxial layer to leave a detector region defined by the remaining portion of the layer,
 - (3) selectively implanting a relatively heavily doped region of the first conductivity type in the epitaxial layer, and
 - (4) selectively implanting a relatively heavily doped region of a second conductivity type in the epitaxial layer and spaced from the implanted region of the first conductivity type;
- (c) fabricating an electronic circuit on the major surface; and
- (d) electrically coupling the detector to the circuit.

of a cast austenitic stainless steel, with its chemical composition so adjusted as to have the ferrite phase mixed in the proportion of 5-40%, and with straight tube portions at its ends formed larger or smaller than a final dimension, subjecting said tube to



a process of contraction or expansion at said straight tube portions at its ends, thereby obtaining a tube formed roughly to said final dimension with its ends plastic deformed, and subjecting said tube with its ends plastic deformed to a heat treatment of heating at 1,000°-1,200° C. followed by quenching.

4,314,862

DUAL PHASE HIGH STRENGTH COLD-ROLLED STEEL PLATE

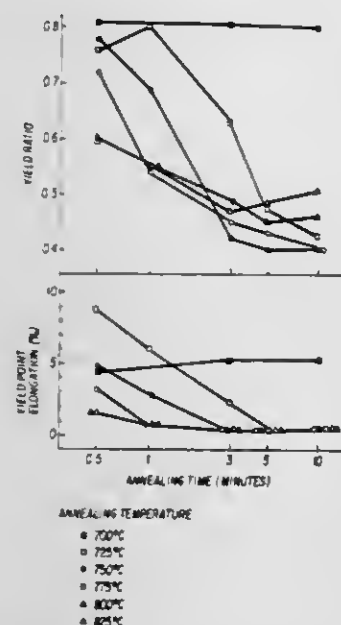
Masatoshi Sudo; Masanori Higashi, both of Kobe; Tsuguaki Ohki, Hyogo, and Shoji Kanbe, Kobe, all of Japan, assignors to Kobe Steel, Ltd., Kobe, Japan

Filed Sep. 3, 1980, Ser. No. 183,711

Claims priority, application Japan, Oct. 16, 1979, 54-133689

Int. Cl.³ C22C 38/38, 38/32

U.S. Cl. 148-12 F



1. A dual phase high strength cold-rolled steel plate, characterized by the composition consisting essentially of 0.02-0.15% of C, 1.5-2.5% of Mn, less than 0.2% of Si, 0.2-1.5% of Cr, 0.044-0.15% of P, less than 0.06% of Al, less than 0.02% of S, and the balance of iron and unavoidable impurities, wherein said plate is annealable at 775° C. for less than one minute to give said dual phase and a yield point elongation of zero without skin pass rolling, a tensile strength of at least 45.7 kg/mm², and a yield ratio of no more than 0.58.

5. A dual phase high strength cold-rolled steel plate, characterized by the composition consisting essentially of 0.02-0.15% of C, 1.5-2.5% of Mn, less than 0.2% of Si, 0.2-1.5% of Cr, 0.044-0.15% of P, less than 0.06% of Al, less than 0.02% of S, 0.0005-0.01% of B, at least one member selected from the group consisting of 0.003-0.1% of Nb, 0.01-0.1% of Ti and 0.01-0.1% of Zr, and the balance of iron and unavoidable impurities, wherein said plate is annealable at 775° C. for less than one minute to give said dual phase and a yield point

elongation of zero without skin pass rolling, a tensile strength of at least 45.7 kg/mm², and a yield ratio of no more than 0.58.

4,314,863

STAINLESS STEEL CASTINGS

Jon McCormick, Thousand Oaks, Calif., assignor to Fansteel Inc., North Chicago, Ill.

Filed Oct. 31, 1979, Ser. No. 89,980

Int. Cl.³ C22C 38/42

U.S. Cl. 148-37

17 Claims

1. A cast stainless steel in the as-cast condition having a hardness in the range of 82 to 98 on the Rockwell "B" scale and a V-notch Charpy impact strength of at least about 30 ft.-lbs., and consisting essentially by weight of about 13-19% Cr, 2.0-3.6% Ni and 2.0-3.5% Cu with Ni plus Cu at least 5.0%, 0.2-1.4% Mn, 0.5-1.0% Si, 0.035% max P, 0.035% max. S, 0.1% max. Mo, 0.1% max. Cb, 0.1% max. Al, 0.20-0.80% C when N is about 0.05% max. and 0.10-0.60% C when N is 0.05-0.10%, with the balance essentially Fe and any conventional impurities.

11. A cast stainless steel golf club head in the as-cast condition having a hardness in the range of 82 to 98 on the Rockwell "B" scale and consisting essentially by weight of about 13-20% Cr, 2.0-3.6% Ni, and 2.0-3.5% Cu, with Ni plus Cu at least 5.0%, 0.2-1.4% Mn, 0.5-1.0% Si, 0.035% max. P, 0.035% max. S, 0.1% max. Mo, 0.1% max. Cb, 0.1% max. Al, 0.20-0.80% C when N is 0.05% max. and 0.10-0.60% C when N is 0.05-0.10%, with the balance essentially Fe and any conventional impurities.

4,314,864

METHOD AND APPARATUS FOR BUILDING A TIRE

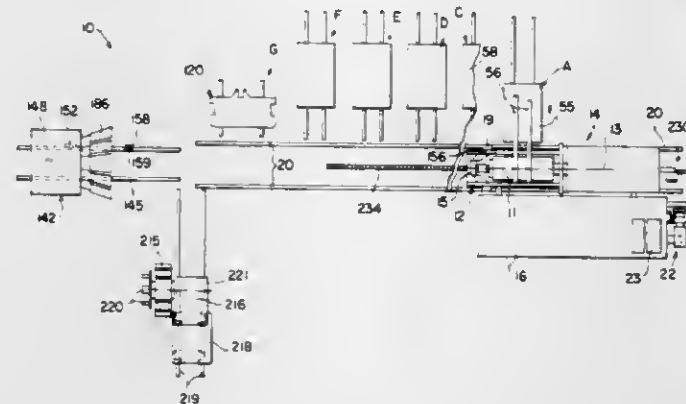
Earl F. Loeffler, Uniontown, and Harley P. Weyand, Jr., Doylestown, both of Ohio, assignors to The Firestone Tire & Rubber Company, Akron, Ohio

Filed May 7, 1980, Ser. No. 147,668

Int. Cl.³ B29H 17/16

U.S. Cl. 156-111

17 Claims



14. A method for building a vehicular tire on a tire assembly drum which is rotatably supported by a headstock comprising the steps of:

- providing a first movable carriage carrying a tire assembly drum;
- supporting the outboard end of the rotatable tire assembly drum by a drum support;
- providing a tailstock on a second movable carriage;
- grossly moving said first carriage to a successive plurality of operation stations;
- precisely orienting said first carriage at each successive operation station;
- sequentially applying tire components to the tire assembly drum at successive operation stations;
- moving said drum support to a passive position;
- moving said second carriage and tailstock onto said first carriage to engage the outboard end of said tire assembly drum rotatably with the tailstock;

toroidally shaping the components on said tire assembly drum against a tread assembly held by said tailstock.

4,314,865

METHOD OF MAKING CUSHIONING DUNNAGE

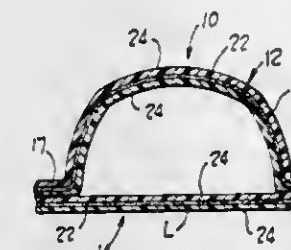
Gary W. Ottaviano, Bedford Heights, Ohio, assignor to Ranpak Corp., Willoughby, Ohio

Filed Sep. 14, 1979, Ser. No. 75,662

Int. Cl.³ B32B 3/28, 31/00

U.S. Cl. 156-145

23 Claims



1. In a method of manufacturing air cell cushioning dunnage material from flexible plastic sheet, with each of the sheets comprising a composite of an intermediate stratum of high density thermoplastic material generally impervious to the passage of gas therethrough and exterior strata bonded to the intermediate stratum with the exterior strata being formed of low density low melting point thermoplastic, with said intermediate stratum being of a high density, higher melting point material as compared to that of the exterior strata, comprising the steps of heating a first of the composite sheets to a temperature above the melting point temperature of the exterior strata but below the melting point temperature of the intermediate stratum, embossing said heated first sheet by feeding it onto a rotating forming drum having a plurality of recesses therein and forming the air cells in the recesses on said forming drum by vacuum, heating a second composite sheet of the plastic above the melting point of the exterior strata of said second sheet, cooling by means of said drum the embossed sheet while on said rotating drum to a temperature below said melting point temperature of said exterior strata and to a temperature approaching the softening temperature of the exterior strata, and then applying said second sheet to said first cooled sheet after the latter has been cooled to said temperature approaching said softening temperature whereby the residue heat in said second sheet causes a melting of the confronting exterior stratum of the cooled embossed sheet sufficiently to cause a bonding of the said first and second sheets at the areas of engagement while on the drum so as to seal the air cells in said product, and then removing the cushioning product from the forming drum.

4,314,866

METHOD FOR ELEVATED-TEMPERATURE BONDING OF MATERIAL WITH DIFFERENT COEFFICIENTS OF THERMAL EXPANSION

Robert C. Webber, Marietta, Ga., assignor to Lockheed Corporation, Burbank, Calif.

Filed Dec. 9, 1980, Ser. No. 214,477

Int. Cl.³ B32B 7/12

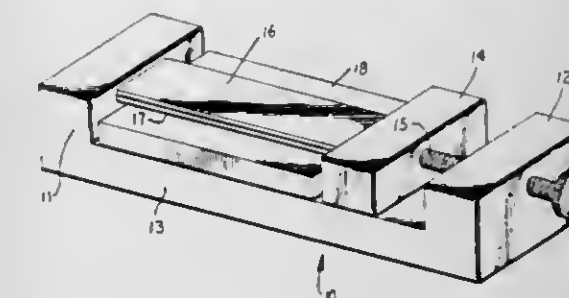
U.S. Cl. 156-163

8 Claims

1. A method for reducing post-adhesive-cured warping or deformation of thermal cured adhesive bonded adherends having different coefficients of thermal expansion comprising the steps of:

- (a) stacking the adherends in a clamping means with a thermal curing adhesive in an uncured state between each adjacent pair of adherends;
- (b) compressing one pair of opposite side edges of the adherends by closure of the clamping means by an amount substantially equal to the amount of thermal expansion the clamping means will experience between the clamping

means members compressing the adherends by the temperature differential between the clamping temperature and the adhesive cure temperature so that the dimension between the opposite side edges of the adherends at the adhesive cure temperature will be substantially the same dimension as at the clamping temperature;



- (c) elevating the temperature of the clamping means, the adherends and the adhesive to at least the cure temperature of the adhesive; and
- (d) after cure of the adhesive, removing the adherends from the clamping means.

4,314,867

METHOD FOR THE MANUFACTURE OF MOLDED BODIES

Fritz Berger, Ottoburen; Udo Lauterbach, Augsburg, and Hermann Wetzel, Memmingen, all of Fed. Rep. of Germany, assignors to Metzeler Schaum GmbH, Memmingen, Fed. Rep. of Germany

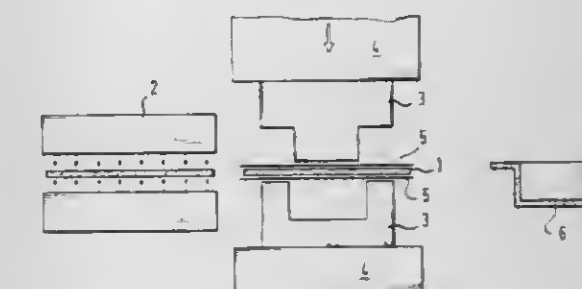
Filed Oct. 12, 1979, Ser. No. 84,516

Claims priority, application Fed. Rep. of Germany, Oct. 13, 1978, 2844757; Jul. 24, 1979, 2929992

Int. Cl.³ B29B 3/00

U.S. Cl. 156-196

7 Claims



1. Method for the manufacture of molded bodies, which comprises heating a plate of thermo-plastic hard polyurethane foam, placing a reinforcing cover layer of UP-Prepreg or sheet molding compound on at least one side of the plate, and changing the form of the heated body under pressure to a different given shape during the hardening of the polyester in the cover layer.

4,314,868

METHOD AND APPARATUS FOR PREVENTING WARP IN CORRUGATED CARDBOARD

Tadashi Hirakawa; Tochiaki Kusubayashi, and Yukio Oku, all of Mihara, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Japan

Filed Aug. 8, 1979, Ser. No. 64,830

Claims priority, application Japan, Aug. 10, 1978, 53/97712

Int. Cl.³ B31F 1/20; B32B 3/28

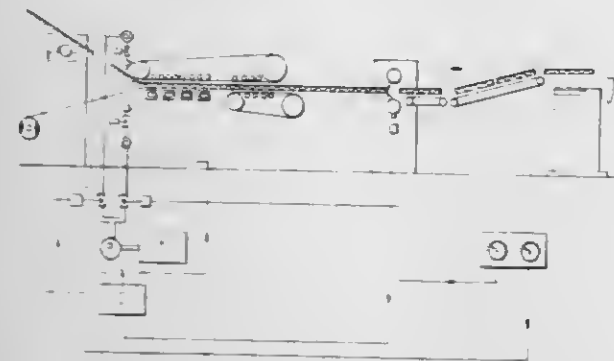
U.S. Cl. 156-207

9 Claims

1. A method for treating corrugated board comprising:

- (a) moving an upper liner, a lower liner, and an intermediate corrugated sheet toward a cutting zone;
- (b) securing said upper liner, said intermediate sheet, and said lower liner, together with said intermediate sheet

- sandwiched between said upper and lower liners to form a corrugated board prior to movement through said cutting zone;
- (c) cutting said corrugated board into sections in said cutting zone;
- (d) stacking successive cut sections of corrugated board on preceding cut sections of corrugated board in a stack after said cutting step;



- (e) imparting different curvature to said sections prior to said stacking steps; and
- (f) said imparting step being controlled for imparting curvature on successive sections substantially opposite to curvature on preceding sections to permit the weight of said stack to correct said formed different curvature and render said corrugated board substantially flat.

4,314,869

WINE BOTTLE LABELER

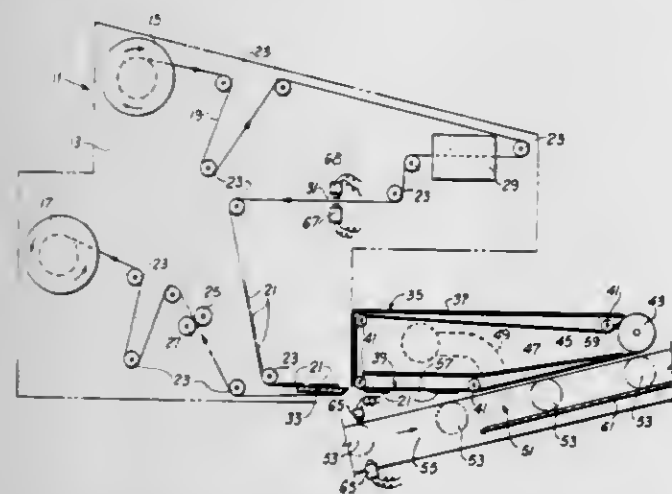
Michael Crankshaw, Santa Fe Springs, Calif., assignor to Label-Aire, Fullerton, Calif.

Filed Dec. 24, 1980, Ser. No. 218,600

Int. Cl.³ B65C 3/16, 9/34

U.S. Cl. 156—215

7 Claims



1. A method of applying a plurality of labels to a label-receiving surface of an article, said method comprising: conveying articles to be labeled through a label applying station with each of the articles having a label-receiving surface;
- providing labels with each of the labels having an adhesive face and an information-carrying face adapted to have information thereon;
- dispensing first and second of the labels onto a vacuum belt transport means with the adhesive faces of the first and second labels facing outwardly;
- transporting the first and second labels to the label applying station with the vacuum belt transport means; and
- contacting a first of the articles at the labeling station with the adhesive face of the first label on the vacuum belt transport means to adhere the first label to a first location on the label-receiving face of the first article, rotating the first article and contacting the label-receiving surface of the first article with the adhesive face of the second label

on the vacuum belt transport means to adhere the second label to a second location on the label-receiving surface of the first article whereby the first and second labels are applied to different locations on the label-receiving surface of the first article.

4,314,870

METHOD OF MOUNTING ELECTRONIC COMPONENTS

Toshimichi Ishida, Kadoma; Takeo Takayanagi, Nara, and Yasuo Taki, Hirakata, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

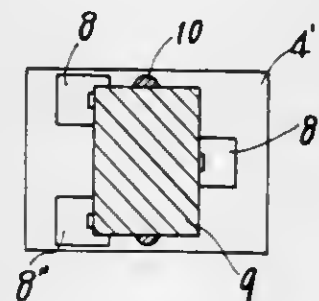
Filed Feb. 13, 1980, Ser. No. 121,145

Claims priority, application Japan, Feb. 19, 1979, 54-18144

Int. Cl.³ B29C 19/02

U.S. Cl. 156—272

4 Claims



1. A method of mounting an electronic component of leadless type onto a printed circuit board comprising the steps of applying adhesive to the board at least at two locations and between connection lands provided on the board, said two locations being spaced by a distance not less than but substantially equal to the width of the electronic component, placing the electronic component on the adhesive to retain it in position with its bottom surface and part of its side surfaces in contact with the adhesive, and curing the adhesive by ultraviolet rays or heat, thereby temporarily holding the electronic component on the board before soldering it thereto.

4,314,871

METHOD OF AND APPARATUS FOR LAMINATING TIMBER

Harry Weinstock, 302 La Contell, 50 Mitchell St., Berea, Johannesburg, 2198, South Africa, and Harry L. Bregman, Johannesburg, South Africa, assignors to Harry Weinstock, Johannesburg, South Africa

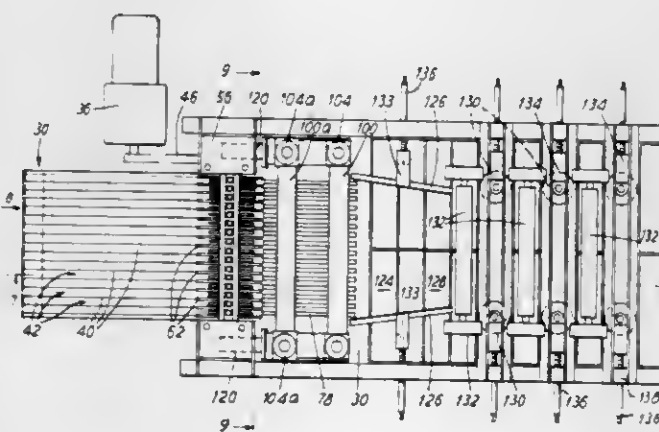
Filed Oct. 23, 1979, Ser. No. 87,561

Claims priority, application South Africa, Apr. 23, 1979, 79/1914

Int. Cl.³ B27G 11/00; B32B 31/12, 31/20

U.S. Cl. 156—258

11 Claims



1. A method of forming a beam from a plurality of short

lengths of timber having pairs of opposite elongated side faces and smaller end faces; the method comprising:

- (a) arranging the timber lengths in a number of rows with one pair of the said side faces vertical;
- (b) feeding the rows of timber lengths to a bonding medium application station;
- (c) spraying bonding medium onto the said vertical side faces of the timber lengths in such a manner that the bonding medium is also applied to the end faces of the timber lengths;
- (d) forcing the end faces of the timber lengths in each row into engagement with one another so as to allow these faces to bond together thereby forming elongated timber strips from the timber lengths in the rows respectively;
- (e) causing the timber strips to move together through pressure means, and
- (f) maintaining the strips between the said pressure means for a period of time to facilitate the bonding together of the contiguous side faces of the timber strips.

7. Apparatus for forming a timber beam from a number of short lengths of timber having opposite elongated side faces and smaller end faces, the apparatus comprising:

- (a) guide path means guiding the timber lengths in rows with one pair of side faces vertical,
- (b) spray means for currently spraying bonding medium to said vertical side faces and end faces of each timber length, and
- (c) pressure rollers rotatable around vertical axes which
- (i) receive the strips from the guide means
- (ii) cause the timber strips to move together, and
- (iii) apply pressure to the strips and hold them under pressure to facilitate bonding together of said side and end faces.

4,314,872

APPARATUS FOR EQUIPPING PROFILES FORMED OF ELASTIC MASSES WITH VELOUR BANDS

Walter H. Schiesser, Zurich, Switzerland, assignor to Schiesser AG, Switzerland

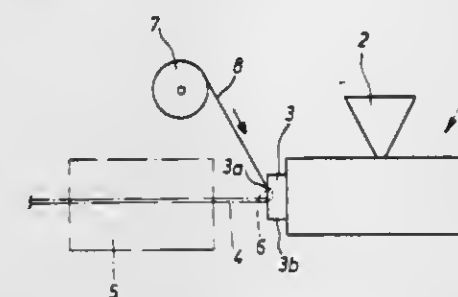
Filed Jun. 18, 1980, Ser. No. 160,594

Claims priority, application Switzerland, Mar. 26, 1980, 2382/80

Int. Cl.³ B29B 3/00

U.S. Cl. 156—500

8 Claims



1. An apparatus for providing profiles formed of elastic masses with velour bands, said apparatus comprising: a guide element for guiding a velour band; means for forming a profile of a particular shape, said profile-forming means including means for heating the profile; said profile-forming means including an injection disc for forming and shaping the profile, and said guide element comprising an element mounted upon said injection disc;
- said guide element cooperating with said profile-forming means to define a path for feeding a velour band to cause the velour band to come into contact with a formed profile passing through said profile-forming means after the profile has been heated by said profile-forming means and while the profile is still in a heated condition; said path

including throughpass means for passage of the combination of the profile and the velour band; and said throughpass means including a portion which is constricted in such a manner as to press a carrier band of the velour band into an outer layer of the profile which is still in a heated condition.

4,314,873

METHOD FOR DEPOSITING HETEROEPI TAXIALLY INP ON GAAS SEMI-INSULATING SUBSTRATES

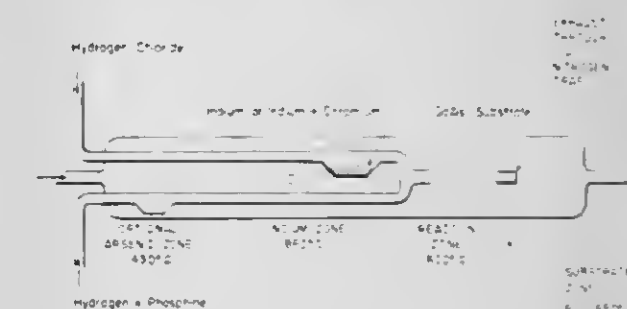
Herman H. Wieder, San Diego, Calif., and Charles R. Parkerson, Green Mountain Falls, Colo., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 5, 1977, Ser. No. 812,965

Int. Cl.³ C30B 25/02

U.S. Cl. 156—610

5 Claims



1. A method of lattice matching two different binary alloys having different lattice constants, comprising the steps of
- (a) selecting a first binary alloy of the form AB, said first binary alloy being InP,
- (b) selecting a second binary alloy of the form CD, said second binary alloy being GaAs,
- (c) depositing said first binary alloy upon said second binary alloy using a vapor heteroepitaxial process,
- (d) controlling the composition and the velocity of the constituent gases and reaction products and the temperature of the source and substrate zones of said process to form a compositional graded intermediate quaternary layer of the form $A_xC_{1-x}B_yD_{1-y}$ where x and y are atomic fractions of the constituents in between said binary alloys, said quaternary layer being $In_xGa_{1-x}As_yP_{1-y}$, wherein the indium source zone is held at 860° C. and the substrate zone is heated to a temperature in the range of 600° to 650° C. and controlled to $\pm 1^\circ$ C. and the constituent gases and products are transported at a velocity in the range of 14 to 48 cm/min.

4,314,874

METHOD FOR FORMING A FINE PATTERN OF AN ALUMINUM FILM

Haruhiko Abe; Yoichi Mashiko, both of Itami; Hiroshi Harada, Kawanishi; Sotoju Asai; Kazuo Mizuguchi, both of Amagasaki, and Sumio Nomoto, Itami, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 24, 1980, Ser. No. 190,286

Claims priority, application Japan, Oct. 9, 1979, 54/130391

Int. Cl.³ C23F 1/02

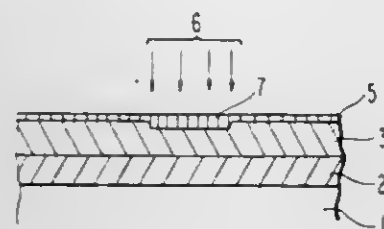
U.S. Cl. 156—628

6 Claims

1. A method for forming a fine pattern of an aluminum film, comprising the following steps:

- (a) coating a surface of a substrate with an aluminum film,
- (b) selectively irradiating said aluminum film with an oxygen ion beam to form an oxygen ion implanted region, and

(c) plasma etching said aluminum film using said implanted region as a mask, whereby unimplanted areas of the aluminum film are removed while areas thereof underlying the implanted region are left substantially intact.



4,314,875

DEVICE FABRICATION BY PLASMA ETCHING
Daniel L. Flamm, Chatham Township, Morris County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 13, 1980, Ser. No. 149,470
Int. Cl.³ H01L 21/306

U.S. Cl. 156-643

10 Claims

1. Process for fabrication of an article comprising at least one operation during which the article undergoing fabrication comprises a surface of material to be etched wherein the said article is etched within a plasma environment contained within an apparatus, the plasma resulting from imposition of an electrical field across gaseous reactant between two electrodes, etching being primarily due to chemical reaction with the said material to be etched, the said gaseous reactant including an effective etchant precursor for yielding a plasma-derived effective etchant primarily responsible for the said chemical reaction and an unsaturate precursor which yields ethylenically unsaturated material or radical which may yield unsaturated material here designated as "unsaturate" which may combine with effective etchant to reduce the amount of available effective etchant, characterized in that the said gaseous reactant includes an oxidant precursor which yields an additional oxidant which combines with unsaturate to result in reduced reaction between unsaturate and effective etchant and thereby increase concentration of effective etchant whereby the rate of the said chemical reaction is increased.

4,314,876

TITANIUM ETCHING SOLUTION

Lawrence N. Kremer, Trenton, and Matthew A. Boehmer, Allen Park, both of Mich., assignors to The Diversy Corporation, Mississauga, Canada

Filed Mar. 17, 1980, Ser. No. 130,938
Int. Cl.³ C23F 1/00

U.S. Cl. 156-664

7 Claims

1. A method for chemically milling a metal comprising subjecting the metal to the action of a solution consisting essentially of 3 to 10 percent by weight of ammonium bifluoride, a nitrate source selected from the group consisting of nitric acid, ammonium nitrate, sodium nitrate and potassium nitrate in amount equivalent to 5 to 15 percent by weight of nitric acid, 2 to 25 percent by weight hydrochloric acid where the nitrate source is ammonium nitrate, sodium nitrate or potassium nitrate, 0 to 1 percent by weight of a wetting agent and 92 to 49 percent by weight water.

4,314,877 METHOD AND APPARATUS FOR DRYING RADIOACTIVE WASTE WATER CONCENTRATES FROM EVAPORATORS

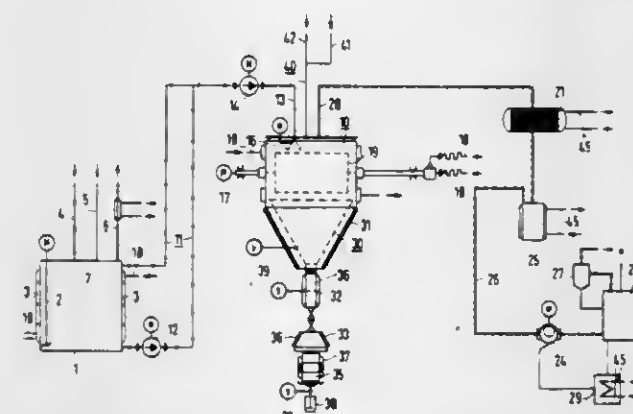
Horst Queiser, Maintal; Othmar Meichner, Raunheim, and Dietmar Erbse, Rodenbach, all of Fed. Rep. of Germany, assignors to Kraftwerk Union Aktiengesellschaft, Mülheim, Fed. Rep. of Germany

Filed Oct. 28, 1980, Ser. No. 201,561
Claims priority, application Fed. Rep. of Germany, Nov. 2, 1979, 2944302

Int. Cl.³ B01D 1/24

U.S. Cl. 159-47 WL

20 Claims



1. Method for drying radioactive waste water concentrates from evaporators which comprises

- (a) preheating a waste water concentrate with a solids content of at most 20% by weight to a temperature of 50°-70° C.,
- (b) passing the preheated concentrate with a solids content of at most 20% by weight into a two-cylinder drier at the rate of 10 to 20 liters per square meter of usable cylinder surface per hour,
- (c) maintaining the cylinder temperature between about 160° to 210° C.,
- (d) retaining the concentrate in the drier for a residence time of 7 to 18 seconds on the cylinder to produce a dried product of low residual moisture on the cylinder surface, and
- (e) discharging the dried product of low residual moisture from the cylinder surface.

4,314,878

METHOD OF OPERATING A PAPERMACHINE DRYING LINE

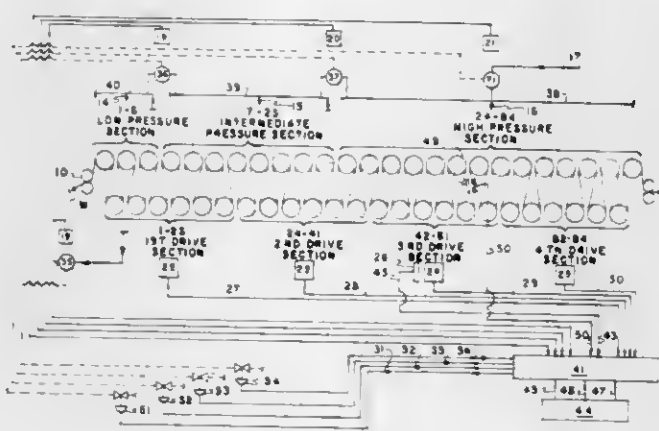
Hong H. Lee, Gainesville, Fla., assignor to Westvaco Corporation, New York, N.Y.

Continuation of Ser. No. 872,379, Jan. 26, 1978, abandoned. This application May 14, 1979, Ser. No. 38,406

Int. Cl.³ D21F 5/04, 5/06

U.S. Cl. 162-198

4 Claims



1. A method of operating a papermachine having an evapo-

native web drying line including a plurality of heating fluid temperature sections comprising the steps of:

- A. Deriving a functional relationship between a reasonable drainage rate range for a type of pulp stock laid on said papermachine to form a given basis weight web and the approximate lowest critical moisture content obtainable in said web at the substantially earliest position along said drying line;
- B. Measuring the drainage rate of a particular flow increment of stock to said papermachine being of said type;
- C. Determining from said drainage rate measurement and said functional relationship, a first physical representation of said lowest critical moisture content and a second physical representation corresponding to the point of earliest occurrence thereof along said drying line;
- D. Forming a web on said papermachine of said basis weight from said stock flow increment;
- E. Deriving from said first and second physical representations, heating fluid temperature set-point values respective to said plurality of sections thus forming a drying rate trajectory;
- F. Responsive to said temperature set-point values, controlling the flow rate and temperature of heating fluid in said plurality of sections to maintain said respective set-point values; and
- G. Operating said papermachine to dry said web within said plurality of sections according to an approximate drying rate trajectory including said lowest critical moisture content at said point of earliest occurrence.

4,314,879

**PRODUCTION OF FIELD-REVERSED MIRROR
PLASMA WITH A COAXIAL PLASMA GUN**

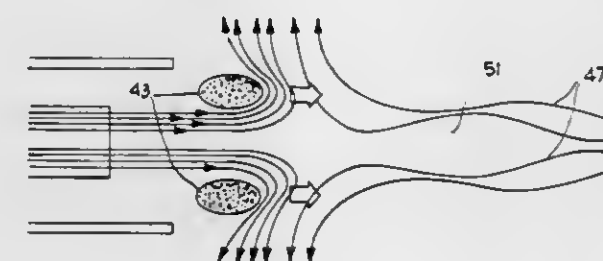
Charles W. Hartman, Alamo, and James W. Shearer, Livermore, both of Calif., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Mar. 22, 1979, Ser. No. 22,894

Int. Cl.³ G21B 1/00

U.S. Cl. 376-128

11 Claims



1. A method of producing a field-reversed mirror plasma, comprising the steps of:

- producing a minimum B magnetic field of multi-Tesla strength in an evacuated plasma confinement apparatus by means of a magnetic mirror;
- generating a plasma ring by means of a coaxial plasma gun, said coaxial plasma gun possessing a solenoidal conductor configuration so as to produce a poloidal magnetic field, the inner component of said poloidal field being in a direction opposite to that of the magnetic field of the mirror so as to form a magnetic field-reversed configuration around the gun;
- accelerating the plasma ring by means of said coaxial plasma gun so that the plasma ring drifts out of and away from the coaxial plasma gun in a direction parallel to the coaxial plasma gun's longitudinal axis and toward said magnetic mirror, thus forming a field-reversed plasma ring upon reconnection of the magnetic field lines between said plasma ring and said coaxial plasma gun; and
- confining the field-reversed plasma ring in the minimum B

magnetic well of the magnetic mirror thereby producing a field-reversed mirror plasma.

4,314,880

HYDROGEN PERMEATION RESISTANT BARRIER
Joseph C. McGuire, and William F. Brehm, both of Richland, Wash., assignors to The United States Department of America as represented by the United States Department of Energy, Washington, D.C.

Filed Feb. 8, 1980, Ser. No. 119,740

Int. Cl.³ G21C 1/02, 3/20; B05D 3/02

U.S. Cl. 376-146

7 Claims

7. A hydrogen diffusion resistant component for a liquid metal fast breeder reactor or a fusion reactor containing molten alkali metal as a coolant, in which said component is subjected to an environment of molten alkali metal and hydrogen, comprising:

- a. a metal wall of an austenitic, ferritic, or nickel-rich alloy; and
- b. a hydrogen permeation resistant intermetallic aluminide coating of Fe_3Al , FeAl , Fe_3Al_2 , Ni_3Al , NiAl , or AlAl_2 formed by the diffusion of aluminum into a surface of said metal wall.

4,314,881

REACTOR CONTROL ROD TIMING SYSTEM

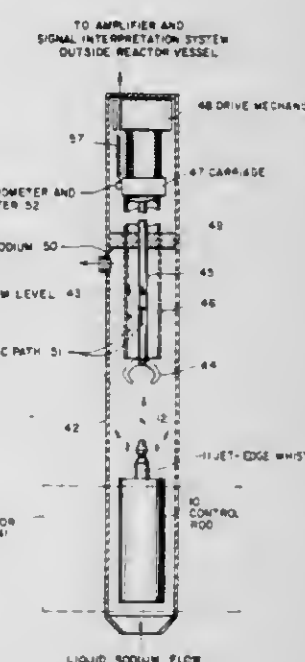
Peter T. K. Wu, Clifton Park, N.Y., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Mar. 18, 1980, Ser. No. 131,303

Int. Cl.³ G21C 17/00

U.S. Cl. 376-245

9 Claims



1. A real-time-timing measurement system for determining the time duration for a reactor control rod from release to down position, comprising: means for producing an acoustic signal upon a control rod reaching its down position, means for receiving and amplifying the acoustic signal, and means for comparing a time of the acoustic signal with a time of release of the control rod, said acoustic signal producing means including a fluid activated jet-edge whistle having an adjustable resonator cavity which is activated by a fluid pressure pulse produced upon an associated control rod reaching down position.

4,314,882

DEVICE FOR ACTUATING A NUCLEAR REACTOR CONTROL ROD

Claude Etienne, Aix en Provence; Claude Fardouet, Massy, and Guy Mercier L'Abbe, Aix en Provence, all of France, assignors to Commissariat a L'Energie Atomique, Paris, France

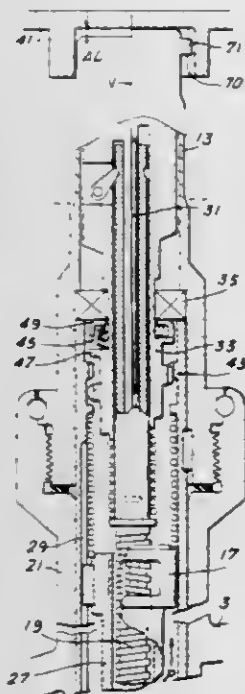
Filed Jul. 24, 1979, Ser. No. 60,226

Claims priority, application France, Jul. 27, 1978, 78 22253

Int. Cl.³ G21C 7/14

U.S. Cl. 376—235

5 Claims



1. A nuclear reactor control rod actuating device of the type comprising an assembly or so-called first assembly for carrying out a low-speed translational displacement and dropping of the control rod, said assembly being constituted by a leak-tight casing tube rigidly fixed to the closure head of the nuclear reactor pressure vessel and adapted to communicate with said pressure vessel, a screw and nut system coupled to the control rod by means of the nut and a screw-retaining device capable of releasing said screw, the nut being secured against rotational motion and guided in translational motion within a tube provided with a retaining stop at the lower end and engaged with a rotary drive rod rigidly fixed to a rotor which is rotatably mounted within said casing tube, wherein said control-rod actuating device comprises an assembly or so-called second assembly for limiting and then arresting the upward motion of the control rod in the event of failure of said leak-tight casing tube, said second assembly being constituted by means for limiting the upward displacement of the broken portion of said casing tube under the action of a vertical thrust resulting from said failure, means for rotational locking of said rotor and calibrated elastic means for producing action on the rotor in opposition to said vertical thrust.

4,314,883

GRAPHITE BLOCK HAVING WEAR ZONE AND LOAD BEARING ZONE FOR SIDE REFLECTOR OF HIGH TEMPERATURE REACTOR

Rolf Fritz, Ostersheim; Josef Schoening, Hambruecken; Claus Elter, Bad Durkheim, and Walter Theymann, Viernheim, all of Fed. Rep. of Germany, assignors to Hochtemperatur-Reaktorbau GmbH., Cologne, Fed. Rep. of Germany

Filed Oct. 18, 1979, Ser. No. 85,873

Claims priority, application Fed. Rep. of Germany, Nov. 30, 1978, 2851724; Jul. 26, 1979, 2930279

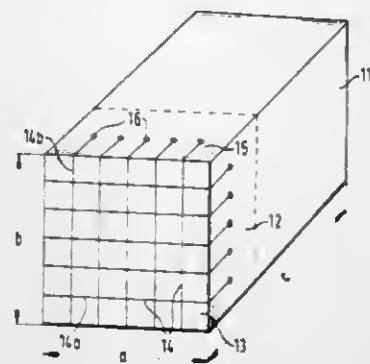
Int. Cl.³ G21C 5/08

U.S. Cl. 376—381

19 Claims

16. A gas-cooled high temperature pebble bed reactor comprising a reactor core arranged in a cavity in a prestressed pressure vessel, a side reflector of a plurality of graphite blocks arranged in a plurality of annuli about said reactor core and a

cooling circuit for the reactor, each of said graphite blocks having a wear zone facing said reactor core and a load bearing zone separate from said wear zone, a plurality of straight line



slits in the frontal surface of said wear zone, and a first plurality of bores in said wear zone wherein each bore is located adjacent and contiguous with the terminus of one of said straight line slits each of said slits having a bore.

4,314,884

NUCLEAR FUEL ASSEMBLY

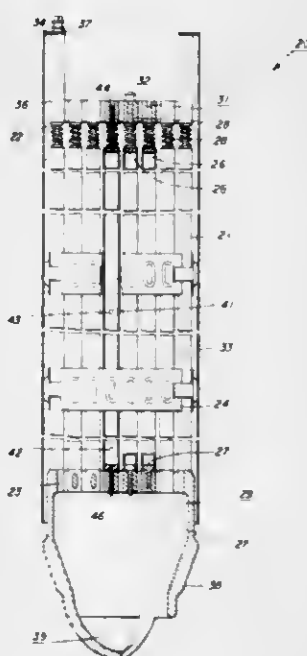
Alan W. Fanning; William G. Jameson, Jr., and Victor E. Hazel, all of San Jose, Calif., assignors to General Electric Company, San Jose, Calif.

Filed May 21, 1979, Ser. No. 40,997

Int. Cl.³ G21C 3/30

U.S. Cl. 376—441

10 Claims



1. In a fuel assembly for use with a plurality of fuel assemblies and a neutron moderator fluid in a nuclear reactor core including a plurality of elongated fuel rods of predetermined outside diameter arranged in spaced array; at least one spacer positioned intermediate the ends of said fuel rods forming a plurality of cells for passage of said fuel rods therethrough; a spring member extending into each of the cells occupied by a fuel rod and engaging the fuel rod therein for lateral support thereof; at least one hollow tube positioned in an inner position of said assembly and passing through a cell of said spacer, said hollow tube being formed with means for entrance and egress of moderator fluid, said hollow tube having an outside diameter greater than the outside diameter of said fuel rods; and a W-shaped spring member extending into the cell of said spacer occupied by said hollow tube and providing two points of contact therewith for lateral support thereof.

4,314,885

INDUSTRIAL TECHNIQUE

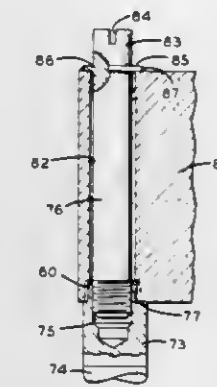
Gerald T. Edwards, and Donald C. Schluderberg, both of Lynchburg, Va., assignors to The Babcock & Wilcox Company, New Orleans, La.

Filed Oct. 18, 1978, Ser. No. 952,523

Int. Cl.³ G21C 7/10

U.S. Cl. 376—327

2 Claims



1. A control component structure comprising a spider having a plurality of arms, each arm having a bore formed therein for receiving a burnable poison rod, a burnable poison rod having a longitudinal axis and including a stem protruding from and affixed to an end of the burnable poison rod and in longitudinal alignment with the rod, the stem being nested within the spider bore, a flange affixed to and protruding transversely from the stem for providing a retaining force, the flange extending beyond the diameter of the spider bore for retaining the stem within the bore, and a groove formed in the flange, circumferentially around the stem, in longitudinal alignment with the spider bore in order to provide a predetermined weak point, said flange being adapted to break at the groove by movement of the rod and the stem in a longitudinal direction with respect to the spider bore through the application of a force to the stem greater than and opposing the retaining force while maintaining structural unity of the poison rod and maintaining structural unity of the spider.

4,314,886

MECHANICALLY AGITATED LIQUID-VAPOR CONTACTING APPARATUS

Douglas G. Ryan, Rockaway, N.J., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Continuation-in-part of Ser. No. 974,071, Dec. 28, 1978, abandoned. This application Jun. 11, 1980, Ser. No. 158,374

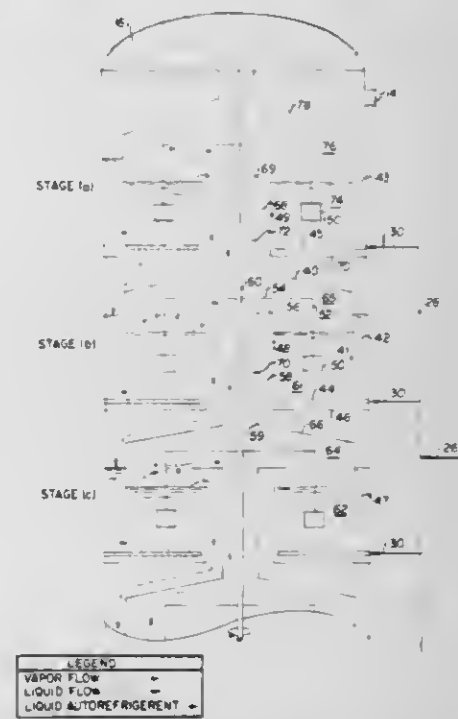
Int. Cl.³ C10G 73/10; B01D 11/04

U.S. Cl. 196—14.5

4 Claims

1. An apparatus comprising a vertical, elongated tower having a feed inlet at the top and liquid and vapor outlets in a lower section, said apparatus containing a plurality of vertically spaced, horizontally disposed stages therein, means for mechanically agitating a liquid or vapor introduced into each of said stages with liquid present in said stages by means of agitator means mounted to a single shaft driven by a single driver means, and means for separating said stages one from the other while defining fluid communication channels between said stages, said stages comprising (a) liquid tray means horizontally attached to the interior walls of the elongated, vertical tower; (b) weir means attached vertically to the liquid tray means along the interior perimeter of the tray means at some distance from the interior walls of the tower thereby defining (1) a liquid-vapor stage comprising a liquid space and a vapor space over said liquid space, which maintains a predetermined amount of liquid on said liquid tray means in said liquid space between the weir and the tower wall and (2) a fluid communication channel; (c) a first liquid downcomer means communicating with said stage separation means to

define a liquid communication channel in the fluid communication channel leading from the liquid space of the liquid-vapor stage immediately above the recited liquid-vapor stage to the recited liquid-vapor stage; (d) a second liquid downcomer means defining a second liquid communication channel leading from the liquid space of the recited liquid-vapor stage to the liquid space of a liquid stage immediately below the recited liquid-vapor stage; (e) a first vapor communication channel in the fluid communication channel defined by said first liquid downcomer means leading from the vapor space immediately above the liquid space of the liquid-vapor stage immediately above the recited liquid-vapor stage to the vapor space immediately above the recited liquid-vapor stage; (f) vapor downcomer means defining a second vapor communication channel



leading from the vapor space immediately above the liquid space of the recited liquid-vapor stage to the vapor space immediately above the liquid space of the liquid-vapor stage immediately below the recited liquid-vapor stage, wherein the liquid downcomers and vapor downcomer maintain the liquids and vapors as separated distinct streams forced to flow downwardly in parallel flow by the absence of vapor outlet means at the top of the tower and wherein the vapor stream does not pass through any liquid in any successive lower stage; (g) means for introducing a liquid or a vapor from a source external to said apparatus into the liquid space of the liquid-vapor stage at a point below the liquid level in the liquid-vapor stage, or if only liquid is introduced, at a point above the liquid level of the liquid-vapor stage.

4,314,887

APPARATUS FOR PRODUCING COKE FROM FINE AND COARSE COAL

Jack R. Haley, Nashville; Jimmy B. Smith, Columbia, and Vaughn Mansfield, Gallatin, all of Tenn., assignors to Peabody Coal Company, Inc., St. Louis, Mo.

Division of Ser. No. 917,108, Jun. 19, 1978, Pat. No. 4,196,051.

This application Aug. 14, 1979, Ser. No. 66,403

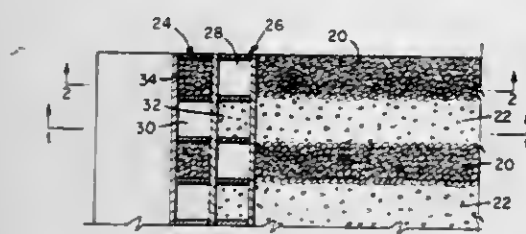
Int. Cl.³ C10B 7/06, 31/00

U.S. Cl. 202—91

2 Claims

1. Apparatus for producing coke from a plurality of coals of respectively different type characteristics comprising: a coking furnace having input and output ends, a continuous conveyor providing a flat conveyor run moving horizontally through the furnace from the input end to output end thereof, at least two coal hoppers, a plurality of spaced outlet means for feeding coal from one hopper onto the conveyor run at a plurality of locations

which are spaced from one another in a direction transverse to the direction of movement of the conveyor run so as to form a plurality of spaced rows of coal from one



hopper along the conveyor run, and another plurality of spaced outlet means for feeding coal from the other hopper onto the conveyor run into the spaces between the first mentioned rows.

4,314,888

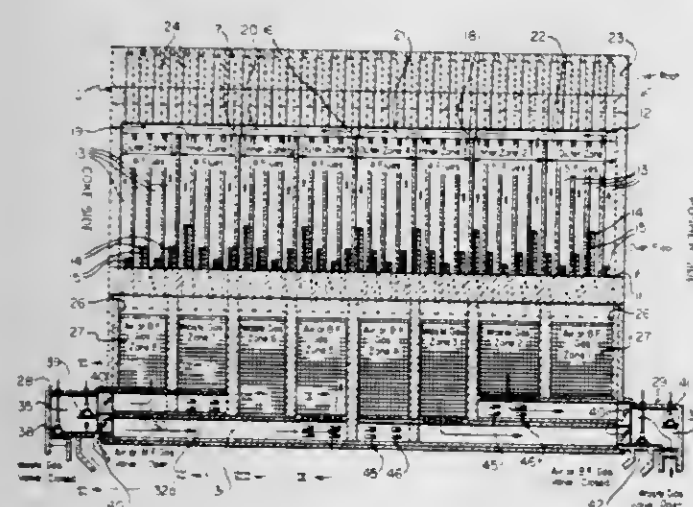
ZONE CONTROL OF LEAN GAS UNDERFIRING FOR COKE OVENS

Philip Corbman, Monsey, N.Y., and Paul V. Faber, Morristown, N.J., assignors to Wilputte Corporation, New Providence, N.J.

Filed Aug. 7, 1980, Ser. No. 176,072
Int. Cl.³ C10B 5/02, 5/18, 21/02, 21/18

U.S. Cl. 202-143

5 Claims



1. A coke oven battery having coke oven chambers with heating walls therefor and adapted when charged with wet or preheated coal to assume a varying bulk density of the charging coal from the coke side to the pusher side of the oven, wherein the improvement comprises an arrangement of vertical flues in each of said heating walls in an even number of spaced zones, sequentially positioned and extending from the coke side to the pusher side of the oven, each zone being defined by refractory partitions between which are a plurality of heating flues, refractory means defining passages between the top end of the flues in one zone and the top end of the flues in an adjoining zone, so as to form a pair of zones, a pair of horizontal ducts positioned side-by-side and extending below both zones of a pair, partition means in one of said ducts dividing it into separate spaces corresponding to the zones thereabove, a passage from one separate space in that duct into the corresponding zone of that pair and a passage from another separate space in that duct below the other zone of that pair into the adjoining horizontal duct.

4,314,889 APPARATUS TO EXTRACT CHARGING GASES FROM A COKE OVEN CHAMBER

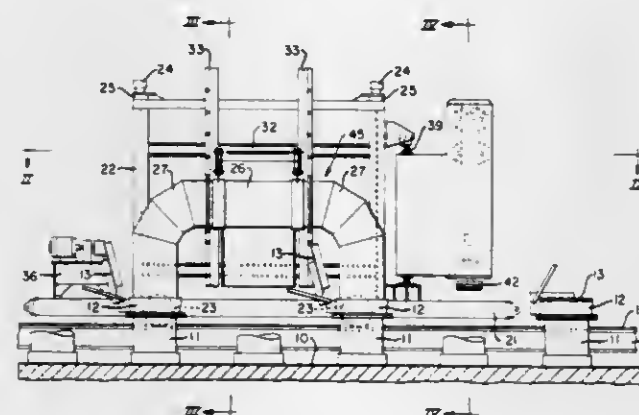
Hans-Jürgen Kwasnik, Herne, and Hans-Günter Piduch, Bochum, both of Fed. Rep. of Germany, assignors to Dr. C. Otto & Comp. G.m.b.H., Bochum, Fed. Rep. of Germany
Filed Apr. 24, 1980, Ser. No. 143,245

Claims priority, application Fed. Rep. of Germany, May 19, 1979, 2920406

Int. Cl.³ C10B 25/24, 27/04, 43/04

U.S. Cl. 202-241

7 Claims



1. Apparatus for a battery of coke ovens to extract charging gases through an orifice in the roof of one coke oven chamber and discharge the gases into an adjacent second oven chamber through an orifice in the roof thereof, said apparatus including the combination of means forming a cover including an annular water seal to normally close the orifice in the roof for each of said first and second coke oven chambers, a gas-transfer tube means including downwardly-extending tubular end portions to communicate with the orifices in the roof of said first and second oven chambers after removal of said cover therefrom, a car including means for vertically moving said gas-transfer tube means, means to support said car for movement along the battery of coke ovens, an annular member carried by said gas-transfer tube means for extending into the water seal associated with the orifice in the roof for each of said first and second coke oven chambers, and an orifice cleaning tool member supported by said car to pivot outwardly to an orifice and to move downwardly into the orifice for cleaning thereof.

4,314,890

AUTOMATICALLY FED DISTILLATION AND FRACTIONATION SYSTEM

Boyd R. Beck, Spring City, Utah; Lamar H. Stewart, Gunnison, Utah 84634; Steven Tapp, Ephraim, Utah; Don L. Anderson, Jr., Gunnison, Utah, and Daniel E. Nuffer, Ephraim, Utah, assignors to Lamar H. Stewart, Gunnison, Utah

Continuation-in-part of Ser. No. 83,281, Oct. 10, 1979. This application Mar. 28, 1980, Ser. No. 134,878

Int. Cl.³ B01D 3/42

U.S. Cl. 203-1

6 Claims

1. A method of separating ethanol from water-ethanol solutions which comprises the steps of:

(a) providing a system containing:

(1) an inclined still consisting of sidewalls, a lower endwall, an upper endwall, a bottom floor, and a translucent light transmitting top all being joined together to form a sealed still compartment, said compartment being divided into an upper vaporization chamber and a lower preheating chamber by a vaporization floor sealed to said sidewalls and lower endwall parallel to said bottom floor and translucent top, said vaporization floor terminating at its upper end short of said upper endwall, thereby forming a baffle over which liquid from said preheating chamber may overflow into said vaporization chamber, means located on the top surface of said vaporization floor to impede the downward flow of liquid on said surface, means located in said preheat-

ing chamber for heating said vaporization floor and liquid contained in the preheating chamber to a specified temperature, inlet means for introducing liquid mixture feed into the lower end of said preheating chamber, outlet means for removing residual liquid from the lower end of said vaporization chamber, and outlet means in said upper endwall for removing vapors formed within the still compartment;

(2) feed control means interconnected with the inlet means to said preheating chamber for controlling the amount of liquid that flows therinto, said feed control means consisting of a feed chamber having an inlet and an outlet and a hydraulically operated float control valve, which valve controls the flow of feed liquid through the feed chamber to the preheating chamber, said float control valve being selectively positioned in said feed chamber such that, when liquid in the preheating chamber is below a specified temperature, the valve will remain closed, and when liquid in the preheating chamber is raised to at least said specified temperature, the liquid in the preheating chamber expands in volume, thereby becoming less dense, and is pushed over the baffle end of the vaporization floor by the more dense, cooler liquid feed in the feed chamber that flows by gravity through the outlet of the feed chamber to the preheating chamber, the exiting of liquid feed from the feed chamber causing the float control valve to open, thereby allowing feed liquid to flow through the inlet to

and on the vaporization floor is sufficient to cause distillation to take place;

(f) withdrawing ethanol enriched vapors from said still compartment into said fractionation column wherein said vapors are fractionated into an ethanol vapor of higher purity;

(g) passing said ethanol vapors from the fractionation column to said condenser means where said vapors are condensed and removed as a concentrated ethanol solution; and

(h) removing ethanol depleted water solution from the lower portion of said vaporization chamber.

4,314,891

PROCESS FOR RECONCENTRATING MOIST GLYCOL

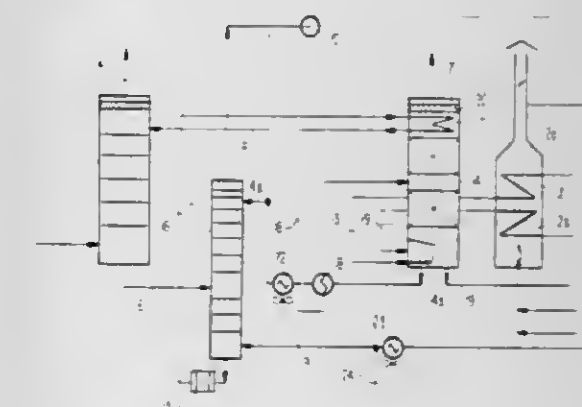
Walter Knobel, Kerpen, Fed. Rep. of Germany, assignor to Davy International AG, Frankfurt, Fed. Rep. of Germany
Division of Ser. No. 919,234, Jun. 26, 1978, Pat. No. 4,273,620. This application Nov. 25, 1980, Ser. No. 210,326

Claims priority, application Fed. Rep. of Germany, Jun. 25, 1977, 2728745

Int. Cl.³ B01D 3/34, 53/26; C07C 29/80

U.S. Cl. 203-18

6 Claims



1. In a process for reconcentrating glycol which has been used to remove moisture from moist natural gas, whereby said moist natural gas is contacted with glycol and thereafter cooled to a temperature of from about -40° to +5° C. to form a condensate containing a liquid hydrocarbon phase, and whereby the moisture-containing glycol used to contact the natural gas is reconcentrated by removal of moisture therefrom, the improvement which comprises:

(a) heating said moisture-containing glycol to a temperature of from about 100° C. to 210° C. by heat exchange with flue gas from a reboiler; and thereafter

(b) stripping additional moisture from said moisture containing glycol with hydrocarbon gas which is formed by expanding the liquid hydrocarbon phase of said condensate.

4,314,892

MECHANICAL DAMAGE RESISTANT MEMBERS AND ELECTRO-PLATING RUBBER OR RUBBER-LIKE MATERIAL

James W. Stevens, Hatfield, United Kingdom, assignor to British Aerospace, Weybridge, England

Filed Dec. 13, 1979, Ser. No. 103,154

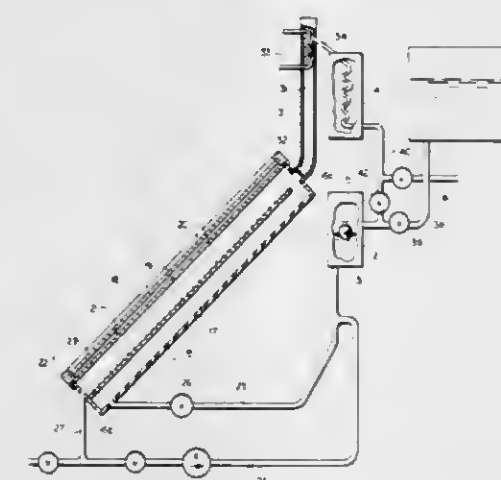
Claims priority, application United Kingdom, Dec. 14, 1978, 48446/78; Sep. 6, 1979, 30986/79

Int. Cl.³ C25D 5/00, 5/54

U.S. Cl. 204-38 B

17 Claims

1. A replaceable erosion-resistant cover for an airstream-exposed member, the cover comprising electrically conductive curable material having the elastically deformable nature of rubber and one surface of which has metal plating thereon and an opposite surface of which is pre-formed to at least nearly fit said member and is fixable thereto by adhesive, and the cover having been made by curing the curable material while press-



the feed chamber as long as the temperature of the feed liquid in the preheating chamber is above the specified temperature and the feed liquid is overflowing the baffle end of the vaporization floor; and

(3) an insulated condensation section interconnected with said still compartment consisting of a fractionation column which receives distilled vapors from the outlet means in the upper endwall of the still compartment, and condenser means for receiving and condensing vapors from the fractionation column into a distillate;

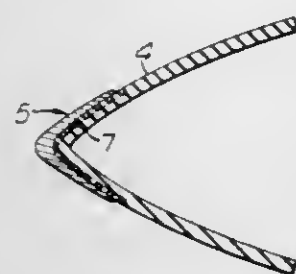
(b) feeding a water-ethanol solution to said system at ambient temperatures through the feed chamber of said feed-control means until said float control valve in the feed-control means closes;

(c) heating said vaporization floor and the water-ethanol solution contained in said preheating chamber to a specified temperature, causing said solution in this preheating chamber to boil and overflow onto the upper surface of the vaporization floor, and also causing the water-ethanol solution in the feed chamber of said feed-control means to flow by gravity into said preheating chamber, thereby opening said float control valve;

(d) causing the water-ethanol solution on said vaporization floor to be distilled into ethanol rich vapors and an ethanol depleted water solution;

(e) continuously passing water-ethanol solution through said feed chamber and float control valve to said preheating chamber and onto said vaporization floor as long as the temperature of such solutions in the preheating chamber

ing a discontinuously-surfaced layer of electrically conductive material onto said opposite surface of the curable material so



that portions of the electrically conductive material protrude into the surface and then electroplating the cured material over said layer.

4,314,893

PRODUCTION OF MULTIPLE ZINC-CONTAINING COATINGS

Richard J. Clauss, Allen Park, Mich., assignor to Hooker Chemicals & Plastics Corp., Warren, Mich.

Continuation-in-part of Ser. No. 911,861, Jun. 2, 1978, Pat. No. 4,216,272, which is a continuation-in-part of Ser. No. 758,982, Jan. 13, 1977, abandoned. This application Feb. 19, 1980, Ser. No. 122,203

Int. Cl.³ C25D 5/10

U.S. Cl. 204—40

4 Claims

1. A method for the production of a corrosion-resistant article which comprises subjecting a metal-bearing surface of steel or iron-based alloys to electroplating in a zinc-alloy electroplating bath to form on said surface a zinc-alloy deposit which contains from about 3 to 15% of an alloying element selected from the group consisting of nickel, iron, cobalt and mixtures thereof, the remainder of said alloy being zinc, and, thereafter, electroplating on said initial zinc-alloy coating a second zinc electrodeposition in which the content of the said alloying elements is at least 1.4% less than the content of the alloying elements in the said first deposit, the remainder of said alloy being zinc.

4,314,894

METHOD OF MAKING A MAGNETIC MEMORY LAYER

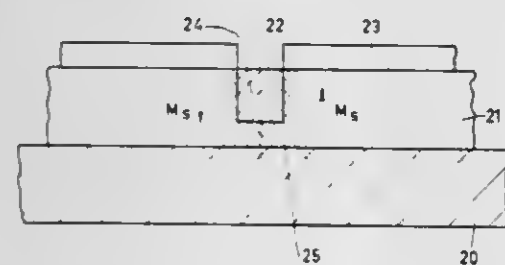
Christoph Schmelzer, Seeheim; Reimar Spohr, Darmstadt-Wixhausen; Jens-Peter Krumme; Klaus Witter, both of Hamburg, and Heinrich Heitmann, Rellingen, all of Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N.Y. Division of Ser. No. 924,369, Jul. 13, 1978, Pat. No. 4,274,935. This application Nov. 17, 1980, Ser. No. 207,820

Claims priority, application Fed. Rep. of Germany, Jul. 16, 1977, 2732282

Int. Cl.³ C23C 15/00

U.S. Cl. 204—192 M

14 Claims



1. A method of manufacturing a magnetic layer for storing information in the form of a fixed two-dimensional array of magnetic domains, which layer can be magnetized in either of two opposite directions, the boundaries of the domains being defined by local gradients in the magnetic properties of the magnetic layer, said magnetic properties including the value and direction of the magnetic anisotropy and the value and

direction of the magnetic exchange energy, with the value of the magnetization remaining substantially unaltered, said method comprising the step of bombarding the magnetic layer with accelerated ions, the concentration of bombarding ions being greater at the domain boundaries than at other areas of the layer.

4,314,895

METHOD OF MAKING LIQUID MEMBRANE ELECTRODE

Frederick F. Spaziani, Lexington, and James E. Fowler, Watertown, both of Mass., assignors to Nova Biomedical Corporation, Newton, Mass.

Division of Ser. No. 925,518, Jul. 17, 1978, Pat. No. 4,233,136. This application May 2, 1980, Ser. No. 146,092

Int. Cl.³ B29C 27/00; G01N 27/30

U.S. Cl. 204—195 M

2 Claims



1. The method of forming an ion-sensitive membrane for an electrode chemically bonded to and integral with a sample flow-through tube of organic plastic material comprising forming a membrane solution by dissolving an organic plastic matrix material, a non-volatile solvent-plasticizer and an ion exchange material in a volatile solvent which is also a solvent for said tube material, said ion exchange material being soluble in said solvent-plasticizer, placing a mandrel having a diameter equal to the inner diameter of said tube coaxially of said tube at an opening defined by an edge of said tube, placing said membrane solution on said mandrel at said opening in contact with said tube edge and allowing said volatile solvent to evaporate therefrom to form said membrane, said membrane thus formed and said tube thereby being chemically bonded to each other.

4,314,896

SYSTEM FOR MEASUREMENT OF SPECIFIC IONS, SUCH AS SODIUM

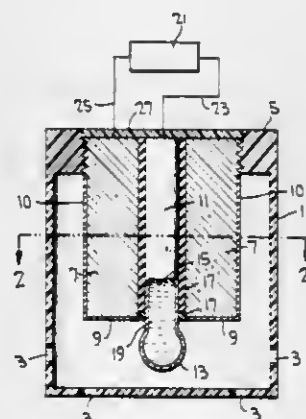
Ira Binder, New Rochelle, and Horace A. Teass, Jr., Armonk, both of N.Y., assignors to McNab Incorporated, Mt. Vernon, N.Y.

Continuation of Ser. No. 57,698, Jul. 16, 1979, abandoned. This application Feb. 17, 1981, Ser. No. 234,997

Int. Cl.³ G01N 27/30

U.S. Cl. 204—195 R

3 Claims



3. A probe for use in the measurement of specific ion concentration in a fluid stream comprising an electrode pair composed of a specific ion sensitive glass tipped electrode with a self-contained gel and with the tip adapted to extend into the fluid stream and an annular metallic reference electrode having a

central area for receiving the glass tipped electrode with the tip adapted to extend into the fluid stream to a greater depth than the annular electrode which is solid and devoid of any gel or the like and is coated with a platinum group metal surface.

4,314,897

ELECTROPHORETIC GEL CONTAINER

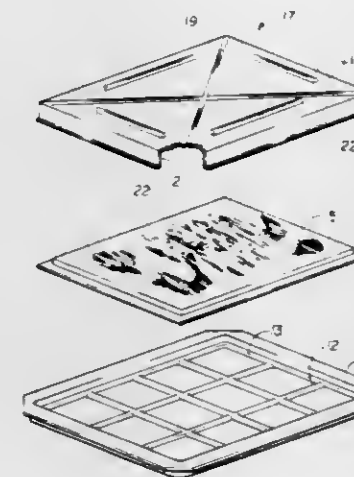
Charles S. Monte, Orange, and Wayne S. Johnson, La Habra, both of Calif., assignors to Beckman Instruments, Inc., Fullerton, Calif.

Filed Jul. 1, 1980, Ser. No. 165,165

Int. Cl.³ G01N 27/28

U.S. Cl. 204—299 R

7 Claims



1. A device for containing an electrophoretic gel specimen, said gel specimen including a lower surface, said device comprising:

a backing sheet in adherent contact with said lower surface, said sheet having a greater surface area than said contacted lower surface such that at least a portion of said sheet extends beyond said contacted lower surface; a base configured to receive said backing sheet; and a cover, cooperative with said base and contacting at least a part of said portion to secure said portion between said cover and said base, said cover being spaced from said gel specimen.

4,314,898

PROCESS FOR REFORMING COAL

Yukio Nakako, Takarazuka; Toshio Ohzawa, Kobe; Shizuo Yokota, Nishinomiya, and Masaaki Tamura, Kobe, all of Japan, assignors to Kobe Steel, Ltd., Kobe, Japan

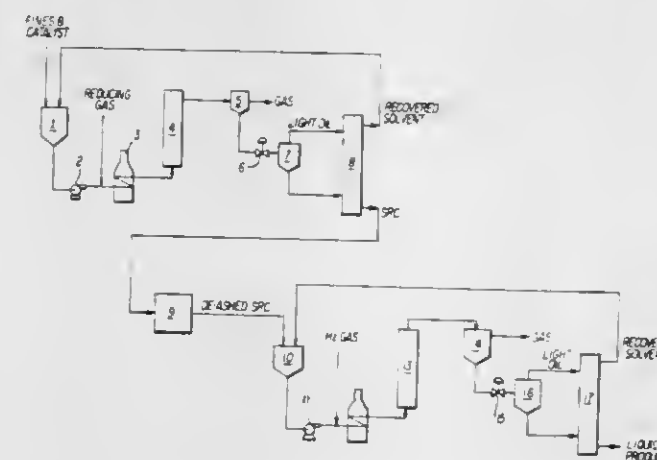
Filed Apr. 29, 1980, Ser. No. 144,883

Claims priority, application Japan, May 1, 1979, 54-054516

Int. Cl.³ C10G 1/00

U.S. Cl. 208—8 LE

3 Claims



1. In a process for reforming coal by subjecting a mixed slurry containing a hydrocarbon solvent and coal fines to hydrogenation reaction under high temperature and pressure

conditions, gas-liquid separation, and distillation to obtain a solvent-refined coal, the improvement comprising:

maintaining the reaction temperature and total reaction pressure within a hydrogenation reactor at 400° to 500° C. and 50 to 200 atms., and controlling the residence time distribution of reactants, excepting gaseous reactants, in the hydrogenation reaction zone to have an average residence time longer than 17 minutes, and to keep the quantity of said reactants which have a residence time shorter than 10 minutes in a proportion less than 20% by weight of said reactants.

4,314,899

SEPARATING SPENT MINERAL MATTER FROM HEAT CARRIERS

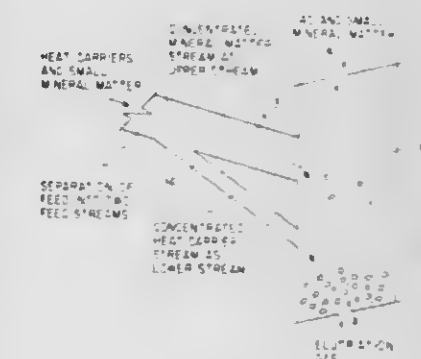
Ralph E. Styring, Jr., Dallas, Tex., assignor to Atlantic Richfield Company, Los Angeles, Calif.

Filed Dec. 23, 1980, Ser. No. 220,006

Int. Cl.³ B07B 11/06, 9/02

U.S. Cl. 208—11 R

1 Claim



1. In a method of retorting the hydrocarbonaceous matter in crushed mined hydrocarbonaceous mineral bearing solids wherein said solids are retorted by contacting said solids with hot heat carriers thereby producing a mixture of pyrolyzed mineral matter in said solids and heat carriers and wherein a mixture of said pyrolyzed mineral matter and said heat carriers is fed to a chamber through which an elutriating gas is flowed, the improvement comprising (1) separating a mixture of pyrolyzed mineral matter solids and heat carrier solids into a first and second system, said first stream having a relative concentration of pyrolyzed mineral matter greater than the relative concentration of pyrolyzed mineral matter in said mixture, said second stream having a relative concentration of heat carrier solids greater than the relative concentration of said heat carriers in said mixture, (2) feeding said first stream into an elutriation chamber at a first point, (3) feeding said second stream into said elutriation chamber at a second point, said second point being vertically lower than said first point, (4) flowing an elutriating gas upwardly through said solids fed into said chamber, and (5) removing at least a part of said pyrolyzed mineral matter from said chamber with said elutriating gas.

4,314,900

METHOD FOR PRODUCING DISTILLABLE HYDROCARBONACEOUS FUELS AND CARBONACEOUS AGGLOMERATES FROM A HEAVY CRUDE OIL

Frank W. Theodore, Pittsburgh, and George E. Wasson, Eighty Four, both of Pa., assignors to Conoco Inc., Stamford, Conn.

Filed May 7, 1980, Ser. No. 147,454

Int. Cl.³ C10G 9/32

U.S. Cl. 208—126

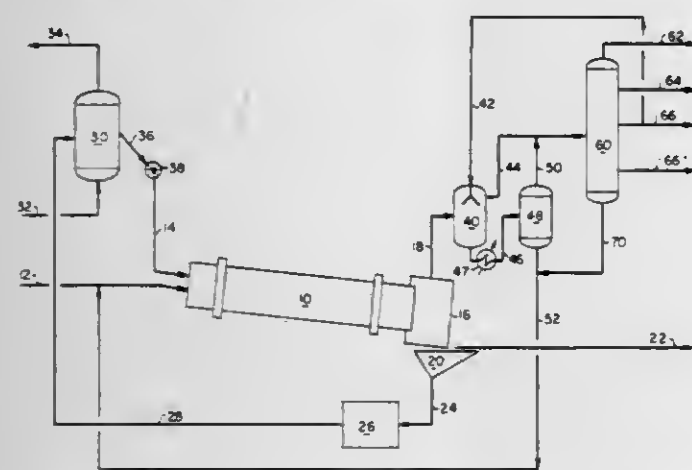
8 Claims

8. A method for producing fuel gases, a distillable hydrocarbonaceous stream and carbonaceous agglomerates from a heavy crude oil feedstock, said method consisting essentially of (a) charging said crude oil and finely divided carbonaceous

solids to a rotary kiln, said crude oil and said finely divided carbonaceous solids being charged in a weight ratio of crude oil to carbonaceous solids from about 0.6 to about 1.50;

(b) tumbling said crude oil and said finely divided carbonaceous solids in said rotary kiln at a temperature from about 850° to about 1000° F. (about 450° to about 540° C.) for a residence time up to about 30 minutes to produce a vaporous stream and agglomerate particles containing a residual portion of said crude oil and said finely divided carbonaceous solids;

(c) separating said agglomerate particles into a product portion having a desired particle size and a recycle portion;



(d) grinding said recycle portion to produce said finely divided carbonaceous solids;

(e) heating said finely divided carbonaceous solids prior to charging to said rotary kiln to a temperature sufficient to result in a temperature from about 850° to about 1000° F. (about 450° to about 540° C.) in said rotary kiln upon mixing said finely divided carbonaceous solids and said crude oil;

(f) mixing said finely divided carbonaceous solids and said crude oil feed stock, said finely divided carbonaceous having been separated as agglomerate particles into a recycle portion and ground into finely divided carbonaceous solids and heated prior to being mixed with said heavy crude oil feed stock.

4,314,901

CATALYTIC HYDRODESULFURIZATION OF AN ORGANIC SULFUR COMPOUND CONTAINED IN GASOLINE

Gerhard P. Nowack, and Marvin M. Johnson, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jul. 15, 1980, Ser. No. 169,010

Int. Cl. C10G 45/04

U.S. Cl. 208—216 R

10 Claims

1. A process for the catalytic hydrodesulfurization of an organic compound contained in a gasoline comprising the 65° F.-430° F. hydrocarbon fraction produced by the catalytic cracking of heavier hydrocarbon fractions, wherein said gasoline contains olefins, said process comprising the steps of:

contacting a suitable nitrogen compound and said gasoline under suitable hydrodesulfurization conditions with a catalyst composition comprising catalytic grade alumina and a catalytic component at least one member of which is selected from the group consisting of molybdenum and tungsten, wherein the rate at which said catalyst composition is contacted with said suitable nitrogen compound is in the range of about 0.1 to about 2.0 milliequivalents of said suitable nitrogen compound per hour per gram of said catalyst composition.

4,314,902

CATALYTIC WATER WASH

Raymond S. Bouk, deceased, late of North Hollywood, Calif., and by Barbara Bouk, heir, 11344 Hatteras St., North Hollywood, Calif. 91503

Continuation-in-part of Ser. No. 196,842, Nov. 8, 1971, abandoned, which is a continuation of Ser. No. 769,722, Oct. 22, 1968, abandoned. This application Jan. 3, 1974, Ser. No. 430,642

Int. Cl. C10G 19/02, 27/00, 29/12; A61L 1/00

U.S. Cl. 208—254 R

12 Claims

1. A process of eliminating impurities including viable forms of microbial contamination and preventing microbial recontamination in liquid hydrocarbons comprising treating said hydrocarbons with an aqueous solution comprising an oxidizing compound and a mixture of metallic salts in which a first salt contains a metal ion selected from groups IB, IVA and Va of the periodic table and a second salt contains a metal ion selected from groups Ia, IIa and VIII of the periodic table, said aqueous solution reacting with and causing separation of said impurities from the liquid hydrocarbon into the aqueous solution, and subsequently removing said aqueous solution containing said impurities from the treated liquid hydrocarbon.

4,314,903

CLOSURE MEMBER FOR AUTOMOTIVE OIL FILTERS AND SIMILAR FILTERS

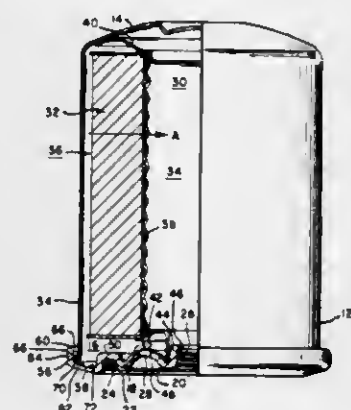
William Hanley, Pawtucket, R.I., assignor to The Bendix Corporation, Southfield, Mich.

Filed Jun. 5, 1980, Ser. No. 156,882

Int. Cl. B01D 27/08

U.S. Cl. 210—440

3 Claims



1. In an automotive oil filter, a housing defining a chamber therein, said housing including a cup-shaped member having a circumferentially extending wall defining an axis and an open end and a closure member closing said open end, an annular fluid permeable filtering element within said housing chamber, said filtering element dividing said chamber into a pair of compartments, said closure member including a threaded opening communicating with one of said compartments, another opening in said closure member communicating with the other of said compartments, an annular seal mounted on said closure member, characterized in that said open end of said cup-shaped member is defined by a circumferentially extending marginal edge, said closure member being a stamping consisting of a single member having a circumferentially extending marginal edge, the marginal edges of said cup-shaped member and of said closure member having cooperating means for effecting a fluid-tight seal between the closure member and the cup-shaped member, the thickness of said closure member at the marginal edge of the latter being substantially the same as the thickness of said closure member adjacent to said threaded opening, the marginal edge of said closure member being bent upwardly toward the closed end of the cup-shaped housing to define a rim circumscribing said closure member and projecting perpendicularly from the latter toward the closed end of the cup-shaped housing, said cooperating means including an outwardly projecting bead circumscribing the marginal edge of said cup-shaped member, said marginal edge

of said closure member extending generally parallel to the circumferentially extending wall of said cup-shaped member, and a circumferentially extending channel defined on said marginal edge of said closure member for receiving said bead, the marginal edge of said closure member terminating in a section projecting inwardly toward the circumferentially extending wall of the cup-shaped member, said inwardly projecting section cooperating with the rest of the closure member to define said channel, wherein said fluid-tight seal is effected by crimping the marginal edge of said closure member against said bead.

4,314,904

ANAEROBIC DIGESTION OF WASTE AND BIOMASS BY USE OF LACTOBACILLUS CULTURE ADDITIVES

Paul A. Fedde, Owensboro, Ky.; Sambunath Ghosh, Homewood, Ill.; Michael P. Henry, Willowbrook, Ill., and Donald L. Klass, Barrington, Ill., assignors to Transagra Corporation, Memphis, Tenn.

Filed Dec. 12, 1979, Ser. No. 102,924

Int. Cl. C02F 3/34

U.S. Cl. 210—611

20 Claims

1. A method for improving anaerobic digestion of waste and biomass, comprising:

- obtaining a nonviable lactobacillus fermentation product as a secondary anaerobic digester additive;
- introducing said lactobacillus fermentation product into an anaerobic digester system in a volume concentration from about 10 to about 1,000 ppm of digester liquid volume so that said digesting system digests the wastes and biomass at a greater-than-normal rate, and
- maintaining the pH of said digester system from between about 6.4 to about 7.4.

4,314,905

COLUMNAR FINE MESH MAGNETIZED ION EXCHANGE RESIN SYSTEM

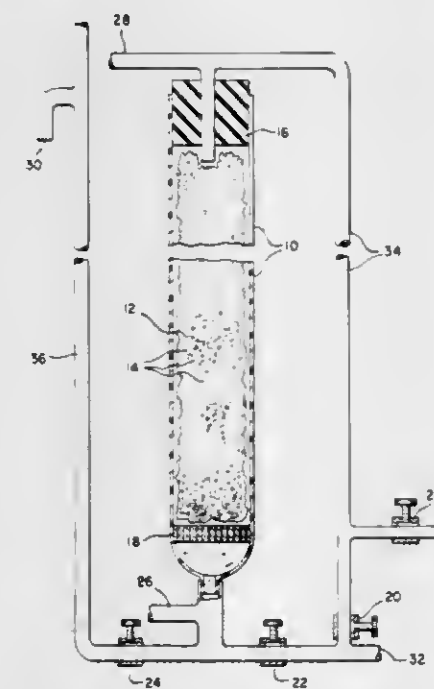
James E. Etzel, Lafayette, Ind., and Anthony M. Wachinski, Panama City, Fla., assignors to Purdue Research Foundation, Lafayette, Ind.

Continuation of Ser. No. 957,182, Nov. 2, 1978, abandoned. This application Apr. 25, 1980, Ser. No. 143,663

Int. Cl. B01J 49/00

U.S. Cl. 210—670

14 Claims



9. A method for the ion exchange treatment of liquids with fixed-bed ion exchange resins comprising the steps of: conveying liquid to be treated to the inlet of a column, said column containing fine mesh ion exchange particles having a core of magnetic material encapsulated in an ion exchange resin magnetically attached to and distributed

substantially throughout magnetic mesh retention means which loosely fills said column, said ion exchange particles being retained by said retention means in said column during both operation and regeneration of said ion exchange particles thereby providing a fixed-bed ion exchange resin for the ion exchange treatment of liquids; contacting said liquid with said resin particles in said column for a time sufficient to effect an ion exchange; and conveying the treated liquid out of the column.

4,314,906

WATER PURIFICATION BY CHLORINATING, HOLDING, AND AERATING

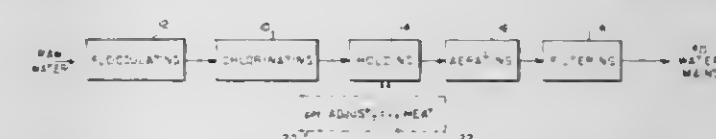
Howard E. Dunn, Mount Vernon, and Robert L. Koch, II, Evansville, both of Ind., assignors to George Koch Sons, Inc., Evansville, Ind.

Continuation of Ser. No. 91,089, Nov. 5, 1979, abandoned, which is a continuation-in-part of Ser. No. 712,872, Aug. 9, 1976, abandoned, which is a continuation-in-part of Ser. No. 634,901, Nov. 24, 1975, abandoned. This application Feb. 17, 1981, Ser. No. 235,017

Int. Cl. C02F 1/76

U.S. Cl. 210—754

10 Claims



1. A method for treating raw water from reservoirs, lakes, or streams to render it fit for human consumption, the said water containing microorganisms and naturally occurring organic substances known to react with chlorine to yield one or more halogenated organic compounds, which method comprises the steps of adding from about 2 to about 20 p.p.m. of chlorine to the water to kill said microorganisms, holding the chlorine-containing water at a temperature between about 10° and about 50° C. and a pH between about 7.5 and about 9 for a period of at least about 3 hours, to react said chlorine with said naturally occurring organic substances and produce said halogenated organic compounds, and thereafter aerating the chlorine-treated water, to remove said halogenated organic compounds therefrom.

4,314,907

OIL ADDITIVE COMPOSITIONS FOR INTERNAL COMBUSTION ENGINES

Francis Defretin, Halluin; Jean-Paul Eudeline, Boulogne Billancourt; Elisabeth Schoch, Rambouillet, and Alain Voisin, Farbus, all of France, assignors to PCUK Produits Chimiques Ugine Kuhlmann, Courbevoie, France

Filed Nov. 6, 1979, Ser. No. 92,080

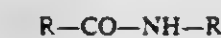
Claims priority, application France, Nov. 7, 1978, 78 31421

Int. Cl. C10M 3/02, 3/42

U.S. Cl. 252—22

11 Claims

1. An oil additive composition for internal combustion engines consisting essentially of at least one metal dithiophosphate, at least one fatty amide, where the fatty amide has the formula:



or



where R is a saturated or unsaturated hydrocarbon group having from 8 to 36 carbon atoms, R' is hydrogen or the group COR and R'' is an alkylene group having from 2 to 6 carbon atoms, and a fluorographite CF_x, where x is between about 0.6 and 1.

4,314,908

PREPARATION OF REACTION MASS FOR THE PRODUCTION OF METHYLCHLOROSILANE

James H. Downing, Clarence; James E. Wells, III, Kenmore, both of N.Y., and Tom K. Ioannou, Marietta, Ohio, assignors to Union Carbide Corporation, New York, N.Y.

Filed Oct. 24, 1979, Ser. No. 87,798
Int. Cl.³ B01J 23/72; C22C 30/02

U.S. Cl. 252-182

17 Claims

1. A copper-catalyzed silicon reaction mass for the production of methylchlorosilanes which comprises freeflowing particles of silicon metal having spots of a copper-silicon alloy substantially uniformly distributed on the surface of the silicon particles, the copper constituting less than about 2% by weight of the catalytic mass.

4,314,909

HIGHLY REFRACTORY GLASS-CERAMICS SUITABLE FOR INCORPORATING RADIOACTIVE WASTES

George H. Beall, Big Flats, and Hermann L. Rittler, Corning, both of N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Jun. 30, 1980, Ser. No. 164,363
Int. Cl.³ C03C 3/04, 3/22; H01B 1/08

U.S. Cl. 252-629

3 Claims

1. A glass-ceramic especially suitable for incorporating radioactive wastes wherein the crystal phases thereof consist essentially of monazite and pollucite and at least one of the group mullite, and ZrO₂, said glass-ceramic consisting essentially, expressed in weight percent on the oxide basis, of 5-40% Cs₂O, 15-50% Al₂O₃, 5-30% La₂O₃+CeO₂, up to 20% P₂O₅, 0-30% ZrO₂, 12-65% La₂O₃+CeO₂+P₂O₅+ZrO₂, and 15-50% SiO₂.

4,314,910

LUMINESCENT MATERIALS

Roderick G. L. Barnes, 45 Flambards Close, Meldreth, near Royston, Hertfordshire, England (SG8 6JX)

Continuation-in-part of Ser. No. 7,729, Jan. 30, 1979, abandoned, which is a continuation of Ser. No. 826,749, Aug. 22, 1977, abandoned. This application Jan. 20, 1980, Ser. No. 123,771

Claims priority, application United Kingdom, Sep. 3, 1976, 38615/76

Int. Cl.³ C09K 11/463

U.S. Cl. 252-301.4 R

9 Claims

1. A luminescent material comprising an yttrium-scandium-gallium-aluminum garnet activated by trivalent cerium and having the formula:



in which $0.02 \leq x \leq 0.1$, $0.5 \leq y \leq 2$ and $1 \leq z \leq 3$, provided that $(y+z)$ is less than 5, said material being capable, under cathode ray excitation, of emitting with high efficiency over a broad wavelength band peaking in the green or blue/green region between about 500 and 550 nm and having a decay time of less than 10^{-6} seconds, said material exhibiting brighter luminescence on cathode ray excitation than the corresponding yttrium-gallium-aluminum garnet activated by trivalent cerium in which the scandium is replaced by gallium.

4,314,911

POLYMERIZATION CATALYST

Umberto Giannini; Paolo Longi; Domenico Deluca, and Angelo Pricea, all of Milan, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

Continuation of Ser. No. 530,205, Dec. 6, 1974, abandoned, which is a continuation of Ser. No. 167,872, Jul. 30, 1971, abandoned. This application Aug. 23, 1979, Ser. No. 69,363

Claims priority, application Italy, Jul. 31, 1970, 28131 A/70

The portion of the term of this patent subsequent to May 5, 1998, has been disclaimed.

Int. Cl.³ C08F 4/02, 4/64

U.S. Cl. 252-429 A

25 Claims

1. Catalysts for polymerizing olefins and obtained by mixing: (a) a catalyst-forming component which is a hydride or organometallic compound of a metal belonging to Groups I to III of the Mendeleev Periodic Table, and (b) a catalyst-forming component prepared by cogrinding (1) a titanium compound selected from the group consisting of titanium halides, oxyhalides, halo-alcoholates and alcoholates, ammonium halotitanates, alkyl-ammonium halo-titanates, halotitanates of alkaline metals, ammonium titanates, alkyl-ammonium titanates, alkaline metal titanates, titanium amides, titanium haloamides, titanium salts of organic acids, and addition compounds of titanium with electron-donors, with a carrier consisting of (2) an anhydrous compound of a metal belonging to Groups III to IV of the Mendeleev Periodic Table selected from the group consisting of aluminum oxide, lead dichloride, silicon oxide, titanium dioxide, aluminum sulphate, titanyl sulphate, aluminum phosphate and boric anhydride, and (3) an anhydrous normal magnesium or manganese dihalide, until the magnesium or manganese dihalide is activated by the cogrinding to a condition such that the surface area thereof is greater than $3 \text{ m}^2/\text{g}$, the amount of the metal compound (2) being from 30% to 80% by weight of (2) and (3).

4,314,912

HIGH EFFICIENCY, HIGH TEMPERATURE CATALYST FOR POLYMERIZING OLEFINS

Kirby Lowery, Jr.; George W. Knight, and James A. May, Jr., all of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Division of Ser. No. 765,182, Feb. 3, 1977, Pat. No. 4,250,288, which is a continuation-in-part of Ser. No. 581,294, May 27, 1975, abandoned. This application Sep. 16, 1980, Ser. No. 187,676

Int. Cl.³ C08F 4/64

U.S. Cl. 252-429 B

10 Claims

1. A catalytic reaction product of (A) compound of a transition metal (TM), (B) an organomagnesium component selected from (1) an organomagnesium compound or (2) a complex of an organomagnesium compound and an organometallic compound in an amount sufficient to solubilize the organomagnesium compound in hydrocarbon and (C) an active non-metallic halide, said non-metallic halide corresponding to the formula $R'X$ wherein R' is hydrogen or a hydrocarbyl group containing a labile halogen atom as easily lost to another compound as the chloride atom of sec-butyl chloride and X is halogen; said reaction product being produced in a manner such that the organomagnesium component reacts with the non-metallic halide to form a hydrocarbon insoluble portion, and further provided that sufficient aluminum, in the form of a hydrocarbylaluminum compound represented by the formula $R_3\text{-AlX}_a$ wherein R is hydrocarbyl, X is halide and a is a number from 0 to 1.5, is present in the catalytic reaction product in an amount sufficient to provide a reaction product that is catalytic for the polymerization of an α -olefin; the proportions of the foregoing components of said catalytic reaction product being such that the atomic ratio of Mg:TM is within the range from about 5:1 to about 2000:1, the atomic ratio of $X:\text{TM}$ is within the range from about 40:1 to about 2000:1, the

atomic ratio of Mg:X is within the range from about 0.2:1 to about 1:1, the atomic ratio of Mg:Al is at least 0.3:1, and the atomic ratio of Al:TM is not more than about 120:1, said reaction product being useful as a catalyst for the polymerization of an α -olefin.

4,314,913

CATALYST FOR REMOVING NO_x FROM GAS STREAMS

Jean-Yves Derrien, Bourg-la-Reine, and Laurent Seigneurin, Salindres, both of France, assignors to Rhone-Poulenc Industries, Paris, France

Filed Mar. 4, 1980, Ser. No. 127,106

Claims priority, application France, Mar. 5, 1979, 79 05598
Int. Cl.³ B01J 21/04, 23/22, 23/74

U.S. Cl. 252-464

8 Claims

1. A catalyst which comprises a catalytically active metallic oxide deposited on a porous support with the metallic oxide being selected from the group consisting of the oxides of vanadium, iron and cobalt and with the metallic oxide comprising from 0.5 to 20% by weight of the catalyst, wherein the improvement comprises said support being a porous alumina support and comprising a volume of pores having diameters larger than 1000 Å in excess of $25 \text{ cm}^3/100 \text{ g}$, a volume of pores having diameters larger than 300 Å in excess of $40 \text{ cm}^3/100 \text{ g}$, a total pore volume of from about $80 \text{ cm}^3/100 \text{ g}$ to $120 \text{ cm}^3/100 \text{ g}$, and a surface area of less than $160 \text{ m}^2/\text{g}$.

4,314,914

CATALYST SUPPORTING BED

Kazuo Uede, Ikoma; Tuguo Sumizaki, Neyagawa, and Masatoshi Nakamura, Osaka, all of Japan, assignors to Koei Chemical Co., Ltd., Osaka, Japan

Filed Jan. 2, 1980, Ser. No. 109,024

Claims priority, application Japan, Mar. 2, 1979, 54-24672
Int. Cl.³ B01J 23/74, 35/02

U.S. Cl. 252-472

5 Claims

1. A catalyst supporting bed in a vertical reactor for production of formaldehyde by gas phase catalytic dehydrogenation of methanol in the presence of a solid metal catalyst, characterized in that the bed is incurvated and is made of a nickel alloy having a nickel content of not less than 25% by weight at least at the surface.

4,314,915

USES IN PERFUMERY OF ETHER DERIVATIVES OF INDANES

Wilhelmus J. Wieggers, Red Bank; Mark A. Sprecker, Sea Bright; Hugh Watkins, Lincroft; Manfred H. Vock, Locust, and Frederick L. Schmitt, Holmdel, all of N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

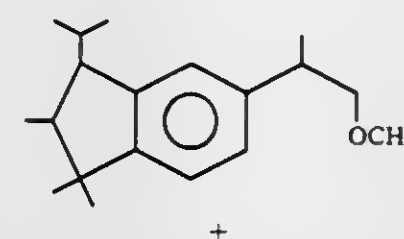
Division of Ser. No. 63,374, Aug. 3, 1979, Pat. No. 4,250,200. This application Nov. 13, 1980, Ser. No. 206,687

Int. Cl.³ A61K 7/00

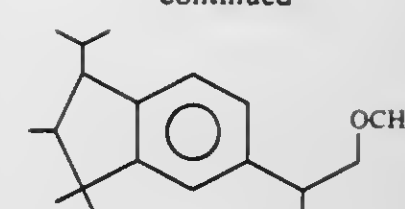
U.S. Cl. 252-522 R

3 Claims

1. A process for augmenting or enhancing the aroma of a perfume composition comprising the step of intimately admixing with a perfume base an aroma augmenting or enhancing quantity of a mixture of indane alkanol methyl ethers having the structures:



-continued



4,314,916

PROCESS FOR THE PRODUCTION OF BROKEN DOWN LIGNIN-CELLULOSE SILICATE COPOLYMERS

David H. Blount, 5450 Lea St., San Diego, Calif. 92105

Division of Ser. No. 203,730, Nov. 3, 1980, which is a continuation-in-part of Ser. No. 112,290, Jan. 15, 1980, which is a continuation-in-part of Ser. No. 29,202, Apr. 12, 1979, Pat. No. 4,222,757. This application Apr. 27, 1981, Ser. No. 257,950

Int. Cl.³ C08L 1/10; C08B 31/00

U.S. Cl. 260-13

12 Claims

1. The process for the production of polyurethane silicate product by the following steps:

- (a) mixing and reacting a broken down alkali metal lignin-cellulose silicate polymer and a substituted organic compound having at least two carbon atoms, each of which is attached to a substituent which will split off during the reaction, to said broken down alkali metal lignin-cellulose silicate polymer in the amount wherein the mols of the substituent radicals are about equal to the mols of the alkali radicals in the mixture thereby producing a broken down lignin-cellulose silicate copolymer;
- (b) mixing and reacting 1 to 95 parts by weight of the broken down lignin-cellulose silicate copolymer and 50 parts by weight of a polyisocyanate or a polyisothiocyanate thereby producing a polyurethane silicate product.

4,314,917

HIGH-SOLIDS EPOXY PREPOLYMER COATING COMPOSITION

Austin A. Wolfrey, Peabody, Mass., assignor to General Electric Company, Schenectady, N.Y.

Filed Feb. 12, 1980, Ser. No. 120,861

Int. Cl.³ C08L 63/04

U.S. Cl. 260-18 EP

8 Claims

1. A pigmented, high-solids curable composition comprising (a) an epoxidic prepolymer blend comprising (i) a diglycidyl ether of cyclohexanedimethanol; (ii) a diglycidyl ether of Bisphenol A; (iii) a polyepoxidized phenol or cresol novolak; (iv) a polyglycidyl ether of a polyhydric alcohol; (v) an epoxidic ester having two epoxycycloalkyl groups; or (vi) a mixture of any of the foregoing; and (b) from 0.5 to 35 parts by weight to 100 parts by weight of (a) and (b) combined of a catalyst comprising (i) a diaryliodonium salt of the formula



- wherein R is a monovalent organic radical, R^1 is a divalent aromatic organic radical, M is a metal or metalloid, Q is a halogen radical, a is a whole number equal to 0 or 2, b is a whole number equal to 0 or 1 and the sum of $a+b$ is equal to 2 or the valence of I , $c=d-e$, e equals the valence of M and is an integer equal to 2-7 inclusive and $d>e$ and is an integer having a value up to 8; and
- (ii) from 0.1 part to 10 parts, per part of (i), of a copper salt; and
 - (iii) from 0.1 part to 10 parts, per part of (i) and (ii) combined, of a tin salt; and
- (c) from 10 to 100 parts by weight, per 100 parts by weight of (a) and (b) of a pigment.

4,314,928

POLYETHYLENE TEREPHTHALATES WHICH CRYSTALLIZE RAPIDLY AND A PROCESS FOR THEIR PREPARATION

Peter Bier, and Rudolf Binsack, both of Krefeld, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 67,860, Aug. 20, 1979, abandoned, which is a continuation of Ser. No. 875,048, Feb. 3, 1978, abandoned. This application Jun. 30, 1980, Ser. No. 164,458 Claims priority, application Fed. Rep. of Germany, Feb. 14, 1977, 2706123

Int. Cl.³ C08L 67/00

U.S. Cl. 260—40 R

7 Claims

1. A process for the production of a highly crystalline thermoplastic copolyester which crystallizes rapidly on cooling from above the melt temperature of the copolyester;

(A) said copolyester having an intrinsic viscosity of at least 0.4 dl/g (at 25° C. in 1:1 phenol tetrachloroethane); and consisting of the condensation product of

- (1) a dicarboxylic acid component which is at least 90 mol percent terephthalic acid;
- (2) ethylene glycol; and
- (3) a codiol with 4 to 10 carbon atoms in which the hydroxyl groups are separated by a branched or unbranched alkylene group with 3 or 4 carbon atoms wherein said codiol,
 - (a) carries at least one secondary or tertiary hydroxyl group; or
 - (b) carries two primary hydroxyl groups and is unsubstituted, monoalkyl-substituted or dialkyl-substituted with the sum of the carbon atoms of the substituents being at least 4; and

(B) said process comprising the steps of

- (1) feeding 100 parts of a polyethylene terephthalate segment having an intrinsic viscosity of at least 0.2 dl/g (at 25° in 1:1 phenol/tetrachloroethane) per 0.23 to 9.1 parts of codiol and an appropriate amount of transesterification catalyst to a screw machine;
- (2) operating the screw machine so as to homogenize the melt of these components; and
- (3) subjecting the recovered solidified product to a solid-state post-condensation treatment at between about 200° C. and the softening point of the copolymer.

4,314,929

MINERAL REINFORCED POLYAMIDES

John J. Mahoney, Jr., Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Feb. 11, 1981, Ser. No. 233,486

Int. Cl.³ C08K 9/06

U.S. Cl. 260—42.15

8 Claims

1. A polymeric composition consisting essentially of:

- A. 50 to 80 weight percent of a polyamide selected from polyhexamethylene adipamide or polycaprolactam or mixtures thereof, said polyamide having a number average molecular weight in the range of 10 to 30,000;
- B. 20 to 40 weight percent finely divided calcined aluminum silicate coated with 0.5 to 2% by weight of an aminofunctional silane, said silicate having a D₅₀ particle size in the range of 0.8 to 1.2 micrometers;
- C. 5 to 15 weight percent of a copolymer which is comprised of units of an α-olefin having the formula R—CH=CH₂, where R is a radical selected from the class consisting of hydrogen and alkyl radicals having from 1 to 8 carbon atoms, and units of one or more α,β-ethylenically unsaturated monocarboxylic acids having from 3 to 8 carbon atoms, said copolymer having from 0% to 90% of the carboxylic acid groups ionized by neutralization with metal ions uniformly distributed throughout the copolymer, and where unneutralized carboxyl groups of the carboxylic acid units can be esterified with a C₁-C₆ alkyl alcohol, said copolymer being a direct copolymer of the α-olefins and the unsaturated monocarboxylic acid in

which the carboxylic acid groups are randomly distributed and in which (1) the α-olefin content of the copolymer is at least 50 mol percent, based on the α-olefin/unsaturated monocarboxylic acid copolymer, (2) the unsaturated monocarboxylic acid content of the copolymer is from 0.2 to 25 mol percent, based on the α-olefin-acid copolymer, and (3) any other monomer component optionally copolymerized in said copolymer is monoethylenically unsaturated, and said metal ions having an ionized valence of from one to three inclusive and said metal ions being selected from the group consisting of uncomplexed and complexed metal ions.

4,314,930

COMPOSITION CONTAINING A HALF ESTER OF AN ORGANIC POLYOL, AN UNSATURATED MONOMER, AN EPOXIDE, AND REINFORCING FIBER

Hugh C. Gardner, Somerville, N.J., assignor to Union Carbide Corporation, New York, N.Y.

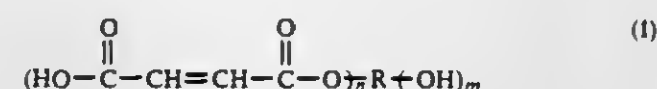
Continuation-in-part of Ser. No. 147,098, May 7, 1980, abandoned, which is a continuation of Ser. No. 70,007, Aug. 27, 1979, abandoned. This application Jul. 22, 1980, Ser. No. 167,884

Int. Cl.³ C08L 63/10

U.S. Cl. 260—42.18

18 Claims

1. A curable molding composition having a cure time of 25 minutes or less comprising (a) a half ester characterized by the following empirical formula:



wherein n is a number having an average value of about 1.5 to less than about 4, m is equal to the free valence of R less the average value of n, R is the hydroxyl-free residue of an organic polyol which contained from 2 to 4 inclusive, hydroxyl groups, OH, in formula (I), (b) maleic anhydride, (c) an epoxide containing two or more 1,2-epoxide radicals, (d) an ethylenically unsaturated monomer which forms a liquid homogeneous mixture with the half ester, maleic anhydride and the epoxide, (e) from about 15 to about 80 weight percent of one or more reinforcing fibers having a melting point or a glass transition temperature above about 130° C. and (f) an epoxide curing catalyst.

4,314,931

TONER PIGMENT TREATMENT PROCESS FOR REDUCING THE RESIDUAL STYRENE MONOMER CONCENTRATION TO LESS THAN 0.5 PERCENT BY WEIGHT

Thomas R. Hoffend, Webster, N.Y., and Moshe Levy, Rehovot, Israel, assignors to Xerox Corporation, Stamford, Conn.

Filed Jun. 9, 1980, Ser. No. 157,904

Int. Cl.³ C08J 3/20; C08K 3/04

U.S. Cl. 260—42.53

4 Claims

1. An improved process for reducing the styrene monomer concentration in toner compositions to less than 0.5 percent by weight, which comprises (1) mixing from about 20 percent to about 99 percent by weight of styrene and n-butylmethacrylate monomers containing from about 0.5 percent to about 20 weight percent of a free radical initiator, with from about 1 percent to about 80 percent of pigment, (2) heating the resultant mixture to a temperature of about 50° C. to about 120° C., such heating being accomplished for a sufficient period of time so as to cause polymerization, (3) cooling to room temperature, and (4) separating the styrene/n-butylmethacrylate copolymer pigment mixture from the reaction residue, which mixture contains on the pigment surface said styrene/n-butylmethacrylate copolymer.

4,314,932

FINE SPHERICAL POLYMER PARTICLES CONTAINING INORGANIC PIGMENT AND/OR COLORING AGENT AND PROCESS FOR THE PREPARATION THEREOF

Saburo Wakimoto, Hayama; Sadayasu Miyahara, Fujisawa, and Yoshihiko Hyosu, Sagami-hara, all of Japan, assignors to Sintoichi Company Limited, Osaka, Japan

Continuation-in-part of Ser. No. 57,344, Jul. 13, 1979, Pat. No. 4,269,760. This application Aug. 18, 1980, Ser. No. 178,930 Claims priority, application Japan, Jul. 7, 1978, 53-81949; Jul. 7, 1978, 53-81950; Nov. 9, 1978, 53-137337; Nov. 9, 1978, 53-137338

The portion of the term of this patent subsequent to May 26, 1998, has been disclaimed.

Int. Cl.³ C08J 3/20

U.S. Cl. 260—42.53

5 Claims

1. Fine spherical polymer particles with a uniform particle size distribution containing at least one member selected from the group of inorganic pigments and black coloring agents, which comprise polymerized products from at least one polymerizable monomer and an inorganic dispersion stabilizer in which said polymerizable monomer is charged with cation or anion and said inorganic dispersion stabilizer has an opposite charge to said monomer, said polymerizable monomer is a member selected from the group consisting of trimethylolpropane triacrylate, trimethylethylene triacrylate and tetramethylolmethane tetracrylate, the surface of said polymer particles being firmly bound through ionic bond to and being completely covered with said inorganic dispersion stabilizer.

4,314,933

METHOD FOR LIGHT STABILIZATION OF TWO-LAYER UNI-LACQUER COATINGS

Godwin Berner, Basel, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Feb. 4, 1980, Ser. No. 118,253

Claims priority, application Switzerland, Feb. 15, 1979, 1484/79

Int. Cl.³ C08K 5/34, 5/36; B32B 15/08

U.S. Cl. 260—45.75 N

17 Claims

1. A method for stabilizing two-layer uni-lacquer coatings based on acrylic, alkyd or polyester resins, melamine/formaldehyde resins, epoxide resins or polyisocyanates against the adverse effects of light, humidity and oxygen which comprises incorporating in said resin (1)a 2,2,6,6-tetraalkylpiperidine compound, its acid addition salts or metal complexes, and (2)a second ultra-violet light absorbing compound; said components (1) and (2) being present in a total concentration of from about 0.02 to 5.0%, by weight of the resin components.

4,314,934

ORGANOHALIDE POLYMERS STABILIZED WITH AN ORGANOTIN COMPOUND AND AN ORTHO MERCAPTO PHENOL COMPOUND

Kenneth V. Smith, Cincinnati, Ohio, and Jack D. Taylor, Katy, Tex., assignors to Carstab Corporation, Reading, Ohio

Filed Feb. 26, 1981, Ser. No. 238,506

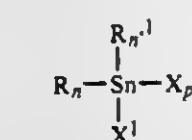
Int. Cl.³ C08K 5/58

U.S. Cl. 260—45.75 S

17 Claims

1. A stabilizer composition comprising:

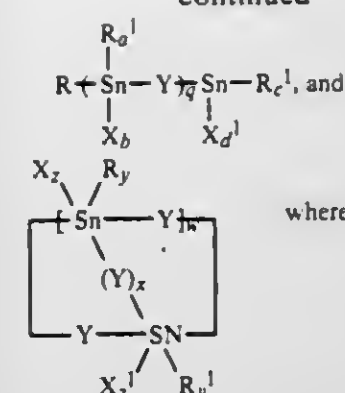
A. an organic tin compound or mixture of organic tin compounds selected from compounds having the formulas:



(I)

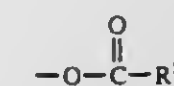
R³ is alkylene of at least 2 carbon atoms, arylene, alkenylene of at least 2 carbon atoms, cycloalkylene, or cycloalkenylene;

-continued

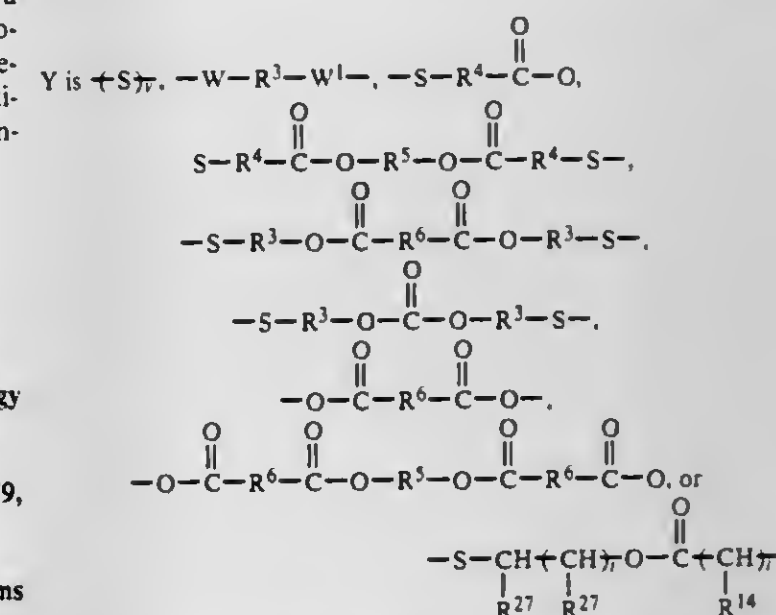


wherein

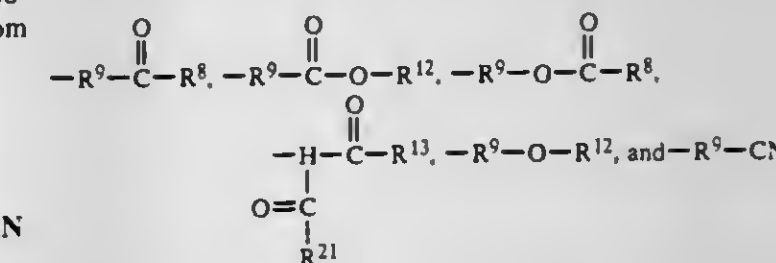
X and X¹ are the same or different and are selected from —SR², Cl, Br, I,



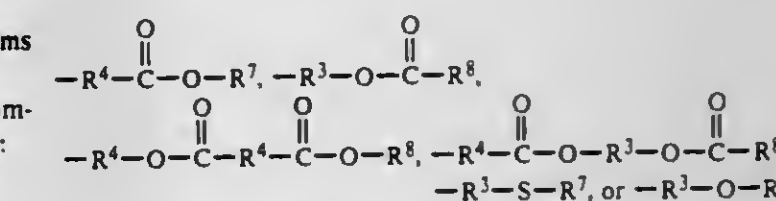
and O—R⁸ with the proviso that in formula (III) when z=1 and in formulas (I) and (II) at least one X or X¹ is —SR²;



W and W¹ are the same or different and are oxygen or sulfur; R and R¹ are the same or different and are selected from alkyl, aryl, alkenyl, aralkyl, alkaryl, cycloalkyl, cycloalkenyl,



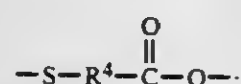
R² is alkyl, alkenyl, aryl, hydroxy-substituted aryl, aralkyl, cycloalkyl, cycloalkenyl,



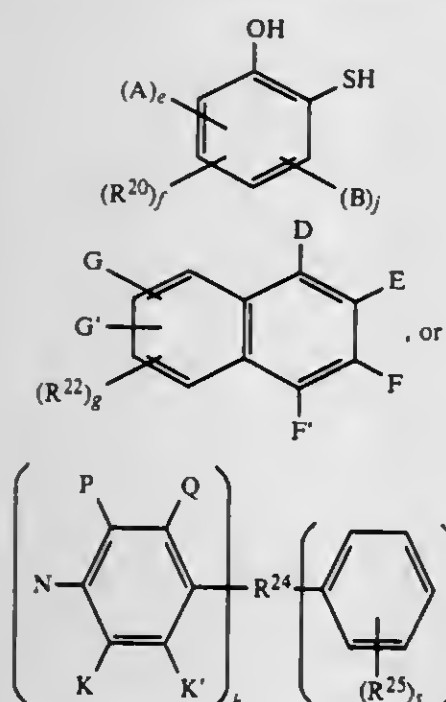
R^4 is alkylene, arylene, alkenylene of at least 2 carbon atoms, cycloalkylene, or cycloalkenylene;
 R^5 is R^3 ;
 R^6 is nothing or R^4 ;
 R^7 is $-H$ or R^3 ;
 R^8 is alkyl, alkenyl, aryl, aralkyl, alkaryl, cycloalkyl, or cycloalkenyl;
 R^9 is C_1 to C_4 alkylene;
 R^{12} is $-H$ or a monovalent C_1 to C_{20} hydrocarbon radical;
 R^{13} and R^{21} are the same or different and are each C_1 to C_{20} alkyl or C_1 to C_{20} alkoxy; R^{14} is $-H$, aryl or C_1 to C_{18} alkyl;

R^{27} is $-\overset{\text{O}}{\parallel}{C}-O-R^{16}$, $-\overset{\text{O}}{\parallel}{C}-R^{16}$, $-OH$, $-SH$, aryl,
 C_1 to C_{18} alkyl or $-H$; R^{16} is H or R^8 ;

$i=0$ or an integer from 1 to 6 inclusive;
 $n=0, 1$ or 2 , $n'=0, 1$ or 2 and $p=1$ or 2 with the proviso that $n+n'=1$ or 2 and $n+n'+p=3$; $a=0, 1$ or 2 , $b=0, 1$ or 2 , $q=1$ to 5 , $c=1, 2$ or 3 and $d=0, 1$ or 2 with the proviso that $a+b=2$ and $c+d=3$;
 v is an integer from 1 to 8 inclusive; and
 $w=0, 1$ or 2 , $x=0$ or 1 , $y=1$ or 2 , $z=0$ or 1 with the proviso that when $x=0$ and $w=1$ or 2 then $y=1$ and $z=1$ when $x=1$ then $y=1$, $z=0$ and $w=1$, when $w=2$ then $x=0$, $y=1$ and $z=1$, and when $w=0$ then $x=0$, $y=1$, $z=1$ and Y is $-W-R^3-W^1$ or



and
 B. an organic compound or mixture of organic compounds selected from compounds having the formulas:



wherein

A is nothing, $-OH$ or $-SH$,
 B is nothing, $-OH$ or $-SH$,
 D is $-H$, $-SH$, $-OH$ or R^{26} ,
 E is $-H$, $-OH$, $-SH$ or R^{26} ,
 F is $-H$, $-SH$, $-OH$ or R^{26} ,
 F' is $-H$, $-OH$, $-SH$ or R^{26} ,
 G is nothing, $-OH$ or $-SH$,
 G' is nothing, $-SH$ or $-OH$,
 K is $-H$, $-SH$, $-OH$ or R^{23} ,
 K' is $-H$, $-OH$, $-SH$ or R^{23} ,
 N is $-H$, $-SH$, $-OH$ or R^{23} ,
 P is $-H$, $-SH$, $-OH$ or R^{23} ,
 Q is $-H$, $-SH$, $-OH$ or R^{23}

R^{20} is nothing, alkyl, aryl, alkenyl, alkaryl, cycloalkyl, alkoxy or halogen,
 R^{26} is alkyl, alkenyl or halogen,
 R^{22} is alkyl, alkenyl or halogen,
 R^{23} is alkyl, alkenyl or halogen,
 R^{24} is alkylene or alkenylene,
 R^{25} is alkyl, alkenyl, halogen, $-SH$ or $-OH$,
 e is 0 to 2,
 j is 0 to 2,
 f is 0 to 3,
 s is 0 to 3,
 g is 0 to 3,
 h is 1 to 4,
 k is 0 to 3,
 $h+k$ is 2 to 4,
 $e+j+f$ is 0 to 4

with the proviso that (1) in formula (V) two of groups D, E, F and F' must be an OH group and an SH group bonded directly to adjacent ring carbon atoms, and (2) in formula (VI) two of groups K, K', N, P and Q must be an OH group and an SH group bonded directly to adjacent ring carbon atoms.

16. A polymer composition comprising a halogen-containing organic polymer normally susceptible to heat induced deterioration and a stabilizingly effective amount of a stabilizer composition according to claim 1.

4,314,935

PROCESS FOR RECOVERING INTERFERON

Yahiro Uemura, Hirakata; Hirofumi Arimura, Toyonaka; Hiroshi Morise, Hirakata; Satoshi Funakoshi, Katano, and Tadakazu Suyama, Kyoto, all of Japan, assignors to The Green Cross Corporation, Osaka, Japan

Filed Aug. 6, 1980, Ser. No. 175,744

Claims priority, application Japan, Oct. 5, 1979, 54-128513

Int. Cl.³ A61K 45/02; C07G 7/00

U.S. Cl. 260—112 R

7 Claims

1. A process for recovering interferon, which comprises contacting a solution containing interferon produced by the induced cells of human origin with a water-insolubilized heparin to allow the interferon to be adsorbed on the water-insolubilized heparin and then eluting the interferon with an aqueous solution of an inorganic salt.

4,314,936

SUBSTRATES FOR THE QUANTITATIVE ASSAY OF ENZYMES AND SUCH ASSAY

Arleb Yaron, and Amos Carmel, both of Rehovot, Israel, assignors to Yeda Research and Development Co., Ltd., Rehovot, Israel

Continuation-in-part of Ser. No. 48,260, Jun. 13, 1979, abandoned. This application Dec. 1, 1980, Ser. No. 211,794

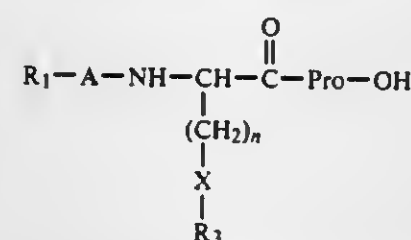
Claims priority, application Israel, Jun. 16, 1978, 54940; Aug. 21, 1980, 60888

Int. Cl.³ C07C 103/52; C12Q 1/36

U.S. Cl. 260—112.5 R

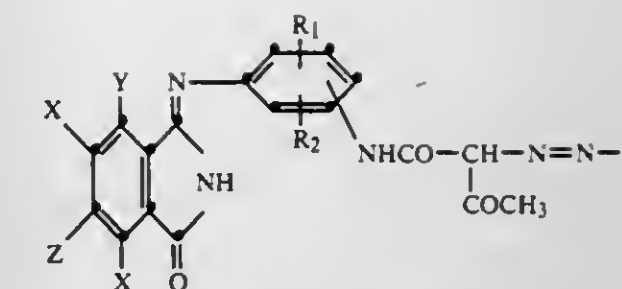
19 Claims

1. Substrate with high susceptibility to peptidyl dipeptide hydrolases (E.C. 3.4.15), especially angiotensin-converting enzyme, which substrates are represented by the formula



or salts thereof, where R_1 is selected from the group consisting of 1-dimethylaminonaphthalene-5-sulfonyl, 2-aminobenzoyl, 1,8-aminonaphthalenesulfonyl, anthracene-9-carbonyl, fluoresceinyl, tetrabromofluoresceinyl ("eosinyl"), and rhodaminyl;

A is selected from the group consisting of glycyl, L-alanyl, L-leucyl, L-phenylalanyl and L-isoleucyl; n is 1-6; X is selected from the group consisting of a single bond, a carbonyl and imine (NH) group; R_3 is selected from the group consisting of nitrophenyl, dinitrophenyl, trinitrophenyl, nitrobenzyloxycarbonyl, dinitrobenzyloxycarbonyl, trinitrobenzyloxycarbonyl, nitrobenzoyl, dinitrobenzoyl, trinitrobenzoyl, ω -nitrophenylalkylamine having 1-4 carbon atoms in a straight chain, ω -dinitrophenylalkylamine having 1-4 carbon atoms in a straight chain and ω -trinitrophenylalkylamine having 1-4 carbon atoms in a straight chain.



wherein X is halogen, Y and Z are halogen, C_1 - C_4 alkoxy or aryloxy, R_1 and R_2 are hydrogen, halogen, C_1 - C_2 alkyl or C_1 - C_2 alkoxy, and A is phenyl; phenyl substituted by halogen, by trifluoromethyl, by C_1 - C_2 alkyl, by C_1 - C_2 alkoxy or by a group of the formula $-CONHR_3$ or $-NHCOR_4$, wherein R_3 is hydrogen, C_1 - C_2 alkyl, phenyl or phenyl substituted by halogen, by methyl, by methoxy or by trifluoromethyl, and R_4 is C_1 - C_2 alkyl, phenyl or phenyl substituted by halogen, by methyl or by methoxy; or A is benzimidazolonyl, N-methylbenzimidazolonyl, chlorobenzimidazolonyl, methylbenzimidazolonyl, methoxybenzimidazolonyl, phenmorpholonyl, 6-methylphenmorpholonyl, quinazolonyl, 2,4-dihydroxy-1,3-quinazolonyl, quinolonyl, methylquinolonyl or quinazolonyl.

4,314,937

1:2 CHROMIUM UNSYMMETRICAL COMPLEXES OF AZO AND DISAZO DYES

Fabio Beffa, Riehen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation-in-part of Ser. No. 924,316, Jul. 13, 1978, abandoned, which is a continuation of Ser. No. 762,062, Jan. 24, 1977, abandoned. This application Mar. 7, 1980, Ser. No. 128,228

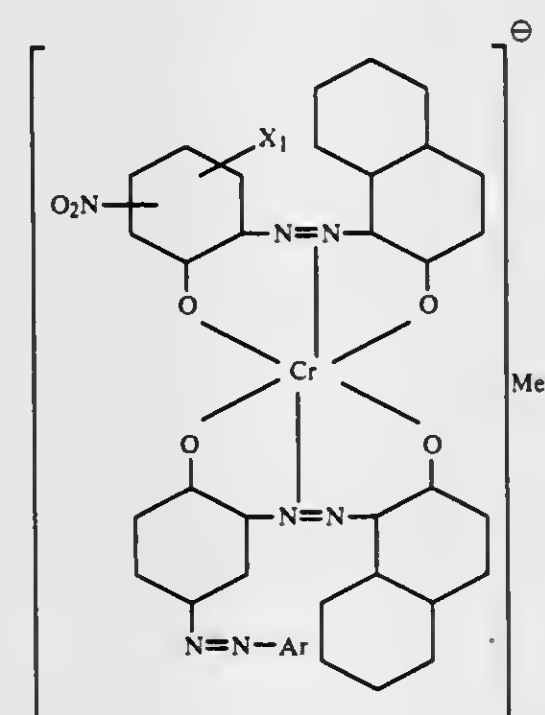
Claims priority, application Switzerland, Feb. 4, 1976, 1356/76

Int. Cl.³ C09B 45/06, 45/26, 45/48; D06P 3/32

U.S. Cl. 260—145 A

3 Claims

1. A chromium complex dye of the formula



wherein

X_1 is hydrogen, chloro, nitro or methyl;
 Me^+ is a cation; and
 Ar is phenyl or naphthyl which is substituted by one or two $-SO_3H$ and is further unsubstituted or substituted by C_1 - C_5 alkyl, C_1 - C_2 alkoxy, chloro or nitro.

4,314,938

IMINOISOINDOLINONE PIGMENTS CONTAINING PHENYLAZOACETOACETYL-AMINOPHENYLENE GROUPS

Ernst Model, Basel, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Jun. 11, 1980, Ser. No. 158,555

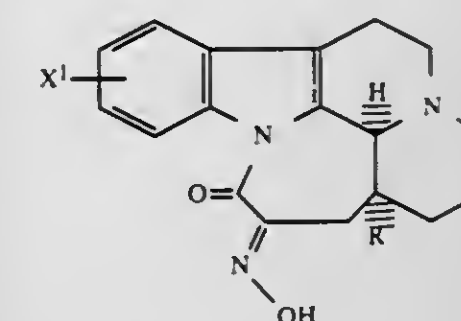
Claims priority, application Switzerland, Jun. 19, 1979, 5709/79

Int. Cl.³ C09B 43/00, 43/11, 43/32, 43/44

U.S. Cl. 260—165

7 Claims

1. An iminoisoindolinone pigment of the formula

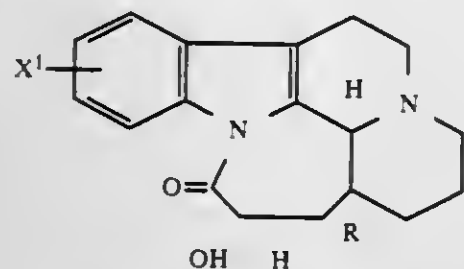


wherein

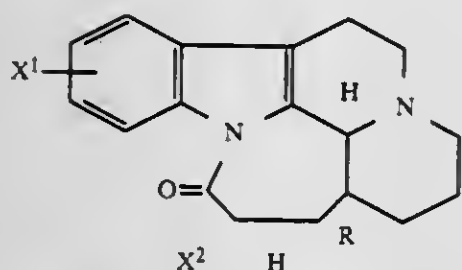
X^1 is hydrogen or halogen, and
 R is C_1 to C_6 alkyl,

or a pharmaceutically acceptable acid addition salt thereof which comprises the steps of:

(a) halogenating a compound of the formula (II)



or a 15-epimer of a pharmaceutically acceptable acid addition salt thereof, to produce a compound of the formula (III)



or a 14-epimer of a pharmaceutically acceptable acid addition salt thereof wherein X2 is halogen;

(b) oxidizing the compound of the formula (III) with an alkali nitrite in the presence of an acid to prepare the compound of the formula (I); and

(c) in the case where a pharmaceutically acceptable acid addition salt of the compound of the formula (I) is prepared, converting the compound of formula (I) to a pharmaceutically acceptable acid addition salt.

4,314,940

METHOD FOR THE PURIFICATION OF RAW CAPROLACTAM

Paolo Senni, and Nando Toderi, both of Colleferro, Italy, assignors to SNIA Viscosa Societa' Nazionale Industria Applicazioni Viscosa S.p.A., Milan, Italy

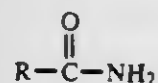
Filed Apr. 21, 1980, Ser. No. 142,860

Claims priority, application Italy, Apr. 30, 1979, 22250 A/79
Int. Cl.³ C07D 201/16

U.S. Cl. 260—239.3 A

10 Claims

1. A method for the purification of raw caprolactam which contains as impurities one or more primary amides having the formula I



wherein R is a hydrocarbon radical having from 1 to 14 carbon atoms, comprising, treating said raw caprolactam with at least one compound Y containing at least one hydroxyl group, said compound being a mono- or polyfunctional aliphatic or aromatic alcohol or phenol, in an amount of at least 20% by weight with respect to the raw caprolactam, at a temperature equal to or higher than that at which said primary amide of Formula I reacts with compound Y to form ammonia, maintaining said temperature for a sufficient time for said reaction to near completion; and separating said caprolactam.

4,314,941 AMINOCARBONYLMETHYL ETHERS OF CLAVULANIC ACID, A PROCESS FOR THEIR PREPARATION AND USE

Brian C. Gasson, Redhill, England, assignor to Beecham Group Limited, England

Filed Dec. 26, 1978, Ser. No. 973,749

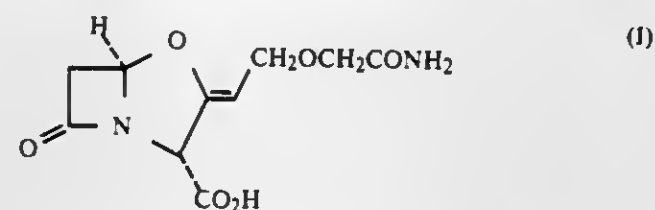
Claims priority, application United Kingdom, Jan. 26, 1978, 03129/78

Int. Cl.³ C07D 498/04; A61K 31/42

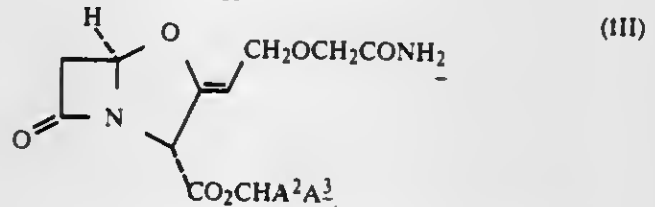
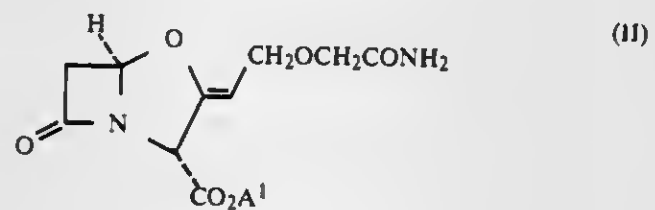
U.S. Cl. 260—245.3

13 Claims

1. The compound of the formula (I):



a pharmaceutically acceptable salt thereof or an ester thereof of the formula (II) or (III):



wherein A¹ is alkyl of up to 4 carbon atoms, alkenyl of up to 4 carbon atoms, alkynyl of up to 4 carbon atoms or alkyl of up to 4 carbon atoms mono-substituted by halogen, hydroxyl, alkoxy or alkanoyloxy of up to 4 carbon atoms, acetyl or benzoyl; A² is hydrogen, phenyl, chlorophenyl, methoxyphenyl, bromophenyl or nitrophenyl; and A³ is phenyl, chlorophenyl, methoxyphenyl, bromophenyl or nitrophenyl.

4,314,942

DEPROTECTION OF ALLYLIC ESTERS, CARBONATES AND CARBAMATES CATALYZED BY PALLADIUM COMPOUNDS

Stuart W. McCombie, West Orange, N.J., assignor to Schering Corporation, Kenilworth, N.J.

Filed Jan. 10, 1979, Ser. No. 2,472

Int. Cl.³ C07D 501/04, 499/04

U.S. Cl. 260—245.2 R

12 Claims

1. A process for the removal of an allyl group in an allylic ester formed from a carboxylic acid and an allylic alcohol or derivative thereof or an allyloxycarbonyl group in an allylic carbonate or allylic carbamate formed from an alcohol or amine and an allylic alcohol chloroformate or allylic alcohol activated ester, which comprises:

reaction of a solution of the allylic ester, carbonate or carbamate in an organic, non-hydroxylic solvent with 2-ethylhexanoic acid, or an alkali metal salt thereof, and a catalytic amount of an organic-soluble palladium complex having a coordinating phosphine ligand, said catalytic amount of palladium complex being from about 0.25 to about 5 molar percent of said allylic ester, carbonate or carbamate, respectively.

4,314,943 HETEROCYCLIC SUBSTITUTED ARYLOXY 3-INDOLYL-TERTIARY BUTYLAMINOPROPANOLS William E. Kreighbaum, and William T. Comer, both of Evansville, Ind., assignors to Mead Johnson & Company, Evansville, Ind.

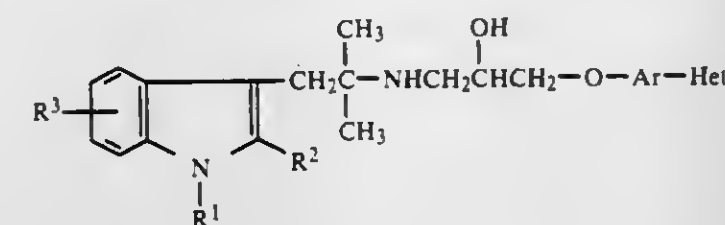
Continuation-in-part of Ser. No. 815,138, Jul. 13, 1977, abandoned. This application Feb. 13, 1979, Ser. No. 11,819

Int. Cl.³ A61K 31/40; C07D 209/14

U.S. Cl. 260—326.13 B

5 Claims

1. A compound selected from the group consisting of



and the acid addition salts thereof wherein

R¹ or R² is hydrogen and the other is hydrogen or alkyl having 1 to 4 carbon atoms,

R³ is H, halogen, alkyl having 1 to 4 carbon atoms, or alkoxy having 1 to 4 carbon atoms and is located in the 4-, 5-, 6-, or 7-positions of the indole ring,

Ar is phenylene,

Het is an Ar-attached heterocyclic substituent selected from the group consisting of

1-pyrrolyl,

2-oxo-1-pyrrolidinyl having a substituent in the 4-position selected from aminocarbonyl, alkylaminocarbonyl, dialkylaminocarbonyl, and alkoxy carbonyl, wherein said alkyl and alkoxy groups have 1 to 4 carbon atoms, and furfuryloxy.

4,314,944

4-AMINOALKYL-7-HYDROXY-2(3H)-INDOLONES William F. Huffman, Malvern, and James W. Wilson, Wayne, both of Pa., assignors to SmithKline Corporation, Philadelphia, Pa.

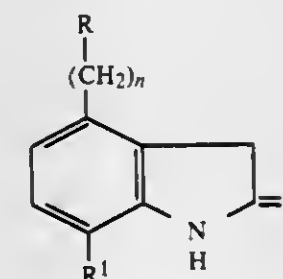
Filed Aug. 22, 1980, Ser. No. 180,551

Int. Cl.³ C07D 209/14; A61K 31/40

U.S. Cl. 260—326.15

9 Claims

1. A compound of the structural formula:



in which R is amino, lower alkylamino, di-loweralkylamino, di-N-alkylamino or N-allyl-N-lower alkylamino, R¹ is hydroxy or methoxy and n is an integer from 1-3; together with the pharmaceutically acceptable acid addition salts thereof.

4,314,945

ALKYLENE CARBONATE PROCESS

Charles H. McMullen, Katonah, N.Y.; James R. Nelson, S. Charleston, W. Va.; Bernard C. Ream, Charleston, W. Va., and Joseph A. Sims, Jr., Elkview, W. Va., assignors to Union Carbide Corporation, New York, N.Y.

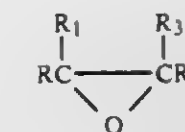
Filed Dec. 22, 1977, Ser. No. 863,354

Int. Cl.³ C07D 317/36, 317/38

U.S. Cl. 260—340.2

13 Claims

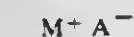
1. A process for producing alkylene carbonate by the reaction of carbon dioxide and an alkylene oxide of the formula



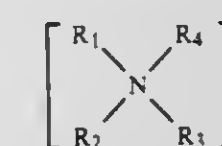
wherein R, R₁, R₂, and R₃ are one or more of hydrogen, alkyl, aryl, alkaryl, aralkyl, cycloalkyl, allyloxy, chloroalkyl, and aryloxy to produce the corresponding alkylene carbonate which comprises:

(a) providing a homogeneous liquid phase reaction zone in which the predominant material therein is the alkylene carbonate, said alkylene carbonate employed in an amount of from about 85 to about 99.6 weight percent, based on the weight of material within the reaction zone;

(b) providing a catalytic amount of an alkylene oxide carbonation catalyst to said liquid phase, said catalyst a salt characterized by the following formula:



wherein M is potassium or a quaternary ammonium cation of the following formula:



wherein R₁, R₂, R₃ and R₄ may each be alkyl, aryl, alkenyl, alkaryl, or aralkyl including substituents thereon in any combination or in which any two or more of the radicals R₁, R₂, R₃ and R₄ may be interconnected to form with the basic nitrogen atom a ring of the pyridine, piperidine, quinuclidine, pyrrolidine, pyrrolone, morpholine, or thiomorpholine derivatives and 1,4-diazobicyclo[2.2.2]octane, A is bromine, chlorine, or iodine when M is quaternary ammonium cation and is iodine when M is potassium;

(c) having dissolved in said liquid phase sufficient CO₂ to provide a molal amount therein which exceeds the molal amount of the catalyst;

(d) providing a CO₂ pressure in the reaction zone of between about 150 psig and about 750 psig;

(e) maintaining a sufficient amount of the alkylene oxide in the reaction to maintain the pressure and temperature thereof;

(f) maintaining the reaction zone at a temperature at which the alkylene oxide and CO₂ react to form alkylene carbonate, which temperature is not greater than 200° C.; and

(g) correlating the reaction zone temperature and pressure to yield an alkylene carbon efficiency of at least about 99% and a conversion of at least about 99.5%.

4,314,946

PROCESS FOR THE CONTINUOUS SEPARATION OF MALEIC ANHYDRIDE FROM PROCESS GASES

Amleto Neri, and Sergio Sanchioni, both of Bergamo, Italy, assignors to Fitalit Prodotti Chimici Speciali S.p.A., Mailand, Italy

Filed Mar. 14, 1980, Ser. No. 130,440

Claims priority, application Italy, Mar. 20, 1979, 48436 A/79
Int. Cl.³ C07D 307/60

U.S. Cl. 260—346.76

4 Claims

1. In the process for the continuous separation of maleic anhydride from the process gas from the catalytic oxidation of a hydrocarbon in the gaseous phase, which comprises treating the process gases with a solvent, the improvement comprising said solvent being a dialkyl ester, having 4 to 8 carbons in each alkyl group, of hexahydrophthalic acid, tetrahydrophthalic acid, methyltetrahydrophthalic acid or methylhexahydrophthalic acid.

4,314,947

PROCESS FOR COMPLETING THE ESTERIFICATION OF CARBOXYLIC ACIDS WITH ALCOHOLS

Heinz Hohenschutz, Mannheim; Josef Gnäd, Ludwigshafen; Günter Dinkhauser, Limburgerhof, and Eberhard Schaefer, Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Dec. 21, 1978, Ser. No. 971,662

Int. Cl.³ C07C 67/08, 67/54

U.S. Cl. 260—410

4 Claims

1. A continuous process for completing the esterification of aliphatic carboxylic acids of 1 to 8 carbon atoms with aliphatic or cycloaliphatic alcohols of 3 to 10 carbon atoms by treating a pre-esterified reaction mixture which in addition to the carboxylic acid ester already formed contains as yet unconverted proportions of carboxylic acid and alcohol, together with an esterifying catalyst and water of reaction, and with or without an entraining agent, at the boiling point of the alcohol or of the entraining agent, in a column operated with bottom heating, the water of esterification being driven off at the top of the column by azeotropic distillation, wherein the lower space of the column is free from fitments, the middle space of the column is provided with a packing and the upper space of the column is provided with a packing or other fitments, the starting pre-esterified reaction mixture is fed into the middle space of the column from 5 to 10 m above the upper liquid level, which upper liquid level is maintained within the lower portion of the packing in said middle space, the ester formed is taken off as liquid from the column bottom, and the column is operated with flooding such that the upper liquid level is from 6 to 10 m above the bottom of said lower space, with the liquid mixture filling said lower space and said lower portion of said packing in said middle space.

4,314,948

PREPARATION OF MIXTURES OF 1-MONOHALOGENATED ISOCYANATES AND 1,2-UNSATURATED ISOCYANATES

Karl-Heinz Koenig, Frankenthal; Karl-Heinz Feuerherd, and Heinz-Günter Oeser, both of Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Aug. 5, 1980, Ser. No. 175,592

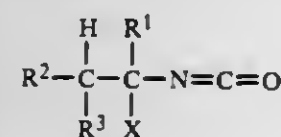
Claims priority, application Fed. Rep. of Germany, Sep. 13, 1979, 2937028

Int. Cl.³ C07C 118/00, 119/042, 119/045, 119/048

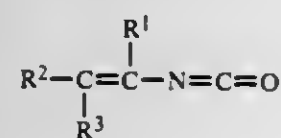
U.S. Cl. 260—453 P

10 Claims

1. A process for the preparation of a mixture of 1-monohalogenated isocyanates of the formula

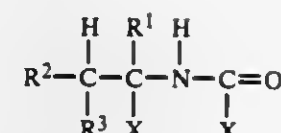


and 1,2-unsaturated isocyanates of the formula

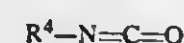


where R¹, R² and R³ may be identical or different and each is hydrogen, alkyl of 1 to 6 carbon atoms or phenyl, or the pair of radicals R¹ and R² together with the two adjacent carbon atoms, or the pair of radicals R² and R³ together with the adjacent carbon atom, can also form members of a 5-membered or 6-membered alicyclic ring, R¹, R² and R³ in total contain up to 8 carbon atoms, and X is chlorine or bromine, wherein

(a) 1-monohalogenated carbamic acid halides of the formula

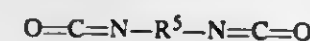


where R¹, R², R³ and X have the above meanings, are reacted with a halogen-free isocyanate of the formula



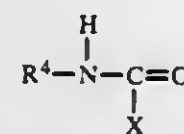
where R⁴ is alkyl, cycloalkyl, aryl, aralkyl or alkylaryl, and/or

(a2) with a diisocyanate of the formula



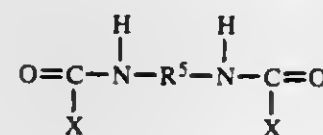
where R⁵ is alkylene, cycloalkylene, arylene, alkylarylene or arylalkylene, or

(b1) 1,2-unsaturated isocyanates Ib are reacted with a 1-halogen-free carbamic acid halide of the formula



where R⁴ and X have the above meanings and/or

(b2) with a bis-carbamic acid halide of the formula



where R⁵ and X have the above meanings, and/or

(b3) with a 1-monohalogenated carbamic acid halide II or

(c1) 1-monohalogenated isocyanates Ia are reacted with a halogen-free isocyanate III and/or

(c2) with a diisocyanate IV.

4,314,949

PROCESS FOR MAKING PEROXYCARBOXYLIC ACIDS

Griscom Bettie, III, Cincinnati; Howard Mills, Forest Park, and Edward B. Richter, Cincinnati, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Jul. 23, 1980, Ser. No. 171,564

Int. Cl.³ C07C 179/00

U.S. Cl. 260—502 R

7 Claims

1. An improved process for making a peroxyacid having about 6 to about 18 carbon atoms and at least one peroxyacid moiety, comprising the step of:

(a) preparing a reaction slurry comprising a liquid phase and a solid phase;

i. said liquid phase comprising 60 to 80% by weight of the mixture of concentrated acid selected from the group consisting of sulfuric acid, methane sulfuric acid, phosphonic acid, phosphoric acid, pyrophosphonic acid, and mixtures thereof; 2.5 to 12.5% by weight of the mixture of hydrogen peroxide; and 7.5 to 37.5% by weight of the mixture of water, and

ii. said solid phase comprising a peroxyacid having about 6 to about 18 carbon atoms and the carboxylic acid starting material corresponding to said peroxyacid; in a reaction vessel at a temperature between about 15 degrees Celsius and 50 degrees Celsius; the ratio of the liquid phase to the solid phase being from about 15:1 to about 49:1.

4,314,950

PROCESS FOR THE PREPARATION OF SULPHONIC ACID CHLORIDES

Theodor Pfister, Wuppertal; Wolfgang Schenk, Leverkusen, and Heinz U. Blank, Odenthal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 944,457, Sep. 21, 1978, abandoned. This application May 5, 1980, Ser. No. 146,827

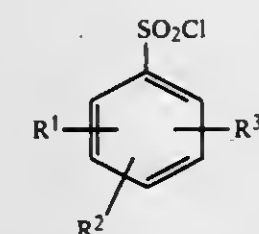
Claims priority, application Fed. Rep. of Germany, Sep. 28, 1977, 2743541

Int. Cl.³ C07C 143/26

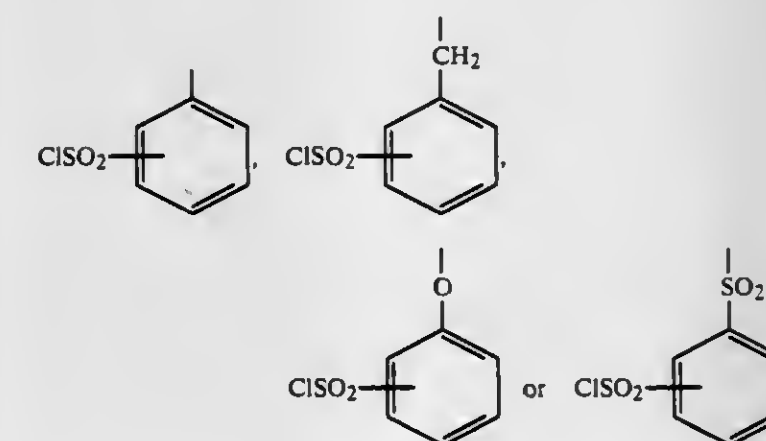
U.S. Cl. 260—543 R

16 Claims

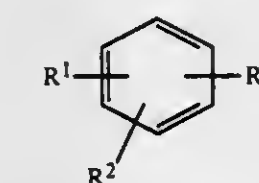
1. In a process for the preparation of a sulphonic acid chloride of the formula



wherein R¹, R² and R³ are identical or different and denote hydrogen, a lower alkyl radical or a cycloalkyl radical, halogen, aryl, aralkyl, aryl ether or a radical —SO₂Cl, —SO₂-aryl



or wherein adjacent radicals R¹ and R² are linked to form a cycloaliphatic or aromatic carbocyclic ring which is optionally substituted by a sulphonic acid chloride group, contacting an aromatic compound of the formula



wherein R¹, R² and R³ have the above-described meanings with chlorosulphonic acid and phosgene, the improvement which comprises contacting said aromatic compound with chlorosulphonic acid initially and thereafter contacting the resultant reaction product with phosgene in the presence of a catalyst.

4,314,951

MIXTURE PREPARATION APPARATUS

Siegfried Holzbaier, and Konrad Eckert, both of Stuttgart, Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

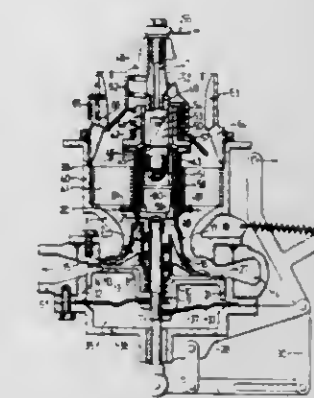
Division of Ser. No. 14,200, Feb. 22, 1979, Pat. No. 4,263,235. This application Jul. 21, 1980, Ser. No. 170,388

Claims priority, application Fed. Rep. of Germany, Feb. 22, 1978, 2807465

Int. Cl.³ F02M 17/16

U.S. Cl. 261—44 D

25 Claims



1. A mixture preparation apparatus for mixture-compressing, externally ignited internal combustion engines having a throttle device and an air intake line, an air flow rate meter and a rotatable vane body in said air intake line, said rotatable vane body provided with a plurality of scoops, said scoops arranged to extend into a contoured section of the intake side of an annular flow channel and spaced therefrom in an axial direction during increased air quantities and means upstream of the vane body for introducing fuel into said air intake line, further wherein said scoops are configured to cooperate with said annular flow channel and means for arbitrarily controlling air-fuel mixture to said annular flow channel and therefrom to said engine.

4,314,952

PROCESS OF PREPARING SINTERED URANIUM DIOXIDE PELLETS

Tadeusz W. Zawidzki, Ottawa, Canada, assignor to Eldorado Nuclear Limited, Canada

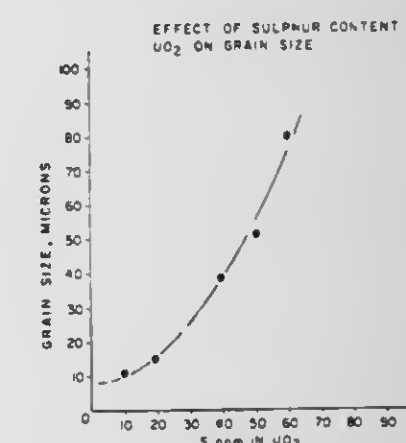
Filed Apr. 23, 1979, Ser. No. 32,693

Claims priority, application United Kingdom, Apr. 28, 1978, 17091/78

Int. Cl.³ G21C 21/00

U.S. Cl. 264—0.5

7 Claims



1. A process for the preparation of a sintered, high density, large grain size uranium dioxide pellet which comprises the steps of:

(i) reacting a uranyl nitrate of formula UO₂(NO₃)₂·6H₂O with a sulphur source, at a temperature of from about 300°

- C. to about 400° C. to provide a sulphur containing uranium trioxide;
- (ii) reacting the thus-obtained modified uranium trioxide with ammonium nitrate to form an insoluble sulphur-containing ammonium uranate;
- (iii) neutralizing the thus-formed slurry with ammonium hydroxide to precipitate out as an insoluble ammonium uranate the remaining dissolved uranium;
- (iv) recovering the thus formed precipitates in a dry state;
- (v) reducing the dry precipitate to UO_2 , and forming it into "green" pellets; and
- (vi) sintering the thus obtained pellets in a hydrogen atmosphere and at an elevated temperature.

4,314,953

PROCESS FOR REDUCING FRIABILITY OF DETERGENT POWDERS

Peter C. Knight, South Wirral, England, assignor to Lever Brothers Company, New York, N.Y.

Filed Jun. 13, 1980, Ser. No. 159,030

Int. Cl.³ B01J 2/02

U.S. Cl. 264—13

2 Claims

1. A process for the production of a spray-dried detergent powder comprising the steps of:

- (a) forming an aqueous crutcher slurry comprising
- (i) from 10-35% by weight, based on the weight of the spray-dried powder, of a detergent active compound;
- (ii) a detergency builder compound in an amount of from 10-35% by weight, based on the weight of the spray dried powder, provided that when a phosphate-containing detergency builder is present it is present in an amount of from 10-20% by weight, based on the weight of the spray-dried powder;
- (iii) at least 5% by weight, based on the weight of the spray dried powder, of a sodium silicate; and
- (iv) a hydrated starch in an amount of from about 1 to 5% by weight, based on the weight of the spray dried powder;

and

- (b) spray drying the slurry to a spray dried powder.

4,314,954

METHOD OF PRODUCING MOLDED BODIES OF EXPANDED PLASTIC

Lars Ringdal, Oslo, Norway, assignor to Bakelittfabrikken A/S, Oslo, Norway

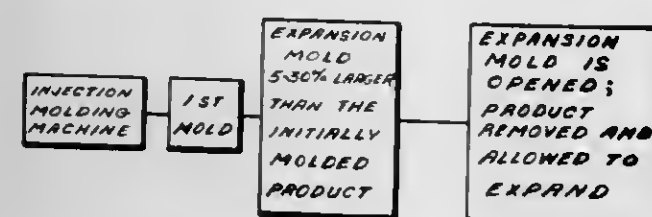
Filed Sep. 6, 1979, Ser. No. 72,925

Claims priority, application Norway, Sep. 13, 1978, 783102

Int. Cl.³ B29D 27/00; B29F 1/08

U.S. Cl. 264—45.5

10 Claims



1. A method of producing molded bodies of expanded plastic of a predetermined density, in which a starting material of plastic in granulate or powder form to which a blowing agent and optionally a cross-linking agent have been added is introduced into an injection molding machine where the starting material is heated and injected into a mold, characterized in that the material is heated to a temperature at which it becomes plastic but which is lower than the temperature required to initiate the reaction of the blowing agent and optional cross-linking agent, that the material in this state is injected into a mold having a lower temperature and is given a shape approximately that of the desired final product, after which the blank thus formed is transferred at any suitable later time to an expansion mold having the shape of the desired product but of larger dimensions than the initially molded blank, and is heated in this mold to the activating temperature for the blowing agent and the optional cross-linking agent and thereby expanded, after which the blank is quickly removed from the mold and immediately expands into its permanent shape.

5. A method according to claim 1, characterized in that the blanks in the expansion mold are subjected to a cooling effect at specified locations at which a partial extra reinforcement is desired in the finished product.

4,314,955

METHOD OF FILLING CAVITIES, IN PARTICULAR, MOLD CAVITIES, WITH A REACTIVE FLOWABLE MIXTURE

Heinrich Boden, Leverkusen, and Walter Schneider, Overath, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Bayerwerk, Fed. Rep. of Germany

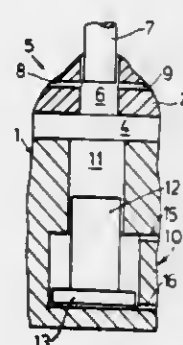
Filed Aug. 21, 1980, Ser. No. 180,183

Claims priority, application Fed. Rep. of Germany, Aug. 24, 1979, 2934354

Int. Cl.³ B29D 27/00; B29F 1/04

U.S. Cl. 264—51

4 Claims



1. In a method of filling cavities and, in particular, molds, with a reactive solid-forming or foam-forming mixture comprising introducing at least two reactants into a spatially limited mixing zone, mixing said reactants therein as they pass therethrough and conveying the mixture produced into a cavity where it reacts, the improvement wherein

- (a) the volume of the cavity is initially increased beyond the final volume to be obtained while introducing the reaction mixture into the cavity whereby
- (ba) the rate of flow of the mixture in the cavity is reduced and whereby
- (bb) mixture is stored in the additional cavity volume,
- (c) upon completion of introduction of the mixture, the volume of the cavity is reduced again whereby
- (ca) the stored mixture is displaced at least partially into the form-giving cavity and whereby
- (cb) the rate of flow of the mixture is kept smaller than during the actual filling process.

4,314,956

HIGH YIELD SILICON CARBIDE PRE-CERAMIC POLYMERS

Ronald H. Baney, and John H. Gaul, Jr., both of Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

Filed Jul. 23, 1980, Ser. No. 171,556

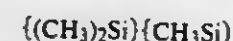
Int. Cl.³ F27B 9/04

U.S. Cl. 264—65

15 Claims

10. A method of preparing a silicon carbide-containing ceramic article which consists of

- (A) forming an article of the desired shape from a polysilane having the average formula



in which polysilane there is from 0 to 60 mole percent

$(\text{CH}_3)_2\text{Si}=\text{}$ units and 40 to 100 mole percent $\text{CH}_3\text{Si}=\text{}$ units, wherein there is also bonded to the silicon atoms other silicon atoms and radicals having the formula



wherein R is hydrogen, an alkyl radical of 1 to 4 carbon atoms or phenyl wherein essentially all the remaining bonds on silicon are attached to chlorine or bromine atoms such that the polysilane contains from 14 to 60 weight percent of $-\text{NHR}$ when R is an alkyl radical, 14 to 66 weight percent of $-\text{NHR}$ when R is a phenyl radical, from 14 to 25 weight percent of $-\text{NHR}$ when R is hydrogen and either 0 to 25 weight percent chlorine or 0-35 weight percent bromine, all based on the weight of the polysilane; and

- (B) heating the article formed in (A) in an inert atmosphere or in a vacuum to an elevated temperature in the range of 1200° C. to 1600° C. until the polysilane is converted to silicon carbide-containing ceramic.

4,314,957

METHOD FOR MANUFACTURE OF POLYMER-IMPREGNATED HOLLOW CONCRETE PRODUCT

Selichi Ozawa, Tokyo, Japan, assignor to Ozawa Concrete Industry Co., Ltd., Tokyo, Japan

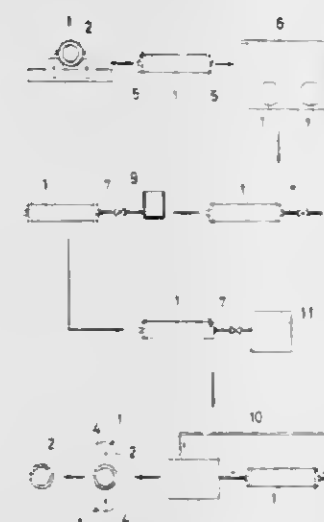
Filed May 14, 1980, Ser. No. 149,161

Claims priority, application Japan, May 19, 1979, 54/61012; Nov. 29, 1979, 54/153582

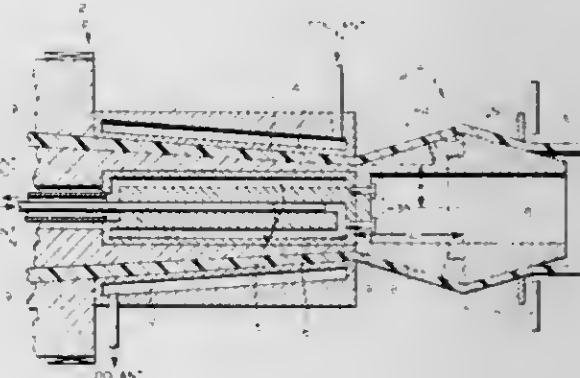
Int. Cl.³ B28B 21/20, 21/94, 21/36

U.S. Cl. 264—102

4 Claims



1. A method for the manufacture of a polymerimpregnated hollow concrete product, comprising the steps of (a) placing a concrete mix in a frame capable of withstanding high temperature and high pressure and shaped to form a product defining a hollow portion, (b) tightly closing the frame containing the concrete mix to mold the concrete mix into the hollow concrete product, (c) heating the tightly closed frame until the molded concrete contained therein has been cured, and, after strength has developed in the cured molded concrete, (d) drying the cured molded product and then deaerating the cured product in the frame interior, (e) supplying a monomer to the hollow portion of the deaerated concrete product within the frame, (f) applying pressure on the frame interior until the monomer has been diffused in the fine voids of the concrete product, and (g) heating the monomer entrapped in the concrete product in the frame until the monomer has been polymerized.



4,314,958
PLASTIC PIPE EXTRUSION
Kenneth S. Macleod, and Gary Fink, both of Calgary, Canada, assignors to Phillips Petroleum Company, Bartlesville, Okla.
Filed Jul. 22, 1980, Ser. No. 171,219
Int. Cl.³ B29D 23/04; B29F 3/08
U.S. Cl. 264—167
11 Claims

1. A process to produce a plastic pipe having an external diameter that can be selected within a range of external diameters using an extruder with one and the same die opening for any diameter within said range, said process comprising:

- (a) extruding a plastic pipe through said die opening of said extruder formed between a bushing and an internal mandrel,
- (b) guiding the so extruded semi-molten pipe over an external expanding mandrel having in the direction of the pipe movement a first section of continuously increasing cross-section and followed by a second section of continuously decreasing cross-section,
- (c) allowing the so expanded pipe to shrink,
- (d) cooling the expanded and shrinking pipe at a preselected axial location within a range of axial cooling locations to effectively stop said shrinking, said range of cooling locations corresponding to said range of external diameters of said pipe.

4,314,959

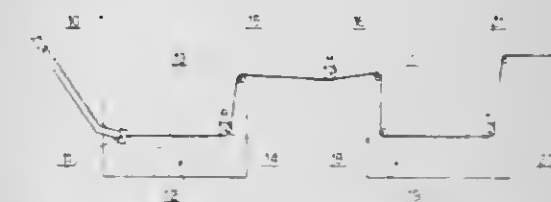
PROCESS FOR THE PREPARATION OF REGENERATED CELLULOSE FORMED BODIES FROM SOLUTIONS OF CELLULOSE DERIVATIVES IN ORGANIC SOLVENTS
Roberto Leoni, Milan; Alberto Baldini, Garlasco; Angelo Calloni, and Gianfranco Angelini, both of Buscate, all of Italy, assignors to SNIA Viscosa Societa' Nazionale Industria Applicazioni Viscosa S.p.A., Italy

Filed Apr. 21, 1980, Ser. No. 142,617

Claims priority, application Italy, Apr. 24, 1979, 22109 A/79
Int. Cl.³ D01F 2/00

U.S. Cl. 264—187

15 Claims



1. A process for the preparation of a shaped regenerated cellulose body from a spinning dope comprising a solution of methylol derivatives of cellulose in an organic solvent selected from the group consisting of dimethylformamide, dimethylacetamide, dimethylsulphoxide and N-methyl-pyrrolidone, followed by coagulation in a coagulating bath, wherein the coagulation bath contains, as its main component, a high boiling alcohol capable of reacting with free formaldehyde and with the bound (para) formaldehyde of the methylol derivative, to a degree which varies according to the temperature.

4,314,960

MOLDING RESIN AROUND ELECTRICAL CONNECTOR HAVING LEADS EXTENDING THEREFROM

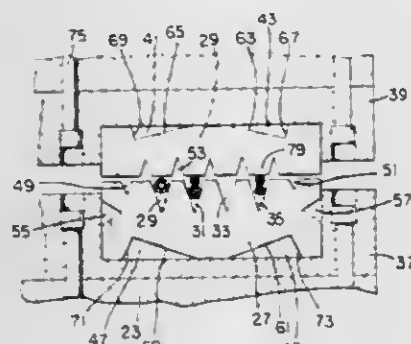
Alan R. Hass, Albion, Ind., assignor to Lyall Electric, Inc., Albion, Ind.

Division of Ser. No. 47,320, Jun. 11, 1979, Pat. No. 4,236,689. This application Aug. 6, 1980, Ser. No. 175,759

Int. Cl.³ B29C 6/04

U.S. Cl. 264—276

4 Claims



1. The method of manufacturing an insulated electrical connector having terminals therein and electrical leads connected to the terminals extending therefrom comprising the steps of:

positioning the terminals within a first mold cavity portion with the leads all extending therefrom in the same general direction;

engaging the leads and a notched resilient wire guide; intermeshing another notched resilient member with the wire guide;

closing a second mold cavity portion on the first mold cavity portion and simultaneously therewith deforming the wire guide and other notched resilient member to conform closely about the leads in substantially a leak-free manner to define an enclosed region containing the terminals; injecting a flowable insulating material into the enclosed region; solidifying the insulating material, opening the mold cavity portions, removing the formed connector; and

positioning further terminals within the first mold cavity portion preparatory to forming a further connector.

4,314,961

METHOD FOR HOT PRESSING IRREGULARLY SHAPED REFRACTORY ARTICLES

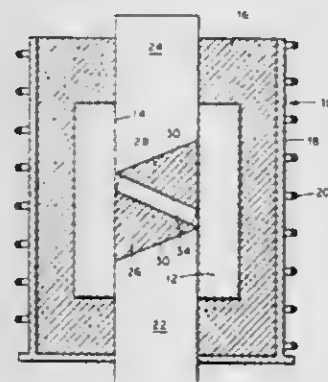
William E. Steinkamp, Clinton, and Ambrose H. Ballard, Knoxville, both of Tenn., assignors to The United States of America as represented by the Department of Energy, Washington, D.C.

Division of Ser. No. 871,872, Jan. 24, 1978, abandoned. This application Jun. 14, 1979, Ser. No. 48,331

Int. Cl.³ B29C 3/06

U.S. Cl. 264—325

3 Claims



1. A method for hot pressing particulate refractory material into substantially uniformly dense articles of varying cross-section

tional thicknesses, comprising the steps of confining a first compact of varying longitudinal thickness in a longitudinally extending die cavity, placing an essentially non-compressible block in the die cavity, placing a second compact of a size and configuration similar to that of said first compact in the die cavity to position said block therebetween in a contacting relationship with both of said compacts and to position the thicker portions of the second compact longitudinally opposite the thinner portions of the first compact, displacing die punches disposed at opposite sides of said die cavity with said compacts therebetween towards one another to press said compacts with said die punches having surfaces in contact with the compacts configured to uniformly bear against the surfaces defined by the thicker and thinner portions of the compacts, said block being oriented by said compacts prior to the pressing thereof so as to be rotated by the compacts upon the displacement of said die punches for maintaining substantially uniform volume displacements of the particulate material to substantially uniformly densify said compacts, and heating said compacts while being pressed by said die punches to a temperature sufficient to sinter the particulate material to form said articles.

4,314,962

PHENOL EXTENDED POLYURETHANES PREPARED BY RIM PROCESS

John C. Wollensak, Bloomfield Hills, and Kryo G. Ihrman, Farmington, both of Mich., assignors to Ethyl Corporation, Richmond, Va.

Filed Dec. 29, 1980, Ser. No. 220,749

Int. Cl.³ B29F 1/00; C08G 18/32

U.S. Cl. 264—328.6

3 Claims

1. A process for preparing a RIM polyurethane molded product, said process comprising

(i) at a temperature within the range of about 15° C. to about 100° C. subjecting to static impingement mixing

(a) a catalyst,

(b) an organic polyisocyanate,

(c) an aliphatic polyhydroxy compound having two or more aliphatic hydroxy groups and a molecular weight within the range of from about 400 to about 7000, and

(d) an aromatic chain extender having two aromatic hydroxy groups each containing a reactive hydrogen which is either a liquid or soluble in said aliphatic polyhydroxy compound at a temperature within the range of about 15° C. to about 100° C. said dihydroxyaromatic chain extenders being selected from

I. dihydroxybenzenes and alkyl-substituted dihydroxybenzenes, wherein the alkyl groups have up to about 6 carbon atoms and the total number of carbon atoms in the alkyl groups in said alkyl-substituted dihydroxybenzene has up to about 12 carbon atoms, and

II. alkylene bridged, alkyl-substituted bisphenols wherein the alkylene bridge contains up to about 6 carbon atoms and the total number of carbon atoms in the alkyl groups attached to each benzenoid nucleus is at least one but does not exceed about 12; whereby a pre-product is produced,

(ii) subsequently injecting a shot of said preproduct at said temperature into a closed preheated mold having a temperature of from about 15° C. to about 100° C.,

(iii) opening the mold and removing the formed polyurethane molded product, and

(iv) optionally subjecting said molded product to a post-cure at a temperature within the range of from about 50° C. to about 150° C. said process being conducted such that the amount of dihydroxyaromatic compound is from about 5 to about 30 weight percent of the total weight of components (a)-(d) and such that there is a substantially stoichiometric ratio of isocyanate groups on the one hand and the total of hydroxy groups in said aliphatic polyhydroxy

compound and said dihydroxyaromatic chain extender on the other.

4,314,963

METHOD AND A DEVICE FOR PRODUCING SHAPED ARTICLES FROM A MULTI-COMPONENT REACTION MIXTURE

Heinrich Boden, Leverkusen; Bernhard Rentz, Leverkusen; Johann Niggemann, Leverkusen, and Gerhard Just, Leichlingen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Bayerwerk, Fed. Rep. of Germany

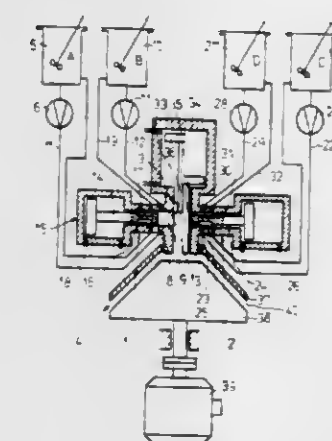
Filed Aug. 1, 1980, Ser. No. 174,471

Claims priority, application Fed. Rep. of Germany, Aug. 18, 1979, 2933553

Int. Cl.³ B29F 1/03; B29D 27/00

U.S. Cl. 264—328.6

10 Claims



1. In a method of producing polymeric shaped articles from a multi-component reaction mixture by mixing the individual components to form the multi-component reaction mixture and introducing this mixture into a shaping zone in which it is cured to form the shaped article, the improvement wherein:

(a) at least two flowable reactants are each fed to at least two separate premixing zones, and a flowable multi-component reaction mixture is produced in each of the premixing zones, and

(b) these flowable multi-component reaction mixtures are fed to an at least single-stage subsequent mixing zone and mixed together therein.

4,314,964

METHOD FOR THE MANUFACTURE OF A CYCLE OR AUTO-CYCLE WHEEL RIM

Jean-Paul Ferrary, 5, Rue Le Chatelier, 75017 Paris, France

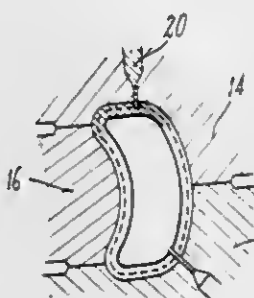
Filed Jun. 27, 1980, Ser. No. 163,774

Claims priority, application France, Jul. 2, 1979, 79 17137

Int. Cl.³ B29D 3/02; B60B 5/02

U.S. Cl. 264—501

5 Claims



1. A method of manufacturing a reinforced hollow cycle or auto-cycle wheel rim, said method comprising: placing a inflatable sleeve coaxially within a braided glass fiber sleeve thereby forming a concentric sleeve assembly; providing a mould which has a toroidal mold cavity of a shape corresponding to the exterior shape of a wheel rim

to be formed, at least one plastic material injection channel extending into said mold cavity, and at least one air inlet channel extending into said mold cavity;

positioning within said mold cavity a length of said concentric sleeve assembly sufficient to extend around said mold cavity; such that said at least one air inlet channel extends inside said inflatable sleeve

injecting air through said at least one air inlet channel into the interior of said inflatable sleeve, and thereby inflating said sleeve to form a toroidal hollow chamber within said mold cavity;

injecting plastic material through said at least one plastic material injection channel extending to between the inflated sleeve and said braided glass fiber sleeve, such that said plastic material impregnates said braided glass fiber sleeve and fills between the inflated sleeve and said mold to form a molded plastic body having embedded therein said braided glass fiber sleeve;

heating said mold to thereby set said molded plastic body and form a wheel rim reinforced by said braided glass fiber sleeve; and

removing said wheel rim from said mold.

4,314,965

STERILIZATION PROCESS USING A HEAT EFFECT ADDITIVE

Olivier Cerf, Paris; Georges Grenier, Epernon; Jean Hermier, Paris, and Alain Rancurel, Leves par Mainvilliers, all of France, assignors to Laboratoires Pharmascience, France

Filed Apr. 2, 1980, Ser. No. 136,512

Claims priority, application France, May 16, 1979, 79 12403

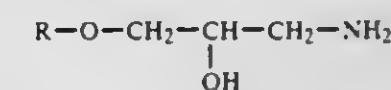
Int. Cl.³ A61L 2/04, 2/18

U.S. Cl. 422—28

5 Claims

1. A process for the sterilization or decontamination of apparatus by destruction of spores in contact with said apparatus comprising

contacting said apparatus for about 1 to about 60 minutes with an aqueous solution containing about 0.5% to about 2% by weight of a heat effective catalyst of the formula



wherein R represents an alkyl radical of from 5 to 14 carbon atoms, or a salt or a base of said compound, maintaining the temperature of said solution in the range of about 60° C. to about 100° C., maintaining the pressure of said solution at about atmospheric pressure, and correlating the sterilization parameters of time of contact and temperature of solution with respect to the particular strain of spores being treated using moist heat sterilization destruction kinetics data for said strain of spores.

4,314,966

METHOD OF CONTROL OF ACID DRAINAGE FROM EXPOSED PYRITIC MATERIALS

Robert Kleinmann, 5774 Smith Dr., Bethel Park, Pa. 15102

Continuation-in-part of Ser. No. 94,426, Nov. 15, 1979, abandoned. This application Sep. 12, 1980, Ser. No. 186,898

Int. Cl.³ A61L 2/22

U.S. Cl. 422—28

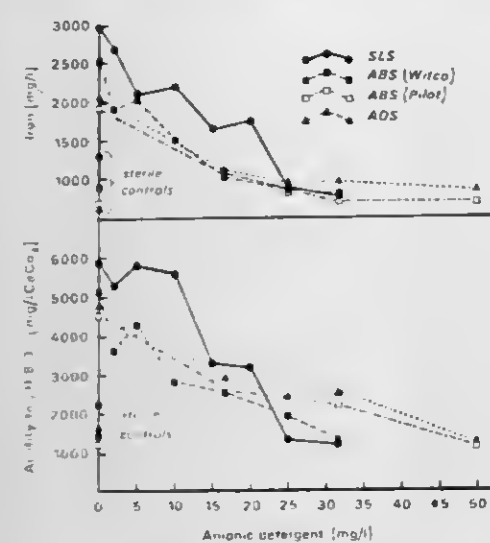
17 Claims

1. A method of reducing acid drainage in a pyritic material which is exposed to water, which method comprises:

(1) treating each acre-foot of pyritic material with at least seven pounds of a first anionic detergent which inhibits the bacterium *Thiobacillus ferrooxidans*; and

(2) adding at least 10 mg of a second anionic detergent which inhibits the bacterium *Thiobacillus ferrooxidans* per liter of said water which contacts the exposed material, said addition being effected by controlled release from a matrix containing said second anionic detergent dispersed

therein; said first and second anionic detergent being selected from the group consisting of *Thiobacillus ferrooxi-*



dans-inhibiting water soluble salts of (a) alkyl aryl sulfonic acids, (b) alkyl sulfonic acids, (c) alkenyl sulfonic acids, (d) sulfated fatty esters.

4,314,967

FLUIDIZED BED REACTOR WITH VERTICAL COOLING COILS

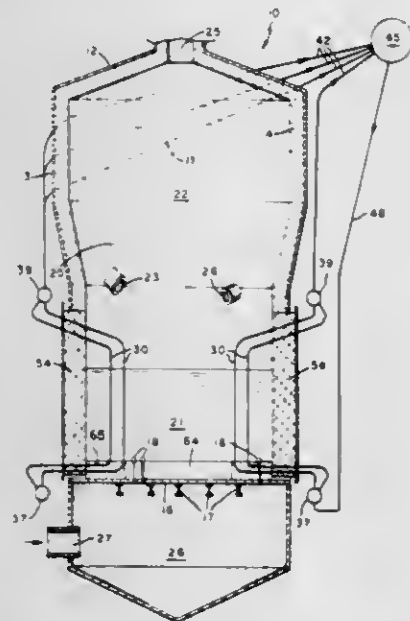
Henry S. C. Kwon, Norwalk, and Walfred W. Jukkola, Westport, both of Conn., assignors to Dorr-Oliver Incorporated, Stamford, Conn.

Filed Oct. 2, 1980, Ser. No. 193,286

Int. Cl.³ B01J 8/24; F27B 15/14; B01J 8/44

U.S. Cl. 422-49

5 Claims



1. A fluidized bed reactor comprising a reactor vessel having a reaction chamber therein, said reaction chamber including a fluidized bed zone in the lower portion thereof and a freeboard zone above said fluidized bed zone, a windbox separated from said reaction chamber by a constriction plate, said constriction plate being capable of supporting a body of particulate solids thereon in said fluidized bed zone, tuyeres mounted in said constriction plate and extending upwardly into said reaction chamber providing gas ports for injecting fluidizing gases into said reaction chamber to thereby form a fluidized bed of said particulate solids in said fluidized bed zone, at least some of said tuyeres having said gas ports spaced from said constriction plate at a distance such that a region having a substantial depth of static or quiescent particulate solids is

established between the said spaced gas ports and said constriction plate, a generally horizontal water header for heat exchange fluid external to said reactor vessel, a generally horizontal steam header for heat exchange fluid external to said reactor vessel and at a level higher than said water header, a plurality of heat exchanger coils in said reactor chamber, the arrangement of water header, steam header and heat exchanger coils affording natural circulation of water and steam, said heat exchanger coils each comprising an essentially vertical central section and upper and lower angle bend sections attached to the extremities of said vertical central section, said upper angle bend section passing through the wall of said reactor vessel and connecting the upper end of said vertical central section of said heat exchanger coil to said stream header, said lower angle bend section passing through the wall of said reactor vessel and connecting the lower end of said vertical central section of said heat exchanger coil to said water header, said vertical central section being positioned in said fluidized bed zone of said reactor chamber, said upper angle bend section being positioned in said freeboard zone of said reactor chamber, said lower angle bend section being positioned in said region of static or quiescent particulate solids on said constriction plate and a plurality of removable hatches secured in the wall of said reactor vessel and in each of which are sealingly secured a plurality of said heat exchanger coils whereby said hatches with the heat exchanger coils associated therewith can be removed from the reactor vessel for inspection and maintenance.

4,314,968

SIMULTANEOUS ANALYSIS APPARATUS

Jean Guigan, 9, rue Jean Mermoz, 75008 Paris, France

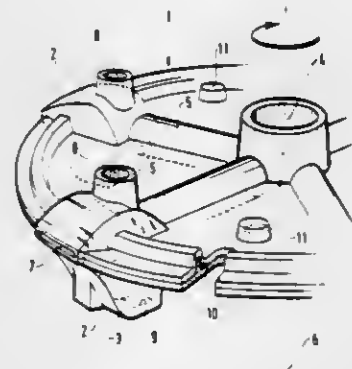
Filed Oct. 20, 1980, Ser. No. 198,323

Claims priority, application France, Oct. 26, 1979, 79 26615; Jan. 11, 1980, 80 00583; May 23, 1980, 80 11511

Int. Cl.³ G01N 33/50, 1/10, 31/00, 21/07

U.S. Cl. 422-64

15 Claims



1. Analysis apparatus comprising an analysis rotor, said rotor including firstly a plurality of peripheral cells each of which contains a solid reaction support, said solid reaction support holding successively, a quantity of first reagent such as a biological liquid which contains the substance to be analysed, and then a quantity of second reagent which contains a protein on which a biological indicator is fixed, and secondly means for conveying a washing liquid to each cell, and wherein each of said cells is provided with a peripheral orifice for removing liquid and having an upper portion provided with a reagent inlet orifice and a lower portion which accommodates said reagent.

4,314,969

SUBMERSIBLE RESPIROMETER

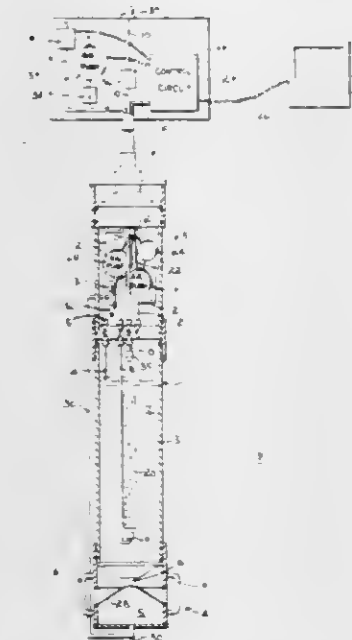
Robert M. Arthur, and Jerome J. Triatik, both of Fond du Lac, Wis., assignors to Arthur Technology, Inc., Fond du Lac, Wis.

Filed Aug. 29, 1980, Ser. No. 182,664

Int. Cl.³ C12K 1/34; G01N 7/00

U.S. Cl. 422-68

10 Claims



1. A submersible respirometer, the combination comprising: a housing suitable for submersion in a body of liquid; an aeration chamber formed within the housing and including an opening which communicates with the body of liquid in which the housing is submerged; valve means mounted to said housing and being operable to open and close said opening to enable liquid samples to flow into and out of the aeration chamber; an air circulation system for circulating air trapped within the aeration chamber above the liquid sample, said air circulation system including an air pump, an output line which connects to said air pump and extends beneath the surface of the liquid sample, and an intake line which connects to the air pump and communicates with the air space trapped within the aeration chamber above the liquid sample; an oxygen analyzer operable to generate an electrical signal indicative of the amount of oxygen contained within the air trapped within the aeration chamber; and means coupled to said aeration chamber for injecting pressurized air into it to expel the liquid sample from the aeration chamber through said opening.

4,314,970

ANALYSIS SYSTEM

Bernard Stein, Andover, Mass., and Richard A. Granoff, Chester, N.H., assignors to Instrumentation Laboratory Inc., Lexington, Mass.

Filed Aug. 27, 1980, Ser. No. 181,814

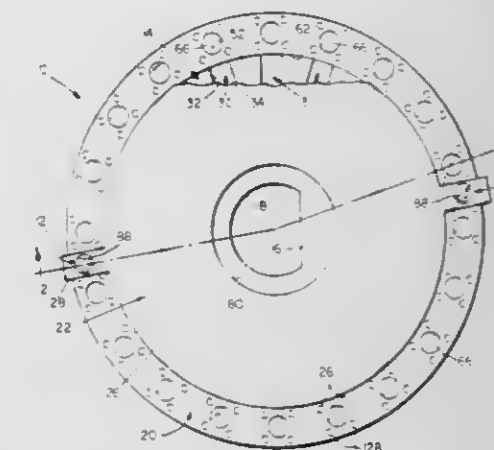
Int. Cl.³ G01N 21/07, 21/09

U.S. Cl. 422-72

17 Claims

1. A multicuvette rotor assembly for use in a clinical chemistry analyzer of the centrifugal type comprising a body member that defines a circumferential array of spaced radially extending recesses, with divider structure in each recess to define a first chamber and a second chamber radially outward from said first chamber, said body member having a series of radially extending reference surface areas extending around the periphery thereof, a circumferential array of first optical windows in the base of said body member, the upper surface of each said first optical window being parallel to said series of reference surface areas, a ring member having a circumferential array of second optical windows in said ring member and a series of mat-

ing reference surface areas, said series of mating reference surface areas corresponding to and seated in direct contact engagement with said reference surface areas of said body member such that the inner peripheral edge of said ring member is located radially outwardly of the middle of said second chambers, the lower surface of each said second optical window being parallel to said mating reference surface areas, and in alignment with said first optical windows such that each



pair of opposed aligned surfaces of corresponding first and second optical windows are parallel to one another and define an optical path of precise and stable path length, and a cover member that has sealing surfaces for engagement with the edges of the recesses of the body member and the inner peripheral edge of the ring member such that said cover member encloses and seals said recesses to retain reagent and sample material to be analyzed within said chambers.

4,314,971

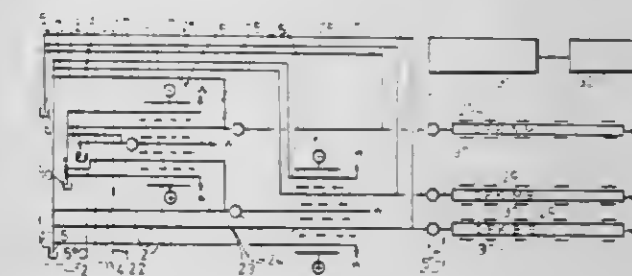
MOLECULAR SEPARATION AND ISOENZYME ANALYZERS

Alvin S. Blum, 2350 Del Mar Pl., Ft. Lauderdale, Fla. 33301
Continuation-in-part of Ser. No. 898,998, Apr. 21, 1978, Pat. No. 4,264,327, Ser. No. 968,907, Dec. 13, 1978, Pat. No. 4,254,084, and Ser. No. 972,670, Dec. 26, 1978, Pat. No. 4,259,079. This application Nov. 24, 1980, Ser. No. 209,838

Int. Cl.³ G01N 33/56, 35/08

U.S. Cl. 422-82

15 Claims



1. Apparatus for analysis of molecules in a sample fluid mixture in a flowing stream comprising: means for moving said sample fluid mixture in a flowing stream; separation means for separating certain molecules in said mixture into separate flowing streams on the basis of differential movement of said molecules by electrical force across membrane means, wherein said separate flowing streams are separated from one another by permeable or semi permeable membrane means; and measuring means disposed at at least one of said separate streams to measure concentration of particular molecules in fluid in said separate stream.

4,314,972

MULTI-STAGE HYDROGEN WATER ISOTOPIC EXCHANGE COLUMN

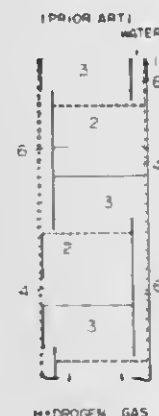
Ryohei Nakane, Sbohei Isomura, and Masami Shimizu, all of Tokyo, Japan, assignors to Rikagaku Kenkyusho, Saitama and Deryokuro Kakunenryo Kaihatsu Jigyodan, Tokyo, both of, Japan

Continuation of Ser. No. 76,945, Sep. 19, 1979, abandoned. This application Nov. 17, 1980, Ser. No. 207,466

Claims priority, application Japan, Sep. 27, 1978, 53/118815 Int. Cl.³ B01J 8/04

U.S. Cl. 422—191

4 Claims



1. A multi-stage hydrogen-water isotopic exchange column having a top and a bottom comprising means for introducing water at the top of the column, means for introducing hydrogen gas containing deuterium at the bottom of the column and further comprising, at each stage, a vapor-and-water contact shelf through which water flows at a slow rate and the descending water contacts rising humidified vapor,

a hydrophobic catalyst shelf containing a metal catalyst for expediting the isotopic exchange reaction between the water vapor and hydrogen gas, spaced from and lying under the overlying vapor-and-water contact shelf, and means for receiving the water dripping from the overlying vapor-and-water contact shelf and for guiding the water to a water channel extending through an underlying catalyst shelf and for scattering the water on the upper-surface of the vapor-and-water contact shelf of the next lower stage.

4,314,973

INSTALLATION FOR ALKALINIZING AND PASTEURIZING COCOA BEANS BEFORE THEY ARE CRUSHED

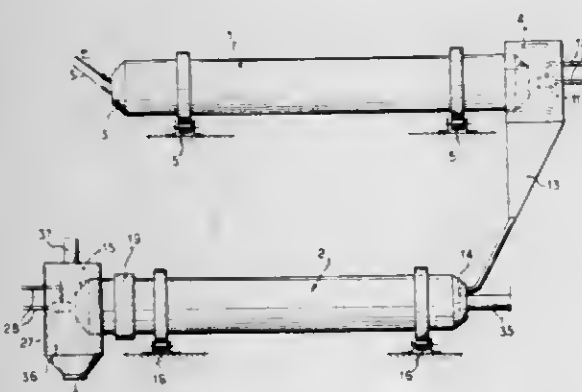
Andre J. Aspa, Hardricourt, France, assignor to Commodities Trading & Development Ltd., Lausanne, Switzerland

Filed Mar. 31, 1980, Ser. No. 135,346

Claims priority, application France, Apr. 3, 1979, 79 08356 Int. Cl.³ B01J 8/10

U.S. Cl. 422—209

9 Claims



1. Apparatus for alkalizing and pasteurizing cocoa beans before they are crushed, said apparatus comprising a first drum communicating with the atmosphere and including an inlet and an outlet, said first drum being rotatable

about its longitudinal axis so as to transport beans from said inlet to said outlet;

means provided at the inlet of the first drum for conjointly and continuously feeding the beans and an alkaline solution into the first drum;

heating means for heating the first drum so as to promote the reaction of the alkaline solution on the beans and for bringing said beans to a partially dried condition;

a second drum communicating with the atmosphere and including an inlet and outlet, said second drum being rotatable about its longitudinal axis so as to transport beans from the inlet of said second drum to the outlet of said second drum;

means for continuously transferring the beans leaving the outlet of the first drum through the inlet of the second drum into the second drum;

means for providing a stream of hot air whose input temperature is about 300° C. through said second drum in the direction of movement of said beans;

heating means for heating the second drum and cooperating with the hot air stream to bring the beans exiting the outlet of the second drum to an output temperature of about 90° C. and for lowering the humidity of said beans to below 2%; and

means for recovering the dried beans leaving the outlet of the second drum;

wherein said first and second drums each comprises a plurality of internal blades each disposed parallel to the longitudinal axis of the respective drum and regularly staggered angularly and longitudinally in relation to each other, and said first drum further includes support means for supporting each of the blades of the first drum in a spaced relationship with the internal wall of said first drum.

4,314,974

SOLVENT EXTRACTION METHOD USING STATIC MIXERS

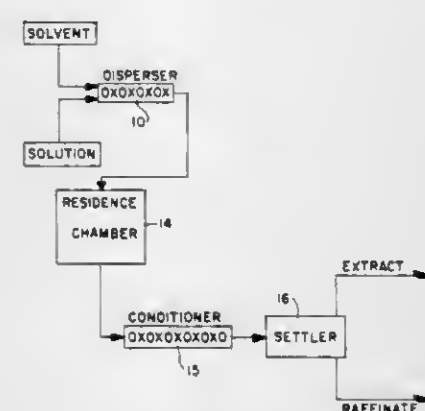
Donald R. Libby, Magnolia, and Sung J. Chen, North Andover, both of Mass., assignors to Chemineer, Inc., Dayton, Ohio

Filed Apr. 30, 1979, Ser. No. 34,805

Int. Cl.³ C01G 43/00

U.S. Cl. 423—8

6 Claims



1. A process for recovering a metal ion from aqueous solutions containing dilute solutions of such metal ion comprising the steps of:

initially mixing said aqueous solution with a solvent extraction liquid immiscible with said aqueous solution to create a dispersion of drops of aqueous solution of a size in said extraction liquid which will maximize the mass transfer which occurs between said drops of aqueous solution and said extraction liquid;

maintaining, without further mixing, said dispersion for a time sufficient for mass transfer of said metal ion from said aqueous solution to said extraction liquid to occur;

further mixing said dispersion of drops of aqueous solution in extraction liquid to establish a narrow range of drop sizes within said dispersion which will minimize both the time

necessary for separation of said drops of aqueous solution from said extraction liquid and the entrainment of said drops of aqueous solution in said extraction liquid; separating said drops of aqueous solution from said extraction liquid; and recovering said metal ion from said extraction liquid.

4,314,975

METHOD FOR PREPARING TITANIUM TANNING AGENT

David L. Motov, ulitsa Fersmana, 18, kv.19, Apatity Murmanskoi oblasti; Ljudmila P. Tjurkina, ulitsa Severnaya, 19, kv. 90, Apatity Murmanskoi oblasti; Lidia G. Gerasimova, ulitsa Gaidara, 7, kv. 69, Apatity Murmanskoi oblasti; Alexandr I. Metelkin, ulitsa Nagornaya, 46/48, korpus 20, kv. 31, Moscow; Isaak G. Shifrin, Skolkovskoe shosse, 26, kv. 24, Moscow; Nina I. Kolesnikova, 15 Parkovaya ulitsa, 23, kv. 20, Moscow; Galina G. Yakusheva, ulitsa Shkolnaya, 76, kv. 29, Vidnoe Moskovskoi oblasti; Maria M. Godneva, ulitsa Fersmana, 18, kv.19, Apatity Murmanskoi oblasti; Artur G. Babkin, ulitsa Fersmana, 18, kv. 34, Apatity Murmanskoi oblasti; Iridy I. Mikaelian, 2 Pugachevskaya ulitsa, 3, korpus 1, kv. 246, Moscow; Valentin I. Belokoskov, ulitsa Fersmana, 16, kv. 19, Apatity Murmanskoi oblasti, and Vladimir P. Plotnikov, ulitsa Zhdanova, 7, kv. 3, Sillamyae, all of U.S.S.R.

Filed Apr. 8, 1980, Ser. No. 138,364

Claims priority, application U.S.S.R., Nov. 11, 1979, 2831651; Nov. 11, 1979, 2831652

Int. Cl.³ C01C 1/242

U.S. Cl. 423—81

2 Claims

1. In a process for preparing a titanium tanning agent from a titanium-ferrous starting solution, which process comprises the steps of introducing an oxidizing agent into the starting solution, thereafter adding an ammonium sulphate and sulfuric acid containing solution to precipitate ammonium titanyl bisulphate monohydrate salt of the formula $(\text{NH}_4)_2\text{TiO}(\text{SO}_4)_2 \cdot \text{H}_2\text{O}$, separating the precipitated salt from the solution to produce a solid salt and a residual solution, and washing the separated salt with a solution of ammonium sulphate, the improvement which comprises: adding an oxidizing agent to the starting solution in an amount between 0.01 to 2.0 grams per liter, based on TiO_2 , in excess of the amount of oxidizing agent necessary to convert ferrous iron to ferric iron, said oxidizing agent comprising a sulphate solution of a peroxy-titanium complex, said complex being formed by the oxidation of a portion of said starting material.

4,314,976

PURIFICATION OF NICKEL SULFATE

Maxson L. Stewart, Bremen, Ga.; Robert R. Odle, Harvey, La., and William W. Brunson, Carrollton, Ga., assignors to Southwire Company, Carrollton, Ga.

Filed Jul. 18, 1980, Ser. No. 170,197

Int. Cl.³ C01G 53/10

U.S. Cl. 423—139

14 Claims

1. A process for purification of nickel sulfate and copper sulfate from electrolyte in copper electrorefining, comprising:

(a) providing as a starting material a predominately metallic sulfate residue crystallized from spent electrolyte from copper electrorefining, said residue being further characterized in that the predominate metallic constituent is nickel and in that copper is substantially the least electropositive metallic constituent;

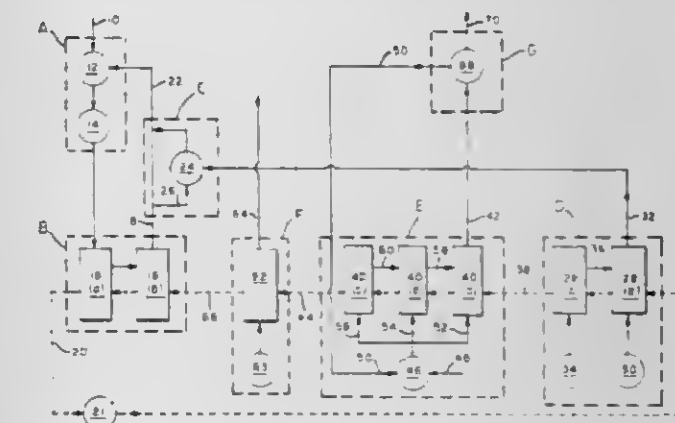
(b) leaching the starting material in an aqueous ammonia solution of concentration at least about sufficient to solubilize said nickel as polyamine sulfate; and then separating the loaded leach solution from undissolved residue; then

(c) extracting said nickel from said leach solution by contacting said leach solution with a solvent-extractant; said extractant being characterized as having pH sensitive exchange-active hydrogen ions such that with increasing basic pH of the aqueous phase said extractant is progressively loaded with increasingly electropositive ions and

with decreasing acidic pH stripping is in the reverse order; the pH of said leach solution having been adjusted via ammonia concentration sufficiently for loading of nickel; and then separating the loaded solvent-extractant from the depleted leach solution; then

(d) scrubbing said solvent-extractant with sulfuric acid to strip ions that are more electropositive than nickel ions from said extractant, the amount of said acid being adjusted such that the pH of the spent scrub solution is sufficiently acidic to approach the pH range for stripping of nickel ions; followed by separation of the spent scrubbing solution from said solvent-extractant; then

(e) stripping said nickel as sulfate by contacting said scrubbed solvent-extractant with sulfuric acid, the amount of said acid being adjusted such that the pH of the nickel-



loaded stripping solution is in the range wherein nickel-loaded sites of the extractants are regenerated; followed by separation of the nickel-loaded stripping solution from said solvent-extractant; then

(f) regenerating said depleted solvent-extractant by contacting with sulfuric acid to strip ions that are less electropositive than nickel ions from said extractant, the amount of said acid being adjusted such that the pH of the waste solution is substantially less than 1; and, after separation of the waste solution, recycling the solution, being substantially copper sulfate aqueous solution, to said copper electrorefining and recycling the regenerated solvent-extractant step (c); and then

(g) crystallizing nickel sulfate from said nickel-loaded stripping solution.

4,314,977

METHOD FOR REMOVING HYDROGEN SULFIDE AND NITRIC OXIDE FROM GASEOUS MIXTURES

Metro D. Kulik, Pittsburgh, Pa., assignor to Conoco Inc., Stamford, Conn.

Filed May 27, 1980, Ser. No. 153,354

Int. Cl.³ B01D 53/34

U.S. Cl. 423—235

10 Claims

1. A method for removing H_2S and NO from a gaseous mixture, said method comprising essentially of

(a) adjusting the amounts of H_2S and NO in said gaseous mixture to a ratio $\text{H}_2\text{S}/\text{NO}$ from about 0.5 to about 1.1

(b) admixing a free-oxygen containing gas with said mixture in an amount sufficient to convert said H_2S to elemental sulfur and SO_2 and to convert said NO to nitrogen and N_2O .

4,314,978

INCREASED PRODUCTION OF WET PROCESS PHOSPHORIC ACID BY GELATIN ADDITION

John C. Franklin, Arvada, Colo., assignor to Texasgulf Inc., Stamford, Conn.

Filed Jan. 29, 1981, Ser. No. 229,468
Int. Cl.³ C01B 25/16

U.S. Cl. 423—320

12 Claims

1. In a method for producing wet process phosphoric acid in a reaction system wherein at least one inorganic acid is reacted with a phosphate containing material for a period of time sufficient to develop filterable and washable calcium sulphate crystals, the improvement comprising:

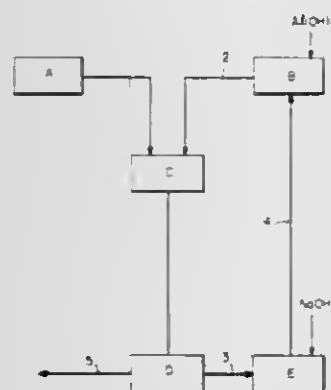
adding a relatively small amount of gelatin to said reaction system to substantially increase the filtration rate of said calcium sulphate crystals without adversely affecting the quality of said wet process phosphoric acid.

4,314,979

INDUSTRIAL PROCESS FOR CONTINUOUS PRODUCTION OF ZEOLITE AJean Deabrige, Aix en Provence, France, assignor to PCUK Produits Chimiques Ugine Kuhlmann, Courbevoie, France
Continuation of Ser. No. 922,341, Jul. 6, 1978, abandoned. This application Dec. 19, 1979, Ser. No. 105,273Claims priority, application France, Jul. 29, 1977, 77 23373
Int. Cl.³ C01B 33/28

U.S. Cl. 423—329

6 Claims



1. A process for the continuous preparation of zeolite A, suitable for use in detergents to soften calcium containing waters, having a constant homogeneity and quality wherein at least about 90 percent of the product has a granulometry within a range of 4 microns and a median diameter between about 1 and about 10 microns is characterized by:

- instantaneously and continuously mixing at an elevated temperature in a reaction zone subjected to strong suction:
 - a sodium silicate solution prepared from silica and NaOH which contains a minimal excess of NaOH and a $\text{SiO}_2/\text{Na}_2\text{O}$ molar ratio ≥ 2.8 to 1; and containing about 45 to 105 g/l of NaOH and about 120 to 350 g/l of SiO_2 ;
 - a sodium aluminate solution made from alumina and NaOH having an excess of NaOH solution, and containing about 80 to 110 g/l of NaOH and about 50 to 65 g/l of Al_2O_3 ;
- precipitating the zeolite while continuously stirring the resulting solution at an elevated temperature and while restricting the volume of the reaction zone to insure that there is a local excess of dissolved alumina in relation to dissolved silica in the solution; by:
 - introducing the sodium silicate and sodium aluminate solutions into the suction zone created by a rapidly rotating turbine; and
 - adjacently surrounding the turbine with plates constructed and arranged to restrict the volume in which the above silicate and aluminate solutions are initially mixed;
- continuously removing the precipitated zeolite A and resulting liquor to a crystallization zone;
- continuously stirring the resultant precipitate and liquor

in the crystallization zone at an elevated temperature until the desired crystallization is obtained;

- maintaining the concentration of the liquor in the crystallization zone between about 2 to 10 g/l of Al_2O_3 ;
- removing the most dense or larger particles in suspension at the bottom of the crystallization zone; and
- recovering the zeolite A containing at least about 90 percent of the particles within a range of about 4 microns and having a median diameter between about 1 and 10 microns and an ion exchange capacity greater than 85 mg. Ca^{++}/g of dry product.

4,314,980

PREPARATION OF REACTIVE BETA-DICALCIUM SILICATE

Ming-Shing Shen, Laramie, WY; James M. Chen, Rahway, N.J., and Ralph T. Yang, Amherst, N.Y., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Feb. 28, 1980, Ser. No. 125,406
Int. Cl.³ C01B 33/24

U.S. Cl. 423—331

7 Claims

1. A method of producing beta-dicalcium silicate in the form of fine particles which exhibit high reactivity to sulfur dioxide and which are suitable for use in desulfurization processes which comprises preparing a stoichiometric mixture of finely powdered calcium sulfate, silica, and a reducing agent selected from the group consisting of calcium sulfide, carbon, carbon monoxide, methane and hydrogen, adding to said mixture a carrier gas selected from the group consisting of nitrogen and carbon dioxide, and subjecting the resulting mixture to thermal treatment at approximately 900° C.

4,314,981

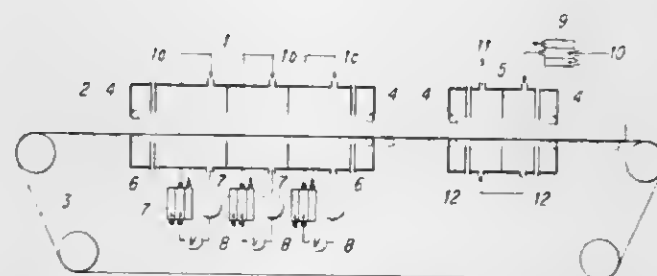
METHOD FOR PREPARING CARBON FIBERS

Tamotsu Miyamori; Hisatsugu Kaji; Iwao Kameyama, and Michio Takahashi, all of Iwaki, Japan, assignors to Jureba Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 19, 1979, Ser. No. 105,130
Claims priority, application Japan, Dec. 26, 1978, 53-163715
Int. Cl.³ C01B 31/07

U.S. Cl. 423—447.7

17 Claims



1. A method of preparing carbon fibers from a pitch, wherein the pitch is spun into pitch fibers, the pitch fibers are treated with an oxidizing gas and the treated fibers are carbonized into the carbon fibers, said method comprising:

loading said pitch fibers on a net-belt conveyor at a packing density of 30 to 300 kg/m³ at a packing height of up to 500 mm.

introducing the loaded pitch fibers on said net-belt conveyor into a infusibilizing furnace having at least two exposing chambers arranged in series of increasing temperature said exposing chambers having a temperature gradient of 5° to 100° C. per chamber in the direction of from the inlet to the outlet of said infusibilizing furnace;

exposing the introduced pitch fibers to a gaseous mixture of air and a gaseous oxidizing agent by passing said gaseous mixture between said introduced fibers at a temperature lower than the softening point of said pitch fibers by 5° to 50° C., the velocity of said passing gaseous mixture being

increased in proportion to the packing density of the pitch fibers within the velocity range of 0.1 to 1.5 Nm/sec, thereby infusibilizing said pitch fibers, introducing the thus infusibilized pitch fibers into a carbonizing furnace on the same or different net-belt conveyor, and carbonizing the introduced infusibilized pitch fibers by a flow of an inert gas heated to a temperature of 400° to 1,500° C.

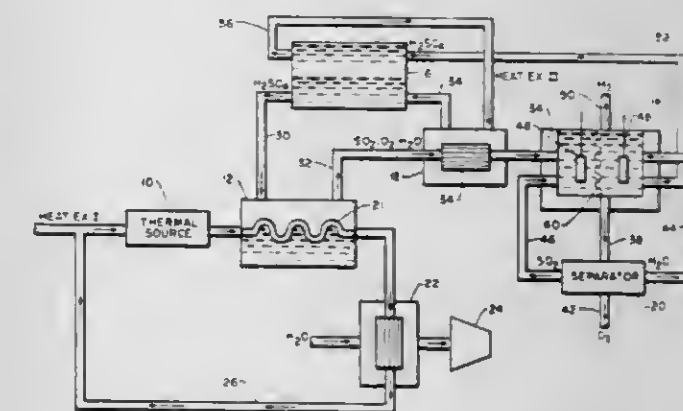
ing from said reaction zone a substantial proportion of the SO_2 produced in said reaction zone.

4,314,984

THERMOCHEMICAL GENERATION OF HYDROGEN
Robert A. Frosch, Administrator of the National Aeronautics and Space Administration, with respect to an invention of; Daniel D. Lawson, Arcadia, and Gene R. Petersen, Pasadena, both of Calif.Filed Apr. 30, 1980, Ser. No. 145,207
Int. Cl.³ C01B 13/00

U.S. Cl. 423—579

8 Claims



4,314,982

CATALYTIC DECOMPOSITION OF H_2SO_4

John H. Norman, La Jolla, and David G. Williamson, San Luis Obispo, both of Calif., assignors to General Atomic Company, San Diego, Calif.

Filed Jun. 21, 1979, Ser. No. 50,764
Int. Cl.³ C01B 17/48, 3/02, 17/52, 17/90

U.S. Cl. 423—539

11 Claims

1. A multi-stage process for the catalytic decomposition of H_2SO_4 using different catalysts in each stage which process comprises

contacting H_2SO_4 in vapor form in a first stage reactor having a temperature gradient of at least about 100° K. with a platinum group metal catalyst at a temperature in the range between about 700° K. and 970° K. while heating said vapor to increase its temperature between about 100° K. and about 270° K., which platinum group metal catalyst is supported on a substrate selected from the group consisting of titania, or a mixture of barium sulfate, with about 2–30 weight percent titania to decompose at least about 40 percent of said H_2SO_4 to SO_2 under conditions approximating equilibrium conversion throughout said first stage reactor, and

contacting said vapors from said first stage with a catalyst selected from the group consisting of copper oxide and iron oxide in a later stage reactor above about 970° K. while further raising the temperature of said vapor and decomposing said vapor under conditions approximating equilibrium conversion throughout said later stage reactor,

said residence time of exposure to said catalysts in said first and second stages totalling not more than about 7 seconds and said decomposition approximating equilibrium conversion throughout said stages and the total decomposition equaling at least about 95% of equilibrium value at the exit temperature from said second stage.

1. In a method of thermally decomposing sulfuric acid, by heating the sulfuric acid to a high thermal decomposition temperature of about 830° C., the improvement comprising: preheating the sulfuric acid before decomposition to a temperature of from 300° C. to 400° C. by directly mixing the sulfuric acid with a perfluoro (propylene oxide) liquid polymer having a degree of polymerization from about 10 to 60, said polymer being chemically stable to concentrated sulfuric acid at said temperature, having low miscibility with sulfuric acid at said temperature and having a low vapor pressure at said temperature to form a mixture.

4,314,985

RECOVERY OF MAGNESIUM AS MAGNESIUM HYDROXIDE FROM SEA WATER

Oren V. Bonney, White House Station, N.J., assignor to Amstar Corporation, New York, N.Y.

Filed Feb. 27, 1980, Ser. No. 125,253
Int. Cl.³ C01F 5/22

U.S. Cl. 423—636

8 Claims

1. A process for producing and rapidly recovering magnesium hydroxide from a magnesium ion-containing aqueous liquid such as sea water and the like, comprising:

- treating said aqueous liquid with lime to react with the magnesium ions in said aqueous liquid to form an aqueous suspension of magnesium hydroxide particles;
- adding about 3 parts per million by weight of an anionic polyelectrolyte to said suspension to bring about at least partial agglomeration of the solid magnesium hydroxide particles in said suspension and thereby form a slurry thereof;
- introducing the resulting slurry as influent feed into a solids settling zone of a separation vessel, at a rate of about 4 gallons per minute per square foot of cross-sectional area of said settling zone, said influent feed being introduced into said settling zone beneath the upper boundary thereof, said settling zone containing a previously formed slurry having a higher concentration of agglomerated solid magnesium hydroxide therein than in said influent feed slurry;
- deflecting the path of said influent feed introduced within said settling zone horizontally and radially from the location of influent feed introduction to increase contact between said magnesium hydroxide particles in said influent feed and said agglomerated magnesium hy-

4,314,983

CATALYST AND PROCESS FOR OXIDIZING HYDROGEN SULFIDE

Robert H. Hass, Fullerton, and John W. Ward, Yorba Linda, both of Calif., assignors to Union Oil Company of California, Los Angeles, Calif.

Filed Apr. 4, 1979, Ser. No. 27,033
Int. Cl.³ C01B 17/52, 17/02

U.S. Cl. 423—542

64 Claims

1. A process for oxidizing H_2S in the gas phase comprising (1) contacting a gas comprising H_2S and oxygen in a reaction zone with a solid catalyst whose essential active catalytic components comprise at least 5 wt. % vanadium, calculated as V_2O_5 , and at least about 5 wt. % bismuth, calculated as Bi_2O_3 , at contacting temperatures maintained in said reaction zone between about 250° and about 600° F. and at contacting pressures maintained between about 5 and 500 psia, with water vapor being present in said reaction zone at a partial pressure of more than about 1.0 psia, said contacting in said reaction zone being such that a substantial proportion of said H_2S reacts with said oxygen to produce SO_2 , and said catalyst being more resistant to deactivation for the conversion of H_2S to SO_2 under the conditions maintained in said reaction zone than a comparable vanadium catalyst free of bismuth, and (2) remov-

- dioxide in said settling zone to bring about additional agglomeration of the magnesium hydroxide particles introduced into said settling zone with said influent feed;
- (e) allowing magnesium hydroxide agglomerates to settle to the bottom of said separation vessel with no additional agitation of the settling zone, save that provided hydraulically by the introduction of the influent feed;
- (f) continuously removing a dense liquid-solids slurry fraction from said settling zone at a rate which maintains the upper boundary of said settling zone substantially stationary and in direct contact with an overlying body of clarified aqueous liquid for overflow; and
- (g) separating the magnesium hydroxide agglomerates from the dense liquid solid slurry fraction removed from said separation vessel.

4,314,986

METHOD AND CONTAINER FOR REDUCING PERTECHNETATE

Clinton F. Ruddock, Amersham, England, assignor to The Radiochemical Centre Limited, England

Filed Feb. 25, 1980, Ser. No. 124,237

Claims priority, application United Kingdom, Feb. 27, 1979, 06883/79

Int. Cl.³ A61K 49/00, 43/00

U.S. Cl. 424—1

8 Claims

1. A method of reducing pertechnetate TcO_4^- , which method consists essentially of:

- (a) providing a vessel containing under sterile conditions tin or a tin-containing alloy as a reducing agent for the pertechnetate and a soluble salt of copper as an activator for the tin metal reducing agent;
- (b) aseptically introducing into the vessel an aliquot of a solution of pertechnetate;
- (c) and aseptically withdrawing from the vessel at least part of said aliquot comprising the reduced technetium.

4,314,987

METHOD FOR DIAGNOSING RHEUMATOLOGICAL DISEASES

Robert I. Morris; Allan L. Metzger, and Arnold S. Weiss, all of Los Angeles, Calif., assignors to Rheumatology Diagnostics Laboratory, Los Angeles, Calif.

Filed Apr. 4, 1979, Ser. No. 27,112

Int. Cl.³ G01N 33/48

U.S. Cl. 424—1

8 Claims

1. A process for differential diagnosis of rheumatological diseases comprising:

- drawing a blood specimen;
- separating the serum to be tested from the blood specimen;
- reacting the serum with an antigen to produce antinuclear antibodies;
- labelling the antinuclear antibodies with a fluorescent material;
- determining whether the antinuclear antibody labelling for a positive immunofluorescent pattern has produced a homogeneous pattern, rim pattern, speckled pattern or nucleolar pattern;
- testing the same serum separated from the blood specimen in a continuous sequence for Systemic Lupus Erythematosus or Mixed Connective Tissue Disease if the pattern is a rim pattern or speckled pattern, respectively.

4,314,988

FOLIC ACID DERIVATIVES AND PROCESS FOR PREPARATION

Peter R. Farina, North Salem, and James A. Grattan, Croton-on-Hudson, both of N.Y., assignors to Baker Instruments Corp., Bethlelem, Pa.

Filed Oct. 31, 1979, Ser. No. 90,063

Int. Cl.³ G01N 33/56, 33/60; G01T 1/00

U.S. Cl. 424—1

4 Claims

1. In a competitive protein binding assay of folic acid, its

metabolites, or derivatives which comprises contacting a sample containing folic acid, its metabolites, or derivatives with a binder for folic acid, its metabolites, or derivatives and a radiolabeled acceptor composition capable of binding in competition with folic acid, its metabolites, or derivatives, incubating for a suitable time, separating and removing the unbound portions of the folic acid, its metabolites, or derivatives and counting the radioactivity of at least one of the said bound and unbound portions, said radiolabeled acceptor composition consisting of three linked components: a substituted pteridine moiety, a p-aminobenzoyl moiety, and a radiolabel acceptor moiety, the improvement in said assay which consists of using as said radiolabel acceptor moiety an amino acid moiety or a des-carboxyamino acid moiety containing radioiodinated aromatic or heterocyclic ring attached to the p-aminobenzoyl moiety via an amide bond through a linear chain having no more than five atoms.

4,314,989

METHIONINE SULFOXIDE AMELIORATION OF ACETAMINOPHEN TOXICITY

Gerald M. Rosen, 403 Knob Ct., Chapel Hill, N.C. 27514

Filed May 7, 1980, Ser. No. 147,451

Int. Cl.³ A61K 31/195, 31/165

U.S. Cl. 424—10

10 Claims

1. A method of reducing the chronic or acute toxic effects of acetaminophen in humans which comprises administering to a human ingesting a toxic amount of acetaminophen, a nontoxic ameliorative amount of methionine sulfoxide, said administration of methionine sulfoxide being proximate in time to said ingestion of acetaminophen.

2. A pharmaceutical composition comprising, in unit dosage form, an analgesic or antipyretic effective amount of acetaminophen in admixture with a non-toxic amount of methionine sulfoxide which is effective to reduce the incidence of side effects associated with acetaminophen therapy.

4,314,990

TOOTHPASTE COMPOSITIONS

William D. Deony, Jr., and Thomas A. Wetzel, both of Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Oct. 15, 1979, Ser. No. 84,485

Int. Cl.³ A61K 7/18

U.S. Cl. 424—52

7 Claims

1. A toothpaste composition comprising:

(A) from about 6% to 45% of a silica dental abrasive;

(B) from about 30% to 70% of a humectant;

(C) from about 0.01% to 3% of a fluoride ion source; and

(D) from about 10% to 45% of water; said composition additionally containing an amount of a phosphate buffering agent providing from about 0.1% to 1% PO_4^{3-} , the amount being sufficient to maintain the pH of a 3:1 water/composition weight ratio slurry in the range of about 6.8 to 8.0.

4,314,991

SULFONATED POLYAMINO ACIDS AS DENTAL PLAQUE BARRIERS

Tibor Sipos, Lebanon, N.J., assignor to Johnson & Johnson Products Inc., New Brunswick, N.J.

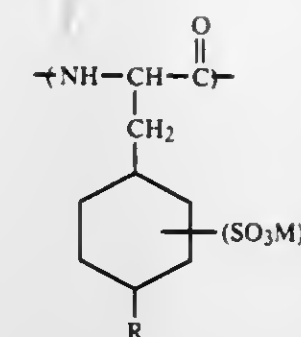
Filed Jul. 25, 1980, Ser. No. 172,353

Int. Cl.³ A61K 7/16; C07C 103/52

U.S. Cl. 424—56

5 Claims

1. A polyamino acid sulfonate having repeating units selected from the group consisting of the repeating units having structure (A),



wherein R is selected from the group consisting of hydrogen and hydroxyl; subscript c, representing the average number of sulfonate groups per phenyl ring, has a value in the range of from about 0.5 to about 1.0; and M is an ion selected from the group consisting of lithium, sodium, potassium, calcium, magnesium, zinc, aluminum, hydrogen and the ammonium salts derived from ammonia and the pharmaceutically acceptable organic amines.

4,314,992

PROCESS FOR PRODUCING FASCIOLIASIS VACCINE

Peter K. Bitakaramire, Nairobi, Kenya

Filed Nov. 6, 1979, Ser. No. 92,259

Claims priority, application United Kingdom, Nov. 8, 1978, 43695/78; Feb. 5, 1979, 03989/79

Int. Cl.³ A61K 41/00, 35/56

U.S. Cl. 424—88

3 Claims

1. A process for producing a fascioliasis vaccine which comprises breeding snails of the species *Lymnaea natalensis*, infecting said snails with *Fasciola gigantica* miracidia, growing the infected snails until they shed *Fasciola gigantica* cercariae, which thereupon encyst to become metacercariae, collecting said metacercariae, subjecting said metacercariae to a uniform gamma irradiation dosage of from 2500 to 3500 rads from a radioactive cesium-137 source to destroy the pathogenic character of flukes excysting from said metacercariae in the gut of an animal to which said metacercariae have been administered but without substantially altering the immunogenic character of said metacercariae, and collecting said irradiated metacercariae to constitute the effective ingredient of said vaccine.

4,314,993

IMMUNOGENIC *E. COLI* ST ENTEROTOXIN DERIVATIVES AND COMPOSITIONS CONTAINING THEM

Frans V. Wijnendaele, Ottenburg, Belgium, assignor to Smithkline-RIT, Belgium

Filed Apr. 4, 1980, Ser. No. 137,326

Int. Cl.³ A61K 39/108, 39/02; C07G 7/00

U.S. Cl. 424—92

2 Claims

1. A *E. coli* ST enterotoxin derivative which consists in *E. coli* enterotoxin crosslinked with a dialdehyde, a di-ketone, a carbodiimide, an isocyanate, an epihalohydrin or a difluoride.

2. A composition for immunizing humans or animals against diarrheal disease due to *E. coli* enterotoxin infection which comprises an *E. coli* ST enterotoxin derivative of claim 1, a pharmaceutical or veterinary carrier for intramuscular, subcutaneous or oral administration thereof and a stabilizer therefor.

(A)

4,314,994

PROCESS FOR OBTAINING A PLASMINOGEN ACTIVATOR

Lucien Dussourd d'Hinterland, and Gerard Normier, both of Castres, France, assignors to Pierre Fabre S.A., Paris, France

Filed Jul. 24, 1980, Ser. No. 172,029

Claims priority, application France, Jul. 27, 1979, 79 19432

Int. Cl.³ A61K 35/12, 35/14

U.S. Cl. 424—95

12 Claims

1. A process for separating a tissual plasminogen activator, which comprises at least the following steps:

- (i) selectively absorbing said activator on a support with specific affinity comprising soluble fragments of fibrin covalently bonded to an insoluble matrix; and
- (ii) eluting the activator from the fibrin bearing the adsorbed activator.

2. In a process for the preparation or separation of a plasminogen activator wherein an extract powder of animal organs are treated in several purifying steps to give a precipitate containing the desired plasminogen activator, the improvement which comprises the selective adsorption of the plasminogen activator through the addition of soluble fragments of fibrin fixed by covalence on an insoluble rigid matrix and the elution of the activator from the fibrin support.

4,314,995

PHARMACEUTICAL LACTOBACILLUS PREPARATIONS

Kosel Hata, Osaka; Tadayo Hata, Tondabayashi, and Toshiyuki Maruoka, Toyonaka, all of Japan, assignors to Seikenkai, Osaka, Japan

Continuation of Ser. No. 964,006, Nov. 27, 1978, abandoned, which is a continuation of Ser. No. 772,333, Feb. 25, 1977, abandoned. This application Oct. 16, 1979, Ser. No. 85,349

Claims priority, application Japan, Feb. 23, 1976, 51-19226

Int. Cl.³ A61K 39/02

U.S. Cl. 424—93

43 Claims

1. A process for treating a patient having infection or infectious disease which comprises administering locally to said patient, in an amount effective to treat said infection or infectious disease, at least one microorganism strain which is similar to conventional *Lactobacillus* strains in its morphological properties, but different from known strains of *Lactobacillus* in its nutritional requirements, said strain of microorganism being able to grow in or the growth of which is promoted by a culture medium comprising (1) a low nutrition culture medium wherein conventional *Lactobacillus* is unable to grow; and (2) at least one substance selected from the group consisting of (a) Na_2S , (b) NH_3 , (c) lower fatty acids and (d) mixtures thereof, said lower fatty acids not promoting the growth of conventional *Lactobacillus* when added to said low nutrition culture medium, said at least one strain being selected from the group consisting of microorganism FRI strain No. 1946, microorganism FRI strain No. 2779, microorganism FRI strain No. 2780, microorganism FRI strain No. 2781 and microorganism FRI strain No. 2782.

4,314,996

OXYGEN SENSOR

Satoshi Sekido, Yawata, and Kozo Ariga, Takatsuki, both of Japan, assignors to Matsushita Electric Industrial Company, Limited, Osaka, Japan

Filed Apr. 1, 1980, Ser. No. 136,404

Claims priority, application Japan, Apr. 4, 1979, 54-40566; Jun. 11, 1979, 54-73402; Aug. 24, 1979, 54-108287; Aug. 27, 1979, 54-108967; Sep. 25, 1979, 54-122988

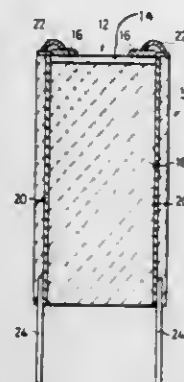
Int. Cl.³ G01N 27/12

U.S. Cl. 422—98

11 Claims

1. An oxygen sensor element of the resistance type comprising a substrate made of a ceramic and a pair of electrodes electrically connected to said substrate and spaced apart from each other, said ceramic comprising: a powder of a compound

oxide of the perovskite type having the formula ABO_3 in which A represents an element of a lanthanum family, an alkaline earth metal or a mixture thereof and B represents a transition metal, and a glass material which has a melting point equal to or higher than the temperature of calcination of the ceramic, and containing about 1 to 10 wt% of an oxide of the transition metal used, the glass material being contained in an



amount of about 20 to 30 parts by weight per 100 parts of the compound oxide; whereby said oxygen sensor element varies in resistance abruptly in the vicinity of a stoichiometric point of reducing and oxidizing gases when said oxygen sensor element is placed in an atmosphere at elevated temperature and is normally stabilized in resistance below the elevated temperature conditions, whereby a concentration of the oxidizing gas is stably detectable.

4,314,997

PURIFICATION OF PLASMA PROTEIN PRODUCTS
Edward Shanbrom, 2252 Liane La., Santa Ana, Calif. 92705
Filed Oct. 6, 1980, Ser. No. 194,264
Int. Cl.³ A61K 35/14, 37/00

U.S. Cl. 424—101

10 Claims

1. The method of reducing pyrogenicity, hepatitis infectivity and clotting activation of a plasma protein product comprising treatment of said product by prolonged contact with a solution or suspension of from about 0.25% to about 10% by weight of a non-denaturing amphiphile, followed by addition to the treatment mixture of a plasma protein precipitant to precipitate said plasma protein product and then separating said precipitate from the supernatant.

4,314,998

6-DEOXYGLUCOSAMINE-PEPTIDE DERIVATIVES, THEIR PRODUCTION AND USE
Yuichi Yamamura, Takarazuka; Akira Hasegawa, Gifu; Ichiro Azuma, Sapporo, and Shigeru Kobayashi, Osaka, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan
Filed Feb. 22, 1980, Ser. No. 123,812

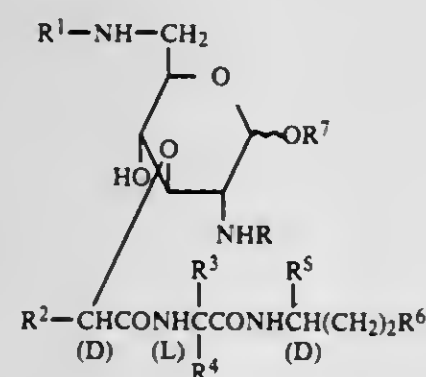
Claims priority, application Japan, Feb. 28, 1979, 54-23689; Jan. 8, 1980, 55-1201

Int. Cl.³ A61K 37/00, 37/02; C07C 103/52

U.S. Cl. 424—177

13 Claims

1. A compound of the formula:

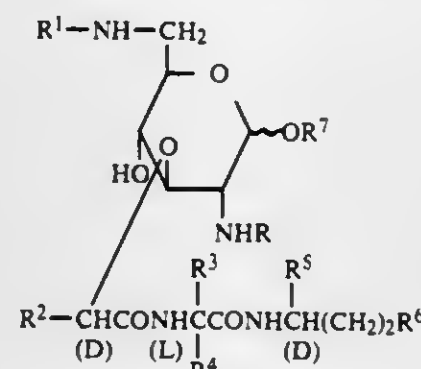


wherein

R is hydrogen or an organic acid residue having an acyclic group of up to C_{80} or lower alkoxy carbonyl;
 R^1 is hydrogen or acyl having an acyclic group of up to C_{80} ;
 R^2 is hydrogen or C_{1-6} alkyl;
 R^3 and R^4 are each hydrogen or C_{1-6} alkyl which may be substituted with hydroxyl;
 R^5 is $CONH_2$, $COOH$ or $COO-(C_{1-3}alkyl)$;
 R^6 is $COOH$ or $COO-(C_{1-3}alkyl)$;
 R^7 is hydrogen or C_{1-2} alkyl substituted with phenyl; and
(D) and (L) each indicate configurations if their respective carbon atoms are asymmetric

or a salt thereof.

13. A method for stimulating the immunological function of a warm-blooded animal which comprises administering to said animal an effective amount of a compound of the formula:



wherein

R is hydrogen, an organic acid residue having an acyclic group of up to C_{80} or lower alkoxy carbonyl;
 R^1 is hydrogen or acyl having an acyclic group of up to C_{80} ;
 R^2 is hydrogen or C_{1-6} alkyl;
 R^3 and R^4 are each hydrogen or C_{1-6} alkyl which may be substituted with hydroxyl;
 R^5 is $CONH_2$, $COOH$ or $COO-(C_{1-3}alkyl)$;
 R^6 is $COOH$ or $COO-(C_{1-3}alkyl)$;
 R^7 is hydrogen or C_{1-2} alkyl substituted with phenyl; and
(D) and (L) each indicate configurations if their respective carbon atoms are asymmetric

or a salt thereof.

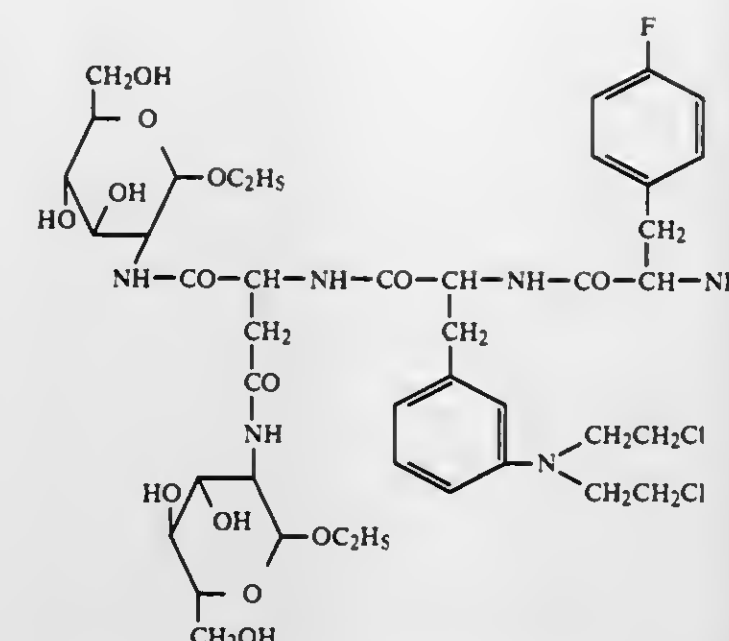
4,314,999

N-ACYL DERIVATIVES OF GLUCOSAMINE HAVING ANTITUMOR CHEMOTHERAPEUTIC ACTIVITY
Augusto De Barbieri, Milan, Italy, assignor to Proter S.p.A., Milan, Italy
Continuation-in-part of Ser. No. 929,237, Jul. 31, 1978, Pat. No. 4,216,208. This application Jul. 30, 1980, Ser. No. 173,621
Int. Cl.³ A61K 37/02; C07C 103/52

U.S. Cl. 424—177

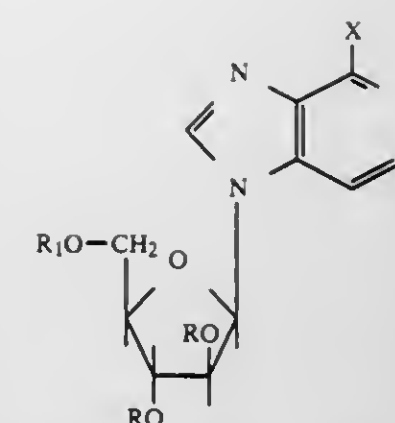
8 Claims

1. An N-acyl derivative of D-glucosamine selected from the group consisting of a compound of the formula:

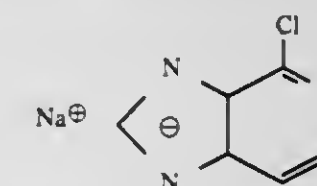


or a salt thereof with an organic or inorganic acid physiologically tolerated.

4. A pharmaceutical composition which is effective in controlling transplanted neoplasms in animals comprising an N-acyl derivative as claimed in any one of claims 1, 2, or 3 as an active ingredient in a pharmaceutically effective amount in a pharmaceutical carrier.



wherein X is NH_2 , OH or SH; R is hydrogen or acyl containing 2 or 3 carbon atoms; and R_1 is hydrogen, acyl containing 2 or 3 carbon atoms or phosphate which comprises β -D-arabinofuranosylating 4-chloro-1H-imidazo[4,5-c]pyridine with 2,3,5-tri-O-benzyl- α -D-arabinofuranosyl chloride; treating the resulting blocked nucleoside sequentially with hydrazine, Raney nickel and sodium in liquid ammonia to obtain 1- β -D-arabinofuranosyl-1H-imidazo[4,5-c]pyridin-4-amine and acylating, phosphorylating, treating with sodium nitrate then phosphorus pentasulfide to obtain the desired compounds wherein the improvement comprises treating 4-chloro-1H-imidazo[4,5-c]pyridine with sodium hydride in a suitable solvent to form the anion having the formula



and β -D-arabinofuranosylating said anion with 2,3,5-tri-O-benzyl- α -D-arabinofuranosyl chloride.

23. An antiviral composition comprising an effective amount of the compounds of claim 1 and a pharmaceutically acceptable carrier.

25. A method of treating Herpes simplex viral infection in a host by the administration of an effective amount of the compound according to claim 1.

4,315,000

β -D-ARABINOFURANOSYLIMIDAZO(4,5-c)PYRIDINE COMPOUNDS AND METHODS FOR THEIR PRODUCTION

P. Dan Cook, Ann Arbor, Mich., assignor to Warner-Lambert Company, Morris Plains, N.J.

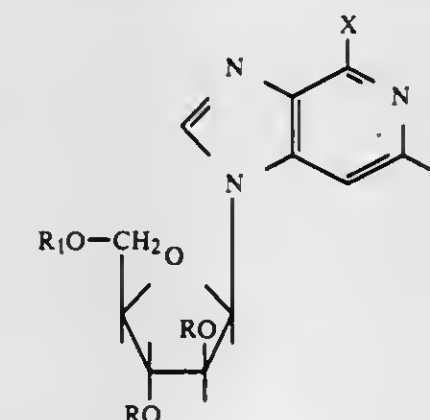
Filed Jul. 7, 1980, Ser. No. 166,867

Int. Cl.³ A61K 31/70; C07H 19/06, 19/08, 19/10

U.S. Cl. 424—180

26 Claims

1. The compound having the structural formula:



and the pharmaceutically acceptable salts thereof wherein when Y is hydrogen or NH_2 , X is NH_2 , OH or SH; R is hydrogen or acyl containing 2 or 3 carbon atoms; and R_1 is hydrogen, acyl containing 2 or 3 carbon atoms or phosphate.

18. An improved process for producing a compound of the formula

4,315,001

2-DEOXY GLUCOSE AS AN ANTIVIRAL AGENT AGAINST HERPES SIMPLEX

Herbert A. Blough, 4119 Kottler Dr., Lafayette Hill, Pa. 19444
Filed Aug. 17, 1979, Ser. No. 67,504

Int. Cl.³ C07H 31/70

U.S. Cl. 424—180

7 Claims

1. A method for treating herpes simplex virus infections in a human patient which comprises treating said patient with a composition comprising an amount of 2-Deoxy-D-Glucose which is effective against ocular herpes, labial herpes or genital herpes, in a pharmaceutically acceptable carrier.

4,315,002

SOLID PHARMACEUTICAL OR DIAGNOSTIC AGENT CONTAINING DEXTRAN AND ITS PREPARATION

Robert Maurer, Wattenheim, Fed. Rep. of Germany, assignor to BASF Aktiengesellschaft, Fed. Rep. of Germany
Filed May 30, 1980, Ser. No. 154,896

Claims priority, application Fed. Rep. of Germany, Jun. 21, 1979, 2925009

Int. Cl.³ A61K 31/71, 37/48; C12N 9/00

U.S. Cl. 424—181

7 Claims

1. A process for the preparation of a solid composition containing a pharmaceutical or diagnostic agent which comprises: dissolving the pharmaceutical or diagnostic agent and

dextran in water, placing the solution in a mold, and thereafter lyophilizing the solution to form a solid abrasion-resistant tablet of said agent and dextran.

4,315,003

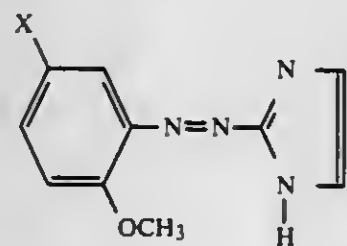
COMPOSITIONS CONTAINING AZO COMPOUNDS AND USE THEREOF FOR THERAPEUTIC TREATMENT
Ei Mochida, Tokyo; Yasuo Suzuki, Kawaguchi; Haruo Onishi, Funabashi, and Hiroshi Kosuzume, Yokohama, all of Japan, assignors to Mochida Seiyaku Kabushiki Kaisha, Japan
Filed Jul. 29, 1980, Ser. No. 173,358

Claims priority, application Japan, Jul. 30, 1979, 54-97059
Int. Cl.³ A61K 31/655

U.S. Cl. 424-226

6 Claims

1. A method of treating edema comprising administering to a patient suffering therefrom a fluid reducing effective amount of a compound of the formula



wherein X is hydrogen or halogen, or a pharmaceutically acceptable salt thereof.

4,315,004

FUSIDIC ACID DERIVATIVES

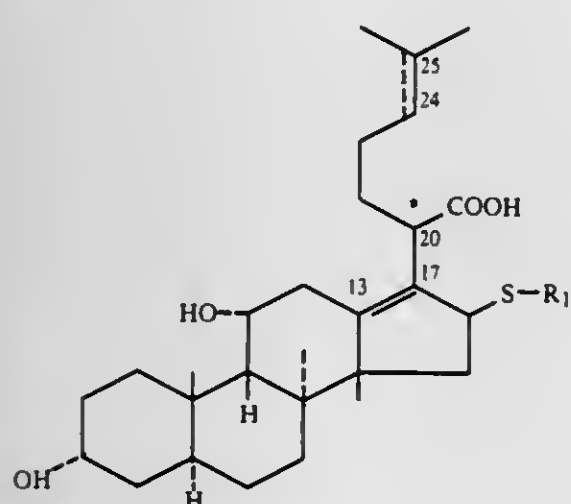
Welf von Daehne, Rungsted Kyst, and Poul R. Rasmussen, Frederikssund, both of Fed. Rep. of Germany, assignors to Leo Pharmaceutical products Ltd. A/S, Ballerup, Denmark
Continuation-in-part of Ser. No. 906,664, May 16, 1978, which is a continuation of Ser. No. 744,978, Nov. 24, 1976, Pat. No. 4,100,276. This application May 31, 1979, Ser. No. 44,163
Claims priority, application United Kingdom, Dec. 3, 1975, 49714/75; Apr. 20, 1976, 16015/76

Int. Cl.³ A01N 45/00; A61K 31/56; C07J 9/00

U.S. Cl. 424-238

5 Claims

1. A method for treating arthritis which comprises administering to a subject in need of such treatment an effective amount of a fusidic acid derivative selected from compounds of the formula I:



in which R₁ stands for straight or branched alkyl or alkenyl with from 2 to 6 carbon atoms, for phenyl-lower alkyl or for furyl-lower alkyl; or pharmaceutically acceptable, non-toxic salts and easily hydrolysable esters thereof, and pharmaceutically acceptable, non-toxic salts of such esters.

4,315,005

CEPHALOSPORIN ANTIBIOTICS

Barry E. Ayres, Ickenham, and Niall G. Weir, Wembley, both of England, assignors to Glaxo Group Limited, London, England
Filed Mar. 21, 1980, Ser. No. 132,644

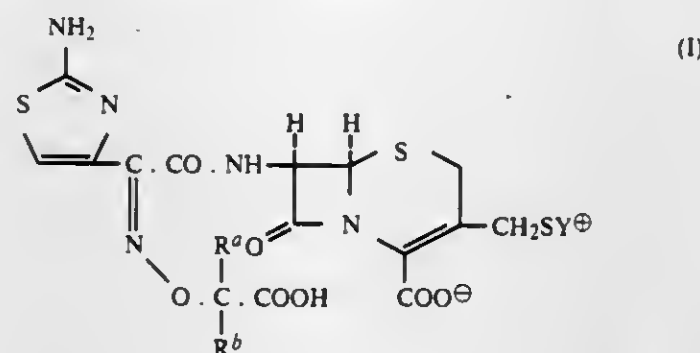
Claims priority, application United Kingdom, Mar. 22, 1979, 10088/79; Sep. 24, 1979, 32982/79

Int. Cl.³ A61K 31/545; C07D 501/56

U.S. Cl. 424-246

9 Claims

1. A cephalosporin antibiotic selected from the group consisting of compounds of the formula



(wherein R^a and R^b, which may be the same or different, each represents a C₁₋₂ alkyl group, or together with the carbon atom to which they are attached form a C₃₋₆ cycloalkylidene group and Y⁺ represents an N-carbamoylmethylpyridinium group) and non-toxic salts and non-toxic metabolically labile esters thereof.

9. A method of combating a bacterial infection in a warm blooded animal comprising administering to said animal an antibacterially effective amount of at least one cephalosporin antibiotic as claimed in claim 1.

4,315,006

BENZOXOCIN DERIVATIVES HAVING ANXIOLYTIC AND ANTI-CONVULSANT ACTIVITIES

Richard Storer, Wembley, England, assignor to Glaxo Group Limited, London, England

Filed Aug. 8, 1980, Ser. No. 176,537

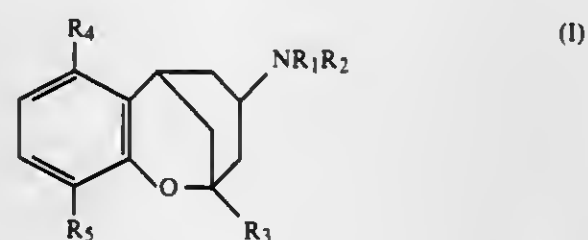
Claims priority, application United Kingdom, Aug. 9, 1979, 27800/79; May 1, 1980, 14559/80

Int. Cl.³ C07D 311/78; A61K 31/35; C07D 405/04

U.S. Cl. 424-250

9 Claims

1. A compound of general formula (I):



wherein

R₁ represents a hydrogen atom or C₁₋₄ alkyl or C₂₋₄ alkenyl group, or the group COANH₂, CSANH₂, or COANH-COCH₂NH₂ in which A is methylene optionally substituted by a C₁₋₃ alkyl group; and

R₂ represents a hydrogen atom or a C₁₋₄ alkyl group; or NR₁R₂ forms a piperidino, piperazino or N-methylpiperazino group;

R₃ represents a C₁₋₄ alkyl group or a benzyl group;

R₄ represents a hydrogen or halogen atom; and

R₅ represents a hydrogen atom or a C₁₋₄ alkyl or C₁₋₄ alkoxy group, with the proviso that one of R₄ and R₅ is a hydrogen atom

and physiologically acceptable salts thereof.

9. A method for the treatment of a patient suffering from anxiety and/or convulsions which comprises administering to

the patient an anxiolytic or anti-convulsant effective amount of a compound according to claim 1.

4,315,007

4-AMINO-6,7-DIMETHOXYQUINAZOL-2-YL ALKYLENEDIAMINES

Philippe M. Manoury, Le Plessis Robinson, France, assignor to Synthelabo, Paris, France

Continuation-in-part of Ser. No. 8,931, Feb. 2, 1979, abandoned.

This application Dec. 10, 1979, Ser. No. 99,622

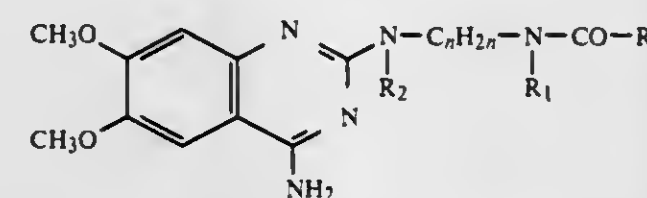
Claims priority, application France, Feb. 6, 1978, 78 03175; Dec. 29, 1978, 78 36819

Int. Cl.³ A61K 31/505; C07D 239/95

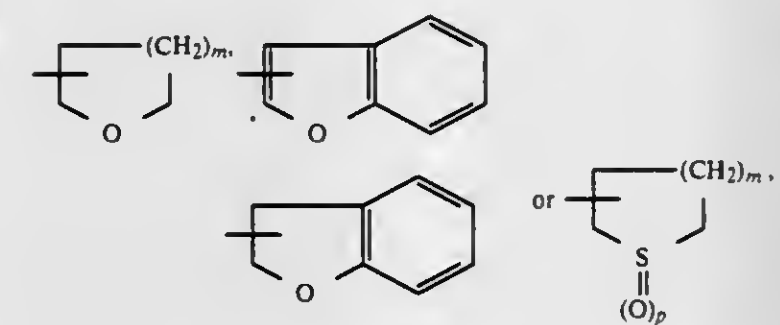
U.S. Cl. 424-251

11 Claims

1. A compound of the formula



wherein each or R₁ and R₂ is independently hydrogen; C₁₋₄ alkyl or benzyl; n is 2, 3, or 4; and R is C₃₋₆ cycloalkyl.



wherein m is 0, 1 or 2; and p is 0, 1 or 2, or a pharmaceutically acceptable salt thereof.

10. A pharmaceutical composition comprising an antihypertensively effective amount of at least one compound according to claim 1, 2, 3, 4 or 9 together with a pharmaceutically acceptable carrier or diluent.

4,315,008

COMBATING PESTS WITH O-ETHYL-S-N-PROPYL-O-(1-SUBSTITUTED-PYRAZOL-4-YL)-(THIONO)-THIOLPHOSPHORIC ACID ESTERS

Fritz Maurer, Wuppertal; Ingeborg Hammann, Cologne, and Bernhard Homeyer, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Nov. 19, 1979, Ser. No. 95,725

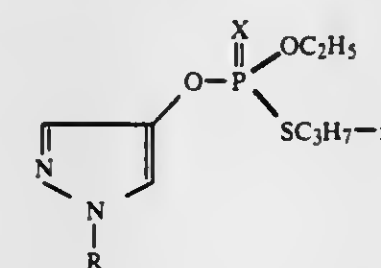
Claims priority, application Fed. Rep. of Germany, Dec. 16, 1978, 2854389

Int. Cl.³ A01N 57/16; C07F 9/65

U.S. Cl. 424-200

9 Claims

1. An O-ethyl-S-n-propyl-O-(1-substituted-pyrazol-4-yl)-(thiono)-thiophosphoric acid ester of the formula



wherein

R is alkyl with 1 to 5 carbon atoms, cycloalkyl with 3 to 8 carbon atoms or phenyl, and

X is oxygen or sulphur.

8. A method of combating arthropods or nematodes which comprises applying to the arthropods or nematodes, or to a habitat thereof, an arthropodically or nematodically effective amount of a compound according to claim 1.

4,315,009

ANTISECRETORY GUANIDINE DERIVATIVES AND PHARMACEUTICAL COMPOSITIONS CONTAINING THEM

Derrick F. Jones, Macclesfield, and Keith Oldham, Cheadle, both of England, assignors to Imperial Chemical Industries Limited, London, England

Filed Jan. 18, 1979, Ser. No. 4,531

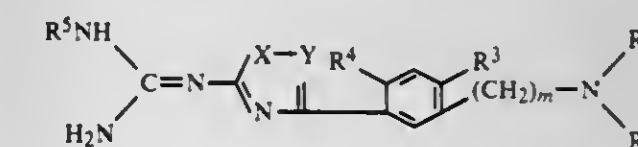
Claims priority, application United Kingdom, Jan. 18, 1978, 1992/78

Int. Cl.³ C07D 277/20

U.S. Cl. 424-248.4

11 Claims

1. A guanidine derivative of the formula:



in which

X is sulphur;

Y is nitrogen, CH or CCH₃;

m is 0 or 1;

R¹ is hydrogen and R² is alkanoyl of 1 to 6 carbons or 4,5-dihydro-4-exothiazol-2-yl-A-B in which A is 3,4-dioxocyclobuten-1,2-diyl or C=Z in which Z is oxygen, sulphur, NCN, NNO₂, CHNO₂, NCONH₂, C(CN)₂, NCOR⁶, NCO₂R⁶, NSO₂R⁶ or NR⁷ in which R⁶ is alkyl of 1 to 6 carbons and R⁷ is hydrogen or alkyl of 1 to 6 carbons and B is alkyl, alkoxy or alkylthio of 1 to 6 carbons or NR⁸R⁹ in which R⁸ and R⁹, which may be the same or different, are hydrogen, alkyl of 1 to 10 carbons, alkenyl or alkynyl of 3 to 10 carbons in which the double or triple bond is separated from the nitrogen of NR⁸R⁹ by at least one carbon, (primary hydroxy)alkyl of 2 to 6 carbons, alkoxy-alkyl of 3 to 10 carbons in which the oxygen is separated from the nitrogen of NR⁸R⁹ by at least two carbons, or pyridylmethyl, or, when R⁹ is hydrogen, R⁸ is 2-[(5-dimethyl-aminomethyl)furan-2-yl)methylthio]ethylamino, or R³ and R⁹ may be joined together to form a 5- or 6-membered non-aromatic ring which optionally contains an additional nitrogen or oxygen;

R³ is hydrogen or fluorine;

R⁴ is hydrogen or, when R³ is hydrogen, R⁴ is halogen or methyl;

R⁵ is hydrogen, alkyl of 1 to 6 carbons or alkoxyalkyl of 3 to 10 carbons in which the oxygen atom is separated from the nitrogen atom of the guanidine residue by at least two carbons; and the pharmaceutically-acceptable acid-addition salts thereof.

4,315,010

GLAUCINE PHOSPHATE SALTS

Samuel S. M. Wang, Indianapolis, Ind., assignor to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 935,221, Aug. 21, 1978, abandoned. This application Jul. 13, 1979, Ser. No. 57,483

Int. Cl.³ A61K 31/485; C07D 215/20, 215/22

U.S. Cl. 424-260

17 Claims

1. A phosphate salt of a member of the group consisting of l-glucine, d,l-glucine and mixtures thereof.

14. A method of alleviating coughing in animals, comprising orally administering to an animal an antitussive amount of a

phosphate salt of a member of the group consisting of l-glucine, d,l-glucine and mixtures thereof.

4,315,011

1-ALKYL-9-BROMOHEXAHYDROINDOLOQUINOLIZIUM SALTS AND USE THEREOF TO INCREASE BLOOD FLOW

Csaba Szantay; Lajos Szabo; György Kalaus; Lajos Dancs; Tibor Keve; Egon Karpati, and Laszlo Szporny, all of Budapest, Hungary, assignors to Richter Gedeon Vegyeszeti Gyar Rt., Budapest, Hungary

Filed Jul. 10, 1979, Ser. No. 56,395

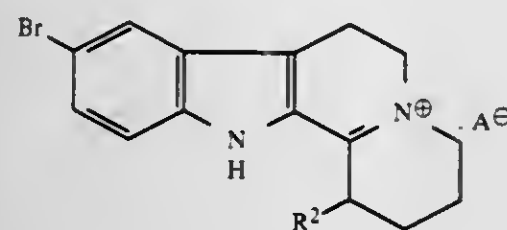
Claims priority, application Hungary, Jul. 12, 1978, RI 672; Jul. 12, 1978, RI 673; Jul. 12, 1978, RI 674; Jul. 12, 1978, RI 675

Int. Cl.³ A61K 31/475; C07D 459/00

U.S. Cl. 424-262

3 Claims

1. A 1-alkyl-9-bromo-hexahydroindoloquinolizium salt of formula,



wherein

R² is an alkyl group of 1 to 6 carbon atoms and A[⊖] is the anion of a pharmaceutically acceptable acid, or a corresponding free base.

3. A method of increasing blood circulation and decreasing blood vessel resistance in an animal subject which comprises administering to the animal a pharmacologically effective amount of the pharmaceutically acceptable salt defined in claim 1 or a corresponding free base thereof.

4,315,012

3-TETRAHALOETHYL-CYCLOPROPANE-1-CARBOXYLATE ESTERS

Jacques Martel, Bondy; Jean Tessier, Vincennes, and Jean-Pierre Demoute, Moutreuil-sous-Bois, all of France, assignors to Roussel Uclaf, Paris, France

Filed Nov. 10, 1980, Ser. No. 205,245

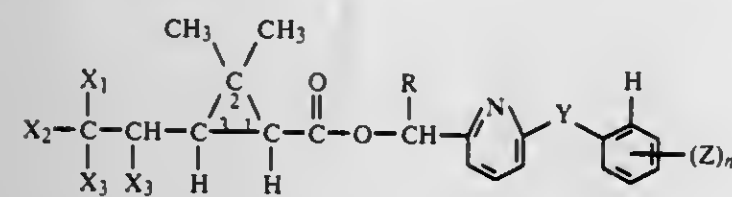
Claims priority, application France, Nov. 14, 1979, 79 28049

Int. Cl.³ A61K 31/44; C07D 213/55

U.S. Cl. 424-263

55 Claims

1. An ester in the form of their stereoisomers or mixtures thereof of the formula



X₁ is selected from the group consisting of fluorine, chlorine and bromine, X₂ is selected from the group consisting of fluorine, chlorine and bromine, X₃ is selected from the group consisting of chlorine and bromine, each Z is independently selected from the group consisting of alkyl of 1 to 4 carbon atoms, alkoxy and alkylthio of 1 to 4 carbon atoms, alkylsulfonyl of 1 to 4 carbon atoms, —CF₃, 3,4-methylenedioxy, chlorine, fluorine and bromine, n is 0, 1 or 2, Y is selected from the group consisting of oxygen and sulfur and R is selected from the group consisting of hydrogen, —CN and ethynyl, the acid moiety having a structure selected from the group consisting of IR, cis; 1S, cis; IR, trans; and 1S, trans and the alcohol moiety having a configuration of (R), (S) or (RS) and the

asymmetric carbon in the 1-position of the 3-ethyl side chain exists in the form of isomer A and isomer B.

32. A method of combatting acarids comprising contacting acarids with an acaricidally effective amount of a compound of claim 1.

4,315,013

CERTAIN PYRROLE ANALOGS OF PROSTACYCLIN DERIVATIVES

Werner Skuballa; Bernd Raduebel; Helmut Vorbruggen; Gerda Mannesmann; Wolfgang Losert, and Jorge Casals, all of Berlin, Fed. Rep. of Germany, assignors to Schering, Aktiengesellschaft, Berlin and Bergkamen, Fed. Rep. of Germany

Filed Feb. 19, 1980, Ser. No. 122,794

Claims priority, application Fed. Rep. of Germany, Feb. 20, 1979, 2907118

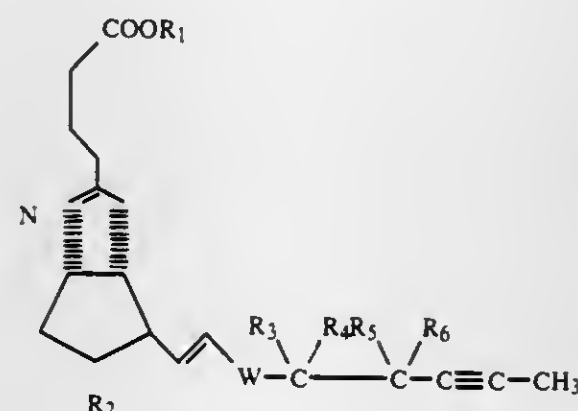
Int. Cl.³ A61K 31/40; C07D 209/52, 401/12, 405/12; A61K

31/435

U.S. Cl. 424-263

17 Claims

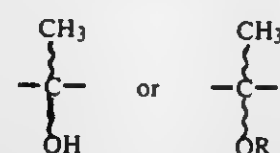
1. A prostane derivative of the formula



wherein

R₁ is (a) hydrogen, (b) C₁₋₁₀ alkyl, (c) C₁₋₁₀ alkyl substituted by halogen; C₁₋₄ alkoxy; C₆₋₁₀ aryl; C₆₋₁₀ aryl substituted by 1-3 halogen atoms, a phenyl group, 1-3 C₁₋₄ alkyl groups or a chloromethyl, fluoromethyl, trifluoromethyl, carboxy, hydroxy or C₁₋₄ alkoxy group; di-C₁₋₄-alkylamino; or tri-C₁₋₄-alkylammonium; (d) C₄₋₁₀ cycloalkyl, (e) C₄₋₁₀ cycloalkyl substituted by C₁₋₄ alkyl, (f) C₆₋₁₀ aryl, (g) C₆₋₁₀ aryl substituted by 1-3 halogen atoms, a phenyl group, 1-3 C₁₋₄ alkyl groups or a chloromethyl, fluoromethyl, trifluoromethyl, carboxy, hydroxy or C₁₋₄ alkoxy group, or (h) 2-furyl, 2-thienyl, 2-pyridyl, 3-pyridyl, or 4-pyridyl;

W is hydroxymethylene or RO-methylene; or



wherein OH or OR is in the α-position and R is an in vivo hydrolyzable and physiologically acceptable ether or acyl group which is conventional for modifying OH groups in prostaglandins; R₃, R₄, R₅ and R₆ are each independently hydrogen or alkyl of 1-5 carbon atoms, R₂ is OH or OR, R being as defined above, or, when R₁ is H, a physiologically compatible salt thereof with a base.

16. A pharmaceutical composition comprising an amount of a compound of claim 1 effective for lowering blood pressure and a pharmaceutically acceptable adjuvant.

4,315,014

ANTIBACTERIAL AMIDE COMPOUNDS AND PHARMACEUTICAL COMPOSITION CONTAINING THE SAME

Thomas F. Mich, Ann Arbor, Mich., and Leonard Doub, Tucson, Ariz., assignors to Warner-Lambert Company, Morris Plains, N.J.

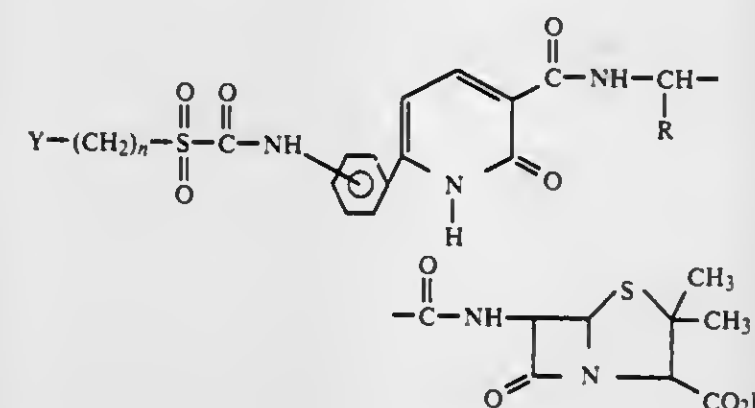
Filed Sep. 24, 1980, Ser. No. 190,109

Int. Cl.³ A61K 31/44; C07D 499/70, 211/76, 213/64

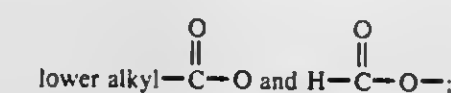
U.S. Cl. 424-263

14 Claims

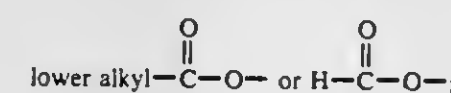
1. A compound of the formula



and pharmaceutically acceptable salts thereof; wherein Y is hydrogen, CF₃, hydroxy, pyridyl,



n is 0, 1, 2 or 3 and R is phenyl, 4-hydroxyphenyl, 2-thienyl or cyclohexa-1,4-dien-1-yl with the proviso that when Y is



n is 1, 2 or 3.

12. An antibacterial pharmaceutical composition comprising from 50 mg to 1000 mg of a compound of claim 1 and a pharmaceutical carrier.

4,315,015

PROCESS FOR PREPARING COOKED BACON HAVING REDUCED LEVELS OF N-NITROSAMINES

Richard F. Theiler, Scottsdale, Ariz., assignor to Armour and Company, Phoenix, Ariz.

Filed Oct. 14, 1980, Ser. No. 196,816

Int. Cl.³ A23B 4/02, 4/14

U.S. Cl. 426-266

15 Claims

1. A process for preparing cured bacon which, when cooked for consumption, contains substantially reduced levels of N-nitrosamines, said process comprising the steps of preparing a nitrite-stable injectable curing solution comprising a nitrite-containing pickle, a liquid smoke in concentration to provide 5 to 400 ppm phenols and 10 to 2000 ppm carbonyl compounds, based upon the green weight of the belly to be injected, and from 150 to 10,000 ppm of reducing sugar, based upon the green weight of the belly to be injected; injecting said curing solution into a green belly; and processing said belly to effect curing.

4,315,016

HETEROCYCLIC TRIAZOLYLETHYL ETHER COMPOUNDS AND THEIR USE AS PESTICIDES

Sugavanam Balassubramanyam, Wokingham, and Margaret C. Shephard, Maidenhead, both of England, assignors to Imperial Chemical Industries Limited, London, England

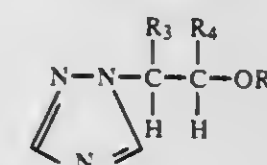
Continuation-in-part of Ser. No. 720,664, Sep. 7, 1976, abandoned. This application Feb. 27, 1978, Ser. No. 882,205 Claims priority, application United Kingdom, Sep. 10, 1975, 37242/75; Sep. 10, 1975, 37243/75

Int. Cl.³ A01N 43/64; C07D 249/08

U.S. Cl. 424-269

9 Claims

1. A compound of general formula:



wherein R₃ is hydrogen, R₄ is phenyl optionally substituted with one or two halogen, and R₅ is alkyl having up to 5 carbon atoms, alkenyl having up to 5 carbon atoms, alkynyl having up to 5 carbon atoms or R₅ is benzyl optionally ring substituted with halogen, alkyl or alkoxy, or a fungicidal acid salt of such a compound.

4. A fungicidal composition consisting essentially of as active ingredient, a fungicidally effective amount of a compound or salt as claimed in claim 1, and a carrier for the active ingredient.

4,315,017

TRIAZOLE DERIVATIVES

Friedrich Linhart, Heidelberg; Bernd Zeeh, Ludwigshafen, and Heinrich Adolphi, Limburgerhof, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany Division of Ser. No. 59,179, Jul. 20, 1979, abandoned. This application Mar. 28, 1980, Ser. No. 135,914

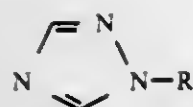
Claims priority, application Fed. Rep. of Germany, Jul. 28, 1978, 2833194

Int. Cl.³ A61N 43/48, 43/64, 43/172, 47/10

U.S. Cl. 424-269

6 Claims

4. A process for combating insects, wherein the insects or their biotope are treated with an insecticidally effective amount of an insecticidal agent containing an insecticidally active carbamate selected from the group consisting of 2,5-diethylphenyl-N-methylcarbamate, 1-naphthyl-N-methylcarbamate, m-tolyl-N-methylcarbamate, 2-isopropylphenyl-N-methylcarbamate, 2-sec-butylphenyl-N-methylcarbamate, 3-(1-methylbutyl)-phenyl-N-methylcarbamate, o-chlorophenyl-N-methylcarbamate, 3,4-dimethylphenyl-N-methylcarbamate, 3,5-diethylphenyl-N-methylcarbamate, 3-isopropyl-5-methylphenyl-N-methylcarbamate, 6-chloro-3,4-xylyl-N-methylcarbamate, 3,5-di-tert-butylphenyl-N-methylcarbamate, 3,4,5-trimethylphenyl-N-methylcarbamate, 2-isopropylphenyl-N-methylcarbamate, 3,5-dimethyl-4-methylmercaptophenyl-N-methylcarbamate, 4-dimethylamino-m-tolyl-N-methylcarbamate, 4-dimethylamino-3,5-xylyl-N-methylcarbamate, 4-diallylamino-3,5-dimethylphenyl-N-methylcarbamate, 2-(1,3-dioxolan-2-yl)-phenyl-N-methylcarbamate, 4-benzothienyl-N-methylcarbamate, 2,3-dihydro-2,2-dimethylbenzofuran-7-yl-N-methylcarbamate, 2,2-dimethyl-1,3-benzodioxol-4-yl-N-methylcarbamate, 1-isopropyl-3-methyl-5-pyrazolyl-N-methylcarbamate, 2-dimethylcarbamoyl-3-methylpyrazolyl-(5)-N,N-dimethylcarbamate, 2-dimethylamino-5,6-dimethyl-4-pyrimidinyl-N,N-dimethylcarbamate, 2-(1-methoxy-2-chloro)-ethoxyphenyl-N-methylcarbamate, 3-(dimethylaminomethyleneimino)-phenyl-N-methylcarbamate, 4-(dimethylaminomethyleneimino)-m-tolyl-N-methylcarbamate, and 2-ethylthiomethylphenyl-N-methylcarbamate and a triazole derivative of the formula I as a synergist



where R denotes benzyl substituted on the phenyl ring by linear or branched alkyl of 1 to 4 carbon atoms, 2-phenylvinyl which is unsubstituted or substituted by halogen on the phenyl ring, 3-phenyl-2-propenyl which is unsubstituted or substituted by halogen on the phenyl ring, 2-phenyl-2-propenyl which is unsubstituted or substituted by halogen on the phenyl ring, 1-phenylethyl, 3-phenylpropyl or 2-phenyl-2-chloroethyl or a salt thereof, the ratio of carbamate to triazole derivative of the formula I, or a salt thereof, being from 1:10 to 10:1 parts by weight.

4,315,018

SPECIFIC PARASITICIDAL USE OF 2-BENZAMIDO-5-NITRO-THIAZOLE DERIVATIVES

Jean F. Rossignol, 16 Rue de Siam F-75016, Paris, France

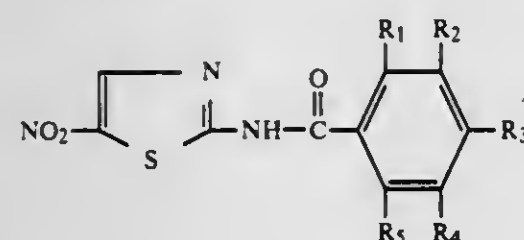
Filed Dec. 7, 1978, Ser. No. 967,454

Int. Cl.³ A61K 31/425

U.S. Cl. 424—270

33 Claims

1. A process for treating a dog or cat infected with *Taenia* which comprises administering to the infected animal an eradicating effective amount of a compound of the formula:



in which one or two of the symbols R₁, R₂, R₃, R₄ and R₅ represents an acetoxy or propionyloxy group, and the remaining symbols represent hydrogen with the proviso that one of the remaining symbols can represent a methoxy group or a chlorine or bromine atom.

4,315,019

NOVEL ARYLTRIFLUOROETHYLAMINES AND PROCESSES FOR PRODUCING THE SAME

Charles Malen, Fresnes; Pierre Roger, St. Cloud, and Michel Laubie, Vaucresson, all of France, assignors to Science Union et Cie, Suresnes, France

Continuation of Ser. No. 798,830, May 20, 1977, abandoned.

This application Aug. 18, 1980, Ser. No. 179,169

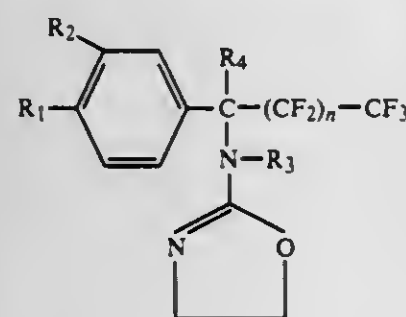
Claims priority, application France, May 24, 1976, 76 15601

Int. Cl.³ C07D 263/28, 413/12; A61K 31/42, 31/425

U.S. Cl. 424—272

5 Claims

1. A compound selected from the group consisting of the aryl amines of formula I



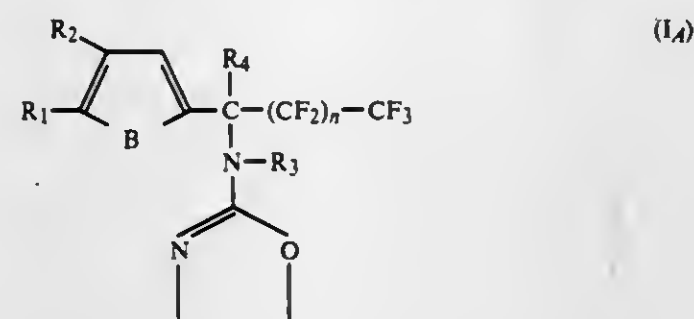
wherein

R₁ and R₂, the same or different, are hydrogen, lower alkoxy, lower alkyl, or halogen;
R₃ is hydrogen, methyl or ethyl;

R₄ is hydrogen, methyl, ethyl or cyclopropyl;
n is 0, 1 or 2;

the therapeutically compatible salts thereof with mineral or organic acid, said amine and said salts being in racemic form, and the resolved, optically-active isomers of said amines and said salts thereof.

2. A method for treating hypertension in a mammal, which consists in administering to a mammal patient suffering from this ailment an amount of an oxazoline as below-defined in an amount which is effective for alleviating said condition; said oxazoline, in a racemic or optically-active form, corresponding to the structure



where

B is a bridge radical selected from the group consisting of —CH=CH—, oxygen, sulfur and N—R₅ wherein R₅ is hydrogen or lower alkyl;

R₁ and R₂, being the same or different, are hydrogen, lower alkyl, lower alkoxy, or halogen;

R₃ is hydrogen, methyl or ethyl;

R₄ is hydrogen, methyl, ethyl or cyclopropyl, and

n is zero, 1 or 2.

4,315,020

OXAZOLINE (TRIFLUOROETHYL) AMINE

Charles E. Malen, Fresnes; Pierre Roger, St-Cloud, and Michel Laubie, Vaucresson, all of France, assignors to Science Union et Cie, Suresnes, France

Division of Ser. No. 31,386, Apr. 19, 1979, Pat. No. 4,267,345,

which is a continuation-in-part of Ser. No. 798,830, May 20, 1977, abandoned. This application Oct. 15, 1980, Ser. No. 197,170

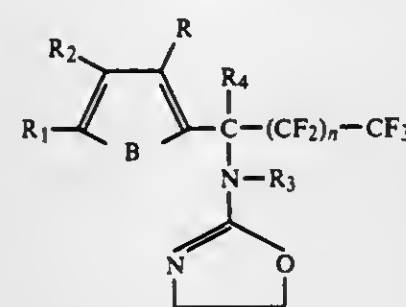
Claims priority, application France, May 24, 1976, 76 15601

Int. Cl.³ A61K 31/42; C07D 263/28

U.S. Cl. 424—272

17 Claims

1. An oxazoline (trifluoroethyl) amine of the formula



wherein

R₁ and R₂, the same or different, are hydrogen, lower alkoxy of 1 to 6 carbon atoms, inclusive, lower alkyl of 1 to 6 carbon atoms, inclusive, halogen, or trifluoromethyl;

R₃ is hydrogen, methyl, or ethyl,

R₄ is hydrogen, methyl, ethyl, or cyclopropyl,

R is hydrogen or lower alkyl of 1 to 6 carbon atoms, inclusive,

B is —CH=CH—, and

n is zero, 1 or 2.

4,315,021

2-(1,4-BENZODIOXAN-2-YLALKYL)IMIDAZOLES

Arthur F. Kluge, Los Altos; Arthur M. Strosberg, Portola Valley, both of Calif.; Roger Whiting, and George A. Christie, both of Edinburgh, Scotland, assignors to Syntex (U.S.A.) Inc., Palo Alto, Calif.

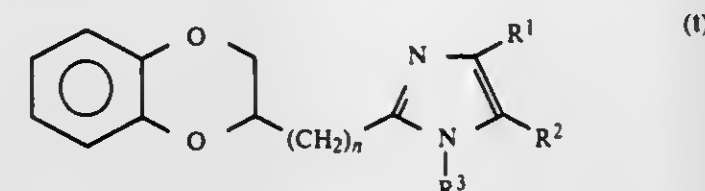
Filed Dec. 3, 1980, Ser. No. 212,288

Int. Cl.³ A61K 31/415; C07D 405/06

U.S. Cl. 424—273 R

7 Claims

1. A compound of the formula



wherein

R¹ and R² are each independently selected from the group consisting of hydrogen, alkyl(1-6), optionally substituted phenyl, and optionally substituted phenyl lower alkyl (1-4);

R³ is hydrogen, alkyl (1-6), or optionally substituted phenyl lower alkyl (1-4);

n is an integer equal to 0, 1 or 2;

with the proviso that R¹, R² and R³ cannot all be hydrogen and/or alkyl; and substituted phenyl means that one to three hydrogens of the phenyl ring are replaced by identical moieties selected from the group consisting of halo, lower alkyl or trifluoromethyl.

7. A method of treating depression in humans which comprises administering to a subject in need of such treatment, a therapeutically effective amount of a compound of claim 1 or a pharmaceutically acceptable acid addition salt thereof, or a pharmaceutical composition containing an effective amount of said compound or a pharmaceutically acceptable salt thereof.

4,315,022

TERMINAL AMINO PROSTAGLANDIN ANALOGUES

Gordon Wootton, Sawbridgeworth, and Stephen A. Smith, Harlow, both of England, assignors to Beecham Group Limited, England

Filed May 23, 1980, Ser. No. 152,766

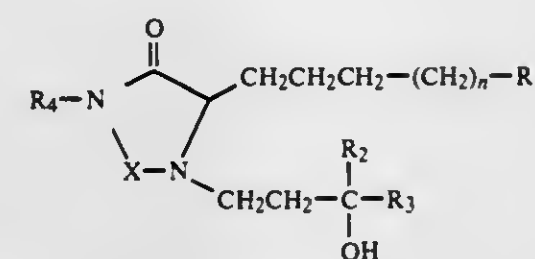
Claims priority, application United Kingdom, May 23, 1979, 17931/79

Int. Cl.³ A61K 31/415; C07D 233/78, 233/86, 233/32

U.S. Cl. 424—273 R

34 Claims

1. A compound of the formula:

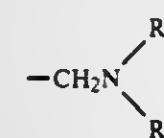


or a pharmaceutically acceptable salt thereof, wherein

n has a value of 0 to 5

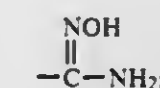
R₁ is an aminomethyl function selected from the group consisting of

(a)

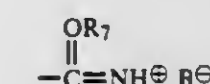


wherein each of R₅ and R₆ is independently hydrogen or alkyl of 1 to 6 carbon atoms;

(b)

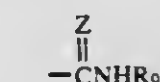


(c)



wherein R₇ is hydrogen or alkyl of 1 to 6 carbon atoms and B[⊖] is a pharmaceutically acceptable anion; and

(d) —CH₂NHR₈ wherein R₈ is —SO₂R₉, —COR₉,



or —(CH₂)_mCO₂R₉' in which

R₉ is hydrogen or alkyl of 1 to 6 carbon atoms,

R₉' is alkyl of 1 to 6 carbon atoms, benzyl or benzyl substituted with chloro, bromo, nitro or trifluoromethyl;

Z is oxygen or sulfur; and

m has a value of from 0 to 4;

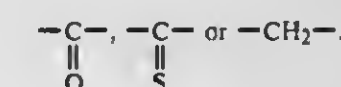
R₂ is hydrogen or alkyl of 1 to 4 carbon atoms;

R₃ is alkyl of 1 to 9 carbon atoms, cycloalkyl of 5 to 8 carbon atoms, or alkyl of 1 to 6 carbon atoms substituted with cycloalkyl of 5 to 8 carbon atoms or

R₂ and R₃ together with the carbon atom to which they are attached are cycloalkylidene of 5 to 8 carbon atoms;

R₄ is hydrogen or alkyl of 1 to 6 carbon atoms; and

X is



34. The method of effecting a prostaglandin-like response in a human or other animal which comprises administering thereto an effective amount of a compound according to claim 1.

4,315,023

1-PHENETHYLIMIDAZOLE DERIVATIVES

Richard A. Partyka, Liverpool, N.Y., and Thomas W. Hudyma, Manlius, N.Y., assignors to Westwood Pharmaceuticals, Inc., Buffalo, N.Y.

Continuation-in-part of Ser. No. 73,041, Sep. 6, 1979,

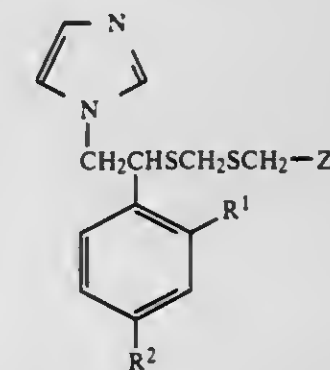
abandoned. This application Dec. 1, 1980, Ser. No. 211,986

Int. Cl.³ A61K 31/415; C07D 233/60

U.S. Cl. 424—273 R

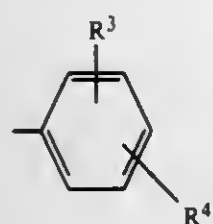
43 Claims

1. A compound of the formula 3:



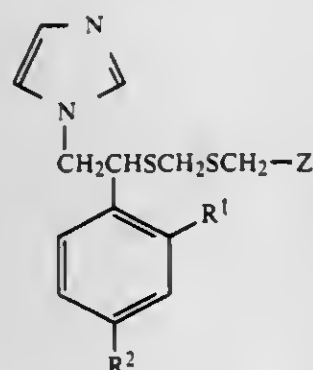
including the antimicrobial acid addition salts thereof, wherein;

R^1 and R^2 are independently hydrogen or halogen and Z is a mono or disubstituted phenyl moiety of the formula 4:



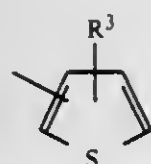
wherein R^3 and R^4 are independently hydrogen, halogen, (lower) alkyl or trifluoromethyl, with the proviso that R^3 and R^4 may not simultaneously both be trifluoromethyl.

22. A compound of the formula 3:



including the antimicrobial acid addition salts thereof, wherein;

R^1 and R^2 are independently hydrogen or halogen and Z is a 2 or 3 thienyl moiety of the formula 5:



wherein R^3 is hydrogen, halogen (lower) alkyl or trifluoromethyl.

4,315,024

COMPOSITIONS AND METHOD FOR TREATING RED EYE

Mark B. Abelson, Andover, Mass., assignor to Cooper Laboratories, Inc., Palo Alto, Calif.

Filed Aug. 8, 1980, Ser. No. 176,525

Int. Cl.³ A01N 43/50, 43/56

U.S. Cl. 424-273 R

3 Claims

1. A method of treating red eye comprising topically administering to the eye a therapeutic amount of an H_2 antagonist which is effective to substantially reduce the red appearance of the eye.

4,315,025

ROUGHAGE ANIMAL FEED

Michael M. Danley, Grimes, Iowa, assignor to Chevron Research, San Francisco, Calif.

Filed Sep. 26, 1977, Ser. No. 836,280

Int. Cl.³ A01N 43/36

U.S. Cl. 424-274

7 Claims

1. A method for increasing the weight gain of a ruminating animal which comprises including captan in the animal's roughage feed allotment in a weight-gaining-effective amount between 1 and 200 parts per million based on the daily roughage feed allotment for the animal wherein said roughage feed

contains at least 70% by weight alfalfa, forage sorghum, hay or other cellulosic feed having over 50% cellulose content.

4,315,026 ALKYLPOLYOXYSULFINYL AND ALKYLPOLYTHIOSULFINYL DERIVATIVES OF CARBAMATE ESTERS

Mohamed A. H. Fahmy, Edison, N.J.; Tetsuo R. Fukuto, and Teruomi Jojima, both of Riverside, Calif., assignors to The Regents of the University of California, Los Angeles, Calif.

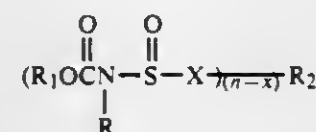
Filed Apr. 11, 1980, Ser. No. 139,352

Int. Cl.³ A01N 43/16; C07D 317/44

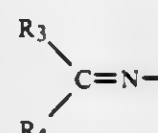
U.S. Cl. 424-282

40 Claims

1. Carbamate esters having pesticidal activity selected from the class having the formula:



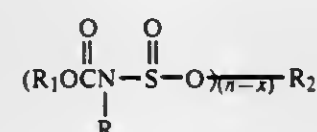
where R is methyl; R_1 is selected from the class consisting of a hydrocarbyl group containing from 1 to 20 carbon atoms, a 5 to 6 membered heterocyclic ring containing one to two O or S atoms, the remaining ring atoms being carbon atoms, and the group



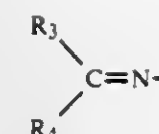
where

R_3 is hydrogen, alkyl, alkylthio or cyano, and R_4 is alkyl, alkylthio, alkoxy, alkanoyl, alkoxy-carbonyl, dialkylaminocarbonyl, or phenyl, which can be unsubstituted or substituted with cyano, nitro, alkylthio, alkylsulfinyl, alkylsulfonyl, or alkoxy groups, the number of aliphatic carbon atoms in R_3 and R_4 not exceeding eight; R_2 is hydrocarbyl group containing from 2 to 40 carbon atoms and derived from a compound selected from the group consisting of alkyl and aryl polyols, and alkyl and aryl polythiols, and which can contain unreacted hydroxyl groups or thiol groups, and protected hydroxyl or thiol groups, wherein the protecting groups are selected from the class consisting of isopropylidene, benzylidene, alkenyl, alkynyl, aralkyl, acyl, and halogenated acyl; n is an integer of from 1 to 8; x is the number of unreacted hydroxyl or thiol groups which can range from 0 to 7, and where n is greater than x; and X is O or S; provided that when $(n-x)=1$, R_2 shall contain at least one unreacted hydroxyl or thiol group, or at least one of said protected hydroxyl or thiol groups.

10. Carbamate esters having pesticidal activity selected from the class having the formula:



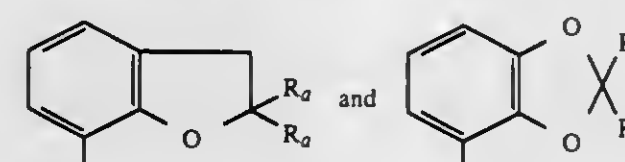
where R is methyl; R_1 is selected from the class consisting of a hydrocarbyl group containing from 1 to 20 carbon atoms, a 5 to 6 membered heterocyclic ring containing one to two O or S atoms, the remaining ring atoms being carbon atoms, and the group



where

R_3 is hydrogen, alkyl, alkylthio or cyano, and R_4 is alkyl, alkylthio, alkoxy, alkanoyl, alkoxy-carbonyl, dialkylaminocarbonyl, or phenyl, which can be unsubstituted or substituted with cyano, nitro, alkylthio, alkylsulfinyl, alkylsulfonyl, or alkoxy groups, the number of aliphatic carbon atoms in R_3 and R_4 not exceeding eight; R_2 is hydrocarbyl group containing from 2 to 40 carbon atoms and derived from a compound selected from the group consisting of alkyl and aryl polyols, and which can contain unreacted hydroxyl groups and protected hydroxyl groups, wherein the protecting groups are selected from the class consisting of isopropylidene, benzylidene, alkenyl, alkynyl, aralkyl, acyl, and halogenated acyl; n is an integer of from 1 to 8; x is the number of unreacted hydroxyl groups which can range from 0 to 7, and where n is greater than x; provided that when $(n-x)=1$, R_2 shall contain at least one unreacted hydroxyl group or at least one of said protected hydroxyl groups.

22. Carbamates as defined in claim 1, wherein R_1 is selected from the class having the formulae:



where R_a is an alkyl group of 1 to about 4 carbon atoms, and both R_a 's can be the same or different.

35. An insecticidal composition comprising an insecticidally effective amount of a carbamate as defined in claim 22, in admixture with a carrier.

38. The method of controlling insects which comprises applying to the sites of infestation an insecticidally effective amount of a compound as defined in claim 10.

4,315,027

PESTICIDAL SYMMETRICAL AND ASYMMETRICAL SULFINYLDICARBAMATES CONTAINING A HETEROCYCLIC GROUP

Mohamed A. H. Fahmy, and Tetsuo R. Fukuto, both of Riverside, Calif., assignors to The Regents of the University of California, Los Angeles, Calif.

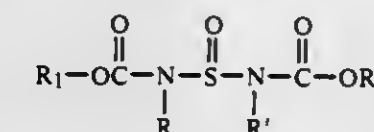
Division of Ser. No. 18,414, Mar. 7, 1979. This application May 9, 1980, Ser. No. 148,224

Int. Cl.³ A01N 47/18; C07D 317/48, 307/86

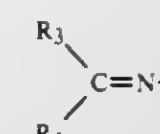
U.S. Cl. 424-282

35 Claims

1. A carbamate having pesticidal activity of the formula:



wherein R and R' are each a hydrocarbyl group containing 1 to 12 carbon atoms, and R and R' can be the same or different; R_1 is selected from the class consisting of a hydrocarbyl group containing from 1 to 20 carbon atoms, a 5 to 6 membered heterocyclic ring containing one to two O or one to two S atoms, and a group containing the $>C=N$ -radical:



and where

R_3 is hydrogen, alkyl, alkylthio or cyano, and R_4 is alkyl, alkylthio, alkoxy, alkanoyl, alkoxy-carbonyl, dialkylaminocarbonyl, and phenyl, all of which can be unsubstituted or substituted with cyano, nitro, alkylthio, alkylsulfinyl, alkylsulfonyl and alkoxy groups, the number of aliphatic carbon atoms in R_3 and R_4 not exceeding eight; and R_2 can be other than R_1 and selected from the class consisting of a hydrocarbyl group containing from 1 to 20 carbon atoms and a 5 to 6 membered heterocyclic ring containing one to two O or one to two S atoms; or R_2 can be the same as R_1 , where R_1 or R_2 is said heterocyclic ring, or both R_1 and R_2 are said heterocyclic rings.

27. The method of controlling insects which comprises applying to the sites of infestation an insecticidally effective amount of a compound as defined in claim 1.

4,315,028

METHOD OF TREATMENT OF RHEUMATOID ARTHRITIS

Israel H. Scheinberg, 5447 Palisades Ave., Bronx, N.Y. 10471

Division of Ser. No. 972,634, Dec. 22, 1978, abandoned, and a continuation-in-part of Ser. No. 926,688, Jul. 21, 1978, abandoned. This application Sep. 18, 1979, Ser. No. 76,652

Int. Cl.³ A61K 31/28, 31/30

U.S. Cl. 424-290

10 Claims

1. A method of treating rheumatoid arthritis, which comprises administering to a patient suffering from the same, a rheumatoid arthritis treatment effective amount of a complex of penicillamine or N-acetyl penicillamine complexed with gold or copper.

4,315,029

RACEMIC MODIFICATION CONSISTING OF SPECIFIC ISOMERS OF α -CYANO-3-PHENOXYBENZYL CIS- OR TRANS-2,2-DIMETHYL-3-(2,2,2-TRICHLOROETHYL)CYCLOPROPANECARBOXYLATE, PRODUCTION THEREOF AND PESTICIDAL COMPOSITIONS CONTAINING THE SAME

Fumio Mori, Kurashiki; Yoshiaki Omura, Mitsui; Yoshiji Fujita, Kurashiki; Takashi Nishida, Kurashiki; Takeo Hosogai, Kurashiki; Fumio Wada, Fukuoka; Sukeji Aihara, Kurashiki; Yoshin Tamai, Kitakanbara, and Kazuo Ito, Kurashiki, all of Japan, assignors to Kuraray Co., Ltd., Kurashiki, Japan

Filed Mar. 10, 1980, Ser. No. 128,717

Claims priority, application Japan, Mar. 8, 1979, 54-27282; Apr. 25, 1979, 54-51677

Int. Cl.³ A01N 53/00; C07C 121/75

U.S. Cl. 424-304

58 Claims

1. A composition of matter selected from the group consisting of, racemic modification D_2 , (S)- α -cyano-3-phenoxybenzyl (cis, 1R)-2,2-dimethyl-3-(2,2,2-trichloroethyl) cyclopropanecarboxylate and (R)- α -cyano-3-phenoxybenzyl (cis, 1S)-2,2-dimethyl-3-(2,2,2-trichloroethyl) cyclopropanecarboxylate, and, racemic modification D_2' , (S)- α -cyano-3-phenoxybenzyl (trans, 1R)-2,2-dimethyl-3-(2,2,2-trichloroethyl) cyclopropanecarboxylate and (R)- α -cyano-3-phenoxybenzyl (trans, 1S)-2,2-dimethyl-3-(2,2,2-trichloroethyl) cyclopropanecarboxylate, and admixtures thereof.

51. A method for the control of pests, comprising applying to the habitat of such pests, a pesticidally effective amount of, racemic modification D_2 , (S)- α -cyano-3-phenoxybenzyl (cis, 1R)-2,2-dimethyl-3-(2,2,2-trichloroethyl) cyclopropanecarboxylate and (R)- α -cyano-3-phenoxybenzyl (cis, 1S)-2,2-dimethyl-3-(2,2,2-trichloroethyl) cyclopropanecarboxylate, or racemic modification D_2' , (S)- α -cyano-3-phenoxybenzyl

(trans, 1R)-2,2-dimethyl-3-(2,2,2-trichloroethyl) cyclopropanecarboxylate and (R)- α -cyano-3-phenoxybenzyl (trans, 1S)-2,2-dimethyl-3-(2,2,2-trichloroethyl) cyclopropanecarboxylate, or admixtures thereof.

4,315,030

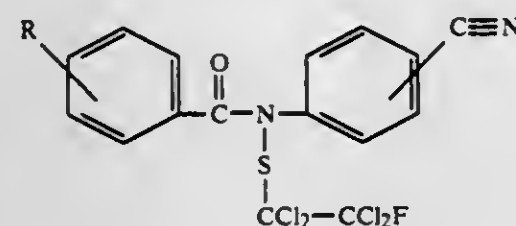
N-HALOALKYL THIOBENZCYANOANILIDES AND THEIR USE AS FUNGICIDES
Hsiao-Ling M. Chin, and Ferenc M. Pallos, both of Walnut Creek, Calif., assignors to Stauffer Chemical Company, Westport, Conn.

Filed Jan. 8, 1981, Ser. No. 223,470
Int. Cl.³ A01N 37/34; C07C 121/78

U.S. Cl. 424—304

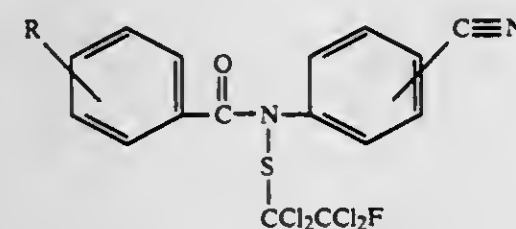
6 Claims

1. A compound having the formula



in which R is hydrogen, C₁-C₅ alkyl, C₁-C₃ haloalkyl, halogen, —NO₂, and C₁-C₂ alkoxy.

3. A method of controlling fungi comprising applying thereto a fungicidally effective amount of a compound having the formula



in which R is hydrogen, C₁-C₅ alkyl, C₁-C₃ haloalkyl, halogen, —NO₂, and C₁-C₂ alkoxy.

4,315,031

THIOSUBSTITUTED AMINO ACIDS

Michel Vincent, Bagneux; Georges Remond, Versailles, and Jacques Bure, Neuilly S/Seine, all of France, assignors to Science Union et Cie, Suresnes, France

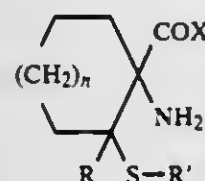
Filed Aug. 28, 1978, Ser. No. 937,151

Claims priority, application United Kingdom, Sep. 1, 1977, 36525/77

Int. Cl.³ A61K 31/24, 31/95; C07C 61/39, 69/753
U.S. Cl. 424—309

10 Claims

1. A cycloalkyl amino acid or ester of the formula



in which

R is hydrogen or lower alkyl;

R' is halophenyl, phenyl, phenyl-lower alkyl or halophenyl-methyl;

X is hydroxy or lower alkoxy; and,

n is 0 or an integer from 1 to 3, inclusive.

7. A pharmaceutical composition useful as an immunodepressive agent containing as active ingredient an effective amount of at least one compound of claim 1 or a salt

thereof, together with an inert non-toxic pharmaceutically-acceptable excipient or vehicle.

4,315,032

PROCESS FOR PREPARATION OF ADJACENTLY DISUBSTITUTED KETONES

Ryoji Noyori, Aichi; Masaaki Suzuki, Nagoya, and Seizi Kurozumi, Hino, all of Japan, assignors to Teitin Limited, Osaka, Japan

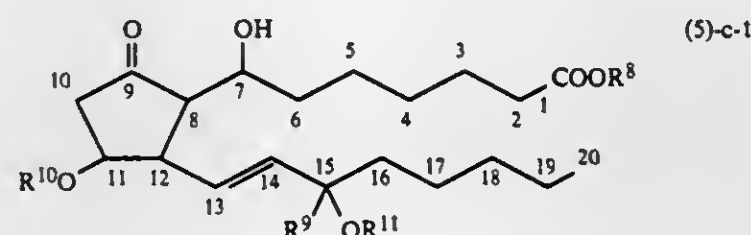
Filed May 14, 1980, Ser. No. 149,584

Claims priority, application Japan, May 18, 1979, 54/60293
Int. Cl.³ C07C 177/00, 45/69, 45/70, 45/72

U.S. Cl. 424—317

6 Claims

1. 7-Hydroxyprostaglandine E₁, or a stereoisomer thereof, or a protected derivative thereof, having the following formula (5)-c-1



wherein R⁸ represents a hydrogen atom, a methyl group or an ethyl group, R⁹ represents a hydrogen atom or a methyl group, and R¹⁰ and R¹¹ are identical or different, and each represents a hydrogen atom, a tetrahydropyranyl group or a t-butyl dimethylsilyl group.

4,315,033

METHOD OF TREATING MENOPAUSAL SYMPTOMS
F. Douglas Lawrason, 53 Spring Valley Rd., Convent Station, N.J. 07960

Filed Jan. 22, 1981, Ser. No. 227,354

Int. Cl.³ A61K 31/195

U.S. Cl. 424—319

6 Claims

1. A method of treating vasomotor symptoms associated with menopause in a non-hypertensive female in need thereof which comprises systemically administering methyl dopa to said patient in an amount sufficient to effectively ameliorate said symptoms.

4,315,034

VEGETABLE PROTEIN PRODUCT AND PROCESS

Arthur A. Levinson, and Kenneth B. Basa, both of Cook, Ill., assignors to National Can Corporation, Chicago, Ill.

Continuation of Ser. No. 631,582, Nov. 13, 1975, abandoned, which is a division of Ser. No. 405,201, Oct. 10, 1973, Pat. No. 3,966,977, which is a continuation-in-part of Ser. No. 60,764, Aug. 3, 1970, abandoned. This application Mar. 10, 1980, Ser. No. 128,963

Int. Cl.³ A23L 1/20; A23J 3/00

U.S. Cl. 426—104

49 Claims

1. A process for producing a proteinaceous food product having an enhanced protein content and the fibrous chewy texture of meat which comprises contacting a compacted, defatted protein-containing seed metal product in shard form characterized by the presence as one portion of the surface thereof of a densified, tough, at least partially denatured skin which is resistant to rehydration; with an aqueous solution having a pH of from about 2 to about 6.5, at temperatures above about 105° C. and at superatmospheric pressure, for a time sufficient to solubilize and extract a proportion of the non-proteinaceous component of said starting material, increase the relative protein content thereof and render the starting material substantially porous, and recovering the product from the resulting liquor.

4,315,035

COLORANTS FOR LIPID-BASED CONFECTION COMPOSITIONS AND LIPID-BASED COMPOSITIONS MADE THEREFROM

Kenneth B. Basa, Evanston, and Robert G. Agosto, Chicago, both of Ill., assignors to National Can Corporation, Chicago, Ill.

Division of Ser. No. 967,972, Dec. 11, 1978, Pat. No. 4,313,966. This application Nov. 20, 1980, Ser. No. 208,551
Int. Cl.³ A23L 1/275

U.S. Cl. 426—250

8 Claims

1. An edible, brown colored, essentially water-free, solid confectionary coating composition comprising an edible lipid; a finely divided sugar; and a highly divided, water soluble, lipid insoluble caramel powder uniformly dispersed as a pigment throughout said coating composition, said caramel powder being present in an amount of from 2 to 6% by weight of said composition.

4,315,036

PROCESS FOR DECAFFEINATING TEA

Saeed A. Husaini, Marysville, and Richard T. Liu, Worthington, both of Ohio, assignors to Societe d'Assistance Technique pour Produits Nestle S.A., Lausanne, Switzerland

Filed Jan. 12, 1978, Ser. No. 868,938

Int. Cl.³ A23F 3/38

U.S. Cl. 426—387

13 Claims

1. Process for decaffeinating a tea extract which contains caffeine and tannins capable of complexing with caffeine comprising:

- cooling said extract sufficiently to form
 - an aqueous solubles phase containing cold-water soluble components of the cooled extract, including a portion of the caffeine, and
 - an insolubles phase containing a cold-water-insoluble complex of tannins with another portion of the caffeine;
- separating the solubles phase from the insolubles phase;
- treating the insolubles phase to remove caffeine therefrom;
- adding decaffeinated tannins to the solubles phase; and
- repeating steps (a) through (d) until the desired degree of decaffeination has been achieved.

4,315,037

PROCESS FOR FORMING A MOLDED ICE CONFECTION

Thomas R. Kelly, Wellingborough, England, assignor to Thomas J. Lipton, Inc., NJ

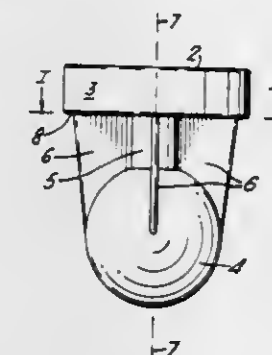
Filed May 12, 1980, Ser. No. 148,604

Claims priority, application United Kingdom, May 11, 1979, 16418/79

Int. Cl.³ A23P 1/00

U.S. Cl. 426—421

8 Claims



1. In a process for forming a molded ice confection which has a protruding or re-entrant shape which comprises filling a moldable confection mix into a thin-walled flexible elastic mold having a cavity corresponding to said protruding or re-entrant shape, freezing to solidify the ice confection mix in the mold, and withdrawing the solidified confection mix from

the mold so as to cause the mold to distort and release its contents, the improvement wherein said thin-walled mold has one or a plurality of openable thin-walled pleats extending along the mold wall from a relatively large distal part of said wall along a relatively narrow more proximal part of said wall and substantially parallel to direction of said withdrawal whereby said pleats gape open during said withdrawal and facilitate release of contents of said relatively large distal part of said ice confection mould.

4,315,038

PROCESS FOR PREPARING PROTEIN FLOUR FROM BREWERY WASTE

Phillip M. Townsley, Vancouver, and Robert L. Weaver, Montreal West, both of Canada, assignors to The Molson Companies Limited, Rexdale, Canada

Filed Aug. 20, 1980, Ser. No. 179,820

Claims priority, application Canada, Sep. 4, 1979, 334936

Int. Cl.³ A23L 1/10; A23K 1/06; A23J 1/12

U.S. Cl. 426—430

6 Claims

1. A process for preparing a flour for use in human food comprising the steps of extracting solid trub with an isopropanolic solvent to remove water and trub resin from the trub, and drying the trub to yield a trub flour.

4,315,039

PROCESS FOR PEELING TOMATOES UNDER VACUUM
Renzo Levati, Collecchio, Italy, assignor to R. Levati S.p.A., Parma, Italy

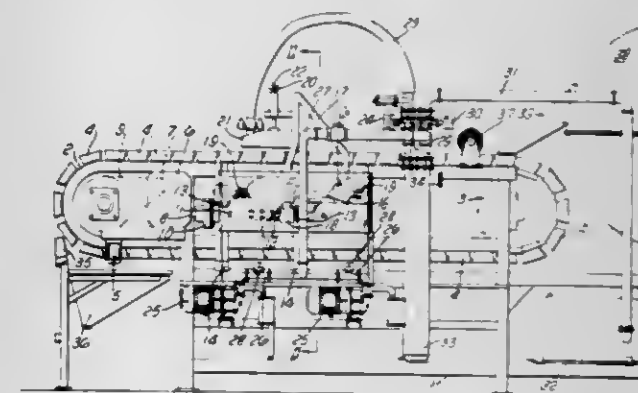
Filed Dec. 28, 1976, Ser. No. 755,055

Claims priority, application Italy, Jan. 23, 1976, 46810 A/76

Int. Cl.³ A23L 1/212; A23N 7/00

U.S. Cl. 426—482

2 Claims



1. A process for peeling tomatoes comprising the steps of scalding said tomatoes to at least partially cook the skins of the tomatoes; subjecting the scalded tomatoes to a first absolute pressure not exceeding 150 mm Hg by rapidly drawing a vacuum on the tomatoes; maintaining said first absolute pressure at least momentarily; further lowering the absolute pressure acting on the tomatoes from said first absolute pressure, to a second absolute pressure in the range of 25-40 mm Hg by further drawing a vacuum on the tomatoes; then breaking said further vacuum; and then separating the skins from the tomatoes; and wherein said process further comprises, causing the absolute pressure acting on the tomatoes to fluctuate downwardly between said first and second pressures.

4,315,040

PARTING OIL COMPONENT FOR BAKED GOODS AND PARTING OILS

Christian Helne, Monheim; Uwe Ploog, Haan, and Reinhold Wüst, Kaarst bei Neuss, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien (Henkel KGaA), Düsseldorf-Holthausen, Fed. Rep. of Germany
Filed Nov. 7, 1979, Ser. No. 92,229

Claims priority, application Fed. Rep. of Germany, Nov. 25, 1978, 2851104

Int. Cl.³ A23D 5/00

U.S. Cl. 426—609

9 Claims

1. A synthetic wax ester useful as a component of parting oils for baked goods consisting of an ester prepared by combining (a) a mixture of C₁₂-C₂₀-fatty acids having an iodine number of 48-96 and a content of C₁₆-C₁₈-fatty acids of at least 90%; with (b) a mixture of C₁₂-C₂₀-fatty alcohols having an iodine number of 50-95 and a content of C₁₆-C₁₈-fatty alcohols of at least 90%, said synthetic wax ester having an iodine number of 40-110; a saponification number of from 100 to 140; an acid number of less than 1; an hydroxy number of 5 or less; and a solidification range of from 10° to 30° C.

4,315,041

EMULSIFIER COMPOSITION AND QUALITY IMPROVEMENT METHOD FOR STARCH CONTAINING FOOD

Tetsuro Fukuda, Hirakata; Hideo Matsuura, Toyonaka; Yoshito Koizumi, Makado, and Takeshi Yamaguchi, Chiba, all of Japan, assignors to Riken Vitamine Oil Co., Ltd., Tokyo, Japan

Filed Dec. 28, 1979, Ser. No. 108,145

Claims priority, application Japan, Nov. 19, 1979, 54-149770; Dec. 7, 1979, 54-159616

Int. Cl.³ A21D 2/16

U.S. Cl. 426—653

4 Claims

1. An emulsifier composition for use in starch containing food which is prepared by melt mixing 80-95% of a distilled monoglyceride composition comprising 65-85% of saturated fatty acid monoglycerides and 35-15% of unsaturated fatty acid monoglycerides and having an iodine value of 10-40, with 20-5% of fats having a melting point of more than 45° C., powdering the resultant mixture and thereafter tempering the powdered composition for more than 30 minutes at a temperature above 45° C. and which does not melt the powdered composition.

4,315,042

SOLDER REMOVAL TECHNIQUE

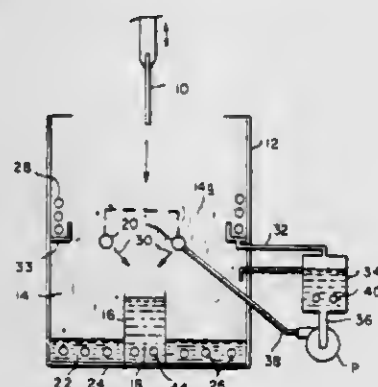
Donald J. Spigarelli, Carlisle, Mass., assignor to Hybrid Technology Corporation, Concord, Mass.

Filed Jul. 14, 1978, Ser. No. 924,518

Int. Cl.³ B23K 1/08; B05D 5/12

U.S. Cl. 427—96

29 Claims



1. A method of solder leveling comprising the steps of forming a zone of saturated vapors from a selected liquid; coating one or more surfaces of an article with solder from

a source thereof which is at least partly in said zone of saturated vapors;

positioning said article, one or more surfaces of which have been coated with solder, in said zone of saturated vapors; maintaining said saturated vapor zone at a substantially constant temperature to provide heat so as to maintain the solder on the one or more surfaces of said article in a molten state;

directing one or more liquid streams of said selected liquid onto the one or more surfaces of said article while said article is positioned in said zone of saturated vapors so as to remove excess molten solder therefrom to provide a leveling of the solder thereon; and

providing said one or more liquid streams at a selected temperature independently of the temperature of the selected liquid which forms the zone of saturated vapors whereby control of the solder removal is effected separately from the heating required to produce the zone of saturated vapors.

15. Apparatus for leveling solder comprising

a treating chamber,

means in said treating chamber for providing a molten bath of solder,

means for maintaining a saturated atmosphere of vapor within a selected region of said treating chamber formed from a selected liquid in said treating chamber,

means for moving an article having one or more surfaces to be coated with solder through said treating chamber in said vapor into said molten bath of solder and for moving said article with one or more surfaces coated with said solder through said vapor, said vapor heating said one or more solder coated surfaces so as to maintain said solder in a molten state,

means in said treating chamber for projecting one or more liquid streams of said selected liquid against one or more solder-coated surfaces of the article when said article is moving through said vapor in said one or more surfaces of the article, said molten bath and said liquid stream projecting means both being within said saturated vapor region, and

means for supplying said selected liquid to said projecting means at a selected temperature independently of the temperature of the selected liquid which forms the zone of saturated vapors whereby control of the solder removal is effected separately from the heating required to produce the zone of saturated vapors.

4,315,043

COATING OF GRANULATED ORGANIC DYES WITH AN EPOXY

Joseph E. G. Couture, and Joseph N. A. Roy, both of Ste-Foy, Canada, assignors to Her Majesty the Queen in Right of Canada, as represented by the Minister of National Defence, Ottawa, Canada

Continuation of Ser. No. 104,759, Dec. 18, 1979, abandoned, which is a division of Ser. No. 52,302, Jun. 26, 1979, Pat. No. 4,225,368. This application Sep. 22, 1980, Ser. No. 189,113

Claims priority, application Canada, Mar. 2, 1979, 324566

Int. Cl.³ B05D 7/00, 7/24

U.S. Cl. 427—212

9 Claims

1. A method of coating an organic dye of a particle size of 100 to 1000 microns with an inert non-sticking coating comprising an epoxy resin, comprising

(a) providing a reactor containing water heated to the reaction temperature,

(b) introducing said organic dye and said coating material into said reactor,

(c) agitating to form a dispersion of the reactants in water, and

(d) maintaining said reaction temperature and agitation to prevent agglomeration and ensure uniform coating of the dye particles, until the coated dye particles are cured.

4,315,044

STABLE AQUEOUS EPOXY DISPERSIONS

Jimmy D. Elmore, and Joseph L. Cecil, both of Louisville, Ky., assignors to Celanese Corporation, New York, N.Y.

Filed Nov. 5, 1980, Ser. No. 204,101

Int. Cl.³ B05D 3/00; C08L 63/02

U.S. Cl. 427—386

19 Claims

1. A stable epoxy dispersion composition comprising (1) an aqueous medium; and (2) between about 50-70 weight percent of self-emulsifying epoxy resin which is the addition product of reactants comprising (a) 40-90 parts by weight of diglycidyl ether of dihydric phenol, (b) 5-35 parts by weight of dihydric phenol, and (c) 2-15 parts by weight of diglycidyl ether of polyoxyalkylene glycol, wherein the molecular weight of the epoxy resin is in the range between about 500-20,000.

4,315,045

CONDITIONING OF POLYAMIDES FOR ELECTROLESS PLATING

David A. Dillard, Diamond Bar; Eileen Maguire, Arcadia, and Lawrence P. Donovan, Temple City, all of Calif., assignors to Crown City Plating Co., El Monte, Calif.

Continuation-in-part of Ser. No. 970,923, Dec. 19, 1978, abandoned. This application Jun. 16, 1980, Ser. No. 159,585

Int. Cl.³ B05D 3/10

U.S. Cl. 427—307

48 Claims



1. A process for electroless plating of polyamide substrates wherein the substrate is etched with an aqueous acid etch solution prior to electroless plating, the improvement which comprises conditioning the substrate prior to contact with the aqueous acid etch solution by contact with an aqueous alkaline conditioning solution having a pH of at least about 10 and maintained at a temperature of from about 150° F. to the lesser of the boiling point of the solution and the softening temperature of the polyamide substrate for a time sufficient to enhance aqueous acid etch of the polyamide substrate to render the conditioned polyamide substrate substantially uniformly and directly receptive to a metal electroless plating catalyst.

4,315,046

PROCESS FOR SECURING PRIMERLESS ADHESION OF SILICONE RESIN COATING COMPOSITION TO CAST ACRYLICS

Robert B. Frye, Albany, N.Y., assignor to General Electric Company, Waterford, N.Y.

Filed Jul. 17, 1980, Ser. No. 169,651

Int. Cl.³ B05D 3/00

U.S. Cl. 427—322

7 Claims

1. In process for forming an adherent, abrasion-resistant coating on unprimed cast acrylic substrate, the steps comprising:

(i) applying to said substrate a wash coating of glacial acetic acid and draining said wash coating for from 2 to 5 minutes.

(ii) thereafter applying a coating composition comprising a dispersion of colloidal silica in an aliphatic alcohol-water solution of the partial condensate of a silanol of the formula RSi(OH)₃, wherein R is selected from the group consisting of alkyl having from 1 to 3 carbon atoms and

aryl, at least 70 weight percent of the silanol being CH₃Si(OH)₃, said composition containing 10 to 40% solids, said solids consisting essentially of 10 to 70 weight % colloidal silica and 30 to 90 weight % of the partial condensate and wherein said composition has a pH of from 7.1 to about 7.8.

4,315,047

CURLED TAPE, ROLL, AND CONTAINER END

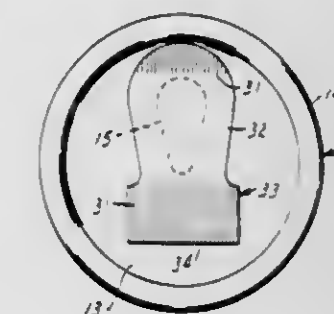
Thomas W. Seabold, St. Paul; Richard A. Patterson, Woodbury, and Richard P. de Neui, Lake Elmo, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of Ser. No. 121,661, Feb. 15, 1980, abandoned. This application Sep. 19, 1980, Ser. No. 188,671

Int. Cl.³ B32B 3/02

U.S. Cl. 428—64

12 Claims



1. A tape comprising a backing and a pressure-sensitive adhesive layer wherein said backing of said tape is deformed in uniformly spaced, localized areas to impart at least a temporary curl to said tape.

11. An article of manufacture comprising a container end having at least one preformed opening, said preformed opening sealed with the tape of claim 1.

12. A convolutely wound roll of the tape of claim 1, wherein said adhesive layer is exposed on the outside of said roll.

4,315,048

COMPOSITE STRUCTURES BASED ON POLYOLEFIN FIBERS AND PROCESS FOR MAKING SAME

Benito Beghelli, Monza; Vincenzo De Angelis, Terni, and Mauro Navone, Milan, all of Italy, assignors to Merak S.p.A., Milan, Italy

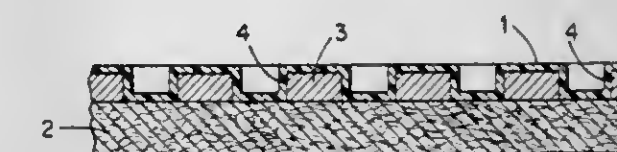
Filed Mar. 11, 1980, Ser. No. 129,356

Claims priority, application Italy, Mar. 12, 1979, 20896 A/79

Int. Cl.³ B32B 3/14

U.S. Cl. 428—78

4 Claims



1. A composite structure comprising:

(a) a layer of fibers comprising polyolefin fibers and which is in the form of a fabric, a non-woven fabric, a mat, or a carpet;

(b) an unoriented polyolefin film having a thickness of 50 to 2,500 microns; and

(c) interposed between the fiber layer and the polyolefin film, a reinforcing element selected from the group consisting of metal foils, metal nets, stiff plastic sheets, paper-board and structures comprising glass fibers, said reinforcing element having smaller dimensions than the fiber layer and being provided with a plurality of holes through which the polyolefin film contacts the fiber layer and is heat-set to it.

4,315,049

STITCHLESS LOW BULK, PIN-TYPE SEAM FOR USE IN PAPER MAKING EQUIPMENT FABRICS, SUCH AS DRYER FELTS

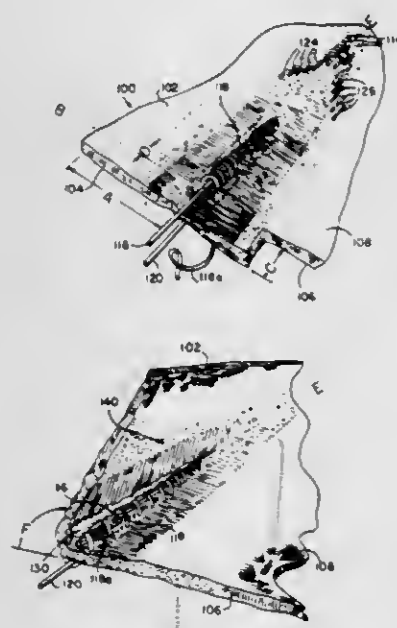
Gisela Fickers, Eupen, Belgium, assignor to Asten Group, Incorporated, Devon, Pa.

Continuation-in-part of Ser. No. 100,946, Dec. 6, 1979. This application Apr. 28, 1980, Ser. No. 144,444

Int. Cl.³ D21F 7/10; D03D 25/00

U.S. Cl. 428—104

22 Claims



1. A method of producing a low bulk, stitchless pin-type seam in a multi-ply fabric for use with paper making equipment, comprising the steps of:

- providing a length of fabric to be seamed comprising a plurality of longitudinal warp yarns interwoven with at least two ply-forming layers of transverse pick yarns, said layers defining at least front and back plies, said length of fabric being of a length which is longer than the desired seamed fabric length;
- removing preselected pick yarns to create apertures in said fabric and define a fold line which corresponds to the fabric end of one of the sides of the seam to be formed, said fold line further defining adjacent fabric body and fabric overlap regions on said fabric;
- installing a seaming coil through said apertures;
- removing preselected pick yarns from said back ply of said fabric in said fabric body and fabric overlap regions adjacent said coil;
- applying a bead of adhesive along said fold line;
- folding at least a portion of said overlap region at said fold line to overlap said fabric body region to form a seaming edge defined by said coil;
- creating a warp yarn fringe on a portion of said fabric overlap region which is remote to said seam overlap area;
- drawing at least portions of said warp yarn fringe between yarns in said fabric body region to complete a first half of said coil seam; and
- performing at least steps (b) through (h) with respect to a different fabric position whereby a second half of said coil seam is formed to matingly receive said first half to define a pin receiving channel.

4,315,050

LAMINATES STRUCTURE OF AN EXPANDED CORE PANEL AND A FLAT SHEET OF MATERIAL WHICH DOES NOT EASILY BOND AND A PROCESS FOR MAKING THE SAME

Rosemary Rourke, Newton, Conn., assignor to Norfield Corporation, Danbury, Conn.

Filed Jan. 25, 1980, Ser. No. 115,338

Int. Cl.³ B32B 3/12; B29C 27/12

U.S. Cl. 428—116

14 Claims



1. A method of forming a composite member having a panel of expanded thermoformable material with a plurality of voids, as a core and at least one sheet of the same material attached thereto, comprising the steps of:

- disposing at least one face portion of a layer of expanded thermoformable material adjacent to a face portion of a layer of a sheet of same material;
- disposing the layers between two platens of a press;
- heating at least one platen adjacent to the sheet of the same material to its melting temperature at the point of contact between said layers;
- moving said presses together thereby squeezing material from the sheet of the same material into voids of said expanded thermoformable material;
- cooling said at least one platen; and
- removing said composite member from said platens.

- A composite member comprising: a panel of expanded thermoformable material having a plurality of voids, each of said voids having an opening on at least one surface of said expanded panel, said opening having an area smaller than an interior cross sectional area of said void; and at least one layer of hard to bond thermoformable material attached to said panel and having a plurality of projections into said voids, and each of said projections having a cross sectional area at the interior of said voids which is greater than the area of said openings made by the method of claim 1.

4,315,051

PROCESS FOR EXPANDING THERMOFORMABLE MATERIALS HAVING CLEAR SURFACES AND THE RESULTANT PRODUCTS

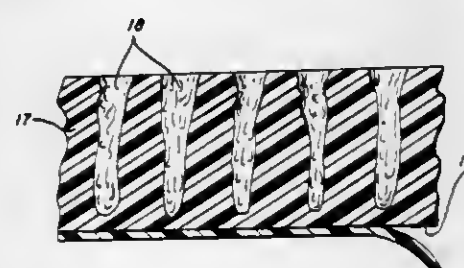
Rosemary Rourke, Webster Pl., Newtown, Conn. 06470

Filed Jan. 25, 1980, Ser. No. 115,336

Int. Cl.³ B32B 3/12; B29C 17/02

U.S. Cl. 428—119

10 Claims



1. A method of forming an expanded panel of thermoformable material, in such a manner that said panel will have a flat smooth side comprising:

- disposing between a flat solid platen and a vented platen, a sheet of thermoformable material;

placing between the sheet of thermoformable material and the flat solid platen a film layer of plastic material which does not bond to said thermoformable material but which exhibits hot tack adhesion at an elevated temperature; bringing the platens together so as to press against said sheet of thermoformable material and film layer; heating said platens to a temperature at which both the thermoformable material and the film layer exhibit hot tack adhesion; moving the platens apart so as to expand the thermoformable material into an expanded panel; cooling the expanded panel, removing the expanded panel from between the platens; and stripping the film layer from said expanded panel.

8. An expanded panel of thermoformable material having a smooth side formed in accordance with the method claim 1.

4,315,052

MAGNETIC RECORDING MEDIUM

Noboru Takahashi; Sadao Ozaki; Hiromasa Isono; Toshikazu Nishihara; Takeshi Ikushima, and Tunekide Naruse, all of Yokohama, Japan, assignors to Victor Company of Japan, Limited, Ynkobama, Japan

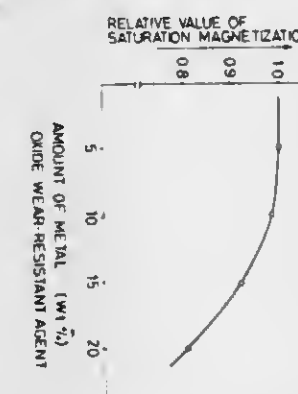
Filed Jun. 23, 1980, Ser. No. 162,092

Claims priority, application Japan, Jun. 26, 1979, 54-79749

Int. Cl.³ G11B 5/70

U.S. Cl. 428—328

4 Claims



1. A magnetic recording medium comprising a support and a magnetic recording layer formed on said support and comprised of a magnetic powder of a metal or alloy, about 2.0 to 20 wt % of an abrasion-resistant metal oxide, about 1.0 to 10 wt % of ethylene stearyl bisamide and about 10 to 25 wt % of an organic resin binder, all based on said magnetic metal powder.

4,315,053

BASE COATS COVERED BY A CLEAR LACQUER COATING AND PROCESS FOR COATING

Ulrich Potb, Münster; Dieter Möller, Ascheberg, and Arnold Döbelstein, Cologne, all of Fed. Rep. of Germany, assignors to BASF Farben & Fasern AG, Hamburg, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 124,570, Feb. 25, 1980, abandoned, which is a continuation of Ser. No. 12,723, Feb. 16, 1979, abandoned. This application May 28, 1980, Ser. No. 153,852

Claims priority, application Fed. Rep. of Germany, Feb. 16, 1978, 2806497

Int. Cl.³ B32B 15/08; B44D 1/14

U.S. Cl. 428—423.7

14 Claims

1. In an article having a substrate and a multilayer coating composition adhered thereto, said composition comprising:

- a dried nonaqueous base film produced from a composition comprising:
 - a first film-forming material selected from the group consisting of alkyd resins, polyester resins, acrylic resins, and polyurethane resins, wherein said first film-forming material contains from about 2 to about 50 weight percent, based on the film-forming solids, of a cellulose ester,
 - uniformly dispersed pigments, and

3. volatile organic solvents for said first film-forming material, and

B. a baked transparent coating composition deposited on said base film in a relationship to maintain substantially no intermixing and no intersolution of said base film and said transparent coating composition, said transparent coating composition comprising:

- a second film-forming material selected from the group consisting of alkyd resins, polyester resins, acrylic resins and polyurethane resins, and
- volatile organic solvents for said second film-forming material, the improvement comprising:

said second film-forming material consisting essentially of polyester resins comprising a crosslinking resin containing hydroxyl groups obtained by esterifying polycarboxylic acids selected from the group consisting of aliphatic polycarboxylic acids, cycloaliphatic polycarboxylic acids, and mixtures thereof with polyols selected from the group consisting of aliphatic polyols, cycloaliphatic polyols and mixtures thereof.

4,315,054

CRACK-RESISTANT, HEAT-ABSORBING FUSION GLASSES ENABLING LOW PROCESSING TEMPERATURES FOR THE HERMETIC ENCAPSULATION OF ELECTRONIC COMPONENTS

Werner Sack, and Otto Lindig, both of Mainz, Fed. Rep. of Germany, assignors to Schott Glaswerke, Mainz, Fed. Rep. of Germany

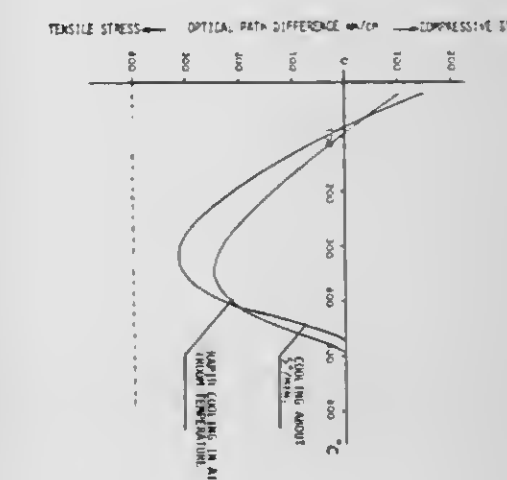
Filed Jul. 30, 1980, Ser. No. 173,799

Claims priority, application Fed. Rep. of Germany, Jul. 30, 1979, 2930912

Int. Cl.³ C03C 3/04, 3/10

U.S. Cl. 428—433

3 Claims



1. A fusion glass of the series $\text{SiO}_2\text{—Al}_2\text{O}_3\text{—Na}_2\text{O—PbO—Fe}_2\text{O}_4$ consisting essentially of 43.0–46.2% by weight of SiO_2 ; 1.0–2.0% by weight of Al_2O_3 ; 6.2–16.0% by weight of Na_2O which is the only alkali metal oxide; 33.0–46.1% by weight of PbO ; 2.0–4.5% by weight of Fe_2O_4 ; and a maximum of 0.2% by weight of Sb_2O_3 , all calculated as percent by weight of oxide; the glass being heat absorbing, having a softening temperature of 537°–601° C., and fusing to metallic electronic conductor contacts in a hermetic seal at low fusion processing temperatures of 763°–879° C. whereby minimal vaporization of glass components occurs, the encapsulated metallic contacts so produced having stresses between the metallic conductor and the fusion glass, which upon subsection to rapid cooling in air or to cooling at 5° C./min, are characterized by a maximum tensile stress corresponding to an optical path difference of $\leq 400 \text{ nm/cm}$, at a specific birefringence of $(2.7 \pm 0.1) \times 10^{-6} \text{ mm}^2/\text{N}$, said metallic contacts having a coefficient of thermal expansion at 20°–300° C. of $8.4\text{--}12.2 \times 10^{-6}/^\circ\text{C}$. and a maximum heat absorption at 1 to 1.5 μm .

2. A metallic, electronic conductor contact encapsulated in a fusion glass of claim 1.

4,315,055

DIRECT ELECTROLESS DEPOSITION OF CUPROUS OXIDE FILMS

J. Shannon Breininger, Gibsonia, and Charles B. Greenberg, Murrysville, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Continuation of Ser. No. 755,369, Dec. 29, 1976, abandoned.

This application Jun. 30, 1980, Ser. No. 164,110

The portion of the term of this patent subsequent to Oct. 9, 1996, has been disclaimed.

Int. Cl.³ B32B 17/06; C03C 17/36

U.S. Cl. 428—434

8 Claims

1. A wet chemical method for the direct deposition of a film consisting essentially of cuprous oxide onto a surface of a glass substrate comprising the steps of:

- cleaning a surface of the substrate;
- rendering said surface receptive to electroless deposition of a coating; and
- contacting the receptive surface with an electroless plating solution comprising:
 - a copper salt;
 - a complexing agent;
 - a reducing agent; and
 - sufficient alkali to bring the pH of the solution to at least about 12.9

for a sufficient time to deposit a cuprous oxide film of a desired thickness.

3. A wet chemical method for the direct deposition of a film consisting essentially of cuprous oxide onto a surface of a glass substrate comprising the steps of:

- cleaning a surface of the substrate;
- rendering said surface receptive to electroless deposition of a coating by contacting the surface with a silver salt, a complexing agent and a reducing agent to deposit an activating silver film;
- rinsing the activated surface with a solution of a chemical compound capable of rendering the surface substantially free from silver oxide before it is contacted with an electroless plating solution; and
- contacting the activated surface with an electroless plating solution comprising:
 - a copper salt;
 - a complexing agent;
 - a reducing agent; and
 - sufficient alkali to bring the pH of the solution to at least about 12.9 for a sufficient time to deposit a cuprous oxide film of a desired thickness.

4. The method according to claim 3, wherein the activated surface is rinsed with a solution of sodium thiosulfate.

5. The method according to claim 4, wherein the activated surface is contacted with an electroless plating solution wherein said copper salt is copper sulfate; said reducing agent is formaldehyde; said complexing agent is Rochelle Salt; and said alkali is alkali metal hydroxide.

4,315,056

LOW TIN TERNE COATED STEEL ARTICLE

Marvin B. Pierson, Franklin, and Frank C. Dunbar, Monroe, both of Ohio, assignors to Armco Inc., Middletown, Ohio

Continuation of Ser. No. 793,624, May 4, 1977, abandoned, which is a continuation-in-part of Ser. No. 730,622, Oct. 7, 1976, abandoned, which is a continuation of Ser. No. 499,917, Jul. 22, 1974, abandoned. This application Feb. 4, 1980, Ser. No. 118,073

Int. Cl.³ B32B 15/04, 15/18; C23C 1/06

U.S. Cl. 428—645

3 Claims

1. A jet finished, hot dipped, terne coated, steel article having improved solderability and appearance, the coating consisting of about 2% tin to about 6.5% tin and the balance lead, with no other purposeful additions, and including only impuri-

ties normally present, in an amount less than 1%, the weight of the coating being from about 0.5 oz./ft.² (15.2g/m²), through the entire range of commercial coating weights and being the only metallic coating on said article.

4,315,057

MAGNETIC RECORDING MEDIUM

Eiji Horigome, Hitoshi Azegami, and Hiroshi Ohta, all of Tokyo, Japan, assignors to TDK Electronics Co., Ltd., Tokyo, Japan

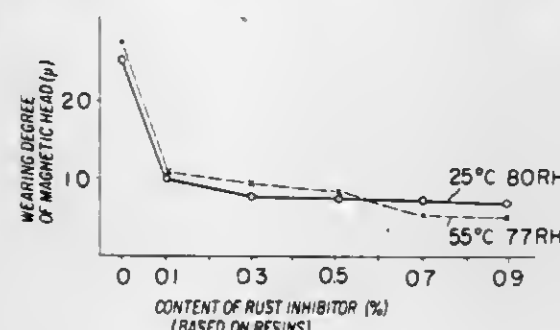
Filed Oct. 1, 1980, Ser. No. 192,697

Claims priority, application Japan, Oct. 9, 1979, 54/129424

Int. Cl.³ H01F 10/02; B05D 5/12

U.S. Cl. 428—694

3 Claims



1. In a magnetic recording medium which comprises a substrate coated with a magnetic layer comprising a magnetic powder, a resinous binder and a rust inhibitor, the improvement of the rust inhibitor comprising benzotriazole or benzodiazole at a ratio of more than 0.1 wt. % based on resins of the binder.

4,315,058

VENT PLUGS FOR ELECTRIC STORAGE BATTERIES

Derek K. Schwendener, Neil L. Ainsworth, both of Billerica, and Richard J. Foss, Rainham, all of England, assignors to Chloride Group Limited, London, England

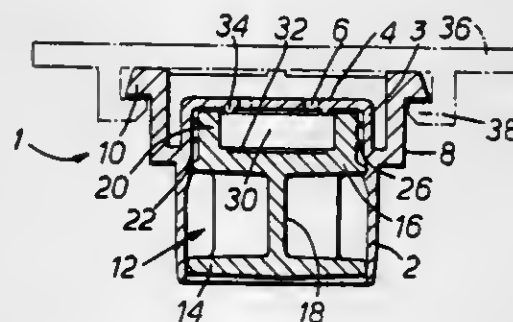
Filed May 6, 1980, Ser. No. 147,319

Claims priority, application United Kingdom, May 9, 1979, 16115/79

Int. Cl.³ H01M 2/12

U.S. Cl. 429—84

15 Claims



1. A vent plug for an electric storage battery comprising: a tubular body for insertion in an aperture in a lid of said battery; said vent plug further comprising an upper end portion integral with said tubular body; a lid integrally formed within said upper end portion of said vent plug wherein at least one aperture is formed within said upper end portion for venting gas from said vent plug; a removable insert secured within said tubular body and at least partially defining a gas venting path, said insert and said body defining a space with which said at least one gas venting aperture and said gas venting path communicate; and
2. a porous flame retarding body disposed within said space, said flame retarding body being retained in position by

said removable insert such that said flame retarding body may be readily removed from said vent plug.

4,315,059

MOLTEN SALT LITHIUM CELLS

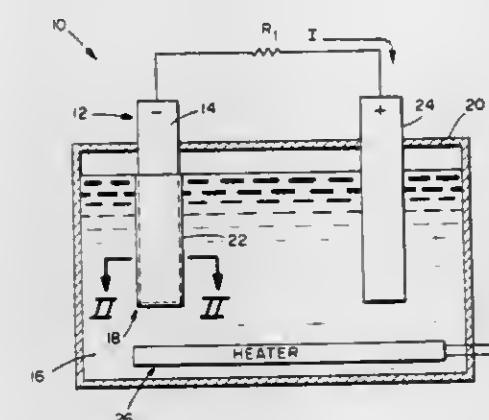
Ian D. Raistrick, Menlo Park; Jaime Poris, Portola Valley, and Robert A. Huggins, Stanford, all of Calif., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jul. 18, 1980, Ser. No. 170,254

Int. Cl.³ H01M 6/36

U.S. Cl. 429—112

20 Claims



1. In an electrochemical cell having a first electrode, a second electrode spaced from said first electrode, and an electrolyte contacting said second electrode, said first electrode including lithium as an electroactive species thereof, the improvement comprising: said electrolyte including nitrate moieties; and, means for permitting conduction of lithium in an ionic form between said electrolyte and said first electrode while substantially isolating said first electrode from said electrolyte.

4,315,060

METAL SUBSTRATE FOR AN ELECTROCHEMICAL CELL

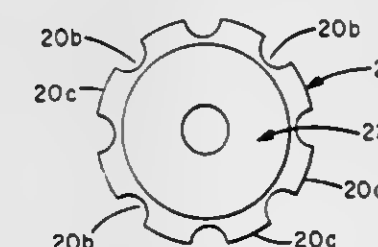
Franz Goebel, Sudbury, and William T. McHugh, Westwood, both of Mass., assignors to GTE Products Corporation, Stamford, Conn.

Filed Jun. 13, 1980, Ser. No. 159,267

Int. Cl.³ H01M 6/00

U.S. Cl. 429—122

8 Claims



1. A metal current collector substrate adapted to be inserted into an elongated housing of an electrochemical cell and to make direct physical contact with an interior wall of the housing, said current collector substrate comprising:

- a thin, solid, resilient disc of a non-permeable metal and having a plurality of like cut-out openings spaced about its entire periphery in a predetermined pattern and defining a plurality of deflective, resilient peripheral portions intermediate to the openings, said disc further having a single additional opening therein spaced from the plurality of other openings and encircled by the material of the disc, and said disc being normally flat prior to insertion into the housing of an electrochemical cell and having a size prior to insertion into the housing of the cell greater than the interior cross section of the housing, by an amount such that the peripheral portions of said disc operate when the

disc is inserted into the housing to be deflected upwardly by physical contact with the interior wall of the housing and to move toward each other thereby to cause the disc to generally conform to the interior cross section of the housing, said peripheral portions following the deflection thereof being at acute angles with respect to the interior wall of the housing and making direct physical contact with the interior wall of the housing and establishing a plurality of passageways adjacent to the interior wall of the housing as a result of the adjacency of the plurality of openings to the interior wall of the housing.

4,315,061

BATTERY WITH INTERNAL ELECTRICAL CONNECTORS

Hironosuke Ikeda, Hirakata; Satoshi Narukawa, and Shigehiro Nakaido, both of Kobe, all of Japan, assignors to Sanyo Electric Co., Ltd., Moriguchi, Japan

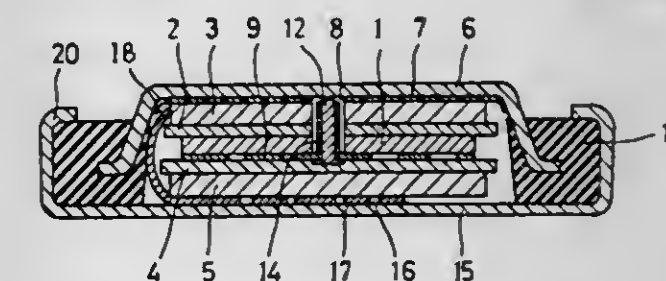
Filed Jun. 12, 1980, Ser. No. 158,781

Claims priority, application Japan, Jun. 25, 1979, 54-87181[U]; Nov. 2, 1979, 54-152639[U]; Jan. 17, 1980, 55-4138[U]; May 9, 1980, 55-64137[U]

Int. Cl.³ H01M 2/26

U.S. Cl. 429—161

16 Claims



1. A battery comprising: a first electrode plate having a first polarity; a second electrode plate located on one side of the first electrode plate and having a second polarity; a first separated layer disposed between said first and second electrode plates; a third electrode plate on another side of the first electrode plate and having said second polarity; a second separator layer disposed between the first and third electrode plates; a first outer case forming a battery terminal of the first polarity; a collector element electrically connecting the first electrode plate and the first outer case together; a first insulating layer disposed immediately adjacent the first outer case, the second electrode plate and the collector element in a manner that an internal battery connection to the first outer case through the collector element is permitted while all other internal battery connections to the first outer case are prevented; and a second outer case forming a battery terminal of the second polarity, the second outer case being electrically connected to the second and third electrode plate and being electrically insulated from the first outer case.

4,315,062

METHOD FOR THE MANUFACTURE OF A POLYSTYRENE SEPARATOR AND CELL

Donald M. Clarizio, Yonkers, N.Y., assignor to Duracell International Inc., Bethel, Conn.

Filed Jan. 16, 1978, Ser. No. 870,049

Int. Cl.³ H01M 2/16

U.S. Cl. 429—246

11 Claims

1. A method of forming a separator for use in an electrochemical cell comprising the steps of dissolving polystyrene resin in a solvent, placing a predetermined amount of the resulting polystyrene solution directly on the exposed surface

of a cathode, and removing said solvent thereby leaving a thin, substantially continuous coating on the exposed surface of said cathode.

11. An electrochemical cell comprising an anode, a cathode and a polystyrene separator formed by the method of claim 1, said separator being positioned between and completely separating said cathode and said anode whereby it prevents the migration therethrough of reaction products of said cathode and said anode.

4,315,063

ELECTROPHOTOGRAPHIC PHOTOSENSITIVE MEMBER HAVING A HALOGEN CONTAINING CHARGE INJECTION LAYER

Tadaji Fukuda, and Teruo Misumi, both of Toride, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Nov. 9, 1978, Ser. No. 959,005

Claims priority, application Japan, Nov. 17, 1977, 52-138204
Int. Cl.³ G03G 5/10, 5/14

U.S. Cl. 430—65

8 Claims

1. An electrophotographic photosensitive member comprising an electric charge injection layer from 1 to 10 microns in thickness, an amorphous photoconductive layer from 25 to 75 microns in thickness on said charge injection layer, and an insulating layer on said amorphous photoconductive layer, said charge injection layer being a semiconductive layer containing halogen as an impurity; wherein when the layer to be joined to the charge injection layer employs a p-type semiconductor, the work function of the charge injection layer should be equal to or greater than that of the material used for the layer to be joined; and when the layer to be joined to the charge injection layer employs an n-type semiconductor, the work function of the charge injection layer should be equal to or smaller than, that of the layer to be joined.

4,315,064

ELECTROSTATIC PHOTOGRAPHIC COPYING PROCESS

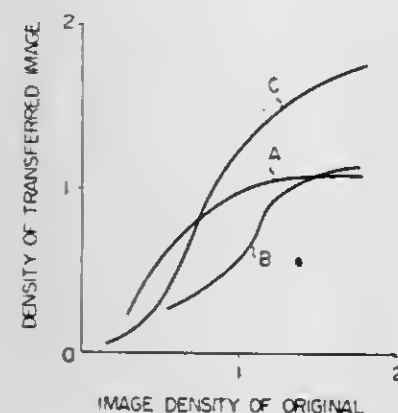
Nobuhiro Miyakawa, Kobe, and Takashi Tesbima, Amagasaki, both of Japan, assignors to Mita Industrial Company Limited, Osaka, Japan

Filed Nov. 28, 1979, Ser. No. 98,215

Claims priority, application Japan, Nov. 28, 1978, 53/145967
Int. Cl.³ G03G 13/09

U.S. Cl. 430—122

11 Claims



1. An electrostatic photographic copying process comprising causing a substrate carrying an electrostatic latent image thereon to fall in contact with a magnetic brush of a one-component type magnetic developer to effect development of the electrostatic latent image and electrostatically transferring the formed image of the developer onto a transfer sheet, wherein the magnetic developer comprises a resin medium and a finely divided magnetic material dispersed therein, the resin medium comprising a copolymer comprising (a) at least one aromatic vinyl monomer and (b) at least one mono- or di-ethylenically unsaturated monomer other than the aromatic vinyl monomer, the amount of the finely divided magnetic material being 45 to 65% by weight based on the total developer, the amount of

said copolymer being 30 to 120% by weight based on the finely divided magnetic material, said magnetic developer being prepared by melt-kneading the mixture of the resin medium and the finely divided magnetic material and cooling the kneaded composition and pulverizing the cooled composition, said magnetic developer having an electrostatic capacity of 7.8 to 9.32 PF (picofarad) as determined under conditions of an electrode spacing of 0.65 mm, an electrode sectional area of 1.43 cm² and an electrode load of 105 cm², and a dielectric constant of 4 to 4.78 and a volume resistivity of at least 5 × 10¹³ Ω-cm, as determined under the above conditions.

4,315,065

OLEOPHILIC, FILM-FORMING PHOTOPOLYMERIZABLE DIAZO AND EPOXY RESIN COMPOSITIONS AND LITHOGRAPHIC PLATES PREPARED THEREFROM

Marcel Pigeon; Marta Szretter, both of Neuilly, and Chantal Perie, Paris, all of France, assignors to Rhone-Poulenc Systemes, Cedex, France

Filed Apr. 16, 1980, Ser. No. 140,847

Claims priority, application France, Feb. 11, 1980, 80 02966
Int. Cl.³ G03C 1/54, 1/60; G03F 7/08

U.S. Cl. 430—175

14 Claims

1. An oleophilic, film-forming, organic-solvent soluble photopolymerizable composition, which consists essentially of:
(a) from about 30% to 70% by weight of a condensation product of paradiazodiphenylamine fluoroborate with a reactive carbonyl group-containing organic condensation agent and;
(b) from about 70% to 30% by weight of a monomer or prepolymer epoxy resin or mixture thereof, which is fluid at ambient temperature and which has an epoxy equivalent of less than about 350, a Durrant melting point of about 38° C. or less and a viscosity of at least about 5,000 cps at 25° C.; said composition being capable, when in coated layer form, of development with an aqueous developing solution containing an acid and a wetting agent.

4,315,066

SUBSTRATES SUITABLE FOR THE PRODUCTION OF PHOTOPOLYMERIZABLE ELEMENTS

Stuart G. Lambert, Colchester, England, assignor to Bexford Limited, London, England

Filed Jun. 25, 1979, Ser. No. 51,409

Claims priority, application United Kingdom, Mar. 29, 1979, 10062/79; Jun. 6, 1979, 19769/79

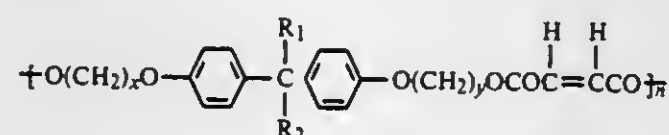
Int. Cl.³ G03C 1/78

U.S. Cl. 430—271

8 Claims



1. A substrate suitable for the production of a photopolymerizable element, comprises a self-supporting plastic film or plastic sheet having an adhesive layer superimposed upon at least one surface thereof, wherein the adhesive layer comprises an adhesive component consisting essentially of an unsaturated resin having the formula:



wherein R₁ and R₂ are the same or different and represent lower alkyl groups having up to 6 carbon atoms, x and y are the same or different and are an integer from 1 to 4 inclusive and n is an integer from 4 to 30 inclusive.

4,315,067

METHOD FOR MAKING ELECTRON SENSITIVE NEGATIVE RESIST

Maryse Gazard; Armand Eranian; Francoise Barre, and Claude Duchesne, all of Paris, France, assignors to Thomson-CSF, Paris, France

Continuation of Ser. No. 57,089, Jul. 12, 1979, abandoned, which is a continuation of Ser. No. 798,169, May 18, 1977, abandoned.

This application Jul. 9, 1980, Ser. No. 167,036

Claims priority, application France, May 21, 1976, 7615520

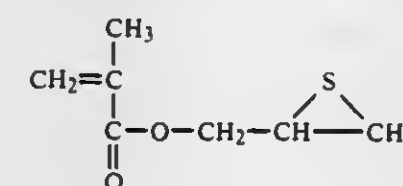
Int. Cl.³ G03C 1/71

U.S. Cl. 430—296

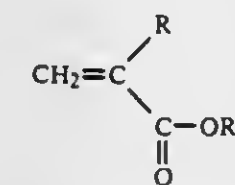
12 Claims

1. A method for preparing an electron sensitive negative resist which comprises:

contacting a substrate with a solution comprising a solvent and a copolymer having units of the formula (I)



and units of formula (II):



wherein R is H or a C₁-C₁₀ alkyl group, and R' is a C₁-C₅ alkyl group, and wherein said units of formula (II) are present in a proportion of 15-65% of said copolymer; removing said solvent to thereby deposit said copolymer on said substrate; and irradiating said copolymer with a beam of electrons for a time sufficient to absorb a charge density of between 10⁻³ and 5 × 10⁻³ coulombs/sq. meters.

4,315,068

PHOTO-SENSITIVE AND HEAT-SENSITIVE COMPOSITION AND RECORDING ELEMENT USING SAME

Makoto Kunitake, Chigasaki; Masaakira Umehara, Yokohama; Koji Uji-Ie, Hino, and Kiyoshi Taniguchi, Yokohama, all of Japan, assignors to Ricoh Co., Ltd., Tokyo, Japan

Filed Jan. 28, 1981, Ser. No. 229,216

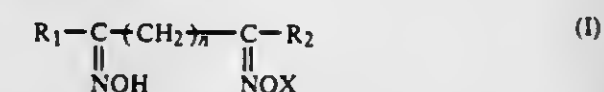
Claims priority, application Japan, Feb. 5, 1980, 55-12629; May 15, 1980, 55-63411; May 28, 1980, 55-70945

Int. Cl.³ G03C 5/24, 1/00

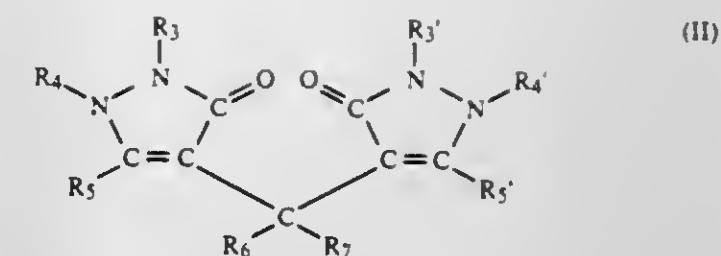
U.S. Cl. 430—341

48 Claims

1. A photo-sensitive and heat-sensitive composition which comprises (a) a photooxidant, (b) a color-generator generating color when oxidized, (c) an acid promoting said color generation, (d) a cobalt (III) amine and/or amine complex, (e) a photoreductant, (f) a hydrogen donor, (g) at least one kind of chelating agent selected from dioxime chelating agents having the following general formula (I):



(wherein n is an integer of 0 to 3, and R₁ and R₂ can each represent an alkyl, aryl or aralkyl group) and diantipryl methane chelating agents having the following general formula (II):



(wherein R₃, R₄, R₅, R₃', R₄' and R₅' can each represent a hydrogen atom and an alkyl or aryl group, and R₆ and R₇ can each represent a hydrogen atom and an alkyl, substituted or non-substituted aryl or aralkyl group), and (h) at least one kind of stabilizer selected from noble metal complexes, organic oxidants and organic acids.

4,315,069

COLOR COUPLER COMBINATION

John G. V. Scott, Maldon, and Anthony K. Harvey, Stisted, Nr. Braintree, both, England, assignors to Ciba Geigy AG, Basel, Switzerland

Filed Sep. 11, 1980, Ser. No. 186,098

Claims priority, application United Kingdom, Sep. 18, 1979, 32291/79

Int. Cl.³ G03C 7/00, 1/40

U.S. Cl. 430—365

31 Claims

1. Photographic silver halide material for preparing a monochromatic dye image by a chromogenic process which material comprises in at least one silver halide emulsion layer a colour coupler which couples with oxidized colour developer of aromatic primary amino type to produce a yellowish dye which absorbs light in the region of from 350 to 560 nm, a more reactive coupler compound which reacts with oxidized colour developer of the primary amino type to yield a dye of which the absorption is predominantly above 560 nm, and optionally further colour couplers, the ratio of coupler which produces a yellowish dye to more reactive coupler being from 10:0.1 to 10:2.0, the parts being by weight.

30. A process for the preparation of a monochromatic dye image which comprises imagewise exposing the photographic silver halide material as claimed in claim 1, colour developing the exposed material using a colour developing solution which comprises an aromatic primary amino colour developing agent, bleaching the thus formed silver image to yield a monochromatic dye image.

4,315,070

COLOR-PHOTOGRAPHIC RECORDING MATERIAL CONTAINING A HIGHLY REACTIVE DIR-COUPLER

Erwin Ranz, Leverkusen; Joachim W. Lohmann, Odenthal, and Heinz-Dieter Schütz, Bergisch-Gladbach, all of Fed. Rep. of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 16,954, Mar. 2, 1979, abandoned. This application Jun. 12, 1980, Ser. No. 158,990

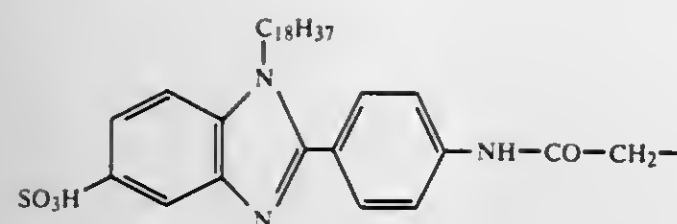
Claims priority, application Fed. Rep. of Germany, Dec. 11, 1978, 2853362

Int. Cl.³ G03C 1/40

U.S. Cl. 430—505

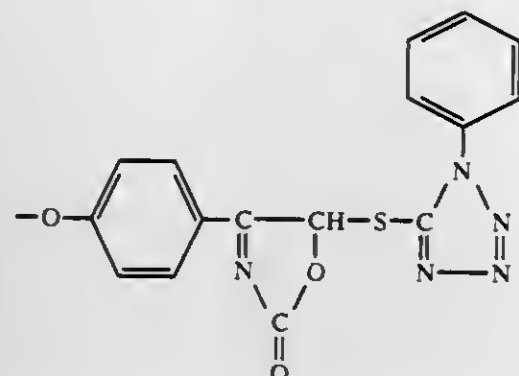
3 Claims

1. In a color photographic recording material comprising at least three differently spectrally sensitized light sensitive silver halide emulsion layer units which have non-diffusing color couplers associated therewith, and non-light-sensitive binder layers, the improvement according to which in at least one of the light-sensitive and light-insensitive layers of the recording material is associated with a DIR coupler compound corresponding to the following formula:



4,315,072
ARTIFICIAL GELATINS OF HIGH METHIONINE
CONTENT FOR PHOTOGRAPHIC FILM
 Sidney W. Fox, and Arthur I. Holden, both of Miami, Fla.,
 assignors to Polymicro, Miami, Fla.
 Filed Mar. 11, 1980, Ser. No. 129,351
 Int. Cl.³ G03C 1/06, 1/72; G03F 5/00

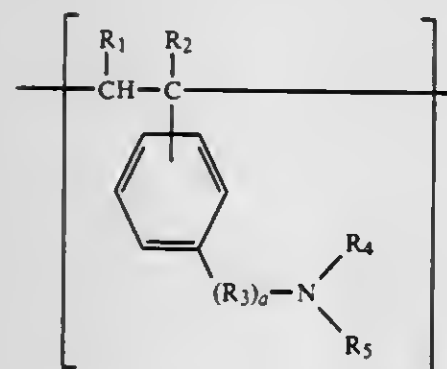
U.S. Cl. 430—628 **8 Claims**
 1. A photographic emulsion, comprising a silver halide and a polyimide condensation product of methionine and at least one other α -amino carboxylic acid, wherein the molar percent of methionine is greater than the molar percent of methionine in natural gelatin.



said DIR coupler having an effective reaction velocity constant k_{eff} of more than 20,000 ($\text{mole}^{-1}\text{sec}^{-1}$) in a concentration of from 10^{-5} to 10^{-3} mole per mole of silver halide in the same layer or in a concentration of from 10^{-7} to 10^{-5} mole per gram of solids in the case of a silver-halide-free binder layer adjacent to a silver halide emulsion layer.

4,315,071
POLYSTYRYL AMINE POLYMERIC BINDERS FOR
PHOTOGRAPHIC EMULSIONS
 Maurice J. Fitzgerald, Canton, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
 Filed Mar. 30, 1981, Ser. No. 249,000
 Int. Cl.³ G03C 1/02

U.S. Cl. 430—627 **10 Claims**
 1. A photosensitive silver halide emulsion comprising silver halide crystals disposed in an emulsion binder comprising a styryl amine polymer with repeating units having the general formula:



wherein:

R_1 is hydrogen, lower alkyl or halogen; R_2 is hydrogen, lower alkyl halogen, or cyano; R_3 is lower alkylene or cycloalkylene; a is either 0 or 1; and R_4 and R_5 are independently selected from hydrogen, lower alkyl, lower cycloalkyl, lower nitrogen-containing heterocyclic or phenyl; with the proviso that R_3 and/or R_4 and/or R_5 may be chemically joined to form a 3 to 8 membered heterocyclic structure.

4,315,073
TITRATION OF SERUM INFLUENZA ANTIBODY
USING PLAQUE REDUCTION NEUTRALIZATION TEST
 Karen K. Brown, Kansas City, Mo., and Richard C. Stewart, Merriam, Kans., assignors to Cutter Laboratories, Inc., Berkeley, Calif.

Filed Oct. 26, 1979, Ser. No. 88,684
 Int. Cl.³ C12Q 1/70; G01N 33/54
 U.S. Cl. 435—5 **25 Claims**
 1. A method of determining the titer of anti-infective antibodies to influenza virus in a blood serum sample, the method comprising the steps of:
 (a) preparing serial dilutions of the serum sample;
 (b) reacting each dilution with an indicator influenza virus to form separate dilution products;
 (c) inoculating separate influenza virus susceptible monolayer cell cultures with the separate dilution products;
 (d) providing an overlay for the inoculated cultures;
 (e) incubating the cultures in the presence of a protein hydrolyzing enzyme under conditions sufficient to allow plaque formation;
 (f) counting the plaques in each culture and relating the counts to a standard to determine the antibody titer.

4,315,074
MOLECULAR TRANSFORMATION PROCEDURE
 Garfield P. Royer, Worthington, Ohio, assignor to Pierce Chemical Company, Rockford, Ill.
 Division of Ser. No. 907,503, May 19, 1978, Pat. No. 4,182,654, and a continuation-in-part of Ser. No. 680,462, Apr. 26, 1976, abandoned, which is a continuation-in-part of Ser. No. 507,198, Sep. 18, 1974, abandoned. This application Jun. 22, 1979, Ser. No. 51,229
 Int. Cl.³ C12P 21/02, 21/00

U.S. Cl. 435—70 **12 Claims**
 1. A process for synthesizing a peptide chain having a distinct sequence of amino acid segments which comprises reacting, in an aqueous medium, a pure precursor containing a first amino acid segment of the peptide chain to be prepared having a free terminal carboxyl group or a free terminal amino group, with a second amino acid segment containing a free α -amino group and a blocked carboxyl group susceptible to enzymatic hydrolysis when the precursor has a free terminal carboxyl group or a free carboxyl group and a blocked α -amino group susceptible to enzymatic hydrolysis when the precursor has a free terminal amino group, deblocking the product peptide enzymatically, and then repeating the process of reaction and enzymatic deblocking until the desired peptide chain is prepared.

4,315,075
METHODS OF REDUCING SMOKE EVOLUTION FROM
BURNING NEOPRENE FOAM AND NEOPRENE FOAM
PRODUCTS PRODUCED THEREBY
 Esther C. Gardner, Westmoreland, Pa., assignor to Toyad Corporation, Latrobe, Pa.

Filed Oct. 15, 1980, Ser. No. 197,110
 Int. Cl.³ C08J 9/30 **5 Claims**
 1. A low smoke neoprene latex foam composition having physical properties suitable for cushioning, consisting essentially of neoprene latex incorporating at least 200 parts of hydrated alumina per 100 parts of dry neoprene latex, said hydrated alumina being made up of at least 66% of large particle size hydrated alumina in the size range of 40 microns and larger and the balance hydrated alumina in the size range below 40 microns.

4,315,076
POLYIMIDES
 John Gagliani, and Raymond Lee, both of San Diego, Calif., assignors to International Harvester Company, Chicago, Ill.
 Continuation-in-part of Ser. No. 186,668, Sep. 12, 1980, abandoned. This application Apr. 14, 1981, Ser. No. 254,137
 Int. Cl.³ C08J 9/00; C08G 18/16

U.S. Cl. 521—77 **11 Claims**
 1. A method of preparing a foamable terpolyimide precursor which includes the steps of: dissolving a benzophenonetetracarboxylic acid or anhydride in an excess of an alkyl alcohol esterification agent to form a solution of an ester of the acid and adding to and dissolving in said solution in amounts such that the imide forming functionalities are substantially equimolar a heterocyclic diamine, an aromatic diamine, and an aliphatic diamine, there being from 0.05 to 0.5 mole of aliphatic diamine and from 0.05 to 0.9 mole of heterocyclic diamine per mole of 3,3',4,4'-benzophenonetetracarboxylic acid ester and the order of addition of the diamines to the solution being such that neither the aromatic nor the heterocyclic diamines are added after the aliphatic diamine.

4,315,077
POLYIMIDES
 John Gagliani, and Raymond Lee, both of San Diego, Calif., assignors to International Harvester Company, Chicago, Ill.
 Division of Ser. No. 254,137, Apr. 14, 1981, which is a continuation-in-part of Ser. No. 186,668, Sep. 12, 1980, abandoned. This application May 27, 1981, Ser. No. 267,460
 Int. Cl.³ C08J 9/00; C08G 18/16

U.S. Cl. 521—77 **19 Claims**
 1. A method of preparing a terpolyimide foam which includes the steps of: dissolving 3,3',4,4'-benzophenonetetracarboxylic acid or an anhydride thereof in an excess of an alkyl alcohol or mixture of such esters to form a solution of an ester of the acid; adding to and dissolving in said solution in amounts such that the imide forming functionalities are substantially equimolar a heterocyclic diamine, an aromatic diamine, and an aliphatic diamine, there being from 0.05 to 0.5 mole of aliphatic diamine and from 0.05 to 0.9 mole of heterocyclic diamine per mole of 3,3',4,4'-benzophenonetetracarboxylic acid ester; and converting the material existing after said dissolution of said diamines to a polymeric foam.

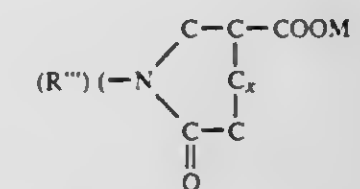
4,315,078
FLAME RETARDANT FLEXIBLE POLYURETHANE
FOAM CONTAINING FINELY DIVIDED INORGANIC
SALT WHEREIN A MOLD OF SAID SALT CONTAINS AT
LEAST FIVE MOLES OF WATER
 Carlos J. Anorga, San Pedro, Calif., assignor to The Upjohn Company, Kalamazoo, Mich.

Filed Jul. 23, 1980, Ser. No. 171,449
 Int. Cl.³ C08G 18/14 **13 Claims**
 1. In a flame retardant flexible polyurethane foam prepared

under foam producing conditions from an aromatic polyisocyanate, a polyether polyol having an equivalent weight from about 500 to about 2500 and a functionality from about 2.0 to about 4.0, antimony oxide and a polyhalogenated aromatic compound wherein the improvement comprises employing in the foam forming reaction mixture the following ingredients in parts by weight based on 100 parts of said polyether polyol:
 (a) from about 4 to about 30 parts of antimony oxide;
 (b) from about 4 to about 40 parts of a polyhalogenated aromatic compound; and
 (c) from about 30 to about 60 parts of a finely divided hydrated inorganic salt wherein a mole of said salt contains at least 5 moles of water of hydration; and
 employing a ratio of isocyanate equivalents to total equivalents of active hydrogen containing materials in the foam forming reaction mixture within a range of from about 0.90:1.0 to about 1.0:1.0.

4,315,079
PROCESS OF MAKING AN ISOCYANURATE FOAM
 Heinz Schulze; Robert L. Zimmerman, and Harold G. Waddill, all of Austin, Tex., assignors to Texaco Development Corporation, White Plains, N.Y.
 Division of Ser. No. 847,642, Nov. 1, 1977, which is a continuation-in-part of Ser. No. 689,409, May 24, 1976, abandoned. This application Apr. 1, 1981, Ser. No. 249,800
 Int. Cl.³ C08J 9/00 **8 Claims**

U.S. Cl. 521—115 **8 Claims**
 1. The method of preparing a cured isocyanurate foam which comprises
 reacting an isocyanate with a polyol having at least two active Zerewitinoff-active hydrogen atoms in the presence of a blowing agent thereby forming a polyisocyanurate form; and
 conducting said reaction in the presence of 0.5–10 parts (per 100 parts of total formulation) of a curing agent



wherein x is an integer 0–2; a is an integer at least 2; M is alkali metal or quaternary ammonium; R''' is a polyoxalkylene chain, of a molecular weight of about 200–2100, having terminal carbon atoms to which the nitrogen atoms are bonded.

4,315,080
POLYIMIDES
 John Gagliani, and Raymond Lee, both of San Diego, Calif., assignors to International Harvester Company, Chicago, Ill.
 Division of Ser. No. 254,137, Apr. 14, 1981, which is a continuation-in-part of Ser. No. 186,668, Sep. 12, 1980, abandoned. This application May 27, 1981, Ser. No. 267,459
 Int. Cl.³ C08J 9/00; C08G 18/16

U.S. Cl. 521—189 **16 Claims**
 1. A terpolyimide foam derived from a precursor comprising an essentially stoichiometric mixture of an alkyl ester of 3,3',4,4'-benzophenonetetracarboxylic acid or a mixture of such esters and at least three diamines, one of said diamines being heterocyclic, a second of said diamines being aromatic, a third of said diamines being aliphatic, and there being from 0.05 to 0.5 mole of aliphatic diamine and from 0.05 to 0.9 mole of heterocyclic diamine per mole of benzophenonetetracarboxylic acid ester(s).

4,315,081

ANTISTATIC RESIN COMPOSITION

Akio Kobayashi, and Takayuki Katto, both of Iwaki, Japan, assignors to Kureba Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 18, 1981, Ser. No. 235,730

Claims priority, application Japan, Feb. 22, 1980, 55/21172
Int. Cl.³ C08K 5/04, 5/09, 5/41; C08L 51/04

U.S. Cl. 525—2 9 Claims

1. An antistatic resin composition comprising:
 - (1) 100 parts of a base resin; and
 - (2) 0.1 to 5 parts of an anionic surfactant, said base resin comprising
 - (A) 7 to 100 parts of a graft copolymer obtained by graft-polymerizing 5 to 95% of at least one ethylenically unsaturated monomer onto 5 to 95% of a rubber trunk polymer which in turn is a copolymer of
 - (i) 30 to 90% of an elasticity-imparting monomer selected from the group consisting of conjugated dienes, alkyl acrylates and mixtures thereof,
 - (ii) 10 to 70% of a polyalkylene oxide monomer which is a monomer comprising 4 to 500 alkylene oxide groups together with an ethylenic unsaturation, and
 - (iii) 0 to 50% of at least one ethylenically unsaturated monomer copolymerizable with the elasticity-imparting monomer, and
 - (B) 0 to 93 parts of a thermoplastic resin compatible with said graft copolymer (A),
- said rubber trunk polymer being 5 to 80% of the total of the graft copolymer (A) and the thermoplastic resin (B), all quantities expressed in parts and percentages being by weight.

4,315,082

PHOSPHORUS COMPOUNDS

Harry H. Beacham, Langhorne, Pa., and Robert D. Norris, Cranbury, N.J., assignors to FMC Corporation, Philadelphia, Pa.

Continuation of Ser. No. 866,493, Jan. 3, 1978, abandoned. This application Jul. 26, 1979, Ser. No. 61,138
Int. Cl.³ C08K 5/14, 5/02

U.S. Cl. 525—20 11 Claims

1. A mixture of a peroxide-reactive polymer and a peroxide composition, said peroxide composition comprising an organic phosphorus compound having a hydroperoxide group attached directly to a carbon atom of said organic phosphorus compound, there being at least one such hydroperoxide group per 500 phosphorus atoms in said composition.

4,315,083

PROCESS FOR THE CONTINUOUS MASS POLYMERIZATION OF POLYBLEND

Raymond D. Burk, Wilbraham, Mass., assignor to Monsanto Company, St. Louis, Mo.

Filed May 15, 1980, Ser. No. 150,274

Int. Cl.³ C08F 279/02, 279/04; C08L 51/04

U.S. Cl. 525—53 22 Claims

1. In an improved method for the mass polymerizing of a solution comprising an alkenyl aromatic monomer having a polybutadiene rubber dissolved therein, the steps comprising:
 - A. continuously charging said monomer solution having 1 to 10% by weight of a polybutadiene rubber dissolved therein to a first reaction zone operating at steady state polymerization of about 20 to 45% of said monomers to a first partially polymerized mixture, said mixture being said monomer having polymers of said monomer and polybutadiene rubber particles grafted with said monomer dispersed in said monomers,
 - B. continuously charging said partially polymerized mixture to a second reaction zone operating at a final polymeriza-

tion of about 50 to 85% of said monomer forming a second partially polymerized mixture,

- C. continuously separating the residual monomer from said second mixture providing a matrix phase polymer of said monomer having said grafted rubber particles dispersed therein, said improvement comprising: charging a monomer-polybutadiene solution in step (A) having in addition about 1 to 10% by weight of a diene block copolymer and about 1 to 20% by weight of a polymer of said monomer dissolved in said solution followed by carrying out steps (B) and (C) to form a polyblend of said matrix phase polymer having rubber particles grafted with said monomers dispersed therein, said rubber particles containing rubbers consisting of polybutadiene and diene block copolymer, said rubber particles being a gel fraction in said polyblend containing grafted and occluded polymers of said monomers in amount of about 0.5 to 5 parts per part of total rubber.

4,315,084

POLYPHENYLENE ETHER MOLDING COMPOSITIONS THAT INCLUDE AN ALKENYL AROMATIC RESIN AND EPDM RUBBER

Glenn D. Cooper, Delmar; Gim F. Lee, Jr., Albany, and Rainey A. Shufelt, Coeymans, all of N.Y., assignors to General Electric Company, Selkirk, N.Y.

Filed Jan. 14, 1980, Ser. No. 111,983

Int. Cl.³ C08F 8/00; C08L 61/04

U.S. Cl. 525—69 16 Claims

1. A thermoplastic molding composition which comprises:
 - (a) a polyphenylene ether resin;
 - (b) an alkenyl aromatic resin; and
 - (c) a rubbery interpolymers of a mixture of mono-olefins and a polyene.

4,315,085

CORE-SHELL COMPOSITE POLYMERS HAVING HIGH AMOUNTS OF CARBOXYLIC ACID UNITS IN THE SHELL

Yehuda Ozari, Louisville, Ky., and Eugene S. Barabas, Watchung, N.J., assignors to GAF Corporation, New York, N.Y.

Filed Jul. 25, 1980, Ser. No. 172,924

Int. Cl.³ C08F 265/06, 263/04

U.S. Cl. 525—301 12 Claims

1. A core-shell composite polymer having a soft polymer core and a two layered shell having up to about 40 mole percent of methacrylic acid units therein, said core-shell composite polymer being produced by a process comprising the steps of:

- (a) providing, as the core polymer, an emulsion comprising discrete particles of a soft polymer of butadiene or copolymer of ethylene and vinyl acetate in an aqueous vehicle,
- (b) adding to the emulsion, as a monomer to form an inner layer of the shell, methylmethacrylate in an amount sufficient to form, upon polymerization, a substantially complete enclosure around the particles of the core polymer,
- (c) reacting the emulsion under conditions effective to polymerize the methylmethacrylate to form discrete soft polymer core particles which are completely encased by an integral enclosure of poly(methylmethacrylate), but are free of methylmethacrylate at least in the center thereof,
- (d) further adding to the emulsion, as monomers to form an outer layer of the shell, a mixture of methylmethacrylate and methacrylic acid in molar ratio of from 1:3 to 3:1, in an amount sufficient to form, upon polymerization, a substantially complete enclosure around the encased particles of the core polymer, and
- (e) reacting the emulsion, under conditions effective to copolymerize the methylmethacrylate and methacrylate acid, thereby forming around the encased polymer particles produced in step (c) an integral outer shell layer of a copolymer of methylmethacrylate and methacrylate acid.

4,315,086

RESIN COMPOSITIONS

Katsuji Ueno, Hirakata, and Takashi Maruyama, Toyonaka, both of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Jul. 16, 1980, Ser. No. 169,368

Claims priority, application Japan, Aug. 8, 1979, 54-101682; Sep. 26, 1979, 54-124574

Int. Cl.³ C08F 283/08; C08L 71/04

U.S. Cl. 525—391 12 Claims

1. A resin composition comprising a resin composition comprising 5 to 95% by weight of a polyphenylene oxide and 95 to 5% by weight of a polyamide and 0.01 to 30 parts by weight of a member selected from the group consisting of (A) liquid diene polymers, (B) epoxy compounds and (C) compounds having in the molecule both of (a) an ethylenic carbon-carbon double bond or a carbon-carbon triple bond and (b) a carboxylic acid, acid anhydride, acid amide, imido, carboxylic acid ester, amino or hydroxyl group per 100 parts by weight of the total of polyphenylene oxide and polyamide.

4,315,087

QUATERNARY POLYAMINOAMIDES

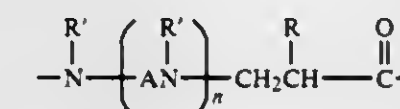
Derek Redmore, Ballwin, and Benjamin T. Outlaw, St. Louis, both of Mo., assignors to Petrolite Corporation, St. Louis, Mo.

Filed Apr. 28, 1975, Ser. No. 571,927

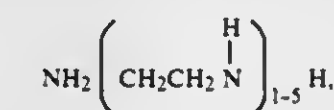
Int. Cl.³ C08G 73/02

U.S. Cl. 525—421 9 Claims

1. Quaternaries of polymers of the general unit formula



where R is hydrogen or methyl, R' is hydrogen, A is a —CH₂CH₂— moiety of a hydrocarbon polyamine which links amino groups and n is an integer; and cross-linked derivatives thereof, where the polyamine is of the general formula



wherein the quaternizing agent is selected from the group consisting of benzyl chloride, ethylene dichloride and p-dodecyl benzyl chloride.

4,315,088

PROCESS FOR PRODUCING α-OLEFIN POLYMER

Sadao Kitagawa; Isao Okada, and Teruo Saito, all of Aml, Japan, assignors to Mitsubishi Petrochemical Co., Ltd., Tokyo, Japan

Filed Dec. 11, 1979, Ser. No. 102,467

Claims priority, application Japan, Dec. 15, 1978, 53/154705

Int. Cl.³ C08F 4/02, 10/04

U.S. Cl. 526—125 15 Claims

1. A process for producing an α-olefin polymer which comprises homopolymerizing an α-olefin selected from the group consisting of propylene, butene-1, and 4-methylpentene-1, or copolymerizing two or more of said α-olefins or one or more of said α-olefins and ethylene or an α-olefin containing 4 to 8 carbon atoms in the presence of a catalyst consisting essentially of:

- (I) a solid catalyst component prepared by contacting with each other, (A) a magnesium dihalide of the formula MgX₂ where x is a halogen atom, (B) an aromatic carboxylic acid ester, (C) titanium tetrachloride, and (D) a siloxaluminum compound selected from the group consisting of trimethylsiloxaluminum dichloride, triethylsilox-

aluminum dichloride, triphenyl-siloxaluminum dichloride, trichlorosiloxaluminum dichloride, a reaction product of dimethylpolysiloxane and aluminum chloride, a reaction product of methylphenylpolysiloxane and aluminum chloride, or a reaction product of methylhydrogen-polysiloxane and aluminum chloride; and

- (II) organometallic compound of a metal of Groups I, II or III in the Periodic Table, wherein ingredient B is used in an amount of about 0.01 to 10 mols, ingredient C in an amount of about 0.001 to 1,000 mols, and ingredient D in an amount of about 0.001 to 1 mol, per mol of ingredient A; and wherein said ingredients A, B and D are pulverized together, contacted with ingredient C in a slurry state, and washed.

4,315,089

POLYMERS CONTAINING AROMATIC ALDEHYDE GROUPS

Herbert Naarmann, Wattenheim; Guenter Wulff, Alfter-Impeken, both of Fed. Rep. of Germany, and Ahmed Akeleh, Kafer el Zayat, Egypt, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

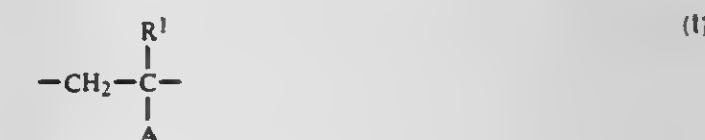
Filed Nov. 13, 1979, Ser. No. 93,931

Claims priority, application Fed. Rep. of Germany, Nov. 11, 1978, 2848967

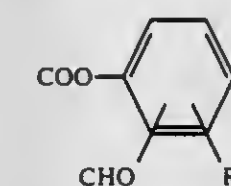
Int. Cl.³ C08F 16/34

U.S. Cl. 526—89 18 Claims

1. A polymer which has a K value of from 20 to 140 and which contains structural units of the general formula (I)

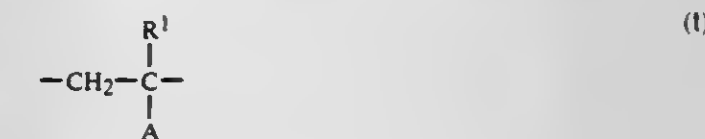


where R¹ is H or CH₃ and A is

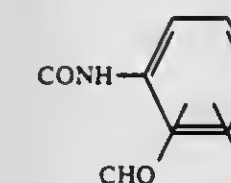


where R² is H, OH, O-alkyl, alkoxyalkyl or O—Si(CH₃)₃.

10. A polymer which has a K value of from 20 to 140 and which contains structural units of the general formula (I)



where R¹ is H or CH₃ and A is



where R² is H, OH, O-alkyl, alkoxyalkyl or O—Si(CH₃)₃.

ELECTRICAL

4,315,096

INTEGRATED ARRAY OF PHOTOVOLTAIC CELLS HAVING MINIMIZED SHORTING LOSSES

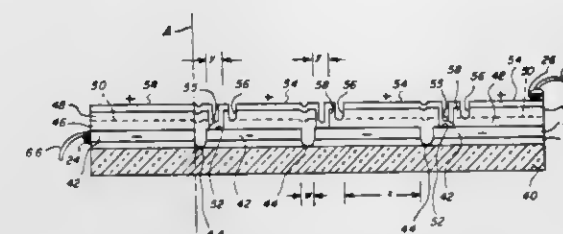
Yuan-Sheng Tyan, Webster, and Evelio A. Perez-Albuerne,
Rochester, both of N.Y., assignors to Eastman Kodak Com-
pany, Rochester, N.Y.

Filed Jul. 25, 1980, Ser. No. 172,117

Int. Cl.³ H01L 31/04, 31/18

U.S. Cl. 136—244

11 Claims



1. In an array comprising an insulative support and generally elongated photovoltaic cells connected in series on the support, the majority of said cells together comprising:

- (1) a plurality of spaced-apart segments of a first electrode material disposed on said support;
- (2) a plurality of semiconductor segments, each of said semiconductor segments
 - (a) being disposed in contact with and overlying all but an edge portion of a segment of said electrode material, and in contact with a portion of the support,
 - (b) comprising a layer of semiconductor material having a resistance high enough to prevent a short between adjacent electrode segments, and
 - (c) having edge surfaces spaced from the edge surfaces of adjacent semiconductor segments; and
- (3) a plurality of spaced-apart segments of a second electrode material, each of said second electrode segments overlying and contacting at least a portion of a semiconductor segment, and contacting said edge portion of said first electrode segment of an adjacent cell,

said electrode segments and said semiconductor segments being effective to provide a photovoltaic effect therebetween;

the improvement wherein each of said second electrode segments contacts two adjacent semiconductor segments, and adjacent second electrode segments are separated by a groove that extends down to at least said high-resistance semiconductor layer, whereby shorting between said second electrode segments through said semiconductor segments is substantially prevented.

4,315,097

BACK CONTACTED MIS PHOTOVOLTAIC CELL

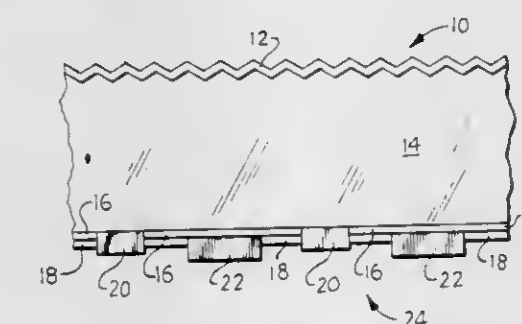
Allen L. Solomon, Fullerton, Calif., assignor to McDonnell Douglas Corporation, Long Beach, Calif.

Filed Oct. 27, 1980, Ser. No. 200,943

Int. Cl.³ H01L 31/06

U.S. Cl. 136—255

23 Claims



1. A photovoltaic cell comprising a semiconductor substrate having substantially parallel opposite surfaces, a first surface thereof being substantially free of any shadowing effects and adapted to receive incident radiation, and a second opposite

surface thereof having at least one ohmic contact and at least one metal-insulator-semiconductor (MIS) contact.

4,315,098

INSULATIVE SPACER FOR A LOW TEMPERATURE COAXIAL CABLE AND COAXIAL CABLE INCLUDING THE SAME

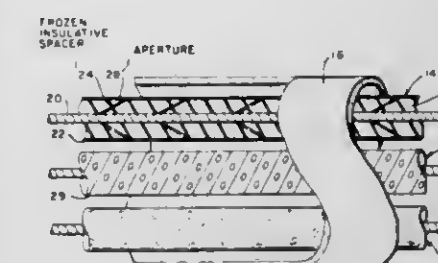
John J. Dougherty, San Jose; Mario Rabinowitz, Menlo Park, both of Calif., and George Bahder, Edison, N.J., assignors to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed Jul. 25, 1979, Ser. No. 60,394

Int. Cl.³ H01B 12/00, 3/16, 3/56, 9/04

U.S. Cl. 174—15 S

8 Claims



1. An insulative spacer for use in a coaxial cable having an inner conductor, an outer conductor, a dielectric material in the space between said inner and outer conductors, said dielectric material being a solid at cable operating temperature and a non-solid at ambient temperature, and means for maintaining the temperature of said dielectric material below the solidification point, said insulative spacer functioning to maintain the inner conductor in coaxial alignment with the outer conductor, said insulative spacer comprising first insulative material having a centrally disposed opening and an outer peripheral configuration, said first insulative material being a solid at cable operating temperature and a non-solid at ambient temperature, and an insert in said first insulative material, said insert comprising second insulative material which is a solid at cable operating temperature and a non-solid at ambient temperature and which has a solidification point higher than said first insulative material whereby when in use at least approximate coaxial spacing may be maintained between the inner conductor and the outer conductor of a coaxial cable in the event said first insulative material is not maintained as a solid.

5. A low temperature coaxial cable comprising an inner conductor, an outer conductor, a dielectric material in the space between said inner and outer conductors, said dielectric material being a solid at cable operating temperature and a non-solid at ambient temperature, means for maintaining the temperature of said dielectric material below the solidification point, and an insulative spacer for maintaining said inner conductor in coaxial alignment with said outer conductor, said spacer including a centrally disposed opening receiving said inner conductor and an outer peripheral configuration mating with the inner surface of said outer conductor, said spacer comprising a first insulative material which is identical to said dielectric material and an insert in said first insulative material, said insert comprising a second insulative material which is a solid at cable operating temperature and a non-solid at ambient temperature and which has a solidification point higher than said first insulative material whereby at least approximate coaxial spacing may be maintained between said inner conduc-

tor and said outer conductor in the event said first insulative material is not maintained as a solid.

4,315,099

FLEXIBLE TRANSMISSION LINE FOR A FLUID AND FOR ELECTRIC SIGNALS

Claude Gerardot, Sartrouville, and Georges Romero, Massy, both of France, assignors to Commissariat a l'Energie Atomique, Paris, France

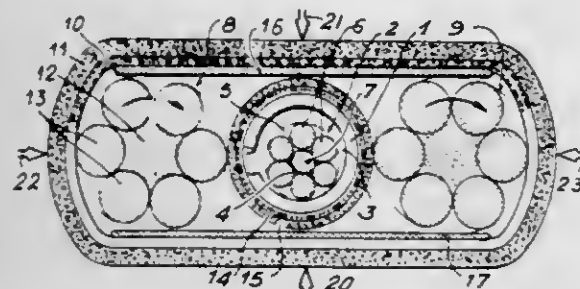
Filed Jan. 2, 1980, Ser. No. 109,064

Claims priority, application France, Jan. 12, 1979, 79 00750

Int. Cl.³ F16L 11/12; H01B 7/18

U.S. Cl. 174—47

15 Claims



1. A flexible transmission line comprising a fluid circulation duct and reinforcements inside and outside said duct against compressive forces inside and outside the duct, the internal reinforcement comprising at least one cable within said duct, whereby within said duct over the entire length of the line the cable provides fluid circulation spaces, the external reinforcements being coaxial to the duct, the internal cable being a flexible cable constituted by a central core surrounded by strands, the duct being an undulating tube, whose longitudinal section is in the form of a hollow screw with helical internal pitch and helical external pitch, and the external reinforcement being a structure with slings tangential to the duct and surrounded by a sleeve for maintaining contact between the duct and the slings.

4,315,100

ELECTRICAL BOX

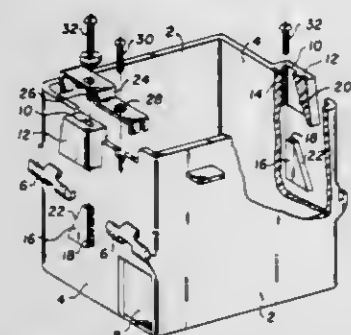
Joseph Haslbeck, West Vancouver, and Allan Liggins, Coquitlam, both of Canada, assignors to Highland Manufacturing Company, Ltd., Burnaby, Canada

Filed Dec. 6, 1979, Ser. No. 100,934

Int. Cl.³ H02G 3/08

U.S. Cl. 174—51

7 Claims



1. An electrical box adapted to receive an electrical fitting; openings formed in the box to align with openings formed in the fitting; a ground strap; threaded portions within each opening and adapted to move apart upon insertion of a screw but to grip the screw when the screw is rotated; one threaded portion being a threaded projection on the ground strap, the threaded projection on the ground strap extending into one of said openings in the box;

a second threaded portion in said one of said openings being formed on a resiliently mounted member.

4,315,101

METHOD AND APPARATUS FOR SECURING DATA TRANSMISSIONS

Martin M. Atalla, Atherton, Calif., assignor to Atalla Technovations, San Jose, Calif.

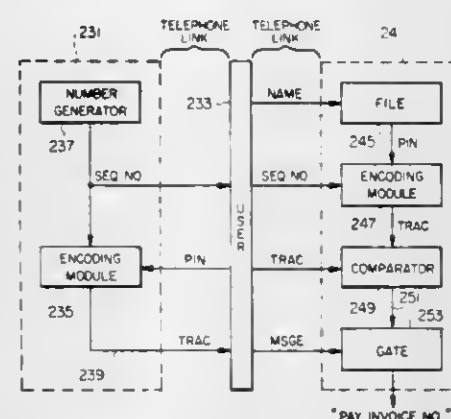
Continuation-in-part of Ser. No. 9,532, Feb. 5, 1979, Pat. No. 4,283,599, which is a continuation-in-part of Ser. No. 3,898, Jan. 16, 1979, Pat. No. 4,268,715, which is a continuation-in-part of Ser. No. 902,444, May 3, 1978, Pat. No. 4,281,215. This

application Oct. 9, 1979, Ser. No. 82,464

Int. Cl.³ H04L 9/00; H04Q 9/00; G06F 15/30

U.S. Cl. 178—22.08

2 Claims



2. The method of completing a secured transaction at a remote location using unsecured communication channels and identification information about a user stored at the remote location, the method comprising:

- generating a coding signal with respect to the transaction;
- producing a first coded output signal in response to a logical combination of the generated coding signal and the identification information supplied by the user;
- communicating to the user the first coded output signal and the coding signal used to produce said first coded output signal;
- communicating the coding signal to the remote location under control of the user;
- producing a second coded output signal in accordance with said logical combination of the stored identification information about the user and the coding signal supplied by the user;
- communicating the first coded output signal to the remote location under control of the user; and
- comparing said first and second coded output signals to provide an indication of authorization to complete the transaction with respect to said user.

4,315,102

SPEAKER CROSS-OVER NETWORKS

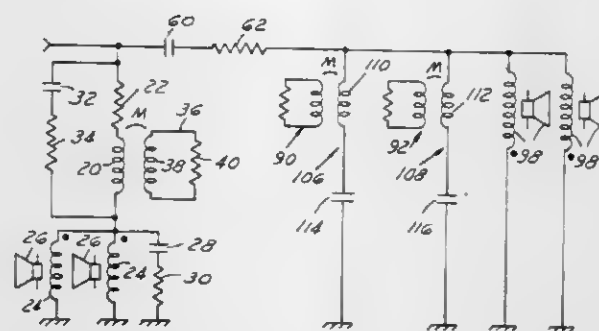
Steven J. Eberbach, 724 S. Division, Ann Arbor, Mich. 48104

Filed Mar. 21, 1979, Ser. No. 22,601

Int. Cl.³ H04R 3/14

U.S. Cl. 179—1 D

33 Claims



1. In an electric loudspeaker circuit comprising at least one

electroacoustic driver, an acoustic frequency filter connected to said driver, said filter including a first inductance and a resistance in series with each other and in series with said driver and a capacitance in parallel with said driver, the improvement characterized by, a second circuit comprising at least one inductance, said inductance in the second circuit positioned for magnetic coupling to the first inductance, said first inductance and second circuit being selected and adjusted for substantially linear phase response of the driver and filter combination within and beyond the pass band.

4,315,103

SPEECH-CONTROLLED LOUDSPEAKER TELEPHONE STATION CIRCUIT

Klaus Walla, Gauting, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

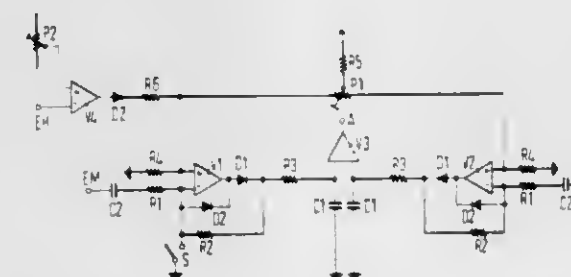
Filed Sep. 7, 1979, Ser. No. 73,569

Claims priority, application Fed. Rep. of Germany, Sep. 28, 1978, 2842369

Int. Cl.³ H04M 9/08

U.S. Cl. 179—1 VC

10 Claims



1. A circuit arrangement for a speech-controlled loudspeaker telephone station having a microphone and a loudspeaker, comprising in combination; a first operational amplifier for receiving a signal from said microphone, and a second operational amplifier for receiving a signal proportional to the signal supplied to said loudspeaker, both of said operational amplifiers having level-dependent negative feedback including separate feedback paths including diodes for positive-going and negative-going half-cycles, and a comparator connected to one of said feedback paths to receive the rectified output voltages of said first and second operational amplifiers and for producing a signal indicative of the direction of speech transmission.

4,315,104

AUTOMATICALLY RESET CONTROL MECHANISM FOR REMOTE PLAYOUT TELEPHONE ANSWERING DEVICE

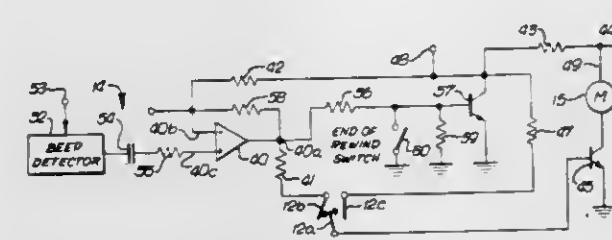
Sava Jacobson, 8130 Orion St., Van Nuys, Calif. 91406

Filed Jan. 14, 1980, Ser. No. 111,589

Int. Cl.³ H04M 1/64

U.S. Cl. 179—6.07

6 Claims



1. In a telephone answering device of the type wherein during automatic answering operation an incoming message is recorded on a tape driven by a tape drive element, and wherein recorded incoming messages are played out over the telephone

line under remote control in response to detection of a coded signal, the improvement comprising:

- a cam mechanism including a cam and a cam drive motor for driving said cam, said tape drive element being positionable by said cam alternatively to a forward position in which said tape drive element drives said incoming message tape in a forward direction and to a rewind position in which said tape drive element rewinds said tape, said cam mechanism normally operating in response to receipt of said coded signal,
- switch contact means for sensing the orientation of said cam, and
- a cam control circuit conditioned for operation by said switch contact means, said cam control circuit being operative during said automatic answering operation to energize said cam drive motor in response to receipt of said coded signal while said switch contact means senses that said cam is in a first orientation in which said tape drive element is in said forward position, said cam control circuit being operative when power first is applied to said device, if said switch contact means then senses that said cam is not in said first orientation, to energize said cam drive motor so as to drive said cam to said first orientation, said cam mechanism then being in readiness for normal operation in response to receipt of said coded signal.

4,315,105

NARROW BAND TRANSMISSION SYSTEM AND METHOD

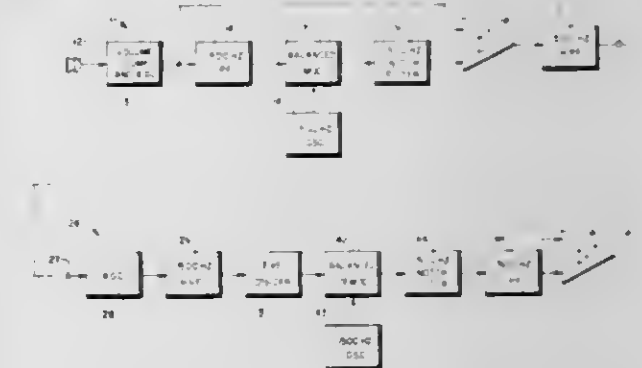
Herman P. Miller, III, P.O. Box 2163, Stockton, Calif. 95201

Filed Nov. 23, 1976, Ser. No. 744,305

Int. Cl.³ H04B 1/66

U.S. Cl. 179—15.55 R

15 Claims



1. In a method for transmitting signals having high and low frequency components which are displaced in time in such manner that only one of the components is present at a significant energy level at any instant of time, the steps of: continuously translating a first one of the components to the frequency range of the second component with no switching of the first component, combining the translated component with the first and second components with no switching of any of said components, and removing the first component from the combined signal to provide an output signal consisting substantially of the second component and the translated first component.

4,315,106

APPARATUS FOR REGULATING CURRENT SUPPLIED TO A TELEPHONE LINE SIGNAL OF THE TYPE EMPLOYED IN DIGITAL TELEPHONE SYSTEMS

Ramon C. W. Chea, Jr., Monroe, Conn., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Nov. 28, 1979, Ser. No. 98,104

Int. Cl.³ H04M 19/00

U.S. Cl. 179—16 F

11 Claims

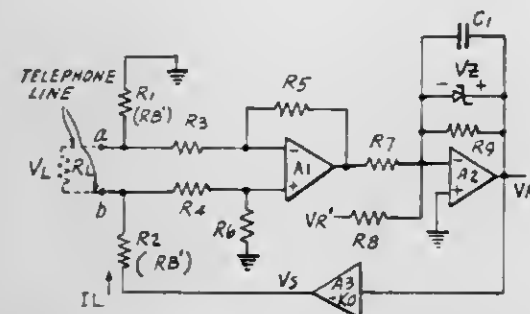
1. A line circuit for supplying a regulated loop current to a two-wire telephone subscriber line, said telephone line connected between first and second terminals at a subscriber set,

said telephone line having an impedance which varies according to the length of said line, comprising:

first and second line feed resistances of substantially the same magnitude, said first resistance coupled between one of said wires and a point of reference potential, with one terminal of said second resistance coupled to said other of said wires;

differential amplifier means having first and second input terminals, with said first input terminal coupled to said wire associated with said first resistance and said second input terminal coupled to said other wire, said amplifier providing an output voltage manifesting a predetermined first control signal;

DC reference source for providing a reference signal which can be supplied to a telephone line;



summing means having a first and a second input with said first input responsive to said first control signal and said second input responsive to said reference signal to provide an output feedback control signal proportional to the sum of said reference signal and said control signal; and active circuit means having an input responsive to said feedback control signal to provide at an output terminal a voltage signal indicative of a line current to be supplied to said telephone line, with said output terminal coupled to said other terminal of said second line resistance, whereby the current flows through said resistance according to said feedback control signal and therefore according to the length of said subscriber line to provide a range of voltages to said subscriber line.

4,315,107

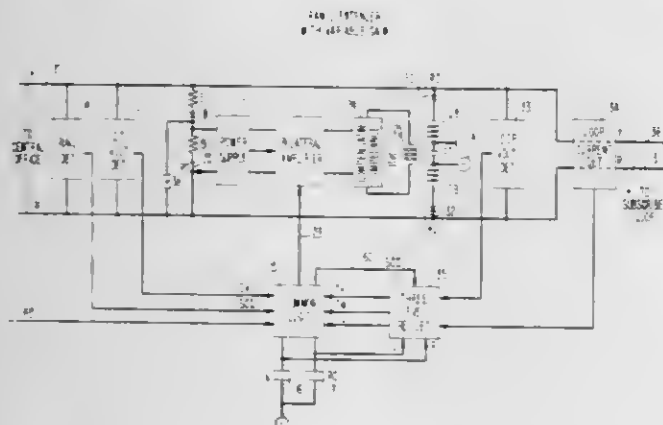
TELEPHONE RANGE EXTENDER WITH GAIN
Albert J. Ciesielka, Morris Plains, and George T. Hawley, New Providence, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Oct. 15, 1979, Ser. No. 84,917

Int. Cl.³ H04M 1/76

U.S. Cl. 179-16 F

3 Claims



1. A telephone subscriber loop range extender including circuits for enhancing telephone service over subscriber loops longer than average in length, said range extender characterized by

first means for detecting the length of a connected subscriber loop, and

means responsive to said first detecting means for disconnecting said enhancing circuits from a connected sub-

scriber loop having a length shorter than a predetermined length,

said enhancing circuits including a voice frequency bidirectional amplifier and supervisory signal detecting means.

4,315,108

INTEGRATED CIRCUIT CHIP TELEPHONE COMMUNICATION SYSTEM

Gordon B. Hoffman, Dallas, and Michael J. Callahan, Jr., Garland, both of Tex., assignors to Mostek Corporation, Carrollton, Tex.

Continuation of Ser. No. 831,736, Sep. 9, 1977, abandoned, which is a division of Ser. No. 617,955, Sep. 29, 1975, Pat. No. 4,061,886. This application Jan. 10, 1979, Ser. No. 2,424

Int. Cl.³ H04M 1/50

U.S. Cl. 179-84 VF

18 Claims



1. A telephone communication system adapted to be powered solely by telephone line inputs and including a multiple frequency signal generator on a complementary symmetry, metal oxide, semiconductor integrated circuitry chip for digitally synthesizing a dual-tone sinusoidal representative signal of a selected key on a keyboard comprising:

a keyboard decode means on the chip responsive to the keyboard for generating a keyboard signal representative of the selected key;

means on the chip responsive to the keyboard signal for generating a control signal in response to the selected key being enabled; and,

common switching means on the chip responsive to the control signal for performing the common switching functions of the telephone communication system during generation of the sinusoidal representative signal including means for enabling oscillatory circuitry in said multiple frequency generator, means for disabling an audio transmitter and means for attenuating the output of a receiver.

4,315,109

ELECTRONIC RING SOUNDER FOR A SPEAKER TELEPHONE

Sava Jacobson, 8130 Orion Ave., Van Nuys, Calif. 91406

Filed Nov. 20, 1979, Ser. No. 96,017

Int. Cl.³ H04M 1/26

U.S. Cl. 179-84 T

5 Claims

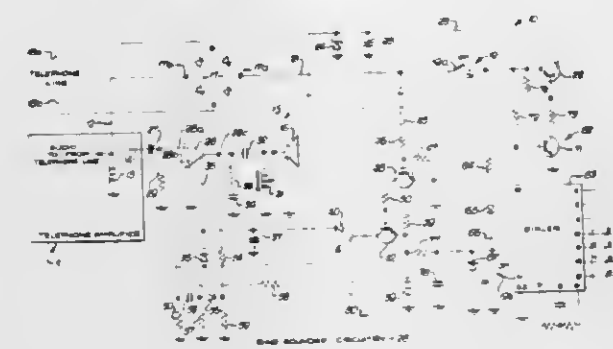
1. An electronic ring sounder for a speaker telephone of the type in which speech incoming from the telephone line is supplied to a speaker via a driver amplifier, comprising:

feedback means for causing audio oscillation of said amplifier,

ring enabling means, operatively connected to said telephone line, for enabling said feedback means in response to the presence of a ring signal on said telephone line, the resultant audio oscillation of said amplifier driving said speaker to produce a sound corresponding to a telephone bell,

said feedback means including a positive feedback circuit

connected between the output of said amplifier and the input thereof, said feedback circuit including a switchable element in series with an oscillation frequency determining element, and



wherein said ring enabling means switches on said switchable element in response to occurrence of said ring signal.

4,315,111

HEARING AID WITH REMOTE MOMENTARY SHUT OFF SWITCH

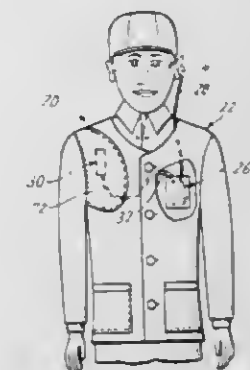
Charles A. Thomas, 609 S. Warson Rd., St. Louis, Mo. 63124

Filed May 29, 1980, Ser. No. 154,367

Int. Cl.³ H04R 25/00

U.S. Cl. 179-107 R

15 Claims



1. A battery powered hearing aid with a momentary contact shutoff switch in circuit with said hearing aid, said switch being adapted for mounting to the shoulder area of a hunting vest or the like, said switch having means to interrupt the electrical circuit of said hearing aid as pressure is applied thereto to thereby turn said hearing aid off.

4,315,110

MULTIPLE LINE TELEPHONE INSTRUMENT

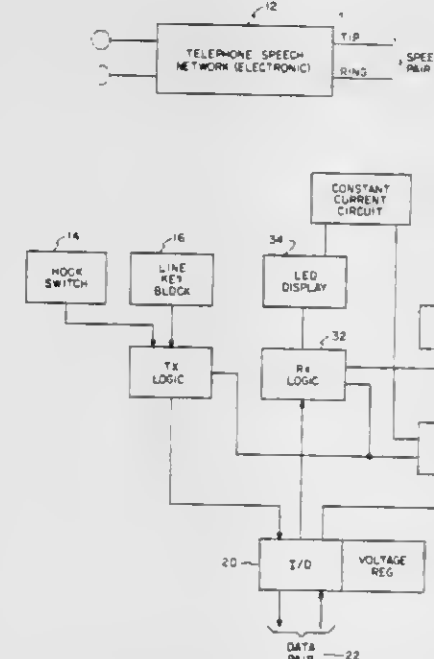
James M. Davis, Corinth, Miss., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Apr. 28, 1980, Ser. No. 144,780

Int. Cl.³ H04Q 5/18

U.S. Cl. 179-99 M

9 Claims



1. A multiple line telephone instrument having a pair of speech conductors and a pair of data conductors for bidirectional transfer of information between said instrument and a system to which the instrument is coupled, said instrument including a plurality of line buttons each representing a line having access to said instrument, said line buttons individually operable to an operative condition, means responsive to an operative condition of one or more said buttons for transmitting an asynchronous coded time division signal over said data pair, said transmitting means including means for emitting a pulse of first duration in response to the absence of an operative condition at the line buttons and for emitting a pulse of second duration in response to an operative condition of one or more of said line buttons, means for preventing the passage of more than one pulse at a time, means for inverting alternate ones of said pulses, and an output circuit having separate switching means with their switching outputs at opposite ends of a transformer winding whereby said alternate pulses actuate the switching means alternately to produce AC signal across said transformer winding.

4,315,112

SPEAKER

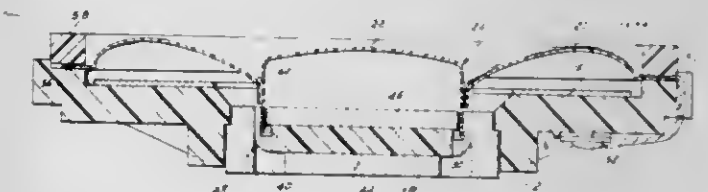
Alan Hofer, 1201 Tusk La., Wantagh, N.Y. 11793

Filed Dec. 12, 1979, Ser. No. 102,753

Int. Cl.³ H04R 7/16, 9/06

U.S. Cl. 179-115.5 R

6 Claims



1. A speaker comprising:
a housing having an open top end, a diaphragm assembly closing said top end; said diaphragm assembly comprising a first generally half-toroidal shaped diaphragm member formed of a fluoropolymer film and having an open center section and a second diaphragm member in the form of an inverted cup having a dome positioned in and closing said center section, said second diaphragm member being formed of a plastic film material dissimilar to said first diaphragm member film;
a voice coil wound directly about said cup;
a magnetic assembly positioned within said housing axially aligned with said cup, said magnetic assembly including a magnetic pole piece and permanent magnet magnetized parallel to the axis of said cup and a magnetic yoke, said yoke including portions extending about said pole piece and permanent magnet and spaced therefrom to form a gap within which said voice coil is captured.

4,315,113

ACTUATOR SWITCH FOR REMOTE CONTROL REARVIEW MIRRORS

Robert J. Fisher, Livonia, and Lawrence R. Lefever, Sterling Heights, both of Mich., assignors to Harman International Industries, Inc., Grandville, Mich.

Filed Jan. 18, 1980, Ser. No. 113,261

Int. Cl.³ H01H 9/26; G02B 5/08

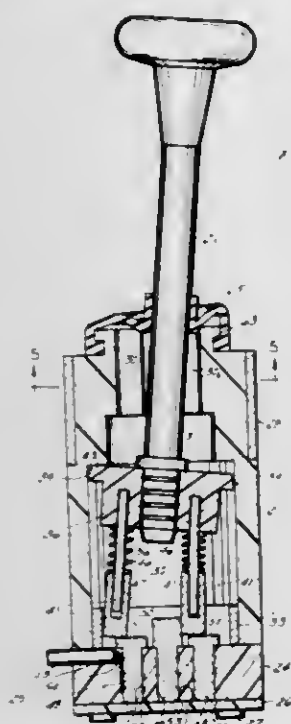
U.S. Cl. 200-5 R

4 Claims

1. In an electrically operated remote control rearview mir-

ror structure having a pair of reversible drive motors, one drivably connected to move said mirror in one plane of motion and the other drivably connected to move said mirror in another plane for limited universal placement, the actuator control structure comprising:

- a remotely connected switch having a first pair of opposed positions selectively operating one of said motors in a forward direction and in a reverse direction and said switch having a second pair of opposed positions and selectively operating the other of said motors in a forward and in a reverse direction;
- bias means acting upon release of said switch and self-centering said switch to a neutral non-driving position;



- a plurality of leads radially extending from the base of said switch to said motors;
- a source of electrical energy connected to said switch;
- a ground connected to said switch;
- means actuated upon guided movement in said switch to close a circuit to one of said motors in selected forward and reverse and separately to the other of said motors in selected forward and reverse; and
- a base closure on said switch having radial openings through which said leads radially extend and said base closure terminally supporting said leads in locating and electrical contact with said leads and said means.

4,315,114

KEYBOARD SWITCH ASSEMBLY

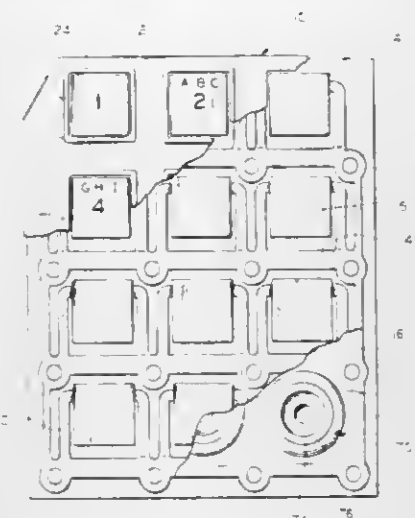
James H. Monti, Jr., Corinth, Miss., assignor to International Telephone and Telegraph Corporation, New York, N.Y.
Filed Mar. 24, 1980, Ser. No. 133,566
Int. Cl.³ H01H 13/70

U.S. Cl. 200—5 A

8 Claims

1. A keyboard assembly comprising an appearance housing having a plurality of apertures in the face thereof arrayed in rows and columns, an array of headed push buttons, with one of said buttons extending outward of each of said apertures, said buttons independently operative to control the operation of respective switching paths, a rigid cross brace commonly connected to a row of buttons, a pair of resilient hinge arms affixed to each push button at the opposed sides thereof, said hinge arms extending from a connection to said cross brace spaced from a first end of said button past the body of the button to the affixation to the button adjacent an end of said button remote from the first end, each of said buttons constrained to substantially vertical movement within raised walls surrounding its respective aperture in the appearance housing, said cross brace held internally within said housing with said

hinge arms extending adjacent the lower edges of the sides of the buttons within the appearance housing, whereby a down-



ward force exerted on one of said buttons results in approximate translatory movement of said button.

4,315,115

DRAWOUT CIRCUIT INTERRUPTER

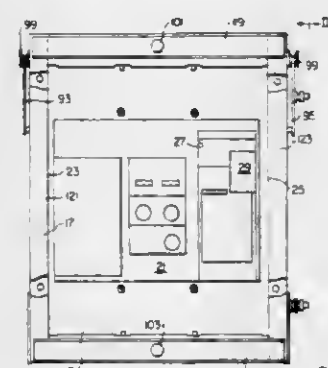
James O. Rexroad, Beaver, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Feb. 19, 1980, Ser. No. 122,408

Int. Cl.³ H01H 9/20

U.S. Cl. 200—50 AA

5 Claims



1. A circuit breaker structure comprising a base structure, a movable circuit breaker and spaced bus bars having conductor terminals, the circuit breaker including incoming and outgoing terminals, the circuit breaker being movable between electrically connected and disconnected positions of the terminals of the circuit breaker of the spaced bus bars, the terminals of the spaced bus conductors and of the circuit breaker having overlapping portions and having transverse aligned openings when the circuit breaker is in the connected position, releasable clamping means for holding the overlapping portions of incoming terminals in tight electrical surface-to-surface contact, said clamping means comprising an elongated bolt and nut assembly, the elongated bolt being disposed in the aligned openings, a sleeve being fixedly disposed on the bolt and having a non-circular outer periphery, each sleeve being seated in an aperture of locking inner periphery in said base structure for rotational immobilization of the sleeve, and a grounding conductor in contact with the bolt.

4,315,116

SWITCH ASSEMBLY WITH LEAKAGE CURRENT DETECTING MEANS

Koichi Kanamaru, Akigawa, and Misao Takeuchi, Tachikawa, both of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

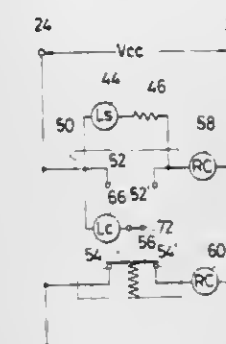
Filed Jun. 8, 1979, Ser. No. 46,607

Claims priority, application Japan, Jun. 23, 1978, 53-75441

Int. Cl.³ H01H 3/16

U.S. Cl. 200—61.09

8 Claims



1. A system comprising, in combination:
 - a switch device including first and second spaced stationary contacts between which a predetermined electric potential may be applied, and a movable contact which is contactable with said first and second stationary contacts to complete electrical connection therebetween, the long term operation of said switch device showing a tendency to produce or gather electrically conductive substances around said first and second stationary contacts; and
 - a leakage indicating system including a terminal member located at a relatively short but predetermined distance from said first stationary contact, and an electrically operated warning device, said terminal member being connected through said warning device to said second stationary contact, whereby when electrically conductive substances are accumulated between said terminal member and said first stationary contact to form an electrically conductive path therebetween, said warning device is energized to issue a warning.

4,315,117

ELECTRICAL SWITCH DEVICE

Sadao Kokubu, Iwakura, and Nobuhiko Endou, Aichi, both of Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Aichi, Japan

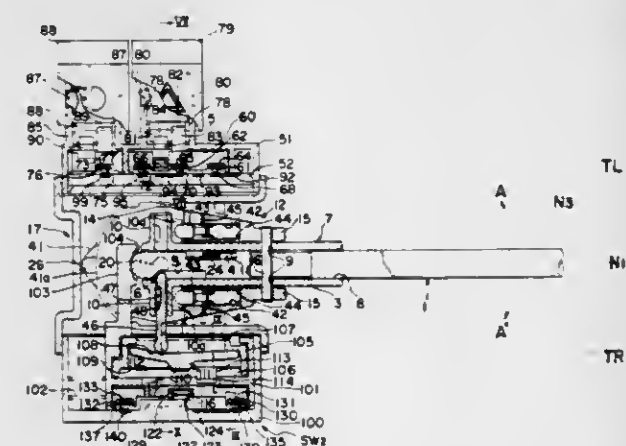
Filed Feb. 19, 1980, Ser. No. 122,811

Claims priority, application Japan, Mar. 10, 1979, 54-30919[U]

Int. Cl.³ B60Q 1/00; H01H 9/00

U.S. Cl. 200—61.27

10 Claims



1. An electrical switch, comprising:
 - a holder member reciprocatingly movable from a neutral

position to operating positions on opposite sides of said neutral position;

an operating means engaged with said holder member for moving said holder member back and forth to said operating positions;

means associated with said operating means for normally holding said holder member at the neutral position and for automatically returning said holder member from the respective operating positions on the opposite sides of said neutral position to said neutral position when an operating force on said operating means is released;

a pair of spring pieces held on said holder member, said spring pieces extending out of the plane of movement of said holder member and being resiliently bendable toward and away from said holder member and oriented in opposite directions to each other, one being inclined toward one operating position and the other inclined toward the other operating position;

a base plate having a plate surface on which a plurality of stationary contacts are positioned;

a movable contact holder movable at least three steps in the same direction as one direction of movement of the holder member, said movable contact holder having contacts thereon for electrically connecting predetermined stationary contacts in different circuits at positions corresponding to each step;

a plurality of engaging projections on said contact holder, there being at least a subplurality of contacts equal to the number of steps on a line corresponding to the line along which one of said spring pieces moves and at least one on a line corresponding to the line along which the other of said spring pieces moves, said projections having engaging faces thereon engageable by said spring pieces for moving said contact holder during movement of said holder member;

means on said contact holder and said base plate cooperating for stopping and temporarily holding said contact holder at positions corresponding to each of said steps;

said projections having inclined surfaces on the sides thereof facing in the opposite direction to the engaging faces thereon for causing the spring pieces to ride over said projections during return movement of said holder member from an operating position to said neutral position; and

a fixed wall means between said holder and said holder member and having portions thereon for engaging the respective spring pieces during movement of said holder member for causing the spring pieces to be raised to pass over projections which are not desired to be engaged during movement of said holder.

4,315,118

ELECTRIC CENTRIFUGAL SWITCH

Manfred Krämer, Schwieberdingen; Werner Schmid, Stuttgart, and Hans-Dieter Cramer, Gerlingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jul. 8, 1980, Ser. No. 166,889

Claims priority, application Fed. Rep. of Germany, Aug. 9, 1979, 2932299; Apr. 10, 1980, 3013858

Int. Cl.³ H01H 35/14

U.S. Cl. 200—80 R

22 Claims

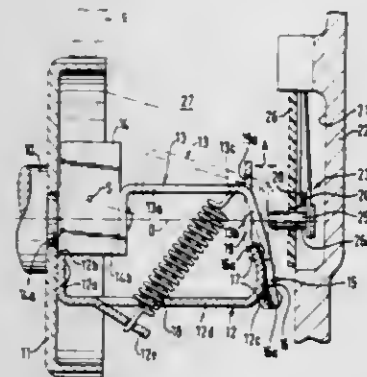
1. An electric centrifugal switch, in particular for the purpose of safety shutoff upon attaining a shutoff rpm for fuel injection systems, electrically controlled in an open- or closed-loop fashion, of internal combustion engines, comprising:
 - a housing,

a centrifugal pendulum in the form of a bell crank supported by a metal band bearing means on a carrier element connected with a drive shaft and having an electric switch attached to the housing,

the switch being provided with an actuation pin disposed in the extension of the rotary axis of the driveshaft,

the actuation pin being actuatable in the sense of interrupting contact by means of the centrifugal pendulum moving under centrifugal force and counter to the force of a restoring spring tensed between the centrifugal pendulum and the carrier element,

the centrifugal pendulum carrying a flyweight mass on the end of a first lever arm extending substantially in the direction of the rotary axis of the drive shaft,



the metal band of the band bearing being secured between a second lever arm of the centrifugal pendulum extending at least approximately perpendicularly to the rotary axis and a rolloff surface overlapping this lever arm and located on the carrier element and being held by the restoring spring (18) under tensile stress and in contact with the rolloff surface (12c, 12c').

4,315,119

TANK TYPE GAS CIRCUIT BREAKER

Tuneo Kisbi, Koji Sasaki, and Michio Moriya, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

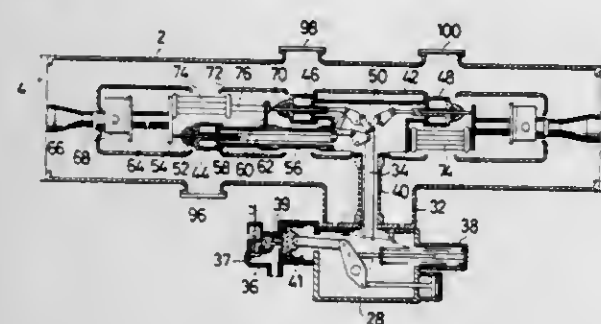
Filed Dec. 26, 1979, Ser. No. 107,086

Claims priority, application Japan, Jan. 16, 1979, 54/2204; Jan. 24, 1979, 54/6056; Feb. 2, 1979, 54/10417

Int. Cl.³ H01H 33/14, 33/88

U.S. Cl. 200—145

17 Claims



1. A tank type gas circuit breaker having a sealed vessel which is filled with an insulating gas; an elongated insulating support within the sealed vessel and having one end thereof fixed to the sealed vessel; a hollow elongated bracket which is fixed to the other end of the insulating support; a plurality of interrupting units disposed within said sealed vessel; means for connecting said interrupting units in electrical series with each other; and linkage means disposed within said bracket for operating said interrupting units for opening and closure thereof; two of said interrupting units being disposed along axes which are substantially parallel to one another and both of said two units being located on one end face side of said bracket so as to be staggered in the direction of their axes, the one of said two interrupting units located adjacent the bracket side having its stationary contact member electrically connected with a movable contact member of the other interrupting unit at all times.

4,315,120

LOAD DISCONNECTION SWITCH

Manfred Globig, Filderstadt, Fed. Rep. of Germany, assignor to Concordia Sprecher Schaltgerate GmbH, Fed. Rep. of Germany

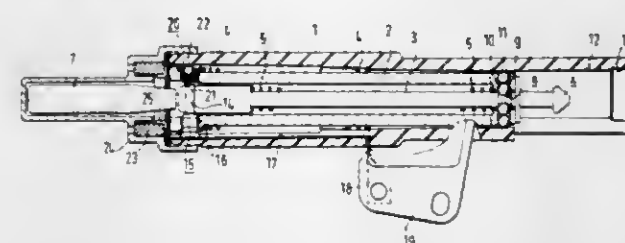
Filed Sep. 4, 1979, Ser. No. 71,909

Claims priority, application Fed. Rep. of Germany, Feb. 27, 1979, 2907574

Int. Cl.³ H01H 33/04

U.S. Cl. 200—146 R

15 Claims



1. A load disconnection switch incorporating a quench chamber and comprising a tube-like housing, a telescope-like arrangement of a quench tube and a switch rod guided for relative axial movement within the tube-like housing and releasably connected together by a coupling system the release of which is dependent on relative movement between the quench tube and the housing and wherein the coupling system comprises at least one blocking device displaceably arranged in a radial guide of the quench tube, a recess provided in the switch rod and into which the blocking device is engageable to effect coupling between the quench tube and the switch rod, and a control wall of insulating material which limits the extent of radial movement of the blocking device and wherein the control wall has, at a location corresponding to the end of a predetermined initial relative movement between the quench tube and the tube-like housing an increase in cross-section which corresponds at least to the engagement depth of the blocking device in the recess whereby to allow decoupling of the quench tube and switch rod.

4,315,121

SATURABLE MAGNETIC STEEL ENCASED COIL FOR ARC SPINNER INTERRUPTER

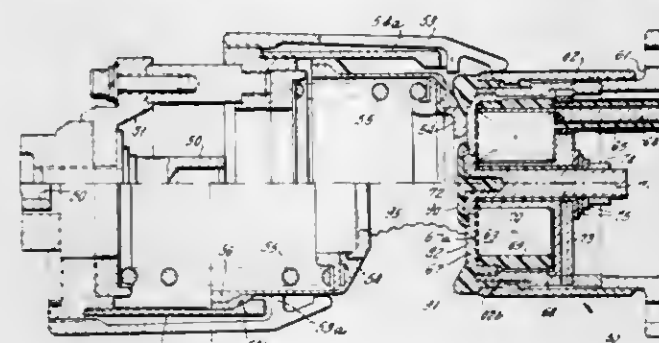
Robert K. Smith, Lansdale, Pa., assignor to Gould Inc., Rolling Meadows, Ill.

Filed May 11, 1979, Ser. No. 38,107

Int. Cl.³ H01H 33/18

U.S. Cl. 200—147 R

8 Claims



1. An arc spinner interrupter comprising, in combination: a movable contact; an arc runner disk formed of a flat disk of conductive material engageable by said movable contact, and having one surface area for receiving the arc root of an arc drawn between said movable contact and said arc runner disk; a coil connected in series with said arc runner disk; said coil having the shape of a toroid having a rectangular cross-section; said coil having an inner diameter, an outer diameter and first and second parallel end surfaces; said arc runner disk being fixed adjacent to said first end surface of said coil; a substantially static arc extinguishing fluid disposed in the region between said movable contact and said arc runner disk; and a

casing of magnetic material which is U-shaped in cross-section and which is fitted around said inner diameter, said second surface and said outer diameter of said coil; the ends of the legs of said U-shaped casing being adjacent to the inner and outer diameters respectively of said arc runner disk; said casing being of a magnetic material having a magnetic permeability greater than that of air and defining a relatively low reluctance magnetic path for magnetic flux around said coil and to the region between said one surface area of said arc runner disk and said movable contact; said interrupter having a rated interrupting current; at least portions of said casing of magnetic material being saturated by the field due to said coil when the current in said coil is less than said rated interrupting current but greater than some relatively low given value, and wherein said casing of magnetic material is unsaturated at coil currents lower than said relatively low given value in order to improve the ability of said interrupter to interrupt low current faults by having an increased flux density per ampere in the arcing region during relatively low current interruption.

4,315,122

CONTACT ARRANGEMENT

Wilhelm Krämer, Sandhausen, and Joachim Gräfling, Ubstadt-Weiber, both of Fed. Rep. of Germany, assignors to BBC Brown, Boveri & Company, Ltd., Baden, Switzerland

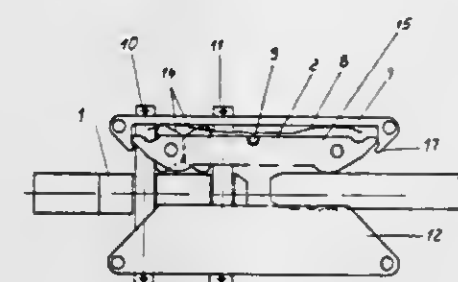
Filed Nov. 30, 1979, Ser. No. 98,791

Claims priority, application Fed. Rep. of Germany, Nov. 30, 1978, 2851738

Int. Cl.³ H01H 1/32

U.S. Cl. 200—248

4 Claims



1. A contact arrangement comprising:

a first contact;

a second contact having at least two contact members with the first contact being receivable between the two contact members, said contact members each including at least two conductive track parts separated by a gap, and fastening means for holding said conductive track parts together; and

contact support means for resiliently supporting said second contact so as to be both resiliently supported relative to the contact support means and movable relative to said first contact and such that said at least two contact members are both movable relative to each other and movable relative to the contact support means, said contact support means including first and second generally U-shaped supports, each of said U-shaped supports having two end portions between which one of said contact members is arranged; and bolt means for connecting both said U-shaped supports and said contact members with the contact support means.

4,315,123

SWITCHING APPARATUS ASSEMBLY STRUCTURE

Teizo Fujita, Ibaraki, and Haruo Kimura, Settsu, both of Japan, assignors to Izumi Denki Corporation, Japan

Filed Apr. 9, 1980, Ser. No. 138,798

Claims priority, application Japan, Apr. 17, 1979, 54-47384

Int. Cl.³ H01H 9/02

U.S. Cl. 200—307

29 Claims

1. A switching apparatus assembly structure having a central axis and comprising at least one first block provided with a

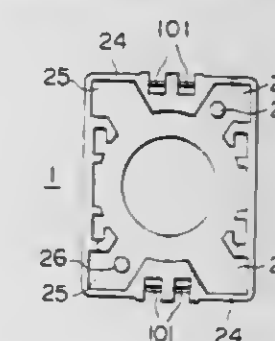
contact mechanism and adapted to be coupled to others in a multi-stage fashion, and a second block provided with an actuator mechanism for actuating said contact mechanism, said first block and said second block being detachably coupled to each other in the direction of said central axis, wherein

(A) said first block comprises:

- (a) a first casing of a generally box-like form having its central axis registering with said central axis,
- (b) at least one electrical contact means accommodated within said first casing,
- (c) external lead-out terminal means electrically connected to said contact means, and
- (d) first engaging means provided on said first casing for detachably coupling said first block to another block to be adjoined to said first block in the direction of said central axis; and wherein

(B) said second block comprises:

- (a) a second casing having its central axis registering with said central axis, said second casing including a hollow



box-shaped section and a hollow cylindrical section extending from said box-shaped section in the direction of said central axis, said box-shaped section opening in a direction remote from said cylindrical section with respect to said central axis to define a hollow space divided into a substantially circular central cavity and small cavities located at the four corners of said box-shaped section and communicating with said central cavity, the hollow space of said cylindrical section and the central cavity of said box-shaped section communicating with each other to define an accommodation space extending through said second casing in the axial direction,

- (b) manually-operated cylindrical actuator means movably accommodated within said accommodation space for turning on and off said contact means by actuating the same, and
- (c) second engaging means cooperating with said first engaging means for detachably coupling said second block to said first block adjoining thereto.

4,315,124

HEATING MODULES FOR BILLETS IN INDUCTIVE HEATING FURNACES

Staffan Granstrom, and Gosta Karlsson, both of Vasteras, Sweden, assignors to ASEA Aktiebolag, Vasteras, Sweden

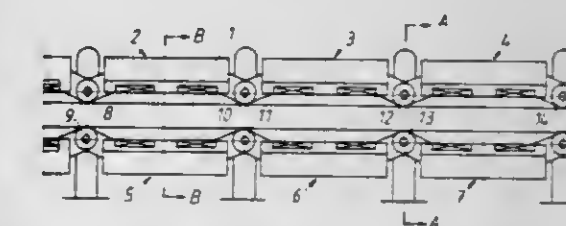
Filed Nov. 9, 1978, Ser. No. 959,215

Claims priority, application Sweden, Nov. 16, 1977, 7712917

Int. Cl.³ H05B 6/22, 6/44

U.S. Cl. 219—10.71

10 Claims

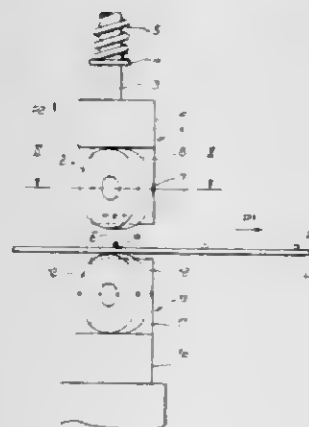


1. Inductive billet heating apparatus in an inductive heating furnace for billets having a rectangular section, comprising:

a plurality of paired heater modules having a flat shape;
a plurality of paired roller elements for feeding the billets between said plurality of heater modules;
each heater module in each pair of said heater modules being directly suspended from respective ones of said paired roller elements on opposite sides of a billet such that a substantially constant distance from the opposite surfaces of the billets to the respective heater modules in each pair of heater modules is maintained by movement of said paired roller elements on the respective opposite surfaces of the billet independently of the thickness and/or variations in thickness of the billet; and
each said pair of heater modules being independently rotatable in a plane substantially parallel to the confronting surfaces of the billets.

4,315,125 LATTICE WELDING MACHINE WITH DISC ELECTRODE

Gerhard Schmidt; Klaus Ritter, and Gerhard Ritter, all of Graz, Austria, assignors to EVG Entwicklungs- u. Verwertungsgesellschaft m.b.H., Graz, Austria
Filed Jun. 9, 1980, Ser. No. 157,433
Claims priority, application Austria, Jun. 12, 1979, 4184/79
Int. Cl.³ B21F 27/10; B23K 11/06
U.S. Cl. 219—56 3 Claims



1. In an electrical resistance welding machine for producing a wire lattice by welding together longitudinal and transverse wires at their crossover points, said machine comprising means for feeding said wires stepwise between at least one pair of electrode devices, and means synchronized with said feeding means for bringing said electrode devices together to clamp said wires at one of said crossover points therebetween, an improved electrode device which comprises an electrode holder, a welding electrode fitted to said electrode holder and adapted to transmit welding current from said electrode holder to said crossover points in turn, said welding electrode being in the form of a circularly cylindrical disc which is disposed on said electrode holder for rotation about the axis of said disc and is provided with means for fixing said disc in a selective angular position relative to said electrode holder, said axis extending at an acute angle to the direction of feed of said longitudinal wires.

4,315,126 METHOD OF AIR CUTTING AND GOUGING AND A COMBINED TORCH AND NOZZLE ASSEMBLY

Peter R. Schaefer, and Donald W. Carkhuff, both of Florence, S.C., assignors to Union Carbide Corporation, New York, N.Y.

Filed May 29, 1980, Ser. No. 154,517
Int. Cl.³ B23K 9/00

U.S. Cl. 219—70

9 Claims

1. In a method of cutting or gouging metal from a workpiece using an arc established between a carbon electrode and said workpiece in which the electrode is suspended from a torch having nozzle means for gripping the electrode and simulta-

neously directing a stream of high velocity gas toward said arc for blowing away molten metal from the workpiece while the torch is advanced along the workpiece in a predetermined path; the improvement comprising:

forming said high velocity gas stream by directing high velocity gas through at least two elongated exit orifices aligned relative to one another in a non-parallel relationship with each exit orifice directed toward said electrode such that the high velocity effluent from each orifice merges to form said stream of high velocity gas at a location substantially upstream of said arc and substantially about the centerline of said electrode.

5. In combination, an arc cutting and gouging torch having a main conductive body with a first internal passage through which high pressure gas is adapted to be fed, a clamping arm pivotally connected to said main conductive body and having a second internal passage through which said high pressure gas is also adapted to be fed, and nozzle means disposed between said clamping arm and said main conductive body for suspend-



ing an elongated carbon electrode in a radially adjustable position relative to the longitudinal axis of the torch; said nozzle means comprising:

an upper nozzle assembly connected to said clamping arm, including a first elongated exit orifice for discharging said high pressure gas from said torch and a first passageway connected to said first exit orifice and communicating with said first internal passage;
a lower nozzle assembly connected to said main body, including a second elongated exit orifice for simultaneously discharging said high pressure gas from said torch and a second passageway connected to said second exit orifice and communicating with said second internal passage; and
wherein said first exit orifice and said second exit orifice are disposed in a non-parallel relationship relative to one another each forming an included angle with the centerline of the electrode to cause said high pressure gas exiting from each orifice to merge at a location substantially upstream of the arc end of the electrode.

4,315,127
ELECTRO-SLAG WELDING METHOD
Yoshinori Ito, Nishinomiya; Masahiko Ikeda, Ashiya, and Junji Furuichi, Nishinomiya, all of Japan, assignors to Sumitomo Metal Industries Limited, Osaka, Japan
Continuation of Ser. No. 710,331, Jul. 30, 1976, abandoned, which is a continuation of Ser. No. 510,595, Sep. 30, 1974, abandoned. This application Oct. 30, 1979, Ser. No. 89,485
Claims priority, application Japan, Oct. 6, 1973, 48-112669; Oct. 6, 1973, 48-112670
Int. Cl.³ B23K 25/00

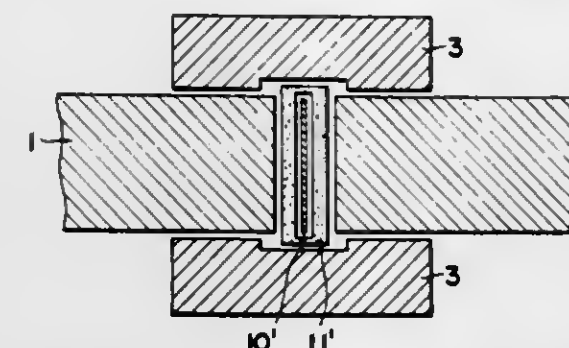
U.S. Cl. 219—73.1

1 Claim

1. An electro-slag welding method which requires the use of reduced amounts of welding materials, said method comprising:

(a) fixedly positioning the elements to be welded together by means of opposed metal clamping members so as to form between the elements to be welded a substantially vertically extending gap of no more than about 20 mm, said elements to be welded together having substantially equivalent thicknesses,
(b) positioning in said gap a strip of mild steel as a consumable electrode, said strip of mild steel having a thickness of between 0.5 and 1.5 mm and a width substantially equal to thicknesses of the elements to be welded together, said

strip of mild steel being encased in hollow, rectangular-shaped tube consisting of an electrically insulating material molded around a metal net core, said electrically insulating material comprising a mixture of a slag-forming agent, a deoxidizing agent and an alloying agent, and



(c) passing electrical current through said strip of mild steel to melt portions of said steel strip and said electrically insulating material and accomplish said welding, while feeding said strip of mild steel through said hollow, rectangular-shaped tube.

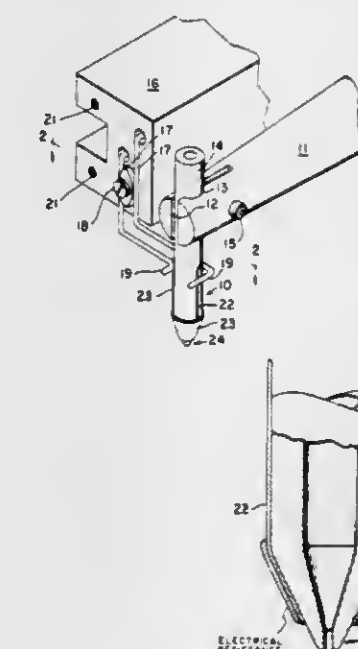
4,315,128
ELECTRICALLY HEATED BONDING TOOL FOR THE MANUFACTURE OF SEMICONDUCTOR DEVICES
Thomas J. Matcovich, Maple Glen, and Dan Valenski, Hatboro, both of Pa., assignors to Kulicke and Soffa Industries Inc., Horsham, Pa.

Filed Apr. 7, 1978, Ser. No. 894,344

Int. Cl.³ B23K 3/00; H05B 3/16

U.S. Cl. 219—85 D

11 Claims



1. A heated bonding tool for the manufacture of semiconductor devices comprising:

a high density non-porous alumina electrically insulating bonding tool, said bonding tool including a mounting portion at one end, a working portion at the other end and a tapered portion converging toward said working tip portion, the outer surface of said bonding tool being electrically insulative,
an electrically conductive-resistive thick film deposited over said outer surface of said tapered portion of said bonding tool intermediate said mounting portion and said working tip portion leaving said working tip exposed,
said thick film being capable of heating said exposed working tip of said bonding tool up to 600° C. when an electrical current is passed through said conductive-resistive thick film,

said thick film consisting of a matrix of conductive-resistive material,
a pair of thick film contact terminal pads deposited on said outer surface of said mounting portion and forming a continuation of said conductive-resistive thick film for connecting said conductive-resistive thick film to a source of electrical current, and
said thick film contact terminal pads being adapted to be connected to said source of electrical current.

4,315,129 MOBILE APPARATUS FOR WELDING STUDS TO RAIL BASE PLATES

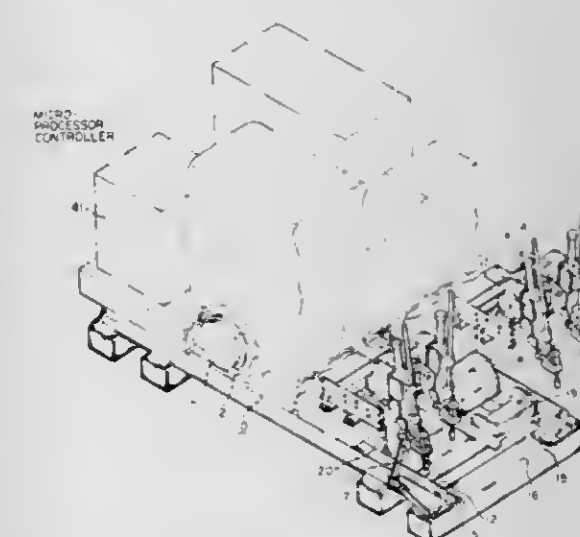
Harold C. Wilkinson, Medford; Angelo M. D'Attoma, Moorestown, both of N.J., and Stephen W. Walker, Louisville, Ky., assignors to Omark Industries, Inc., Portland, Ore.

Filed Oct. 15, 1979, Ser. No. 85,016

Int. Cl.³ B23K 9/20; E01B 29/16

U.S. Cl. 219—99

15 Claims



12. The method of positioning and welding, on site, rail retaining clip studs to existing railroad rail plates comprising the steps of:

moving along the rails at a predetermined speed a railway car assembly including welding gun assemblies adapted to extend from the railway car assembly to the rail plates to weld studs thereupon and carried by a carriage assembly capable of moving the welding gun assembly in both transverse and longitudinal directions in respect to the rail plate;
sensing the approach of a rail plate and stopping the railway car assembly at a position wherein the stud is in longitudinal position in respect to the rail plate; and
sensing the position of the stud in respect to the rail plate transverse to the rail plate and moving the carriage assembly to properly position the stud in respect to the rail plate.

4,315,130 METHOD OF TREATING OBJECT BY LASER BEAM AND APPARATUS THEREFOR

Masahisa Inagaki, Hitachi; Ryutarou Jinbou, Hitachioti; Tomio Unino, and Tomohiko Shida, both of Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 28, 1979, Ser. No. 16,167

Claims priority, application Japan, Mar. 3, 1978, 53/23525
Int. Cl.³ B23K 27/00

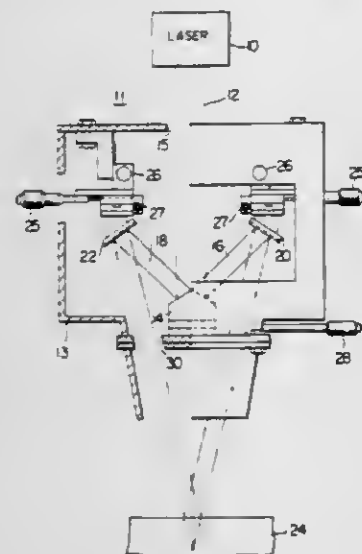
U.S. Cl. 219—121 L

9 Claims

1. A method of treating an object by a laser beam in which the object to be treated is irradiated by the laser beam, comprising the steps of:

emitting a laser beam having a non-uniform symmetrical pattern of energy distribution from a laser apparatus;
dividing said laser beam along at least one line of symmetry into a plurality of fractional laser beams each having a

cross-sectional area which is equal to the cross-sectional area of the other fractional laser beams; and directing said plurality of fractional laser beams into overlapping relationship directly onto the surface of the object



to be treated, in a manner so that the pattern of said overlapping beams on said surface has a substantially-rectangular form and the energy density distribution of said pattern is made substantially uniform along at least one dimension of said rectangular pattern.

4,315,131

ELECTRON DISCHARGE HEATING DEVICES

Rodney Townend, Clwyd, Wales; Joseph B. Wareing, Chester, and Raymond Winstanley, South Wirral, both of England, assignors to The Electricity Council, England

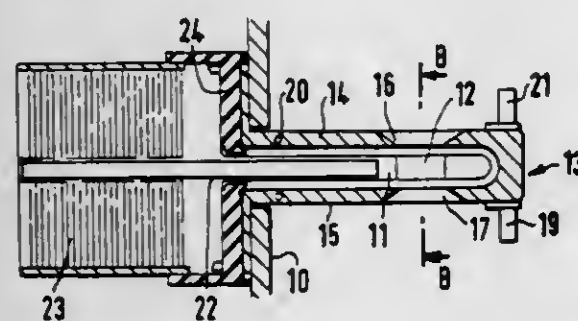
Filed Oct. 16, 1979, Ser. No. 85,364

Claims priority, application United Kingdom, Oct. 30, 1978, 42448/78

Int. Cl.³ B23K 15/00; H01J 37/06

U.S. Cl. 219—121 EB

2 Claims



1. A glow discharge heating device for the continuous heat treatment of an elongate workpiece movable through the heating device, said heating device comprising a plurality of wall members defining a vacuum chamber, an electron discharge gun having anode and cathode electrodes in said chamber; said cathode electrode comprising an elongate plate member mounted in one wall of the chamber to extend into the chamber and having a circular aperture through the plate member near the end thereof in the chamber; said anode electrode comprising two plate members, one on each side of, adjacent to, and parallel with the cathode electrode; each anode plate member having a circular aperture therethrough axially aligned with the aperture in the cathode electrode; means for applying an electric potential between the cathode and anode electrodes while maintaining the anode electrode at earth potential to produce an electron discharge focussed on the axis of the apertures; means for passing an elongate workpiece through the vacuum chamber and through the electrode apertures along the axis thereof; means defining ducts in each of the anode members; means for circulating a coolant fluid through said ducts; at least one heat pipe member partially within the cathode electrode and extending within the cathode

electrode from a point adjacent the cathode aperture through the wall of the chamber; and a plurality of heat dissipating cooling surfaces outside the chamber and contacting the pipe member to dissipate heat therefrom.

4,315,132

PROCESS AND APPARATUS FOR WELDING TUBULAR BODIES

Emmanuel E. V. Saurin, 28, rue Eugène Prevost, Lagny, and Ezio V. Gariglio, 1, Allée du Roussillon, Neuilly-sur-Marne, both of France

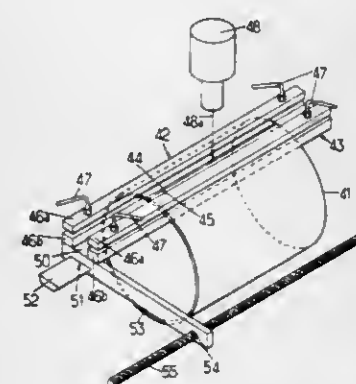
Continuation-in-part of Ser. No. 34,015, Apr. 27, 1979, abandoned, which is a continuation of Ser. No. 758,785, Jan. 12, 1977, Pat. No. 4,152,573. This application Dec. 21, 1979, Ser. No. 105,873

Claims priority, application France, Jan. 20, 1976, 76 01400 The portion of the term of this patent subsequent to May 1, 1996, has been disclaimed.

Int. Cl.³ B23K 27/00

U.S. Cl. 219—121 LD

10 Claims



1. Process for manufacturing a tubular body for a preserved food can, comprising the steps of rolling up a metal sheet of small thickness until the opposite edge portions of the sheet contact to form a tube section and welding said edge portions in edge to edge relation without overlap with a laser beam which insures a resistance to tensile forces equivalent to that of the metal sheet and subjecting the tube section to radial expansion to obtain a tubular body having an increased cross-sectional area and a decreased wall thickness as compared with said tube section.

4,315,133

APPARATUS PROTECTING A LENS FROM AIRBORNE PARTICULATES

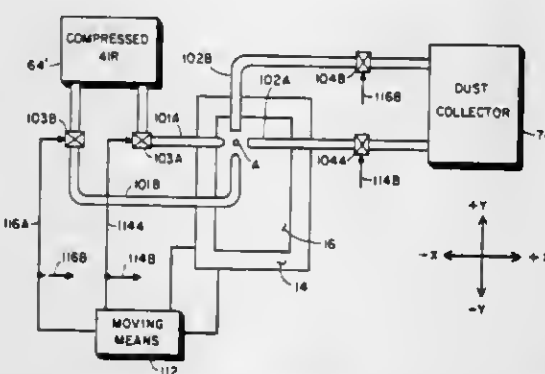
John H. Morgan, Albuquerque, and Larry W. Sutton, Peralta, both of N. Mex., assignors to GTE Automatic Electric Laboratories, Inc., Northlake, Ill.

Filed May 12, 1980, Ser. No. 149,804

Int. Cl.³ B23K 27/00

U.S. Cl. 219—121 FS

8 Claims



1. In an optical system including a lens with an exterior surface through which a laser beam passes, the laser beam being directed in a straight line for contacting the workpiece,

first means providing multidirectional relative movement of the workpiece with respect to the line and laser beam in a plane orthogonal to the line, and second means producing a directional stream of gas moving between the lens and workpiece and across the line for protecting the exterior lens surface by impeding contaminant particulates of the workpiece contacting the lens, the improvement comprising machine means for adjusting the direction of the stream of gas for maintaining a major vector component thereof in a direction that is one of a direction orthogonal to and the same as the direction of a current relative movement of the workpiece with respect to the laser beam and line.

4,315,134

HEATING FILAMENT ARRANGEMENT FOR UNIFORMLY ELECTRICALLY HEATING A VEHICULAR WRAP-AROUND TYPE REAR WINDOWSCREEN

Kiyoto Matsuzaki; Shojiro Seki, and Norimoto Aya, all of Yokohama, Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

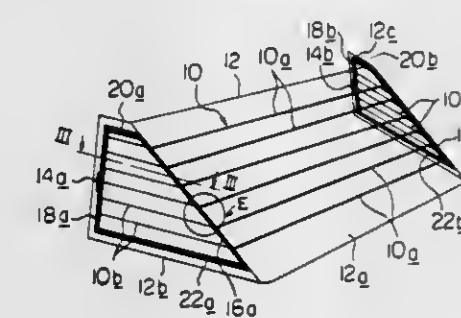
Filed May 11, 1979, Ser. No. 38,275

Claims priority, application Japan, May 17, 1978, 53-64963

Int. Cl.³ H05B 3/06; E06B 7/12; A47L 1/16; B60J 1/20

U.S. Cl. 219—203

3 Claims



1. An electric demister for preventing a window screen from being misted, said window screen comprising a gently sloping main section and steeply sloping side sections between which said main section is interposed so as to be inclined with respect to each of said side sections, said demister comprising: a first group of heating filaments printed on the surface of said main section parallel with and spaced from each other; second and third groups of heating filaments printed on the surfaces of said side sections parallel with and spaced from each other, said second and third groups of filaments being integrally connected in one-to-one relation to said first group of filaments at ridges of said window screen by which ridges said main section and said side sections are bound respectively, the width of each of said second and third groups of filaments being less than that of said first group of filaments so that each filament of said second and third groups has an electric resistance higher than that of said first group;

first highly conductive strips printed on said side sections respectively, each having a top end and a bottom end, the leading ends of the filaments of the second and third groups being each connected to said first highly conductive strips; terminals respectively formed on said first highly conductive strips for connecting said strips to an electric power source; second highly conductive strips, each having a top end and a bottom end, printed on said ridges respectively to extend along the same so as to cross the connecting parts of the filaments of said first and second groups and said first and third groups to connect the connecting parts; and third highly conductive strips printed on said side sections respectively to connect said top ends of said first and second highly conductive strips and to connect said bottom ends of said first and second highly conductive strips, the electric resistance of each of said third highly conductive strips being lower than that of each of the filaments of said second

and third groups and being selected to provide uniform heating throughout said window screen.

4,315,135

THERMAL RECORDING HEAD

Fumitake Tokugawa, and Etsuo Hatabe, both of Amagasaki, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

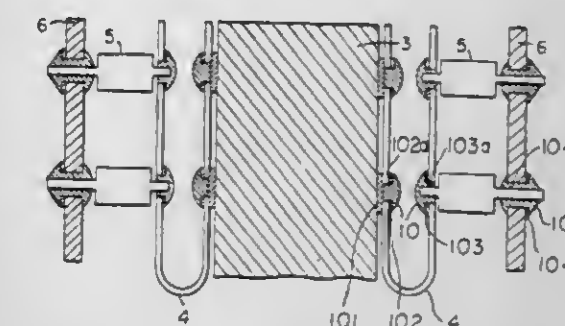
Filed Aug. 21, 1979, Ser. No. 68,341

Claims priority, application Japan, Aug. 21, 1978, 53-101975; Sep. 12, 1978, 53-112615

Int. Cl.³ H05B 1/00

U.S. Cl. 219—216

6 Claims



1. A thermal recording head which comprises a supporting substrate having a wiring pattern wherein a plurality of heating elements arranged linearly and a plurality of lead-out wires connected respectively to each heating element are formed on the end surface and said lead-out wires are elongated to the adjacent side surface; selective terminals connected to a plurality of said heating elements; a first wiring substrate having a wiring pattern having signal terminals for applying a selective signal for selecting the heat elements and a diode matrix connected to said terminals; a second wiring substrate having a wiring pattern for connecting said diode matrix to said lead-out wires; and a plurality of diodes which are connected between said wiring patterns and which form said diode matrix in the space facing said wiring patterns.

4,315,136

THERMIC DEVELOPING STATIONS

Dieter Block, Kiel; Reinhard Gesell, Schoenkirchen, and Hans-Werner Peters, Ralsdorf, all of Fed. Rep. of Germany, assignors to Dr. Ing. Rudolf Hell GmbH, Fed. Rep. of Germany

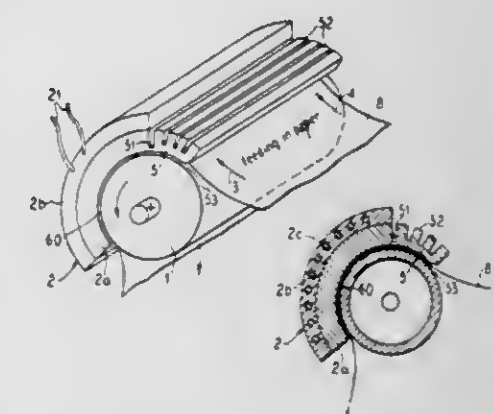
Filed Dec. 3, 1979, Ser. No. 99,585

Claims priority, application Fed. Rep. of Germany, Dec. 2, 1978, 2852250

Int. Cl.³ H05B 1/00

U.S. Cl. 219—216

11 Claims



1. A thermal development station for recording material to be developed by means of heat, comprising: a rotatable drum; an electrical heating element with an associated directly heated base member having a curved surface corresponding to a curvature of a surface of the drum and being positioned such that a recording material can be transported through by the

drum in a gap between the drum and the heating element base member as the drum rotates; and a thermally isolated member which is substantially less heated than portions of the heating element base member likewise having a curved surface corresponding to the curvature of the drum surface and provided at an entry point for the recording material into a heated zone between the drum and the heating element base member.

4,315,137

THERMOSTAT RANGE CONTROLLER

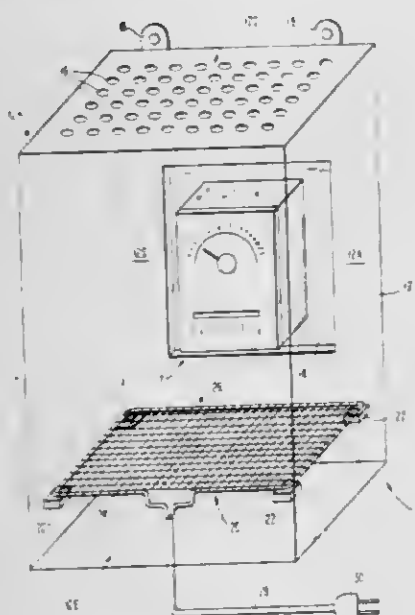
Harald Dahms, 22 Lakeview Rd., Ossining, N.Y. 10562

Filed Jun. 2, 1980, Ser. No. 156,043

Int. Cl.³ G05D 23/30

U.S. Cl. 219—391

22 Claims



1. A thermostat range controller adapted for use with a wall mounted thermostat, comprising:

an enclosure means separate from a thermostat and its housing, adapted to be mounted on a wall supporting said thermostat in a position such that said enclosure means surrounds said thermostat, said enclosure means including a back wall thereof having an opening therein through which said thermostat projects when said enclosure means is attached to said wall in a manner to be substantially flush with said wall,

a distributed heater means having openings therein located within said enclosure means and directly vertically above the bottom of said enclosure means and at a level below the bottom of said opening,

means for conveying heated air to the area of said thermostat including:

intake means on said enclosure means located directly vertically below said distributed heater for receiving air from the room in which said thermostat is mounted, and exit means on said enclosure means and located directly vertically above said distributed heater means for allowing heated air within said enclosure means to exit from said enclosure means,

wherein the volume of said enclosure means is greater than the volume of said thermostat and wherein the flow of air through said enclosure means is in a substantially vertical path from said intake means to said exit means.

4,315,138

ELECTRIC RICE COOKER

Yoshiyuki Miwa, Aichi, Japan, assignor to Tokyo Shibaura

Denki Kabushiki Kaisha, Kawasaki, Japan

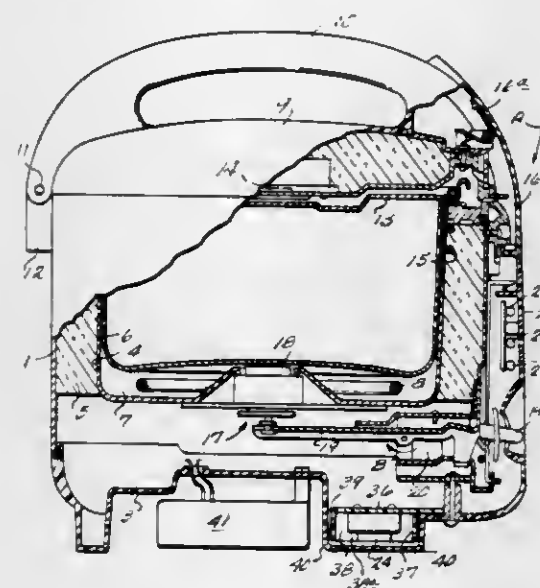
Filed Apr. 23, 1980, Ser. No. 143,122

Claims priority, application Japan, May 21, 1979, 54-63117; May 22, 1979, 54-69369[U]

Int. Cl.³ F27D 11/02

U.S. Cl. 219—441

10 Claims



1. An electric rice cooker comprising: a cooking kettle for containing water and rice to be cooked; a removable lid covering the top of said kettle; electrical heater means mounted adjacent the outside surface of said kettle for heating said kettle and the contents thereof;

thermally insulating frame means for supporting and enclosing said kettle and heater means;

a face cover for covering at least a front portion of said frame means, said frame means and face cover forming a case;

circuit means for connecting and disconnecting said heater means from a source of electrical energy to carry out a plurality of cooking steps in a predetermined period including a thermostat for detecting the temperature of said kettle and having a first position connecting said source to said heater for heating said kettle and contents and a second position disconnecting said heater means in response to detection of a predetermined temperature;

electric timer means having controlled switches for controlling connection of said source to said heater means; and heat isolating means mounted on said case and disposed between said timer means and heater means for preventing heat from said heater means from being transferred to said timer means.

4,315,139

ELECTRIC RICE COOKER

Masayuki Onishi, Nagoya, and Yoshiyuki Miwa, Aichi, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha,

Kawasaki, Japan

Filed Apr. 24, 1980, Ser. No. 143,151

Claims priority, application Japan, May 22, 1979, 54-63727; Jun. 1, 1979, 54-69048

Int. Cl.³ F27D 11/02

U.S. Cl. 219—441

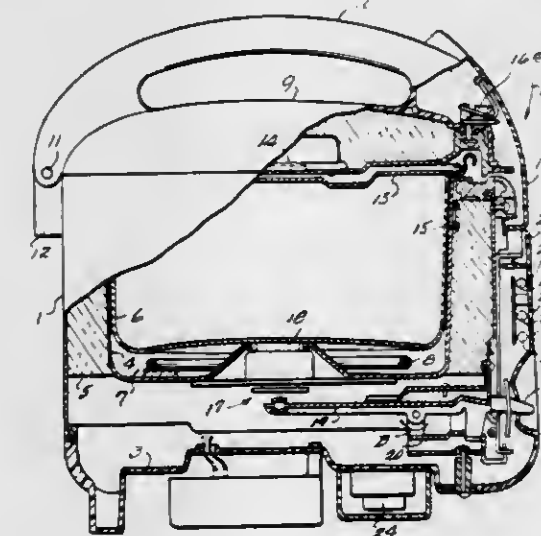
6 Claims

1. An electric rice cooker for cooking rice in a cycle including at least main cooking and twice cooking steps comprising: a cooking kettle for containing water and rice to be cooked; a removable lid covering the top of said kettle; thermally insulating frame means for supporting and enclosing said kettle;

electrical heater means mounted on said frame means adjacent

the outside surface of said kettle for heating said kettle and the contents thereof;

circuit means for connecting and disconnecting said heater means from a source of electrical energy to carry out a plurality of cooking steps in a predetermined period including a thermostat for detecting the temperature of said kettle and having a first position connecting said source to said heater for heating said kettle and contents and a second position disconnecting said heater means in response to detection of a predetermined temperature, timer means having a first controlled switch in a first position connecting said timer means to said source through said thermostat to actuate said timer means when said thermostat is in said first position, said first switch being shifted to a second position by said timer means a first predetermined time after actuation to disconnect said timer means from said source and said timer means being reactivated when said thermostat



witch is in said second position connecting said source to said timer means through said first switch in said second position and having a second controlled switch connecting said heater means to said source through said thermostat in said second position for a second predetermined time period beginning a third predetermined time after reactivation of said timer means; and

means for displaying the steps of said cycle being carried out including a first display lamp connected to said thermostat for illumination when said thermostat is in said first position to indicate main cooking, and a serially connected third switch controlled by said timer means and a second display lamp, said second lamp and third switch being connected in parallel with said timer means, said third switch being closed when said second switch is in said second position for illumination of said second lamp to indicate twice cooking.

4,315,140

ENERGY SAVING DISHWASHER

William F. Helwig, Jr., Downers Grove, Ill., assignor to Avtec

Industries, Inc., Downers Grove, Ill.

Continuation-in-part of Ser. No. 77,135, Sep. 19, 1979, Pat. No. 4,254,788. This application Jul. 30, 1980, Ser. No. 173,770

Int. Cl.³ H05B 1/02

U.S. Cl. 219—486

7 Claims

1. A control circuit for conserving electrical energy in a dishwashing machine comprising

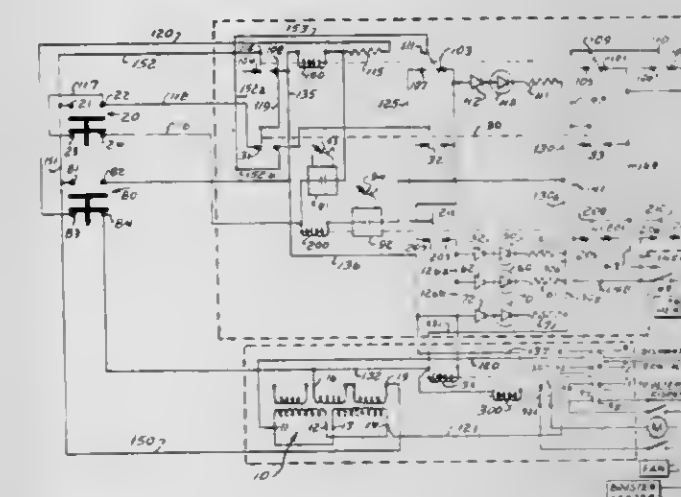
control means for automatically actuating various components during the operation of the dishwashing machine including at least one booster heater and one tank heater, said control means being coupled to a source of electrical power and preventing simultaneous operation of the booster heater and tank heater of the dishwashing machine,

said control means further including connector means to

couple the tank heater and booster heater to an electrical power source to supply power thereto,

said control means further including actuator means being responsive to the commencement of a cycle of operation of the dishwashing machine to simultaneously interrupt the power directed to the tank heater and supply power to the booster heater;

delay means operatively coupled to said actuator means and the tank and booster heaters to interrupt power directed to the booster heater and supply power to the tank heater in a predetermined time interval after the actuator means senses the presence of the commencement of the cycle of operation of the dishwashing machine; and



a plurality of contacts adaptable to be coupled to the operative input of various types of dishwashing machines, said plurality of contacts being electrically coupled to said control means including at least one of said contacts being electrically connected to said connector means for supplying electrical power of the dishwashing machine, at least another one of said contacts being connected to said actuator means to simultaneously interrupt the power directed to the tank heater and supply power to the booster heater of the dishwashing machine, and at least another one of said contacts being connected to said delay means to interrupt the power directed to the booster heater and supply power to the tank heater of the dishwashing machine in said predetermined time interval.

4,315,141

ELECTRICAL HEATING APPARATUS WITH OVERHEATING PROTECTION

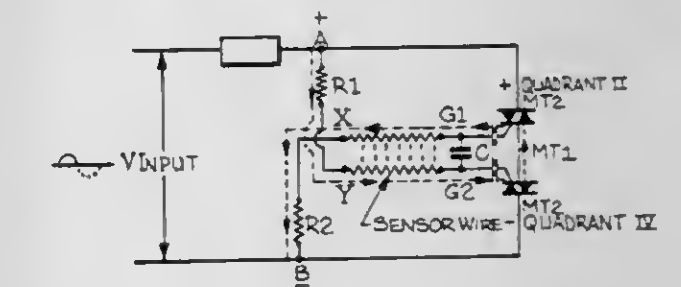
Edwin R. Mills, Raleigh, and Ernest L. Elmore, Smithfield, both of N.C., assignors to Fieldcrest Mills, Inc., Eden, N.C.

Filed Sep. 5, 1980, Ser. No. 184,201

Int. Cl.³ H05B 1/02

U.S. Cl. 219—505

7 Claims



1. An electrical heating apparatus protected against an over-heating condition and against a switch failure condition and comprising electrical heating means for generating heat upon flow of electrical current therethrough, overheat protection means including temperature sensitive impedance means thermally coupled to said electrical heating means for sensing the

occurrence of an overheating condition therein, a pair of gate controlled bidirectional semiconductor switches electrically connected to one another in series and in front-to-front orientation, means electrically connecting said pair of semiconductor switches to said heating means for controlling the flow of electrical current thereto, and means electrically coupling the gate of each one of said semiconductor switches to the gate of the other one of said semiconductor switches through said temperature sensitive impedance means for triggering of the semiconductor switches from a conductive to a nonconductive state in response to the sensing of an overheating condition by said temperature sensitive impedance means, said last named means electrically connecting the gate of each one of said semiconductor switches to the other one of said semiconductor switches for preventing triggering of either of the semiconductor switches in the event that one of said semiconductor switches fails in shorted condition.

4,315,142

TEMPERATURE REGULATING DEVICE FOR ELECTRIC HEATING APPARATUS

Jean-Paul Henault, Houdan, France, assignor to Airelec Industries, France

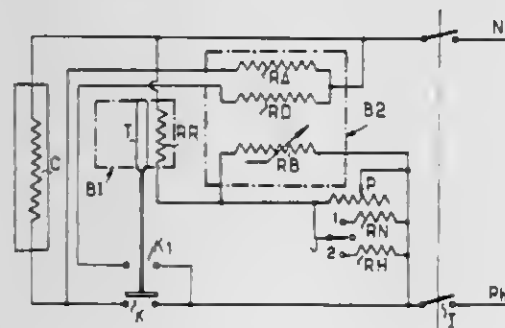
Filed May 6, 1980, Ser. No. 147,239

Claims priority, application France, May 8, 1979, 79 11612

Int. Cl.³ H05B 1/02

U.S. Cl. 219—511

4 Claims



1. A temperature regulating device for controlling the operation of an electric heating apparatus of the type having a power supply and a space heating element, the device including the combination of

- a thermostat;
- switch means actuated by said thermostat between a first position for connecting the power supply to the heating element and a second position;
- a regulating resistor and a temperature variable resistor connected in series circuit relationship, the series circuit thus formed being adapted to be electrically connected across the power supply, said regulation resistor being thermally coupled to said thermostat;
- a differential correction heating resistor adapted to be electrically connected in parallel circuit relationship with the heating element; and
- a shift correction heating resistor electrically connected to said switch means for energization by the power supply when said switch means is in said second position, said shift correction heating resistor having a time constant which is different from the time constant of said differential correction heating resistor, and
- said differential correction heating resistor and said shift correction heating resistor being thermally coupled to said temperature variable resistor.

4,315,143

AQUARIUM HEATER

Allan H. Willinger, 351 E. 84th St., Apt. 21-E, New York, N.Y. 10028, and Tsuyoshi Itakura, Itakura Soki Kabushiki Kaisha, 17-20 Utsuki 3-Chome, Obata-Ku, Tokyo, Japan

Division of Ser. No. 63,049, Aug. 2, 1979, Pat. No. 4,255,648.

This application Oct. 27, 1980, Ser. No. 201,138

Int. Cl.³ H05B 3/80, 1/02

U.S. Cl. 219—523

11 Claims



1. An aquarium heater comprising a housing and a tube depending therefrom, an electrical heating element disposed in a bottom portion of said tube and a thermostatic control chassis disposed in an upper portion of said tube, said control chassis comprising opposing housing sections matingly engaged in nesting relationship to provide a cylindrical housing unit having an outer wall snugly fitting within said tube, a base wall transversely separating the bottom portion of said tube therefrom, and a transverse top wall, means for securely retaining said housing sections together, bimetallic thermostatic switch means securely mounted within said cylindrical housing unit in circuit with said heating element, and adjustment means on said housing for adjusting the position of said switch means to thereby control temperature setting of the heater.

4,315,144

ELECTRICAL IMPULSE OPERATED NUMBER WHEEL COUNTERS

Hans Bud, London, and Peter Alway, Bushey, both of England, assignors to Mecom Standard Limited, London, England

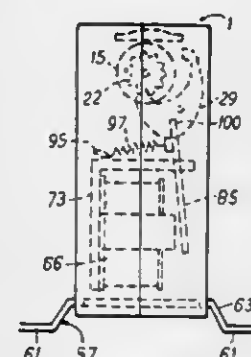
Filed Dec. 11, 1979, Ser. No. 102,330

Claims priority, application United Kingdom, Dec. 14, 1978, 48535/78

Int. Cl.³ G06M 1/02

U.S. Cl. 235—92 C

9 Claims



1. An electrical impulse operated number wheel counter, comprising a housing, a first shaft inside the housing, a series of coaxial freely rotatable number wheels mounted on the first shaft, a second shaft inside the housing disposed parallel with

the first shaft, transfer pinions freely rotatably mounted on the second shaft respectively disposed intermediate successive number wheels, each pinion meshing with gear teeth on one of the number wheels adjacent thereto and adapted to engage drive means on the other number wheel during rotation of said other number wheel, thereby partially to rotate said one of the number wheels, reciprocally movable pawl means adapted to engage teeth on a number wheel at an end of the series of number wheels, thereby to rotate said number wheel to effect counting of the counter, and electrical impulse actuated means having a frame, a solenoid mounted on the frame, an armature supported for reciprocal movement on the frame and biasing means serving, when the solenoid is de-energised, to keep the armature out of engagement with the solenoid, the armature serving to effect reciprocal movement of the pawl means when an electrical impulse energises the solenoid; wherein the housing is formed of two parts of non-magnetic material which together provide a cavity for the electrical impulse actuated means, the housing having elements formed integrally therewith inwardly of the cavity which engage said frame and form the sole means of locating and retaining said electrical impulse actuated means within the housing, wherein the armature is supported on the frame for generally pivotal movement relative thereto about an axis parallel to said first and second shafts and wherein the armature directly engages the pawl means in a manner permitting relative movement therebetween radially of said axis.

4,315,145

MAGNETIC RECORDING STRUCTURE

Seiichi Nishikawa, Koganei, and Makoto Honda, Kamifukuoka, both of Japan, assignors to Dai Nippon Insatsu Kabushiki Kaisha, Tokyo, Japan

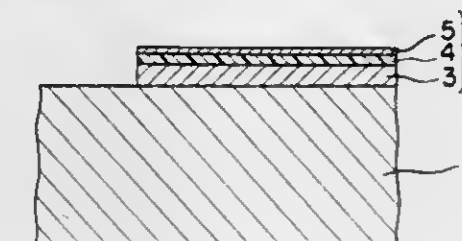
Continuation of Ser. No. 832,738, Sep. 12, 1977, abandoned. This application Apr. 18, 1980, Ser. No. 141,489

Claims priority, application Japan, Sep. 14, 1976, 51-122944; Ser. 14, 1976, 51-122945

Int. Cl.³ G06K 19/00

U.S. Cl. 235—493

13 Claims



1. A decoratively colored magnetic recording card, bankbook, or ledger including a substrate of a paper or a plastic sheet having an outer surface and a laminar magnetic recording piece disposed adjacent to at least one part of the outer surface of the substrate, said recording piece having a dark-colored magnetic layer for storing magnetically recorded information for subsequent readout, the improvement wherein the laminar magnetic recording piece further comprises:

- a nonmetallic decorative color layer comprising an ink containing a pigment or a dye and a binder principally composed of a natural or synthetic resin and
- a non-magnetic light-colored metal deposition layer interposed between the magnetic layer and the nonmetallic color layer, said magnetic layer being closer to the substrate than the color layer, the non-magnetic metal deposition layer having a thickness between about 0.02 micron and about 0.1 micron sufficient to hide the color of the magnetic layer, and the combined thickness of the non-magnetic metal layer and the decorative color layer being less than the thickness of the decorative color layer alone that would be required to hide the color of the magnetic layer, whereby a decorative color layer is provided with-

out impairing the readout characteristics of the magnetic recording structure.

4,315,146

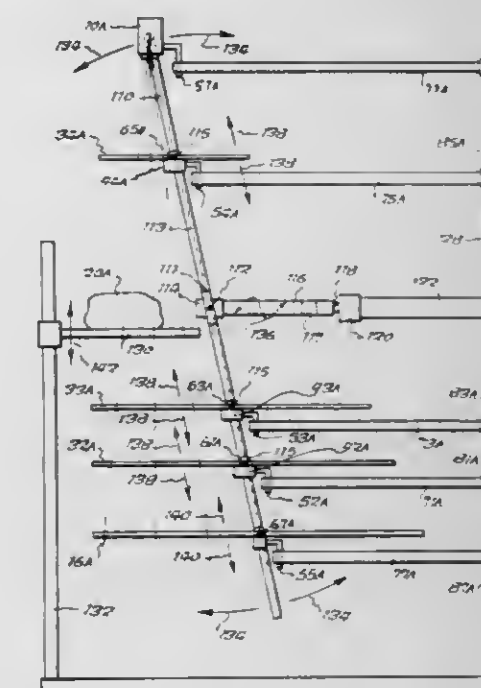
PROCESS AND APPARATUS FOR SCATTER REDUCTION IN RADIOGRAPHY

Stephen Rudin, Williamsville, N.Y., assignor to The Research Foundation of State University of New York, Albany, N.Y. Continuation of Ser. No. 67,282, Aug. 17, 1979, abandoned. This application Jul. 17, 1980, Ser. No. 169,887

Int. Cl.³ G01N 23/00

U.S. Cl. 250—515

36 Claims



1. An apparatus for reducing detection of radiation scatter from an object through which high energy radiation passes within a flux pyramid from a source to a radiation detection means, said apparatus comprising:

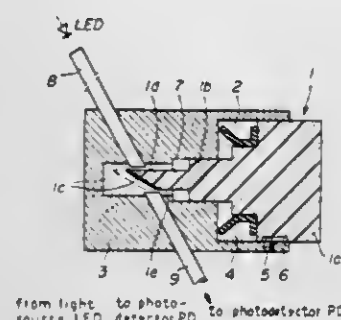
- (a) a series of at least two radiation shields, each of said shields having a front surface and a rear surface, said front and rear surfaces being large relative to the thickness of the shield;
 - (b) means for rotatably mounting said shields, in a spatially separated relationship with each other, between the object and the detection means, and so each of said shields covers an entire section of the flux pyramid and is rotatable about its own central axis through its center of gravity, and so the front surface of each shield faces toward said source and the rear surface of each shield faces away from said source;
 - (c) means for rotating each of said shields at its own angular velocity at a constant angular velocity ratio; and
 - (d) means for changing the relationship of the source, object, detector and shields to each other from initial positions while the object, detector and shields all continue to remain in planes parallel to the planes of the initial positions and continue to intersect the flux pyramid while constant proportional distances are maintained;
- each of said shields being provided with a series of openings, smaller than the object, passing through the shield from the front to the rear surface, which openings allow radiation to pass through the shield from the source to the detection means, each of said shields being provided with such openings in shapes and positions such that at least a portion of radiation in a straight line from said source toward said detection means passes through openings in all of said shields to strike the detection means in essentially uniform coverage of said detection means when said object is absent, when the source is uniform and when each of said shields is in rotation about its central axis at its own angular velocity at a constant angular velocity ratio.

4,315,147

PHOTOELECTRIC SWITCH WITH VISIBLE SIGNAL
 Alan L. Harmer, Bernex, Switzerland, assignor to Battelle Memorial Institute, Carouge, Switzerland
 Filed Feb. 15, 1980, Ser. No. 121,700
 Int. Cl.³ G02B 5/14

U.S. Cl. 250—227

7 Claims



1. A device for photoelectrically controlling a load, comprising:

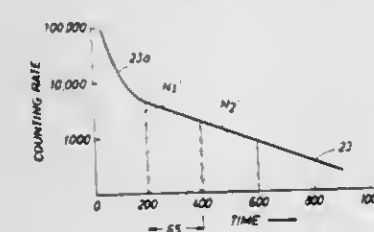
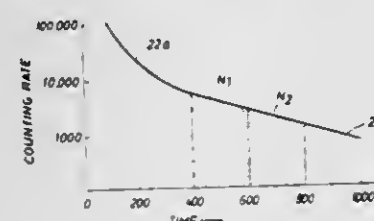
- a source of luminous radiation;
- a photodetector responsive to said radiation for changing the state of conduction of a load-operating circuit;
- an opaque housing;
- a shutter member guided in said housing for displacement between two alternate positions;
- fiber-optical means with first and second light-receiving ends and with first and second light-emitting ends, said first light-receiving end confronting said source, said first light-emitting end and said second light-receiving end terminating in said housing, said second light-emitting end confronting said photodetector; and
- light-reflecting means on said member juxtaposable with said first light-emitting end and with said second light-receiving end for directing incoming rays from said first light-emitting end out of said housing as a visible signal while preventing illumination of said second light-receiving end in one of said alternate positions and for establishing a light path between said first light-emitting end and said second light-receiving end in the other of said alternate position to irradiate said photodetector from said source.

4,315,148

METHOD AND APPARATUS FOR MEASURING NEUTRON CHARACTERISTICS OF MATERIAL SURROUNDING A BOREHOLE
 Russel R. Randall, Houston, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.
 Filed Jun. 6, 1980, Ser. No. 156,971
 Int. Cl.³ G01V 5/00

U.S. Cl. 250—262

28 Claims



1. A method for logging the formations surrounding an earth borehole, comprising:

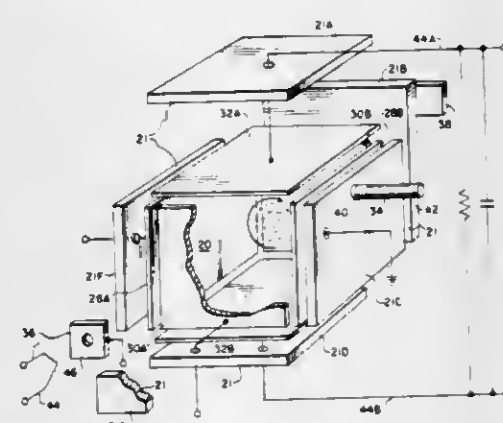
pulsedly irradiating said formations with discrete bursts from a source of high energy neutrons;
 detecting radiations emanating from said irradiated formations at a detector spaced from said source;
 measuring said detected radiations during first and second fixed time duration intervals following a burst from said source;
 measuring said detected radiations during third and fourth fixed time duration intervals following a subsequent burst from said source; and
 controlling automatically the starting time of said third and fourth measurement intervals in accordance with said measurement from said first and said second time intervals.

4,315,149

MASS SPECTROMETER
 Edward B. Ledford, Jr., Lincoln, Nebr., assignor to The Board of Regents of the University of Nebraska, Lincoln, Nebr.
 Filed May 23, 1980, Ser. No. 152,613
 Int. Cl.³ B01D 59/44

U.S. Cl. 250—282

33 Claims



1. A method of identifying particles comprising the steps of:
 injecting a sample containing particles to be identified into an ICR mass spectrometer within an enclosure that forms a part of a one-region analyzer cell;
 maintaining a vacuum in the main vacuum housing that surrounds the one-region analyzer cell;
 forming ions of at least a portion of the particles;
 orbiting the ions in the region of detection within the analyzer cell;
 detecting those ions with predetermined charge to mass ratios; and
 controlling the loss of sample from the enclosure that forms a part of the one-region analyzer cell to optimize detection of sample ions.

4,315,150

TARGETED INFRARED THERMOMETER
 Richard E. Darringer, Fullerton; Wayne L. Scharf, Silverado, and James S. Haggerty, Mission Viejo, all of Calif., assignors to Telatemp Corporation, Fullerton, Calif.
 Filed Jul. 24, 1980, Ser. No. 171,967
 Int. Cl.³ G01J 1/00

U.S. Cl. 250—338

9 Claims

1. An apparatus for determining temperature by measuring infrared radiation, said apparatus including an infrared radiation detector and a reflector structure for directing radiation given off at a specific area in front of and remote from said apparatus to said detector, said reflector structure including a primary reflector and a secondary reflector, said primary reflector being shaped and located so as to reflect radiation given off at said area toward said secondary reflector, said secondary reflector being shaped and located so that radiation reflected toward it by said primary reflector is reflected by it to said infrared radiation detector, said reflector structure having an optical axis, in which the improvement comprises:

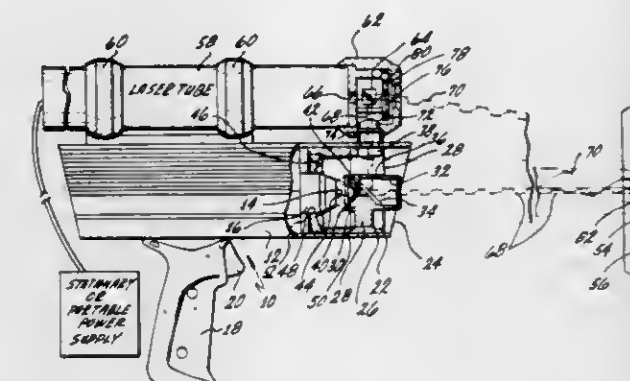
4,315,152

ELECTRON BEAM APPARATUS
 Kenneth C. A. Smith, Cambridge, England, assignor to National Research Development Corporation, London, England
 Continuation of Ser. No. 888,991, Mar. 22, 1978, abandoned.
 This application Oct. 3, 1979, Ser. No. 81,554
 Claims priority, application United Kingdom, Mar. 23, 1977, 12175/77

Int. Cl.³ H01J 37/00

U.S. Cl. 250—396 ML

12 Claims



beam directing means positioned on said apparatus so as to intercept the other of said separate beams and to direct said other of said separate beams so that it crosses the first of said separate beams at a point remote from said apparatus.

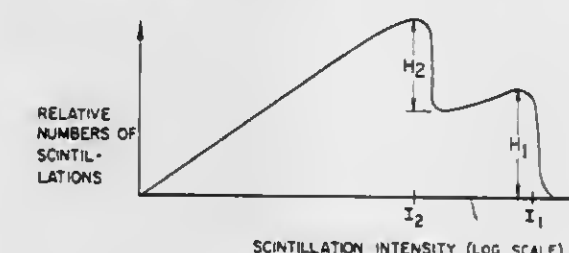
1. Electron beam apparatus comprising:
 vacuum enclosure means for the electron beam;
 an electron gun including cathode means of small emitting area for producing an electron beam along a predetermined axis; and
 single pole magnetic lens means including a pole-piece having a generally conical nose portion which extends from the pole-piece along said axis towards said emitting area, said lens means being so disposed as to cause said emitting area to be exposed to an axially symmetric magnetic field extending from said nose and operative on said beam immediately on emergence from said emitting area, such that said beam is focused at a desired position on said axis, the cathode and the nose of the pole-piece being disposed on the same side of the radial plane containing the desired position.

4,315,151

DETECTING PHASE SEPARATION IN LIQUID SCINTILLATION SAMPLES
 Donald L. Horrocks, Placentia, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.
 Filed Jul. 7, 1980, Ser. No. 166,520
 Int. Cl.³ G01T 1/20

U.S. Cl. 250—362

8 Claims



1. A method of determining whether a liquid scintillation sample is separated into different phases, comprising the steps of:

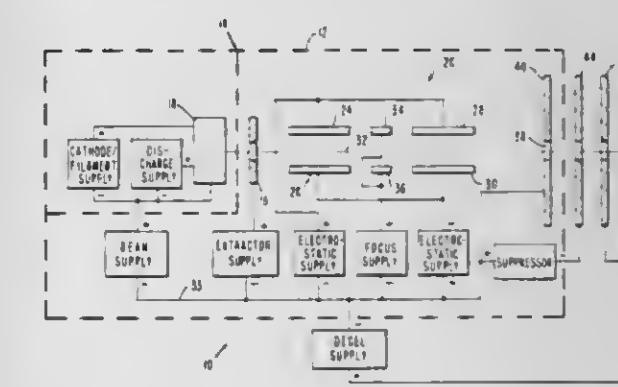
irradiating the sample with gamma rays from a radiation source to produce energetic electrons in the sample by Compton scattering and thereby cause the sample to emit successive scintillations, each scintillation being caused by a transfer of energy from one of the Compton-scattered electrons and having an intensity corresponding to the amount of energy so transferred;
 measuring the relative numbers of scintillations emitted in response to the gamma rays having intensities distributed within each of a plurality of ranges of intensities; and
 determining from said distribution of intensities whether the sample is separated into different phases.

4,315,153

FOCUSING EXB MASS SEPARATOR FOR SPACE-CHARGE DOMINATED ION BEAMS
 Richard P. Vahrenkamp, Newbury Park, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.
 Filed May 19, 1980, Ser. No. 151,009
 Int. Cl.³ G21K 1/08; B01D 59/44

U.S. Cl. 250—396 R

10 Claims



1. An ExB mass separator comprising:
 means for providing a charged particle beam so that selected species in the beam pass along a beam path through said ExB mass separator;
 means for applying a magnetic field along the beam path within said separator in a direction substantially normal to the path of particles in the beam;
 first and second potential plates within the magnetic field and positioned on opposite sides of the beam path, means

for applying potential to said first and second potential plates so that particles of the selected species within the beam move along a preselected beam path between said first and second potential plates;
first and second focus plates respectively positioned on opposite sides of the beam path and positioned within the magnetic field provided by said magnetic field means, said focus plates being positioned downstream along the beam path from said potential plates;
means for applying focus potential to both of said focus plates for applying focus force to the selected charged particle species for focusing the beam comprised of that selected species; and
third and fourth potential plates positioned on opposite sides of the beam path and downstream along the beam path from said focus plates, said third and fourth potential plates being positioned within the magnetic field produced by said magnetic field means and being positioned to apply a potential in the direction substantially normal to a magnetic field in the beam path so that said third and fourth potential plates apply an electric field to the selected species in the beam to direct the beam along the preselected path in the magnetic field.

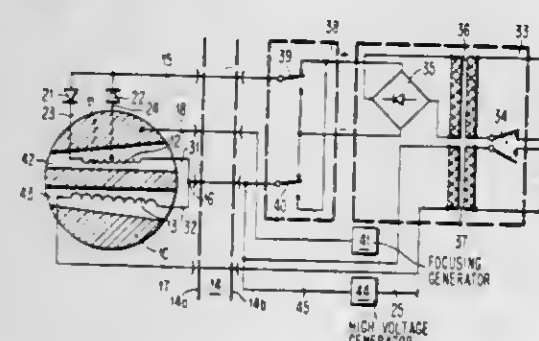
4,315,154

MULTIPLE FOCUS X-RAY GENERATOR

Walter Weigl, Edison; Ulf Bergman, Iselin; Lennart Baum, Edison, all of N.J., and Herbert Schnitger, Erlangen, Fed. Rep. of Germany, assignors to Siemens Corporation, Iselin, N.J.

Filed Nov. 8, 1979, Ser. No. 92,360
Int. Cl.³ H05G 1/00

U.S. Cl. 250-402



1. A multiple focus X-ray generator comprising, in combination:

- an electron source having at least a first and a second cathode filament of different size, which may include different thickness, winding distances, or lengths, one end of each of said first and second filaments being connected together to a first connection point;
- a first, second and third terminal associated with the serial connection of said filaments, said first and third terminals being formed by the outer ends of the serial connection, and said second terminal being formed by said first connection point;
- a first and a second diode, each having two electrodes, the first diode being connected with one of its electrodes to said first terminal, the second diode being connected with one of its electrodes to said second terminal, said diodes being connected with the other of their electrodes to a second connection point and being poled in opposite directions;
- means for supplying direct current, said d-c supply means having two poles, one of said poles being adapted to be connected to said second connection point of said diodes and the other of said poles being adapted to be connected to said third terminal, and said d-c supply means including switching means for changing the polarity of the d-c voltage between said two poles; and
- a cable containing at least a first and a second connection line, wherein said first connection line is arranged between said one pole of said d-c supply means and said

second connection point, and wherein said second connection line is arranged between said other pole of said d-c supply means and said third terminal.

4,315,155

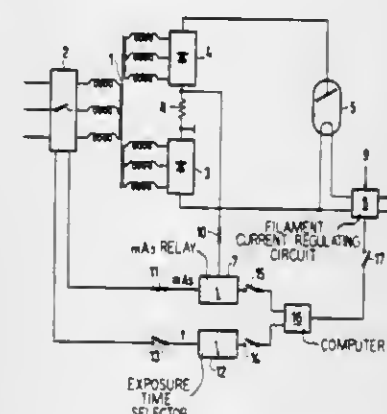
X-RAY DIAGNOSTIC GENERATOR WITH A MAS-RELAY

Kurt Franke, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Oct. 17, 1979, Ser. No. 85,699
Claims priority, application Fed. Rep. of Germany, Nov. 14, 1978, 2849427

U.S. Cl. 250-409
Int. Cl.³ H05G 1/34

2 Claims



1. An x-ray diagnostic generator for x-ray exposures comprising a mAs relay, exposure time selector means for selecting the exposure time, and a computer which determines the x-ray tube current, said exposure time selector means being operable to freely select any of a series of exposure time values given fixed values set for the x-ray tube voltage and the mAs product, means for connecting said exposure time selector and said mAs relay with said computer and providing for the control of x-ray tube current by said computer in accordance with the values of exposure time and mAs product selected at said exposure time selector means and at said mAs relay, and means for terminating an exposure in accordance with the value of exposure time selected at said exposure time selector means.

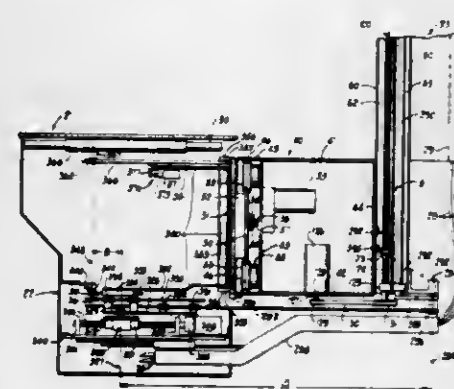
4,315,156

X-RAY APPARATUS

Leslie J. Sell, Orangeville, Canada, assignor to Picker Corporation, Cleveland, Ohio
Continuation of Ser. No. 837,848, Dec. 24, 1977, abandoned, which is a division of Ser. No. 603,264, Aug. 11, 1975, Pat. No. 4,082,955. This application Dec. 7, 1979, Ser. No. 101,088
Int. Cl.³ G03B 41/16

U.S. Cl. 250-445 T

40 Claims



1. In a tomographic X-ray table including a base, an x-ray source and an imaging assembly the improved tomographic drive system comprising:

- a movably supported carriage positioned within the base;

- an extensible proportioning arm movably connected to said carriage for rotation about an axis within the base;
- the arm having opposite end regions adapted to be connected to a tower structure and another structure for driving the structures through coordinated movements to produce a tomograph, the structures being constrained for movement along parallel paths;
- said carriage being movable substantially rectilinearly within the base to control the location of the axis; and,
- sliding guide means interposed between the arm and the carriage to permit relative carriage and arm movement longitudinally of the arm as the arm rotates about said axis.

4,315,157

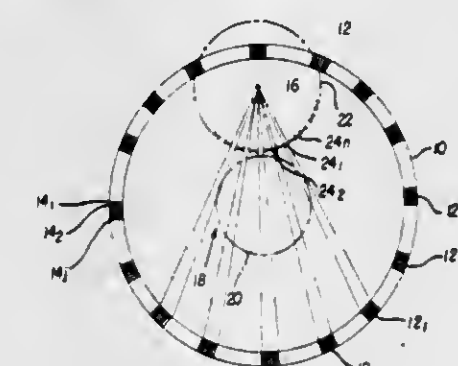
MULTIPLE BEAM COMPUTED TOMOGRAPHY (CT) SCANNER

Gary T. Barnes, Birmingham, Ala., assignor to The University of Alabama in Birmingham, Birmingham, Ala.

Filed May 1, 1980, Ser. No. 145,820
Int. Cl.³ A61B 6/00

U.S. Cl. 250-445 T

11 Claims



1. A multiple beam computed tomography (CT) scanner for constructing an image of a cross-sectional slice of the body of a patient, comprising:
source means for projecting a fan-shaped beam of X-ray radiation from a focal spot towards said body;
means for rotating said source means in a first direction around said body;
a detector ring comprising plural interspaced groups of closely spaced detectors, each having a detector aperture for receiving X-ray radiation, arranged in a ring around said body, said detector ring and said source means arranged in a common plane intersecting said cross-sectional slice of said body;
a radiation collimator having plural collimator apertures rotatably mounted between said source means and said patient body; and
means for rotating said collimator in a second direction opposite said first direction in synchronism with the rotation of said source means such that the collimator apertures maintain alignment with respective detector groups during rotation of said source means, wherein the synchronous rotation of said source through an angle θ and said collimator through an angle ϕ relative to said source is governed by the transcendental equation,

$$R \sin(\theta - \phi) = r \sin \phi$$

wherein r and R are the radii of circles defined by the locus of the source means focal spot and the detector ring, respectively.

4,315,158

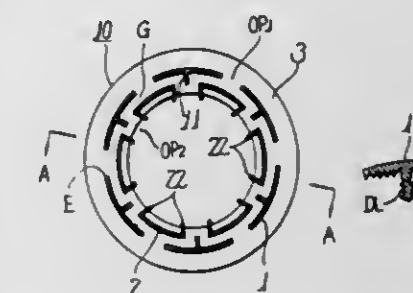
PHOTOELECTRIC SMOKE SENSING CHAMBER AND SMOKE SENSOR BOX

Yasugi Kakigi, and Takao Kakigi, both of Tokyo, Japan, assignors to Cybernet Electronics Corporation, Kanagawa, Japan
Division of Ser. No. 943,620, Sep. 19, 1978, Pat. No. 4,249,082.
This application Oct. 9, 1979, Ser. No. 82,474

Claims priority, application Japan, Sep. 20, 1977, 52-126611; Oct. 17, 1977, 52-138824

Int. Cl.³ G01N 15/06
U.S. Cl. 250-574

1 Claim



1. A photoelectric smoke sensing chamber in a smoke sensing blind box which comprises a cylindrical body having inner and outer walls with vertical openings with both ends of the cylindrical body closed, said chamber being characterized by inner and outer shell members which constitute the inner and outer walls fixed into an annular base and upwardly extended to the ceiling of the cylindrical body; a support for a luminous element and a light receiving element, which support is sealingly fitted into the inner edge of said annular base; light shading projections radially extended from at least one portion of the inner surface in full length of each of said inner and outer shell members; and a scattered light weakening layer formed at least on the inner surface of the cylindrical body for weakening scattered light occurring due to the reflection of the beam from said luminous element.

4,315,159

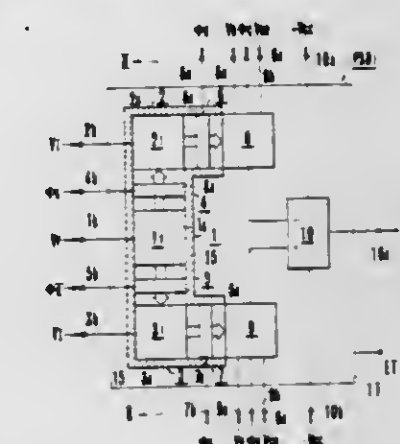
OPTICAL SENSOR DEVICE WITH REDUCTION OF AMBIENT LIGHT EFFECTS

Yukichi Niwa; Mitsutoshi Owada, both of Yokohama; Noriyuki Asano, Kawasaki; Masahiko Ogawa, Hino, and Shuichi Tamura, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed May 22, 1979, Ser. No. 41,503
Claims priority, application Japan, May 25, 1978, 53-63049
Int. Cl.³ H01J 40/14

U.S. Cl. 250-578

9 Claims



1. An apparatus for processing a light signal intermittently incident on an image sensor which produces an electric charge, comprising:

- first memory means operatively connected to the image sensor for storing a quantity of the electric charges produced by the image sensor;

- (b) second memory means operatively connected to the image sensor for storing a quantity of the electric charges produced by the image sensor;
- (c) first control gate means connected between the image sensor and the first memory means for permitting transfer of said electric charge to the first memory means during a certain interval when the light signal incident on the image sensor is present;
- (d) second control gate means connected between the image sensor and the second memory means for permitting transfer of said electric charge to the second memory means during a certain interval when the light signal incident on the image sensor is absent; and
- (e) comparison means operatively connected to the first and second memory means for producing an electrical output signal corresponding to the difference between the electric charges stored in said first and second memory means.

4,315,160

ANTI-THEFT CONTROL AND METHOD

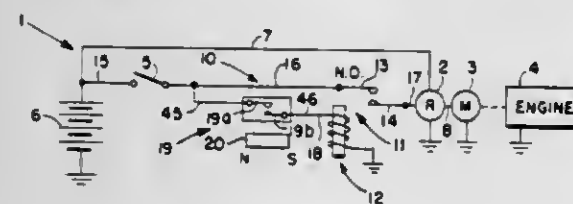
Marc A. Levine, 17096 Chillicothe Rd., Chagrin Falls, Ohio 44022

Filed Aug. 22, 1979, Ser. No. 68,617

Int. Cl.³ B60R 25/00

U.S. Cl. 307—10 AT

10 Claims



1. A secretive power controller for a vehicle or the like having controllable starter means for starting the vehicle source of mechanical power, such starter means including a starter motor means energizable for starting the source of mechanical power, a source of electrical power, and an ignition switch, said ignition switch having an ignition off position for stopping the source of mechanical power, an ignition on position for permitting operation of the source of mechanical power after starting thereof, and a start position for permitting energization of such starter motor, comprising a relay means for controlling energization of such starter means, remotely operable magnetically responsive switch means for controlling energization of said relay means, said switch means being readily hideable in such vehicle or the like and being responsive to an externally applied magnetic force for operating said switch means to activate said relay means to energize such starter means, magnetic means for applying such magnetic force from a location spaced from said magnetically responsive switch means, coupling means for coupling said relay means to such source through such ignition switch requiring that both said relay means be activated and such ignition switch at the same time be closed in such start position to energize such starter motor, said relay means comprising a normally open relay capable of being activated to energize such starter means only while said magnetically responsive switch means is operated by such magnetic force, said magnetically responsive switch means comprising a normally open switch capable of being operated to closure only while such magnetic force is applied to said magnetically responsive switch means, and said coupling means, said magnetically responsive switch means, and such ignition switch means being cooperably related to require that said relay means will be in its activated state only while both such ignition switch means is closed in its start position and said magnetically responsive switch means is operated by such a magnetic force.

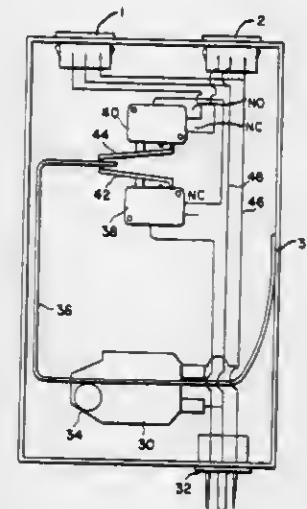
4,315,161

ELECTRIC POWER SHARING DEVICE

Kenneth A. Bailey, Box 1418, Claresholm, Alberta, Canada
Continuation of Ser. No. 943,756, Sep. 19, 1978, abandoned. This application Jun. 17, 1980, Ser. No. 160,323
Claims priority, application United Kingdom, Sep. 19, 1977, 38885/77

Int. Cl.³ H02J 3/00; H01H 3/26, 37/20
U.S. Cl. 307—31

4 Claims



1. A timed electrical power sharing device for distributing electric power to either of two loads comprising:
a single electrical power inlet and two electrical power outlets fed alternately by said power inlet for variable portions of a cycle,
first and second switch means having actuator elements and connecting said power inlet and said power outlets,
said first switch means being in series with said second switch means so as to permit the flow of electricity to said second switch means in a first position and interrupt the flow of electricity to said second switch means in a second position,
said second switch means directing the flow of electricity to one of said outlets when in a first position and the other of said outlets when in a second position,
said first and second switch means being positioned in opposed relationship,
a common actuator member for said first and second switch means actuator element comprising a thermally responsive bimetallic arm positioned between said first and second switch means and engageable with said actuator elements,
a continuously rotating cam engaging said bimetallic arm for changing the position of said bimetallic arm relative to said actuator elements during said variable portions of a cycle,
whereby the ambient temperature determines the configuration of said arm member and thereby determines the proportional actuation of said first and second switch means for diversion of power to said power outlets during a cycle of said cam as a function of the ambient temperature.

4,315,162

RESERVE POWER SUPPLY FOR COMPUTERS

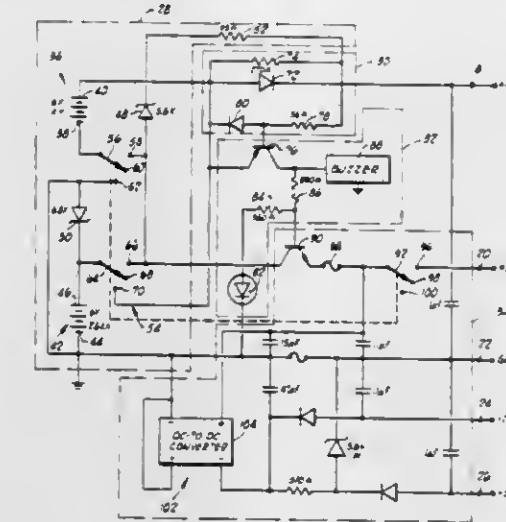
Frank T. Ferguson, Oklahoma City, Okla., assignor to Control Technology, Incorporated, Oklahoma City, Okla.
Filed May 9, 1980, Ser. No. 148,091
Int. Cl.³ H02J 7/00, 9/00

U.S. Cl. 307—66

23 Claims

1. A power supply comprising:
a first source of electrical energy;
a second source of electrical energy;
switch means for connecting said first source in electrical series with said second source when said switch means is in a first selectable state and for connecting said first

source in electrical parallel with said second source when said switch means is in a second selectable state; and coupling means for coupling said first and second sources to a first output of a primary power supply so that said sources provide electrical power to a load connected to the primary power supply when said sources are con-



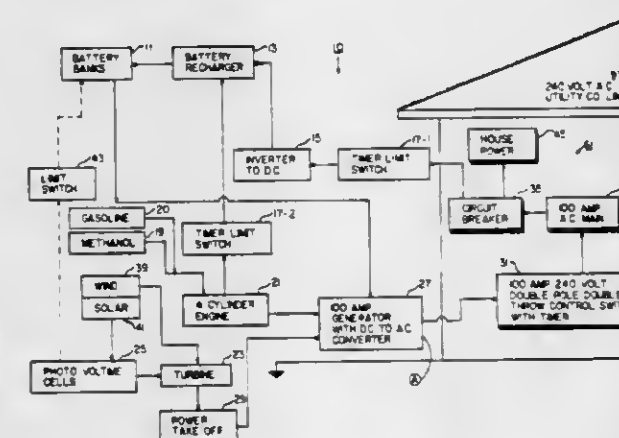
4,315,163
MULTIPOWER ELECTRICAL SYSTEM FOR
SUPPLYING ELECTRICAL ENERGY TO A HOUSE OR
THE LIKE

Frank Bienville, 6140 Rio Linda Blvd., Rio Linda, Calif. 95673
Filed Sep. 16, 1980, Ser. No. 187,810

Int. Cl.³ H02J 9/04

U.S. Cl. 307—66

11 Claims



1. A system for supplying electrical energy to a 100 AMP main connected to a house comprising:
(a) a utility company power line
(b) a 100 AMP dynamotor
(c) a battery system for supplying energy to the 100 AMP dynamotor
(d) an AC generator for generating energy for charging the battery system, and
(e) a switch system coupled to said 100 AMP main, said utility company power line and said 100 AMP dynamotor.

4,315,164

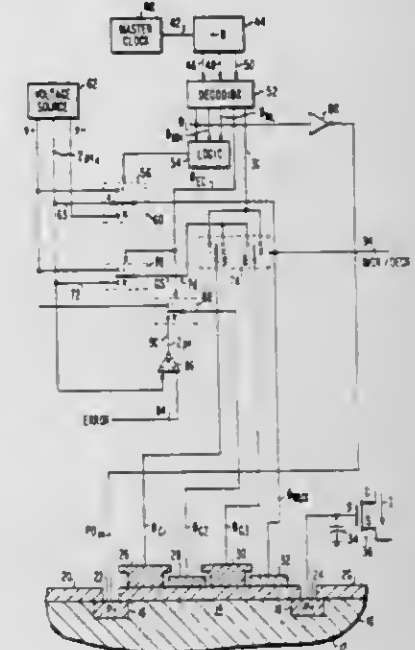
BIDIRECTIONAL CHARGE CONTROL CIRCUIT

Francis J. Kub, Pasadena; Marvin H. White, Columbia; Ingham A. G. Mack, Laurel, and Donald R. Lampe, Ellicott City, all of Md., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Apr. 8, 1980, Ser. No. 139,376

Int. Cl.³ G11C 19/28; H01L 29/78
U.S. Cl. 307—221 D

14 Claims



1. A bidirectional charge control circuit for incrementing and decrementing metered amounts of charge on a charge storage medium, said circuit comprising:
a semiconductor substrate body doped with a first impurity type and having a predefined charge transfer channel therein;
a first semiconductor region, doped with a second impurity type, disposed at one end of said predefined channel and located at the surface of said substrate body, said charge storage medium being coupled to another end of said predefined charge transfer channel, opposite said one end in the direction of charge transfer;
a gate dielectric lying on top of said semiconductor substrate body at least covering said predefined charge transfer channel surface area;
first, second, third and fourth gate electrodes disposed on said gate dielectric layer, adjacently aligned, respectively, in a direction from said first doped region to said charge storage medium across said predefined channel area, said gate electrodes being substantially isolated from each other, said first doped region, and said charge storage medium;
a first electrical signal coupled electrically to said first doped semiconductor region and operative to provide charge thereto in accordance with a first timing sequence;
a first electrical circuit for generating second and third electrical signals having varying potentials respectively corresponding to second and third timing sequences;
an electrical switch selectively operative in a first state to couple said second and third electrical signals to said first and third gate electrodes, respectively, for incrementing charge and in a second state to couple said second and third electrical signals to said third and first gate electrodes, respectively, for decrementing charge;
a fourth electrical signal coupled electrically to said second gate electrode and having at times a governing potential, commensurate with said metered amounts of charge associated with said incrementing and decrementing operations; and
a second electrical circuit for generating a fifth electrical signal having a potential varying in accordance with a fourth timing sequence, said fifth electrical signal being

coupled to said fourth gate electrode, whereby metered amounts of charge may be incremented and decremented, selectively, to and from the charge storage medium, respectively, in accordance with the time varying potential sequences of the first through the fifth generated electrical signals and the selective operations of the electrical switch.

4,315,165

FREQUENCY DIVIDER

Shyoichi Shimizu, Fujisawa, and Ken-Ichi Torii, Yokohama, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

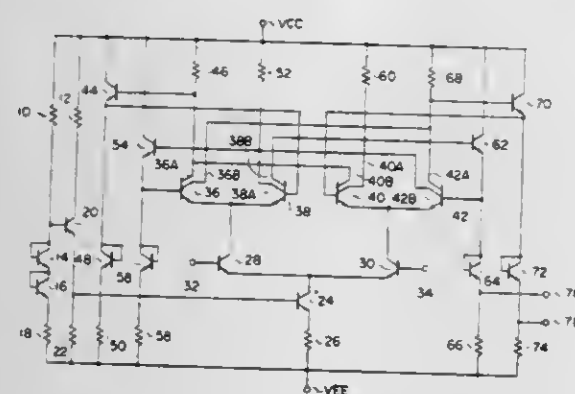
Filed Nov. 16, 1979, Ser. No. 94,987

Claims priority, application Japan, Nov. 21, 1978, 53/143877

Int. Cl.³ H03K 23/08

U.S. Cl. 307—225 R

8 Claims



1. A frequency divider comprising:

- a first flip-flop circuit including a first double collector transistor and a second double collector transistor having its first collector connected to the base of said first double collector transistor, its emitter connected to the emitter of said first double collector transistor and its base connected to a first collector of said first double collector transistor;
- a second flip-flop circuit including a third double collector transistor having its first collector connected to a second collector of said second double collector transistor and its second collector connected to the first collector of said first double collector transistor and a fourth double collector transistor having its first collector connected to a second collector of the first double collector transistor and to the base of said third double collector transistor, its second collector connected to the first collector of said second double collector transistor, its base connected to the first collector of said third double collector transistor and its emitter connected to the emitter of said third double collector transistor;

input means for selectively energizing one of said first and second flip-flop circuits in response to an input signal; and output means coupled to the first collectors of transistors in any one of said first and second flip-flop circuits; wherein each of said first through fourth double collector transistors comprises

- a semiconductor substrate of a first conductivity type,
- a first semiconductor region of a second conductivity type formed in the surface area of said substrate,
- two buried layers of the second conductivity type formed between said substrate and first semiconductor region and having an impurity higher than the impurity of said first semiconductor region and, the portion of said buried layers reaching the surface of said first semiconductor region and said buried layers acting as first and second collectors,
- a second semiconductor region of the first conductivity type formed in the surface area of said first semiconductor region, said second semiconductor region acting as the base, and
- a third semiconductor region of the second conductivity type formed in the surface area of said second semiconductor region,

ductor region, said third semiconductor region acting as the emitter.

4,315,166

FREQUENCY DIVIDER ARRANGEMENT

John B. Hughes, Brighton, England, assignor to U.S. Philips Corporation, New York, N.Y.

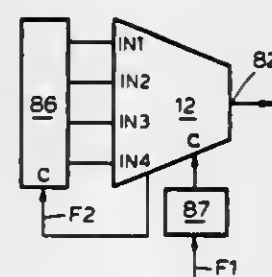
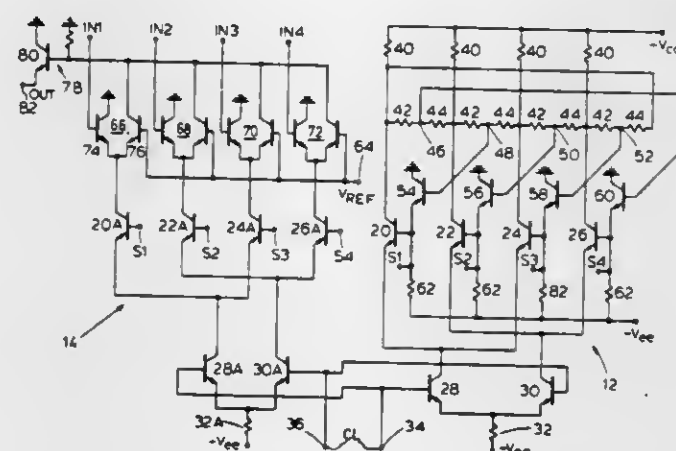
Filed Jan. 21, 1980, Ser. No. 113,843

Claims priority, application United Kingdom, Jan. 31, 1979, 03449/79

Int. Cl.³ H03K 21/36

U.S. Cl. 307—225 R

4 Claims



1. A device for dividing a pulse series by a predetermined factor, said device comprising input register means for storing a code word for controlling said predetermined factor, said input register means having a first input and furthermore a plurality of first outputs each for a bivalent signal, said device furthermore comprising a primary dividing means for dividing said pulse series by an integer, having second outputs for producing cycles of mutually time-shifted driving pulses thereon, said device furthermore comprising a multiplexing circuit having a plurality of second inputs each connected to a respective one of said first outputs and third inputs for receiving a second plurality of said driving pulses for gating each time a code bit to a common third output, characterized in that said input register means comprise a first feedback shift register having a clock input and in that said primary dividing means comprise a cycle of $2n+2$ ($n=1,2,\dots$) semiconductor devices in an integrated circuit, said devices being cyclically interconnected for controlling a first succession thereof within said cycle to a conducting state and a second succession within said cycle to a non-conducting state and for controlling each time a mutually opposite pair of transitions of two of said semiconductor devices between said first and second successions as determined by a switching delay of at least one such semiconductor device for driving said first and second successions in steady progress along said cycle.

4,315,167

SELF-SWITCHING BIDIRECTIONAL DIGITAL LINE DRIVER

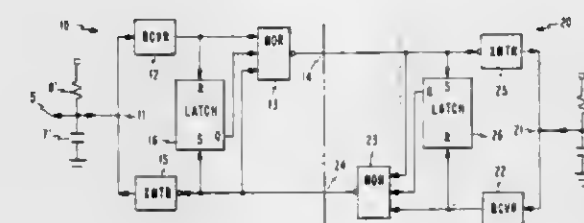
Rafael Pelc, Rochester, Minn., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 10, 1979, Ser. No. 73,590

Int. Cl.³ H03K 17/56, 3/01

U.S. Cl. 307—241

5 Claims



1. A self-switching bidirectional logic driver, comprising a pair of coupled driver halves, each including:
 - a gate coupled to an external bidirectional input/output node and to an internal input node, said gate having an output coupled to an internal output node;
 - a latch having a first input coupled to said external bidirectional input/output node and a second input coupled to said internal input node, said latch having an output coupled to said gate; and
 - a transmitter coupled to said external node and to said internal input node, said transmitter being adapted to drive said external node to a first logic level and to release said external node toward a second logic level,
- said pair of driver halves being coupled to each other by connecting the internal input node of each of said driver halves to the internal output node of the other of said driver halves.

4,315,169

STAIRCASE ELECTRODE-WALL CONFIGURATION FOR MHD GENERATORS

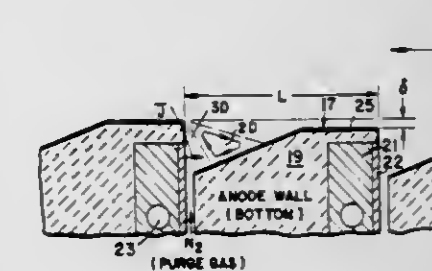
Oscar Biblarz, Carmel, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 8, 1979, Ser. No. 92,298

Int. Cl.³ H02K 45/00

U.S. Cl. 310—11

9 Claims



1. An electrode configuration for an MHD generator in which a hot plasma flows along a duct having opposing electrode walls, said hot plasma being subjected to a strong magnetic field, comprising a plurality of periodic electrode elements forming said electrode walls, each of said electrode elements being in the form of a backward-facing step having an insulator portion and an electrode portion, said electrode portion being situated so as not to be directly exposed to said hot plasma and so as to have the electric field generated coact with said magnetic field to essentially balance the convection force at the exposed surface of said electrode portion, and each of successive ones of said electrode elements along the axis of said hot plasma flow being offset to form a steplike divergence for said duct.

4,315,170

REVERSIBLE ELECTRIC MOTOR

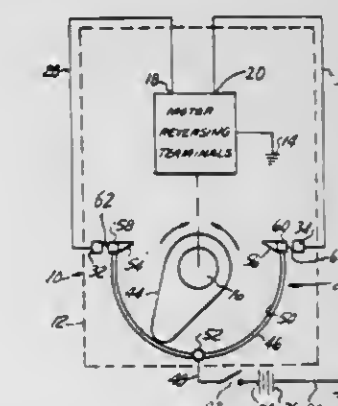
Silas Penn, 5316 Sheridan, Detroit, Mich. 48213

Filed Jul. 7, 1980, Ser. No. 166,494

Int. Cl.³ H02K 33/10

U.S. Cl. 310—39

3 Claims



1. An electric motor having a rotatably oscillating output shaft, said motor comprising a pair of reversing terminals, a reversing switching mechanism for connecting the first of said reversing terminals to an output terminal of a source of electric power while disconnecting the second of said reversing terminals from said output terminal and for connecting the second of said reversing terminals to said output terminal while disconnecting the first of said reversing terminals from said output terminal, a cam on the output shaft for operating said switching mechanism, and abutments limiting the rotation of said output shaft in one direction and in the other, wherein each of said reversing terminals is connected to one of a pair of stationary

4,315,168

SEMICONDUCTOR SWITCH

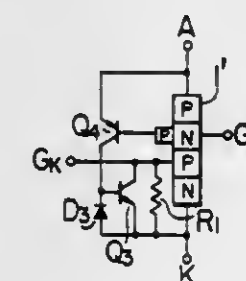
Ichiro Ohhinata, Yokohama, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 5, 1979, Ser. No. 82,026

Int. Cl.³ H03K 17/72

U.S. Cl. 307—252 G

7 Claims



1. A semiconductor switch comprising a PNP switch, first and second transistors and a level shift element, wherein one outermost PN junction of said PNP switch is shortcircuited by said first transistor, the emitter-base junction of said second transistor and said level shift element are connected in series, the series circuit is connected in parallel with the other outermost PN junction, and the collector of said second transistor is connected to the base of said first transistor.

electrical contacts, said reversing switching mechanism comprises a movable contact operable by said cam into engagement with one of said stationary contacts while being disengaged from the other of said stationary contacts and said movable contact comprises a spring bias detent for maintaining said movable contact and one of said pair of stationary contacts in engagement until disengaged by said cam.

4,315,171 STEP MOTORS

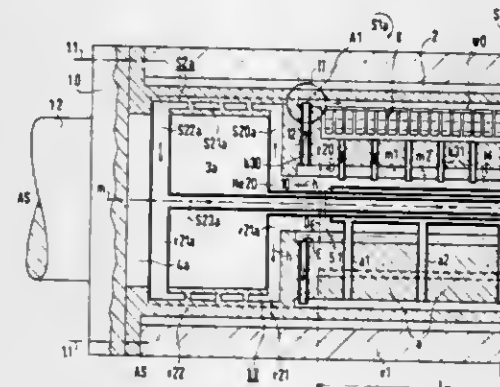
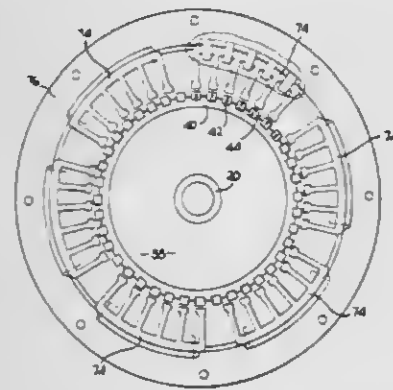
Ernest Schaeffer, 6234 Kentland Ave., Woodland Hills, Calif. 91367

Continuation-in-part of Ser. No. 799,302, May 23, 1977, Pat. No. 4,190,779, which is a continuation-in-part of Ser. No. 683,180, May 4, 1976, abandoned. This application Nov. 16, 1979, Ser. No. 95,068

Int. Cl.³ H02K 37/00

U.S. Cl. 310—49 R

26 Claims



1. A motor for encouraging relative motion between a rotor assembly and a stator assembly comprising:

- a rotor assembly presenting at a rotor surface a plurality of rotor poles equally spaced at a predetermined pitch, each said pole having the opposite polarity of the immediately adjacent rotor poles;
- a stator assembly having a plurality of individual stator segments, each of said segments presenting a plurality of poles forming a pole group adjacent said rotor surface, each of said pole groups having at least three poles having the same pitch as said poles on said rotor assembly, said stator segments being staggered adjacent said surface of said rotor so that when said poles in at least one of said stator segments is aligned with the adjacent said poles of said rotor assembly, said poles in other said stator segments are offset from said poles on said rotor assembly by a fraction of said predetermined pitch of said rotor poles, said fraction being any ratio of two unequal integers such that the product of said fraction and the number of stator segments is an integer; and
- means for controllably polarizing said plurality of poles in said stator segments so that adjacent poles in the respective said segments have different polarity.

4,315,172 COOLING SYSTEM FOR ROTORS OF ELECTRIC MACHINES, ESPECIALLY FOR TURBO-GENERATOR ROTORS WITH A SUPERCONDUCTIVE FIELD WINDING

Lutz Intichar, Erlangen, and Erich Weghaupt, Mülheim, both of Fed. Rep. of Germany, assignors to Kraftwerk Union Aktiengesellschaft, Mülheim, Fed. Rep. of Germany
Filed Dec. 12, 1979, Ser. No. 102,647
Claims priority, application Fed. Rep. of Germany, Dec. 14, 1978, 2854059

Int. Cl.³ H02K 9/00

U.S. Cl. 310—53

11 Claims

1. Cooling system for a rotor of an electric machine having a superconductive field winding and formed of a rotor drum with at least one outer, substantially hollow cylindrical rotor

body with a co-rotating cold shield, an inner hollow rotor body fastened at given locations within the outer rotor body so as to be thermally insulated and serving as a coil-winding support, the fastening locations at the outer rotor body being cooled, and a co-rotating mixing chamber located at the inner periphery of the inner hollow rotor body and containing a phase mixture of a coolant fed thereto from the outside, the phase mixture forming, during rotation of the rotor, a radially outwardly flung liquid-ring and a radially inner vapor column coaxial thereto, comprising means for conducting a first coolant flow with liquid coolant from the mixing chamber for cooling the field winding and a second coolant flow with at least partly vaporized coolant for cooling the fastening locations and for returning the first coolant flow, after it has traversed the field winding, back to the mixing chamber and for discharging the second coolant flow out of the electric machine, said means comprising (a) a network of distributor

channels disposed at the outer periphery of the field winding beyond a radially outermost coil base of the field windings, (b) said distributor channel network being formed of substantially axially and tangentially extending distributor channels, (c) substantially radial cooling channels extending along lateral surfaces of respective stacks of coil conductors of the field windings and connected to said distributor channel network, (d) radially extending feed channels connected, at one end thereof, to said network of distributor channels at locations beyond the axial range of the field winding and, at the other end thereof, terminating at inlet locations to the mixing chamber at a space therein in which the liquid ring is formed, and (e) return feed channels connected, at one end thereof, to said radial cooling channels of the field winding and terminating, at the other end thereof, in the mixing chamber, (f) the terminations of said return feed channels being at locations which are, at most, at the same distance radially from the rotor axis as are said inlet locations to the mixing chamber.

4,315,173 DYNAMOELECTRIC MACHINES SEGMENTAL AIR GAP BAFFLE ASSEMBLY

Raymond M. Calko, Braddock Hills; Gerald R. Alkire, New Alexandria; George F. Dailey, Plum, and Arthur Mulach, Penn Hills, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Mar. 30, 1980, Ser. No. 135,552

Int. Cl.³ H02K 9/00

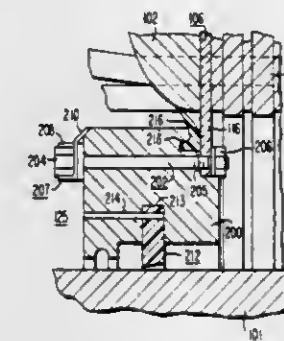
U.S. Cl. 310—53

7 Claims

1. A dynamoelectric machine with a baffle assembly, comprising:

- (a) a generally tubular shaped stator assembly including a laminated core, a stator winding disposed within said core, and a non-magnetic backup plate disposed at a first end of said stator core;
- (b) a generally cylindroid shaped rotor assembly axially and rotatably mounted within said stator, with an air gap space between the outer circumference of said rotor and the inner circumference of said stator;
- (c) a baffle assembly mounted over said air gap at the first

end of said stator core; said baffle assembly including an annular-shaped, non-magnetic baffle ring having a plurality of bores therethrough, and a plurality of bolts receivable through said bores to secure said baffle ring to said backup plate; and



a non-magnetic insert disposed between the inner circumference of said baffle ring and the outer circumference of said rotor, said insert being connected to said baffle ring with the radially inward edge of said insert being proximate said rotor circumference, whereby said insert is used to reduce the air gap and thereby regulate for low coolant flow rates through said air gap.

4,315,174 REVERSIBLE D.C. MOTOR WITH OVER-DRIVE PREVENTION SWITCHES

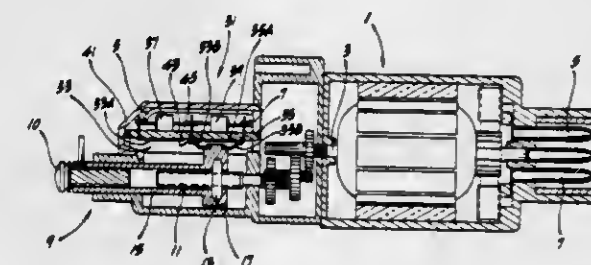
Richard D. Doerr, St. Louis, Mo., assignor to ACF Industries, Inc., New York, N.Y.

Filed Dec. 31, 1979, Ser. No. 108,507

Int. Cl.³ H02K 11/00

U.S. Cl. 310—68 B

4 Claims



1. In a reversible d.c. motor for adjusting the position to which a carburetor throttle valve closes, the throttle valve being mounted on a throttle shaft to one end of which is attached a throttle lever, the motor having an extendable and retractable member one end of which contacts the throttle lever, a rotatable shaft which rotates in one direction or the other when the motor is energized and a gear arrangement for translating rotary movement of the shaft into linear movement of the member, the improvement comprising switch means for de-energizing the motor as the member approaches either extreme of its extending or retracting movement, de-energization of the motor stopping movement of the member before the respective extreme is exceeded thereby to prevent damage to the motor, the switch means comprising first and second sets of electrical contacts, each set of contacts being normally closed with one contact in each set being carried by the member and moving relative to the other contact as the member moves, the contacts of the respective set of contacts opening as the member reaches its respective extreme extended or retracted position thereby to open an electrical circuit through which power is supplied to the motor and de-energize the motor, the switch means still permitting energization of the motor to drive the member in the opposite direction.

4,315,175 ALUMINUM-TO-COPPER TRANSITION MEMBER FOR ALUMINUM WOUND MOTORS AND ALUMINUM WOUND MOTOR EQUIPPED WITH THE SAME

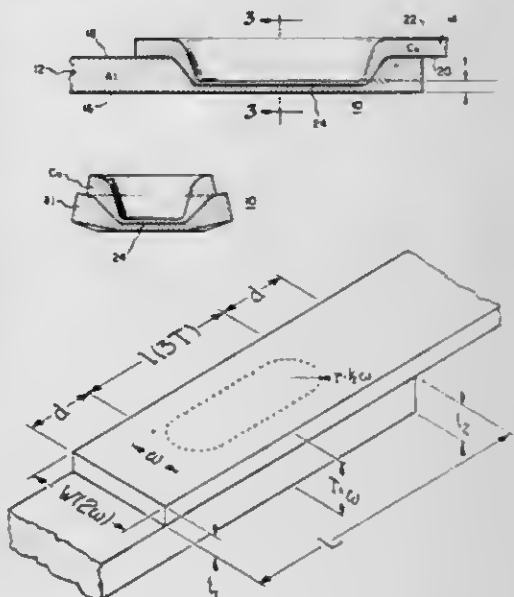
William C. Hamilton, Elnora; William G. Moffatt, Ballston Lake, and Gaspar Pagnotta, Rexford, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Continuation of Ser. No. 591,833, Jun. 30, 1975, abandoned. This application Apr. 24, 1980, Ser. No. 143,342

Int. Cl.³ H02K 3/02; H01R 4/02, 4/20, 4/62

U.S. Cl. 310—71

14 Claims



1. An electrical transition member consisting of: a single longitudinally-extending copper conductor and a single longitudinally-extending aluminum conductor in overlapping relationship, the cross-sectional areas of said conductors being so related in size as to provide closely matched electrical current carrying capacities, said conductors being joined together by a single cold weld joint in which a portion of said copper conductor has been displaced into said aluminum conductor resulting in a cup-shaped configuration having an inside surface of copper and being of generally rectangular shape, said cup-shaped configuration having an inside width approximately equal to the total of the thicknesses of said conductors and an inside length approximately equal to three times said total of conductor thicknesses, the thickness of the base of said cup-shaped configuration being in the range of from 18 to 26 percent of said total of conductor thicknesses, and said cold weld joint as formed, and the material of said conductors in the vicinity thereof, being substantially free of copper-aluminum intermetallic compounds and voids.

4,315,176 ELECTRIC MOTOR

Masaaki Sando, and Kinzo Suzuki, both of Nakatsugawa, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 30, 1979, Ser. No. 62,242

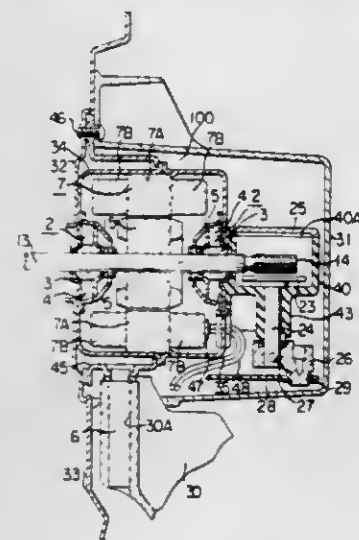
U.S. Cl. 310—83

8 Claims

1. An electric motor device comprising: cup-shaped housing means having a first shaft bearing unit and a stator therein; a shaft which is rotatable in said shaft bearing unit and has a rotor thereon rotatable within the stator; a cup-shaped bracket member opening toward and fixed at the periphery thereof to said housing means and having defined in the bottom portion thereof a central hole and a plurality of fixing holes;

a second bearing unit disposed in said central hole and through which said shaft rotatably extends;

a gear box member formed of electrically insulating synthetic resin disposed on the outside of the bottom portion of said bracket member and housing the portion of the shaft extending beyond said second bearing unit, said gear box member including a gear bearing, and a fixing portion comprising a wall plate portion contacting the outside of said bottom portion of the bracket member, protrusions integral with and extending from said wall plate portion



into said fixing hole, and a fixing plate portion integral with and bridging said protrusions and contacting the inside of said bottom portion of the bracket member, said wall plate portion and said fixing plate portion thereby sandwiching said bottom portion of the bracket member therebetween;

a first gear rigidly fixed to the end portion of said shaft within said gear box; and

a second gear rotatably supported by said gear bearing and engaging with said first gear.

4,315,177

DIRECT CURRENT MOTOR WITH NON-SUPERPOSED ARMATURE WINDINGS

Itsuki Ban, 829 Higashi-Oizumimachi, Nerima-ku, Tokyo; Manabu Shiraki, 4451-171 Shimotsuruma, Yamato-shi, Kanagawa-ken, and Kazuhito Egami, 2-44-1, Chuo, Nakano-ku, Tokyo, all of Japan

Continuation of Ser. No. 952,143, Oct. 17, 1978, abandoned.

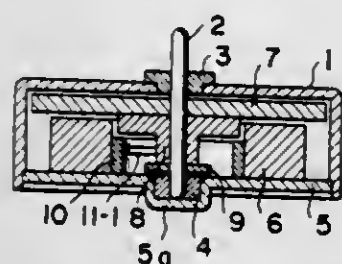
This application May 5, 1980, Ser. No. 146,753

Claims priority, application Japan, Jan. 23, 1978, 53-5318

Int. Cl.³ H02K 21/26

U.S. Cl. 310-154

2 Claims



1. A direct current motor having armature windings that are non-superposed with respect to each other comprising:

a field magnet having $l(2m+2n)$ poles that are magnetized into alternate N and S polarities in equal angular spaces wherein l and m are positive integers of 1 or more and n is a positive integer of 2 or more;

a magnetic material member for closing the magnetic path of said field magnet; and

an armature having $2ln$ armature windings disposed thereon within said magnetic path in a non-superposed manner with respect to each other and in a face-to-face relation-

ship with respect to said field magnet poles, said windings each being formed such that the angular spacing of those conductor portions thereof that contribute to the generation of torque is equal to the angular width of a field magnet pole.

4,315,178

DIRECT CURRENT MOTOR WITH NON-SUPERPOSED ARMATURE WINDINGS

Itsuki Ban, 829 Higashi-Oizumimachi, Nerima-ku, Tokyo; Manabu Shiraki, 4451-171 Shimotsuruma, Yamato-shi, Kanagawa-ken, and Kazuhito Egami, 2-44-1 Chuo, Nakano-ku, Tokyo, all of Japan

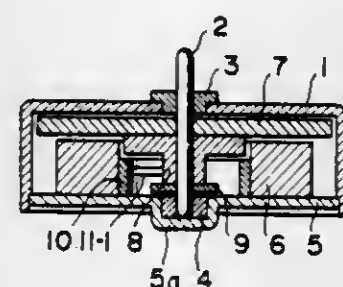
Continuation of Ser. No. 948,552, Oct. 4, 1978, abandoned. This application May 5, 1980, Ser. No. 146,754

Claims priority, application Japan, Jan. 23, 1978, 53-5317

Int. Cl.³ H02K 21/26

U.S. Cl. 310-154

2 Claims



1. A direct current motor having armature windings that are non-superposed with respect to each other comprising:

a field magnet having $l(2m+2n)$ poles that are magnetized into alternate N and S polarities in equal angular spaces wherein l and m are positive integers of 1 or more and n is a positive integer of 2 or more;

a magnetic-material member for closing the magnetic path of said field magnet; and

an armature having $l(2n-1)$ armature windings disposed thereon within said magnetic path in a non-superposed manner with respect to each other and in a face-to-face relationship with respect to said field magnet poles, said windings each being formed such that the angular spacing of those conductor portions thereof that contribute to the generation of torque is equal to the angular width of said field magnet poles.

4,315,179

DOUBLE LAYERED STATOR PERIPHERAL END WINDINGS

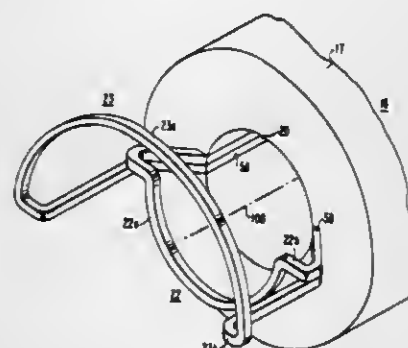
Kent R. Davey, College Station, Tex., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Apr. 10, 1980, Ser. No. 139,079

Int. Cl.³ H02K 3/00

U.S. Cl. 310-184

5 Claims



1. A dynamoelectric machine comprising: a generally tubu-

larly-shaped stator core having a plurality of slots formed in said core's inner periphery;

a plurality of coil sides each of which is partially disposed in said stator slots and partially extends into the stator's end regions, each of said stator slots having at least two of said coil sides disposed therein;

a first and second group of connector ring segments disposed in the stator's end regions for electrically joining said coil sides, the connector ring segments each having a circumferential body portion and two radial arm portions each of which is connected to one end of said body portion, the body portions of said first group having a greater radius of curvature than the body portions of said second group, said first group's connector ring segments being disposed radially outward from said second group's connector ring segments; and

said first group's connector ring segments being axially interspersed according to phase and said second group's connector ring segments being axially interspersed according to phase.

4,315,180

HIGH VOLTAGE PIEZOELECTRIC GENERATING DEVICE WITH LENGTHENED SPARK TIME

Kaneichi Kondo, Settsu, and Yuji Shingu, Neyagawa, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

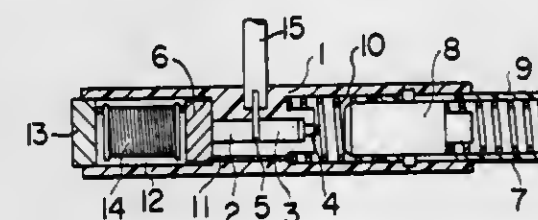
Continuation of Ser. No. 968,516, Dec. 11, 1978, which is a continuation of Ser. No. 801,788, May 31, 1977. This application Feb. 28, 1980, Ser. No. 125,709

Claims priority, application Japan, Jun. 10, 1976, 51-76172[U]; Sep. 20, 1976, 51-127095[U]; Oct. 19, 1976, 51-140830[U]

Int. Cl.³ H01L 41/08

U.S. Cl. 310-319

6 Claims



1. A high voltage generating device for a cigarette lighter of the type generating a high voltage discharge across discharge electrodes comprising:

two piezoelectric elements;

a hammer mechanism for striking said piezoelectric elements;

an intermediate electrode provided between said two piezoelectric elements;

a pair of discharge electrodes;

a first circuit path between one end of each of said piezoelectric elements and one of said discharge electrodes;

a second circuit path between said intermediate electrode and the other of said discharge electrodes;

a coil having an inductance value between 100 mH and 1,500 mH connected in said second circuit path for applying a high voltage generated by said piezoelectric elements to said discharge electrodes through said coil to provide an extended arc period across said discharge electrode of substantially greater than 25μ seconds;

an outer housing containing said piezoelectric elements;

a coil housing joined with one side portion of said outer housing and having an outer side defining an opening opposite to said one side portion and having a bore formed at its joined portion near said intermediate electrode; and,

an insulative resin filling said opening of said coil housing to cover said coil housed therein, one end of said coil being

connected through said bore to said intermediate electrode.

4,315,181

ULTRASONIC RESONATOR (HORN) WITH SKEWED SLOTS

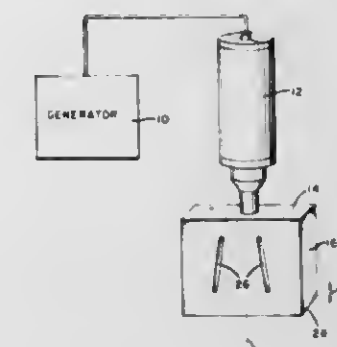
Ernest P. Holze, Jr., Brewster, N.Y., assignor to Branson Ultrasonics Corporation, New Canaan, Conn.

Filed Apr. 22, 1980, Ser. No. 142,739

Int. Cl.³ H01L 41/08

U.S. Cl. 310-323

5 Claims



1. An ultrasonic resonator dimensioned to operate as a half-wavelength resonator at a predetermined frequency of sound travelling therethrough from an input surface to an oppositely disposed output surface and through a medially disposed nodal region, the improvement comprising: a pair of elongated slots disposed in said resonator and extending generally from a region near said input surface to a region near said output surface and passing through said nodal region, and said slots being angled relative to the longitudinal axis of said resonator from said input surface to said output surface to provide substantially uniform motion along said output surface of the resonator.

4,315,182

FROSTED X-RAY TUBE

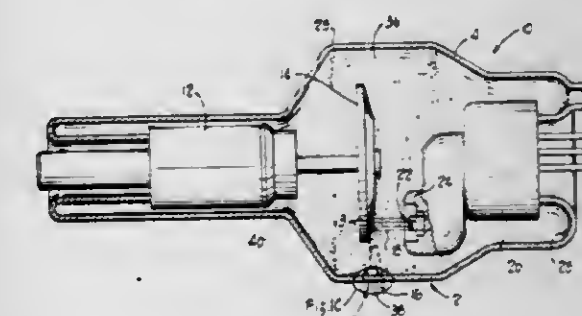
Avery D. Furbee, Elmhurst, Ill., assignor to Picker Corporation, Cleveland, Ohio

Filed Sep. 1, 1977, Ser. No. 829,650

Int. Cl.³ H01J 35/10

U.S. Cl. 313-59

13 Claims



1. An X-ray tube comprising:

(a) an evacuated envelope formed of electrically insulating, X-ray transmissive material;

(b) a cathode assembly mounted in the envelope;

(c) an anode assembly mounted in the envelope in spaced relationship with the cathode;

(d) the anode assembly including a target area of a material which will emit a beam of X-rays along a beam path when the area is bombarded by a flow of electrons from the cathode;

(e) said envelope including an X-ray window portion along the beam path; and

(f) the tube including textured interior surfaces in envelope regions including at least portions of the window and adjacent to and between the cathode focusing element and

the anode to isolate collections of metallic particles from the assemblies into small areas which are each conductively isolated from other of such collections such that such particles do not develop a conductive layer of metal in the envelope regions whereby substantially to avoid premature tube failure due to the electrical conductivity of metal deposits.

4,315,183
SUPPORT STRUCTURE FOR HIGH VOLTAGE
SUBSTRATE

Elisha B. Merritt, Sunnyvale, Calif., assignor to Diagnostic Information, Inc., Sunnyvale, Calif.

Filed Jun. 14, 1979, Ser. No. 48,695

Int. Cl.³ H01J 40/06, 40/02

U.S. Cl. 313-94

5 Claims



1. In a proximity type image intensifier tube of the type having an evacuated, electrically conductive envelope, an input window, an output window, an output display screen on the output window, and a high voltage photocathode carrying substrate mounted between the input window and the output display screen, an improved structure for supporting the substrate within the envelope, and for electrically isolating the substrate from the envelope, the structure comprising a plurality of electrically insulated rods arranged in the plane of the substrate, each of the rods being connected at one end to the envelope and means for connecting the distal ends of the rods to the circumference of the substrate with the rods being oriented perpendicularly to the substrate's circumference, each of the distal rod ends having a protruding pin and wherein the connecting means comprise a ring with a rounded edge for holding the substrate, the ring having a plurality of recesses about the edge for receiving the rod pins, a cover to give the edge a smooth surface while simultaneously capturing the substrate against the ring, and removable means for holding the cover in place.

4,315,184
IMAGE TUBE

Vincent J. Santilli, Corning, and Donald R. Quinn, Horseheads, both of N.Y., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jan. 22, 1980, Ser. No. 114,187

Int. Cl.³ H01J 40/00

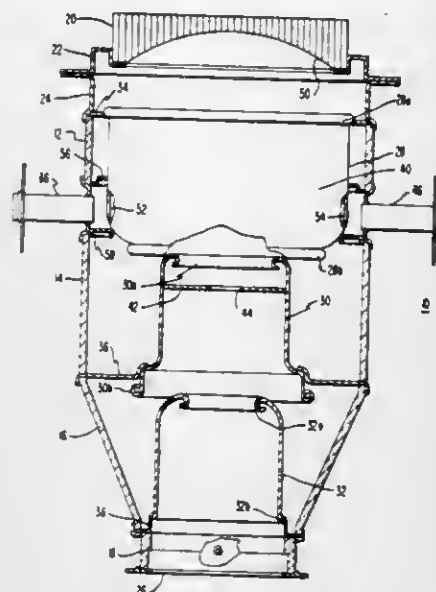
U.S. Cl. 313-94

3 Claims

1. An improved image tube which is operable at higher voltage and consequent higher signal gain with low noise levels, which tube comprises:

- a plurality of generally cylindrical ceramic envelope portions which are axially aligned and sealed together to form the tube envelope with an input faceplate sealed at one end and an output target sealed at the other end;
 - a plurality of axially aligned electrode portions disposed within the envelope including a focus electrode and an anode electrode;
- the improvement wherein, the extending end portions of each of the electrodes have rolled edge portions which

extend away from the cylindrical axis of the electrodes and the tube; and



wherein all electrode surfaces are coated with highly light absorptive, low secondary electron emission characteristic, insulating material to minimize electrical noise.

4,315,185
VACUUM-TIGHT, ELECTRICAL CONNECTION FOR
THE PHOTOCATHODE IN AN IMAGE INTENSIFIER
TUBE

Terence C. McStravick, Leutengewolde, and Peter Sipkes, Roden, both of Netherlands, assignors to N.V. Optische Industrie "De Oude Delft", Delft, Netherlands

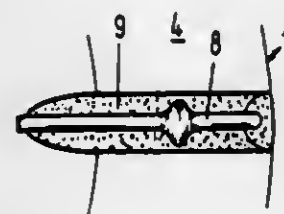
Filed Apr. 27, 1979, Ser. No. 33,985

Claims priority, application Netherlands, Apr. 28, 1978, 7804640

Int. Cl.³ H01J 40/02

U.S. Cl. 313-102

5 Claims



1. In an image intensifier tube, a structure comprising an input window, a photocathode on the input window, a metallic cathode flange, a layer of sealing material securing the input window in vacuum-tight relation to the metallic cathode flange, an electrical conducting lead having a length passing between the window and the flange and through the layer of sealing material with one end adapted to be connected to a source of potential and with an opposite end connected to the photocathode, and

means spacing the lead from the window and the flange at at least one portion of the length of the lead so that said sealing material completely surrounds and seals the lead at the one portion,

said means including at least one cavity in the input window, which cavity is filled with the sealing material and is located between the edge of the photocathode and the outer edge of the input window and in spaced relationship to these edges so as to extend only partially along the lead length between the window and the flange, the one portion of the electrical conducting lead extending through said cavity and being embedded in the layer of sealing

material with which the input window is sealed to the cathode flange.

4,315,186
REFLECTIVE LAMP

Tomiyoshi Hirano; Hidehiro Shinada, both of Yokohama, and Michiyuki Sawada, Yokosuka, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

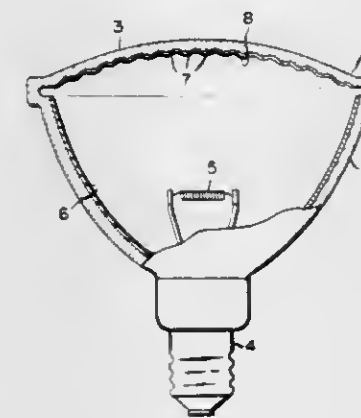
Filed Jun. 26, 1979, Ser. No. 52,211

Claims priority, application Japan, Jul. 3, 1978, 53-80755

Int. Cl.³ H01K 1/26

U.S. Cl. 313-111

7 Claims



1. A reflective lamp comprising a bulb and a filament contained therein, said bulb including a front lens section and a reflective mirror section fused thereto, said front lens section consisting of glass material containing neodymium in the range of 0.5 to 5.0% by weight as calculated in terms of Nd₂O₃ based upon the total weight of glass material and coated on its inner surface with a first thin film reflecting infrared rays and permitting visible light to be transmitted therethrough, said reflective mirror section consisting of neodymium-free glass material and coated on its inner surface with a second thin film reflecting visible light but transmitting infra-red rays therethrough.

4,315,187
STROBOSCOPIC DISCHARGE TUBE FOR
PHOTOGRAPHY

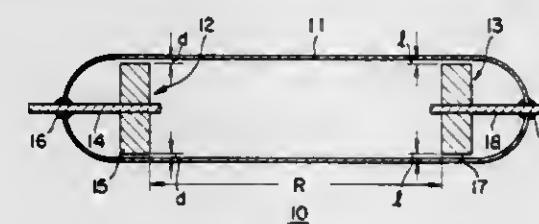
Shing C. Chow, Kowloon Tong, Hong Kong, assignor to Nam Kwong Electric Co. Ltd., Tsuen Wan, Hong Kong

Filed Nov. 13, 1979, Ser. No. 93,942

Int. Cl.³ H01J 61/80, 19/70

U.S. Cl. 313-217

10 Claims



1. A stroboscopic discharge tube for use in photography, comprising a light-transmitting tube having its opposite ends closed, a cathode and an anode disposed within said tube, and plasma producing gas, said cathode comprising a first electric conducting stem extending through one end of the tube into the interior of the tube and a cathodic annular ring made of emissive material affixed to the stem at least by means of welding, said anode comprising a second electric conducting stem extending through the other end of the tube into the tube interior and an anodic annular ring made of impurity gas absorbing material secured to the second stem, the diameters of the cathodic and anodic rings being such that the outer peripheries of the rings are closely adjacent to the inner wall of the tube so as to define a confined discharging region between the two rings.

4,315,188
WIRE ELECTRODE ASSEMBLY HAVING ARC
SUPPRESSION MEANS AND EXTENDED FATIGUE
LIFE

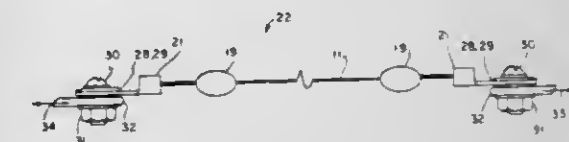
Daryl D. Cerny, Greenville, Ohio, and Kurt Lining, Muncie, Ind., assignors to Ball Corporation, Muncie, Ind.

Filed Feb. 19, 1980, Ser. No. 122,549

Int. Cl.³ H01J 1/18, 19/12

U.S. Cl. 313-269

20 Claims



1. An electrode assembly comprising;
a. a wire having an end doubled back to form a loop like extremity,
b. a connector disposed within said loop,
c. clamping means carried by said connector for securing the loop to said connector, and
d. a rounded conductive mass encapsulating the wire and the terminal end of the doubled back loop.
12. An electrode assembly having vibration dampening and arc suppressing means, comprising;
a. an electrode wire having a main portion and doubled back opposing end portions, each of said end portions having a terminal end of said electrode wire fixed immediately adjacent the main portion inwardly from the extremities of said electrode assembly,
b. a connector located within each of said doubled back end portions and in electrical contact therewith, and
c. a conductive rounded mass surrounding said wire and encapsulating said terminal end for dampening vibration and reducing the electric field generated at the terminal end of a wire.

4,315,189
SUPPORT STRUCTURE FOR SHADOW MASK OF
COLOR CATHODE RAY TUBE

Yasumasa Goto, and Junichi Ozaki, both of Hyogo, Japan, assignors to Toshiba Corporation, Kawasaki, Japan

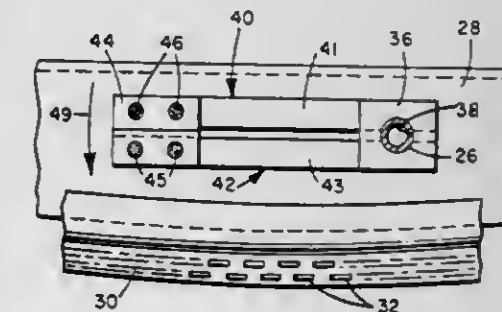
Filed Dec. 18, 1979, Ser. No. 104,775

Claims priority, application Japan, Feb. 14, 1979, 54-15066; Oct. 16, 1979, 54-132417

Int. Cl.³ H01J 29/80

U.S. Cl. 313-405

8 Claims



1. A color cathode ray tube comprising:
an envelope including a panel;
a phosphor screen disposed on said panel;
a shadow mask adjacent said phosphor screen, said shadow mask including a mask frame and an apertured mask mounted across said mask frame;
a plurality of supporting members for supporting said shadow mask within said envelope, each of said supporting members having one end secured to said panel and the other end fastened to said mask frame to support said shadow mask, each of said supporting members compris-

ing a pair of plate-like segments spaced apart along at least a portion of their length and connected integrally with each other at both ends, one of said plate-like segments being formed of a metal having a higher coefficient of thermal expansion than the metal forming the other said plate-like segments, said plate-like segments being responsive to heat to bend in a direction lateral to said plate-like segments to displace said shadow mask toward said phosphor screen.

4,315,190

ZINC SILICATE PHOSPHOR WITH EXTENDED FLORESCENCE DECAY AND CATHODE RAY TUBE CONTAINING THE SAME

Thomas E. Peters, Chelmsford, and James R. McColl, Concord, both of Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed Dec. 15, 1980, Ser. No. 216,595
Int. Cl.³ C09K 11/44

U.S. Cl. 313—467

9 Claims

1. A green-emitting white-bodied cathodoluminescent manganese activated zinc silicate phosphor having a composition corresponding to the general formula:



wherein M is an alkali metal and:

$$1.0 \leq v \leq 2.0$$

$$0.01 \leq w \leq 0.1$$

$$0.001 \leq x \leq 0.01$$

$$0.00005 \leq y \leq 0.001$$

$$0.5y \leq z \leq 2.0y$$

4,315,191

LUMINESCENT MATERIAL WITH ALKALINE EARTH METAL SILICATE ALUMINATE HOST LATTICE AND LOW-PRESSURE MERCURY VAPOR DISCHARGE LAMP CONTAINING THE SAME

Willem L. Konijoeendijk, Gert M. Boogerd, and Henricus L. M. Tonnaer, all of Elodhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 16, 1980, Ser. No. 140,899

Claims priority, application Netherlands, Apr. 20, 1979, 7903102

Int. Cl.³ C09K 11/467, 11/463; H01J 61/44

U.S. Cl. 313—486

4 Claims

1. A terbium or cerium activated alkaline earth metal silicate aluminate luminescent material having a composition selected from the formulae:



wherein $0 \leq a \leq 3.0$ and $0.10 \leq r \leq 0.50$ and wherein charge compensation for the terbium is achieved by substitution of Na and/or K in a Sr site and/or by Al in a Si site and;



wherein $0 \leq a+b \leq 1.0$ and $0.10 \leq p \leq 0.50$ and wherein charge compensation for the cerium is achieved by substitution of Na and/or K in a Sr site and/or Al in a Si site.

4,315,192

FLUORESCENT LAMP USING HIGH PERFORMANCE PHOSPHOR BLEND WHICH IS PROTECTED FROM COLOR SHIFTS BY A VERY THIN OVERCOAT OF STABLE PHOSPHOR OF SIMILAR CHROMATICITY

Henry Skwirut, Verona, and Robert G. Young, Nutley, both of N.J., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Dec. 31, 1979, Ser. No. 108,269

Int. Cl.³ H01J 61/48

U.S. Cl. 313—487

8 Claims



1. A fluorescent lamp having a predetermined correlated color temperature as defined by x-y coordinates as inscribed on the x-y chromaticity diagram of the ICI system together with combined high efficacy and good color rendition, said lamp comprising a sealed elongated light-transmitting envelope having electrodes operatively positioned therein proximate the ends thereof and enclosing a discharge-sustaining filling comprising mercury and a small charge of inert ionizable starting gas which when energized generates a discharge comprising ultraviolet radiations and a limited proportion of visible radiations, phosphor means comprising a predetermined amount of a first phosphor layer carried on the inner surface of said envelope and a predetermined amount of a second phosphor layer coated on and carried on said first phosphor layer so that said second phosphor layer is positioned nearest to said discharge:

a. said first phosphor layer principally comprising a mixture of predetermined amounts and relative proportions of narrow-band blue-emitting phosphor having an emission substantially confined to the wavelength range of from 430 nm to 485 nm, green-emitting phosphor having an emission substantially confined to the wavelength range of from 515 nm to 570 nm, and red-orange-emitting phosphor having an emission substantially confined to the wavelength range of from 588 nm to 630 nm, and the predetermined amounts and relative proportions of said mixed phosphors comprising said first phosphor layer being such that the composite emission response from said first phosphor layer when excited by said discharge falls approximately within a predetermined color ellipse on the x-y chromaticity diagram of the ICI system, portions of said green-emitting phosphor component of said first phosphor layer if directly exposed to said discharge displaying a maintenance of light emission during lamp operation which is inferior to the maintenance of light emission displayed by said blue-emitting phosphor component and said red-orange-emitting phosphor component of said first phosphor layer, and the coating weight of said first phosphor layer falling within the range of from 2.3 mg/cm² to 5.5 mg/cm²;

b. said second phosphor layer principally comprising a relatively thin layer of stable finely divided phosphor means which when excited by said discharge has an emission of predetermined x-y coordinates which substantially correspond to said predetermined x-y coordinates of the composite emission of said first phosphor layer, and the coating weight of said second phosphor layer falling within the range of from 0.23 mg/cm² to 0.7 mg/cm²; and

c. said composite emissions of said first phosphor layer and said second phosphor layer coupled with the limited proportion of visible radiations generated by said discharge causing the total visible emissions from said energized lamp to have predetermined x-y coordinates which fall within said predetermined color ellipse as inscribed on the x-y chromaticity diagram of the ICI system; whereby said second thin phosphor layer screens said said green-emitting phosphor component from direct exposure to said discharge.

ting phosphor component from direct exposure to said discharge.

4,315,193

HIGH-PRESSURE MERCURY-VAPOR LAMP WHICH HAS BOTH IMPROVED COLOR RENDITION AND LIGHT OUTPUT

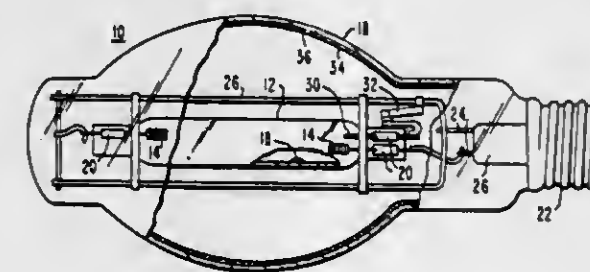
William A. Thornton, Cranford, N.J., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Mar. 18, 1980, Ser. No. 131,305

Int. Cl.³ H01J 61/44

U.S. Cl. 313—487

4 Claims



1. A high-pressure mercury-vapor lamp having both improved lumen output and color rendering properties for illuminated objects, said lamp comprising a sealed elongated radiation-transmitting arc tube having electrodes operatively disposed therein proximate the ends thereof and enclosing a discharge-sustaining filling comprising a predetermined amount of mercury and a small charge of inert ionizable starting gas, a sealed light-transmitting protective envelope in which said arc tube is operatively mounted with the environment enclosed by said protective envelope being non-reactive for the lamp elements enclosed thereby, electrical lead-in means sealed through said arc tube and connecting to said electrodes, electrical adapter means affixed to the outer surface of said protective envelope to facilitate electrical connection to a source of electrical power, and electrical conductor means electrically connecting said electrical adaptor means to said electrical lead-in means, the radiations emitted from said arc tube when operated principally comprising a very strong green emission and a very strong yellow emission and a strong violet emission in addition to both short wavelength and long wavelength ultraviolet emissions;

finely divided phosphor means carried as a coating on the inner surface of said protective envelope, said phosphor means responsive to the ultraviolet radiations generated by said operating arc tube to provide a predetermined visible emission, said phosphor means principally comprising predetermined proportions and predetermined amounts of three different phosphor components, a first of said phosphor components being divalent-europium activated phosphor having a narrow band blue-violet visible emission peaked at about 450 nm;

a second of said phosphor components having a narrow-band blue-green visible emission peaked in the vicinity of about 500 nm, and the third of said phosphor components being trivalent-europium-activated phosphor having a strong red emission located at about 620 nm; and the relative proportions and predetermined amounts of said three phosphor components being such that when their individual visible emissions are blended with the visible emissions from said operating arc tube, the composite emission from said lamp has a predetermined color temperature.

4,315,194

COUPLED CAVITY TRAVELING WAVE TUBE WITH VELOCITY TAPERING

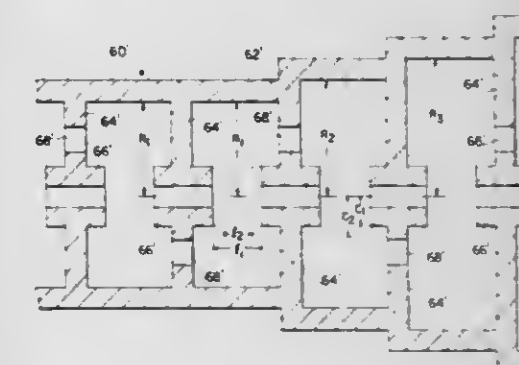
Denis J. Conolly, N. Olmsted, Ohio, assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Feb. 20, 1980, Ser. No. 122,966

Int. Cl.³ H01J 25/34

U.S. Cl. 315—3.6

6 Claims



1. A coupled cavity traveling wave tube comprising an electron gun for producing an electron beam, a collector electrode for receiving the electrons of an electron beam produced by said electron gun, and a slow wave structure positioned between said electron gun and said collector electrode through which said electron beam and a high frequency electromagnetic wave passes, said slow wave structure comprising a plurality of serially coupled resonant cavities provided with coupling slots and ferrules the inside diameters of which serve as beam tunnels, and, excepting periodic length, ferrule inside diameter and slot length, one or more of the physical dimensions of each of the cavities from a point where loss of beam-wave synchronization begins to occur to the end of the tube adjacent to the collector being varied with respect to one another as a function of the distance from the electron gun such that the resonant frequency of each of these cavities in succession is reduced with the distance from the electron gun while the period of the slow wave structure remains unchanged and the bandwidth of the slow wave structure remains substantially unchanged, to thereby provide velocity tapering of said electromagnetic wave and resultant improved electron beam-electromagnetic wave synchronization.

4,315,195

HIGH-VOLTAGE SUPPLY FOR POWER ELECTRON-BEAM GUNS

Karl-Georg Redel, Rodenbach, and Gerd Deppisch, Aschaffenburg, both of Fed. Rep. of Germany, assignors to Leybold Heraeus GmbH, Rodgau, Fed. Rep. of Germany

Filed May 7, 1980, Ser. No. 147,447

Claims priority, application Fed. Rep. of Germany, May 8, 1979, 2918426

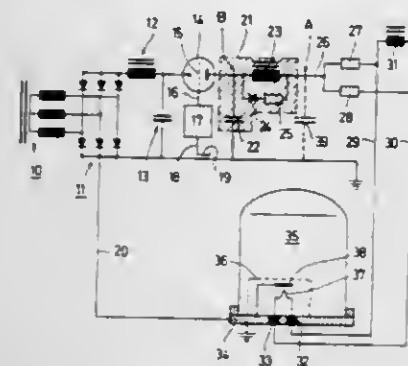
Int. Cl.³ H05B 7/148; H02H 7/20

U.S. Cl. 315—107

4 Claims

1. A high-voltage supply means for power electron-beam guns with a heatable cathode and an anode, particularly for electron-gun vaporizers, with a high-voltage transformer, smoothing means for the residual waviness of the feed voltage, an electronic switching member, which is arranged in the current circuit to the cathode and a switching circuit controlled dependent on current and which cuts in to produce a blocking voltage for operating the switching member, and an impulse protecting filter arranged in the current circuit to the cathode, which filter consists of a capacitor connected in parallel with the cathode/anode section, a choke, a free-running diode blocked in the direction towards the cathode, and a

discharge resistor, the choke being connected in series with the cathode/anode section, and the free-running diode with the



discharge resistor connected in series being connected in parallel with the choke.

4,315,196

DISCONNECTION DETECTING CIRCUIT OF DOUBLE-FILAMENT SPHERICAL LAMP

Fujio Kitayama, Omoriniski, Japan, assignor to Niles Parts Company, Ltd., Tokyo, Japan

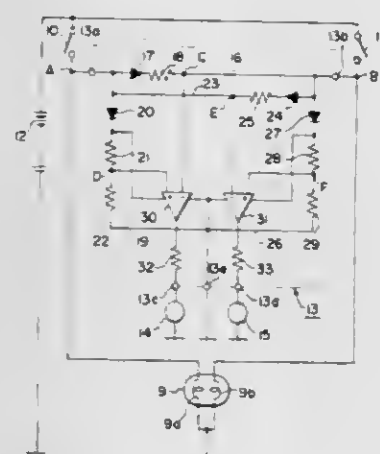
Filed Dec. 28, 1979, Ser. No. 107,851

Claims priority, application Japan, Apr. 12, 1979, 54-44673

Int. Cl.³ H05B 39/00, 37/03

U.S. Cl. 315—132

2 Claims



1. In combination with a double-filament lamp having a first and a second filament connected to a power source by respective circuits which include respective first and second control switches and an indicator device for indicating failure of either filament, an apparatus for detecting the failure of a filament in the lamp and activating said indicator, said apparatus comprising:

- a first voltage-dividing circuit connected to said first filament circuit and said indicator which includes said second filament as a voltage-dividing resistor in said first voltage-dividing circuit;
- a second voltage-dividing circuit connected to said second filament circuit and said indicator which includes said first filament as a voltage-dividing resistor in said second voltage-dividing circuit;
- a first comparator connected to said voltage-dividing circuit and said indicator;
- a second comparator connected to said second voltage-dividing circuit and said indicator;
- a third voltage-dividing circuit connected to said first filament circuit and said first comparator for setting a reference voltage; and
- a fourth voltage-dividing circuit connected to said second filament circuit and said second comparator for setting a reference voltage;

whereby with both filaments intact the heat from the energization of either filament increases the resistance of the remaining filament to increase the voltage potential sensed

by the comparator in the circuit of the energized filament to prevent activation of said indicator, and when an energized filament has failed the resistance of the remaining filament is not increased and the voltage potential sensed by the comparator in the circuit of the energized filament remains low to cause said comparator to activate said indicator to signal a failed filament, said respective third and fourth voltage-dividing circuits provide a voltage drop to prevent the non-energized filament from being energized should the energized filament fail.

4,315,197

LINEAR MAGNETIC MOTOR/GENERATOR

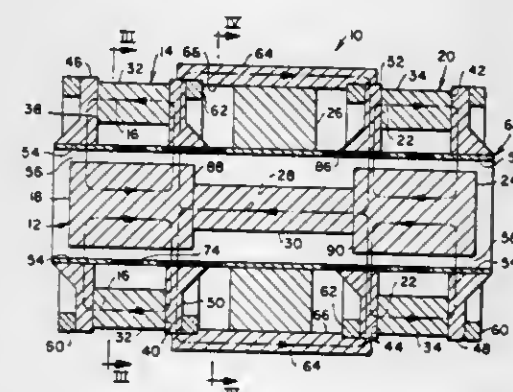
Philip A. Studer, Silver Spring, Md., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Feb. 7, 1980, Ser. No. 119,336

Int. Cl.³ H02K 41/02

U.S. Cl. 318—135

32 Claims



1. A linear magnetic motor/generator, comprising: axially moveable actuator means having three portions; permanent magnet means including a plurality of pairs of transverse and symmetrical magnets substantially aligned radially and transversely with a common axis and equidistantly spaced around and separated from a first portion of said actuator means, thereby defining a first magnetic flux path passing through said first portion of said axially moveable actuator means; another permanent magnet means including another plurality of pairs of transverse and symmetrical magnets substantially aligned radially and transversely with said common axis and equidistantly spaced around and separated from a second portion of said actuator means thereby defining a second magnetic flux path passing through said second portion of said axially moveable actuator means; a plurality of magnetically soft end pieces arranged in a plurality of arrays defining a gap between said end pieces and said actuator whereby facing pairs of said end pieces in adjacent arrays are coupled across opposite ends of said pluralities of permanent magnets; and coil means defining a third magnetic path passing through a third portion of said axially moveable actuator means and selectively modulating magnetic flux flowing in said first and second magnetic flux paths for supplying an axial force to said axially moveable actuator means.

4,315,198

DIGITAL SERVO SYSTEM

Frank W. Lin, Los Altos Hills, and Mei S. Sze, San Jose, both of Calif., assignors to Qume Corporation, San Jose, Calif.

Filed Nov. 7, 1979, Ser. No. 91,931

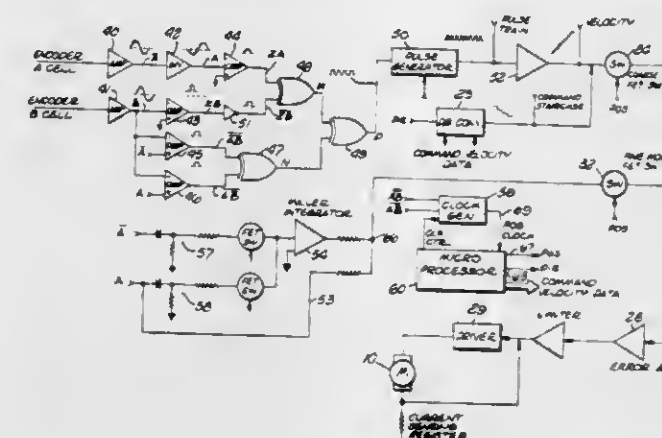
Int. Cl.³ G05B 11/18

U.S. Cl. 318—594

14 Claims

1. In a servo system for controlling the motion of a movable member along a path from a starting position to a destination

position, said member being positioned by a motor and being coupled to means for generating at least two space phase cyclic analog position signals representative of the instantaneous position of said movable member, the periods of said signals being indicative of the instantaneous velocity of said movable member, the improvement comprising means responsive to said two position signals for generating a digital pulse train having a pulse rate indicative of the instantaneous velocity of said member, said means for generating a digital pulse train comprising first, second and third exclusive OR gates, the



outputs of the first and second providing inputs to the third exclusive OR gate, the first exclusive OR gate being responsive to digital signals indicating the polarity of said analog portion signals and the second exclusive OR gate being responsive to digital signals indicating the relative polarity between said analog signals and an inverted one of said analog portion signals, means for integrating said digital pulse train to obtain an analog voltage representative of the pulse rate of said pulse train and control means responsive to said analog voltage for controlling the motion of said motor.

4,315,199

CONTROL CIRCUIT FOR A POSITIONING DEVICE USING A D-C MOTOR

Ryuichi Kyomasu, Kodaira; Shuichi Hanashima, Tokyo, and Yoshikazu Suzumura, Fuchu, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

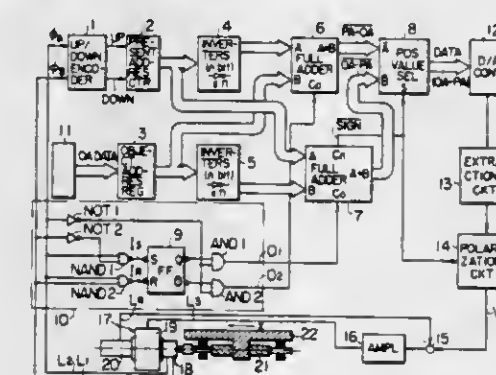
Filed Aug. 3, 1979, Ser. No. 63,450

Claims priority, application Japan, Aug. 9, 1978, 53-96229

Int. Cl.³ G05B 19/29

U.S. Cl. 318—601

2 Claims



1. A control circuit of a positioning device for moving a member to be controlled to a predetermined position by using a d-c motor comprising: encoder means for receiving first and second repeated pulse signals being produced for each movement of said member to be controlled by a predetermined unit distance and having opposite phases depending upon the opposite directions of said member, and for producing a first trigger signal when said first repeated pulse signal has a phase preceding the phase of the second repeated pulse signal in one moving direction of said member and a second trigger signal when said first repeated pulse signal has a phase

4,315,200

SERVO CONTROL APPARATUS

Yasuaki Yamada, Funabashi; Toshiaki Ozawa, Tokyo, and Hiroatsu Kondo, Zushi, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

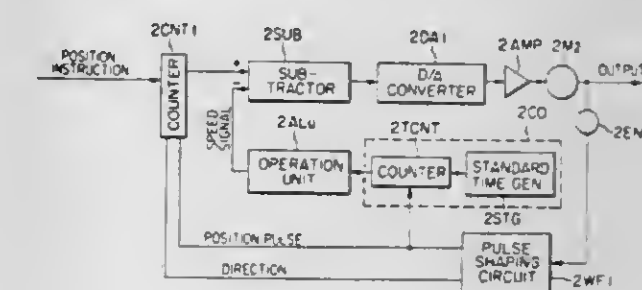
Filed Aug. 27, 1979, Ser. No. 69,927

Claims priority, application Japan, Aug. 29, 1978, 53-105149; Sep. 20, 1978, 53-115648; Sep. 20, 1978, 53-115649; Sep. 20, 1978, 53-115650; Sep. 20, 1978, 53-115651

Int. Cl.³ G05B 19/28

U.S. Cl. 318—603

9 Claims



1. A servo control apparatus, comprising: signal generating means for generating a pulse train of a frequency proportional to the speed of an object to be controlled; measuring means for measuring the time interval of said pulses; calculating means for calculating the reciprocal of thus measured time interval; said reciprocal being supplied as the speed component to a servo motor; and control means coupled to said calculating means for controlling the object in accordance with a control instruction information and the reciprocal of the measured time interval.

4,315,201

ALIGNMENT APPARATUS FOR MASK AND WAFER
USED IN MANUFACTURING SEMICONDUCTOR
CIRCUIT ELEMENTS

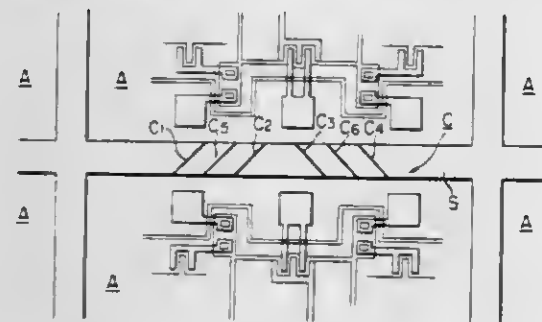
Akiyoshi Suzuki, Tokyo; Ryoza Hiraga, Yokohama; Ichiro Kano, Yokohama; Hideki Yoshinari, Yokohama; Masao Tot-suka, Ohmiya; Yuzo Kato, Yokohama, and Yasuo Ogino, Yokohama, all of Japan, assignors to Canon Kabushiki Kai-sha, Tokyo, Japan

Filed Mar. 8, 1978, Ser. No. 884,534

Claims priority, application Japan, Mar. 10, 1977, 54/26304
Int. Cl.³ G05B 1/06

U.S. Cl. 318—640

6 Claims



1. An apparatus for aligning a mask and a wafer comprising: a mask carrier for holding a mask having alignment marks provided in a narrow strip-like area existing between circuit patterns;
- a wafer carrier for holding a wafer having alignment marks provided in a narrow strip-like area existing between circuit patterns;
- photoelectric detecting means for scanning said mask and wafer along a scanning line;
- electric means for discriminating whether or not said narrow strip-like area on said mask and wafer is coincident with the scanning line and detecting relative displacement between the alignment marks of the mask and wafer;
- driving means responsive to said electric means for moving at least one of said carriers relative to the other, said driving means moving said at least one of said carriers in a direction crossing said scanning line until the narrow strip-like areas on the mask and wafer are coincident, and thereafter, moving at least one of said carriers until the alignment marks of the mask and wafer are in a predetermined relation.

4,315,202

SYNCHRONOUS MOTORS

John Dawson, Northampton, and Stephen M. Buckley, Rugby, both of England, assignors to Associated Electrical Industries Limited, London, England

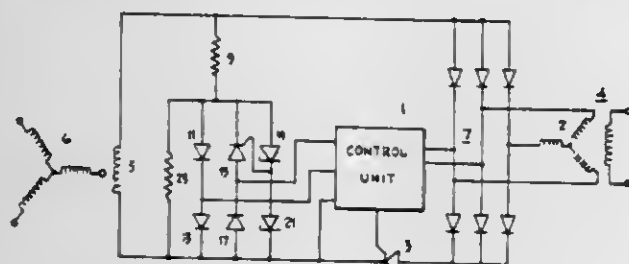
Filed Apr. 8, 1980, Ser. No. 138,865

Claims priority, application United Kingdom, Apr. 19, 1979, 13629/79

Int. Cl.³ H02P 1/46

U.S. Cl. 318—718

8 Claims



1. A synchronous motor comprising: a stator winding; a rotor; an a.c. exciter winding mounted on the rotor; a field winding mounted on the rotor and arranged for excitation by the rectified output of the a.c. exciter, and a synchronizing arrangement for delaying energization of the field winding by the exciter until the rotor is rotating approximately at the same

speed as the rotating field produced by the stator winding of the motor, and the rotor is correctly positioned relative to this rotating field, the synchronizing arrangement comprising: a pair of rectifying devices connected in parallel, oppositely poled, across the motor field winding, one of the devices being controllable and poled so as to be forward biased by the rectified output of the a.c. exciter; trigger means for the controllable device whereby the controllable device is rendered conducting when the voltage across the field winding forward biases said controllable device and exceeds a predetermined value; means for deriving two discrete signals respectively continuously representative of current flow in the two rectifying devices; and control means responsive to said two signals to connect the field winding with the rectified output of the a.c. exciter when either (a) no current has passed through the controllable rectifying device for a predetermined time, or (b) the motor field winding current, as indicated by the current in either rectifying device, has a frequency below a predetermined value, the controllable rectifying device is not conducting, and the uncontrolled rectifying device has started to conduct.

4,315,203

CONTROL SYSTEM FOR INDUCTION MOTOR-DRIVEN
CAR

Masahiko Ibamoto; Hiroshi Narita, both of Katsuta; Noboru Oouchi, Hitachi, and Shigetoshi Okamoto, Katsuta, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

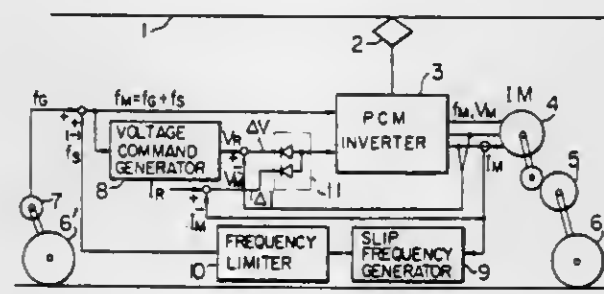
Filed Jul. 3, 1980, Ser. No. 166,704

Claims priority, application Japan, Jul. 6, 1979, 54-84990

Int. Cl.³ H02P 5/40

U.S. Cl. 318—807

11 Claims



1. A control system for an electric car of an induction motor drive type, comprising a power converter for producing an AC power of a variable frequency and a variable voltage; an induction motor adapted to be fed from said power converter and drive said electric car; means for detecting speed of said electric car; means for setting a slip frequency of said induction motor; means for preparing a frequency command by adding together or subtracting each other said slip frequency and the speed of said electric car; means for controlling the output frequency of said power converter in accordance with said frequency command; means for controlling the output voltage from said power converter; means for producing a current command for said induction motor, and means for producing a voltage command in dependence on the speed of said induction motor, wherein said output voltage control means is so arranged as to control the output voltage of said power converter in accordance with one of said current command and said voltage command under limitation by the other of said current command and said voltage command.

4,315,204

RIPPLE DETECTOR FOR AUTOMOTIVE ALTERNATOR
BATTERY CHARGING SYSTEMS

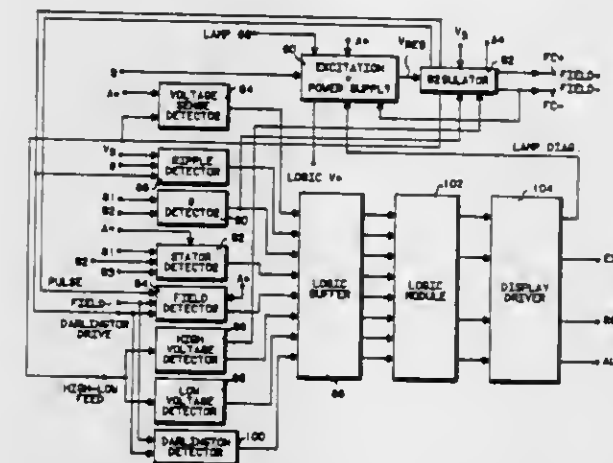
Kirk A. Sievers, Roselle, and Robert W. Mortonson, Addison, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed May 22, 1980, Ser. No. 152,223

Int. Cl.³ H02J 7/14

U.S. Cl. 322—28

15 Claims



1. In a multiphase alternator battery charging system, a detector monitoring the voltage ripple in the rectified electrical output signal of said alternator comprising: means for monitoring the undulating rectified electrical signal supplied to the battery by said alternator and producing a signal level in response thereto; means coupled to said alternator for measuring the rotational speed in said alternator and producing a signal level in response thereto; means coupled to the field coil of said alternator determining the excitation current supplied thereto; variable threshold means, combining the output signal from said rotational speed means and said determined field coil excitation current, producing a combined signal level; and comparison means, responsive to the signal level from said monitoring means and said combined signal level, producing an output signal level indicative of the detection of a voltage ripple in excess of said combined signal level.

4,315,205

GENERATION CONTROL APPARATUS FOR VEHICLE
GENERATORS

Kazumasa Mori, Aichi; Taro Asahi, Chiryu; Keiichi Banzai, Toyota; Katsuro Iwaki, Chiryu; Katsuya Muto, Kariya; Akira Mase, Handa; Takayasu Nimura, Nagoya; Katsumi Itob, Obbu, and Yoshio Akita, Ichinomiya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

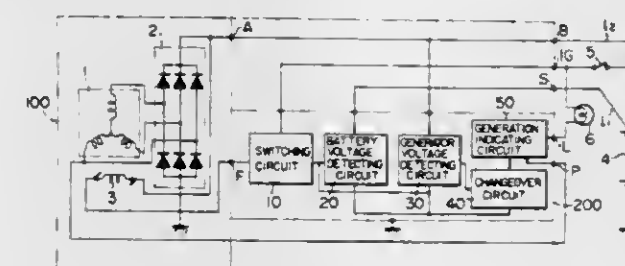
Filed May 23, 1980, Ser. No. 152,823

Claims priority, application Japan, Aug. 3, 1979, 54-6597; Aug. 3, 1979, 54-99560; Sep. 7, 1979, 54-115473

Int. Cl.³ H02J 7/14

U.S. Cl. 322—99

7 Claims



1. In a generation control apparatus for vehicle generators including a generator having armature coils, an excitation coil and a rectifier for rectifying an AC output from said armature

coils, and a battery arranged to be charged by a DC output of said rectifier, the improvement comprising:

- a voltage control circuit responsive to the terminal voltage of said battery to control the energization of said generator;
- a fault detecting circuit for detecting whether the terminal voltage of said battery or the output voltage of said generator is normal so as to generate a fault detection signal when at least one of said voltages is not normal; and
- a changeover circuit responsive to said fault detection signal to effect the control of the energization of said generator in accordance with the output voltage of said generator instead of said battery terminal voltage.

4,315,206

CURRENT SUPPLY CIRCUIT FOR TELEPHONE
EXCHANGE

Michio Tokunaga, Zushi; Ryoichi Okada, Iruma; Hideo Mizutani, Warabi; Koichi Hasegawa, Tokyo, and Takaaki Osaki, Yokohama, all of Japan, assignors to Nippon Telegraph and Telephone Public Corporation; Oki Electric Industry Co., Ltd.; Nippon Electric Co., Ltd.; Fujitsu Ltd. and Hitachi, Ltd., all of Tokyo, Japan

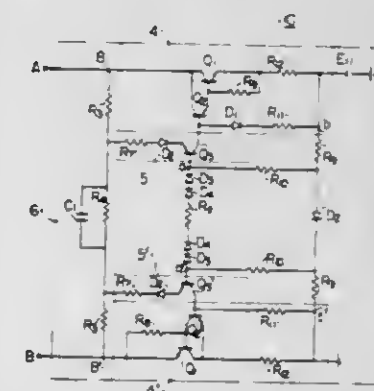
Filed Sep. 24, 1979, Ser. No. 78,469

Claims priority, application Japan, Sep. 22, 1978, 53-115766; May 23, 1979, 54-62640

Int. Cl.³ G05F 1/44

U.S. Cl. 323—265

33 Claims



1. A current supply circuit comprising: a pair of current-supplying current amplifiers, a pair of output terminals of each of said current-supplying current amplifiers being series-connected between a load and one of power supply terminals; an output voltage detector parallel-connected with said load and including an impedance element; a pair of driving current amplifiers, a pair of output terminals of each of said driving current amplifiers being connected between an input terminal of each of said current-supplying current amplifiers and one of output terminals of said output voltage detector; said driving current amplifier, said current-supplying current amplifier and said output voltage detector making up a negative feedback loop; and an input current supply circuit connected between input terminals of said driving current amplifiers and including a power supply.

4,315,207

CURRENT CONTROLLED BATTERY FEED CIRCUIT

Russell J. Apfel, San Jose, Calif., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Jun. 20, 1980, Ser. No. 161,490

Int. Cl.³ G05F 1/46

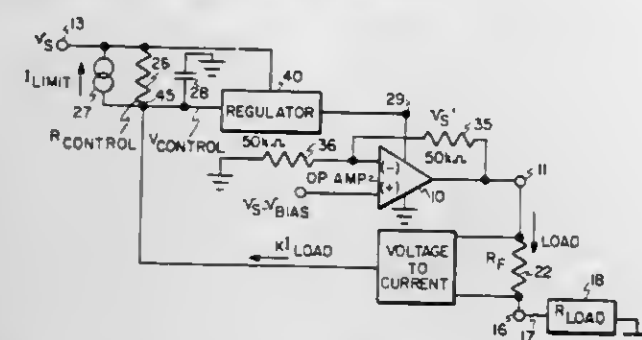
U.S. Cl. 323—284

16 Claims

1. A battery feed circuit for supplying a D.C. load current to a load from a source of D.C. voltage comprising feedback means responsive to said load current for generating a feedback current proportional to said load current,

impedance means responsive to said feedback current for generating a control voltage proportional to said feedback current,

bias means responsive to said D.C. source voltage for generating a biased voltage having a predetermined relationship with respect to said source voltage,



amplifier means responsive to said biased voltage and control voltage for generating an output voltage in a negative feedback relationship to said load current, said output voltage driving said load current.

4,315,208

REGULATED POWER SUPPLY HAVING ITS D.C. VOLTAGE SOURCE SELECTIVELY SUPPLEMENTED BY A D.C. TO D.C. CONVERTER

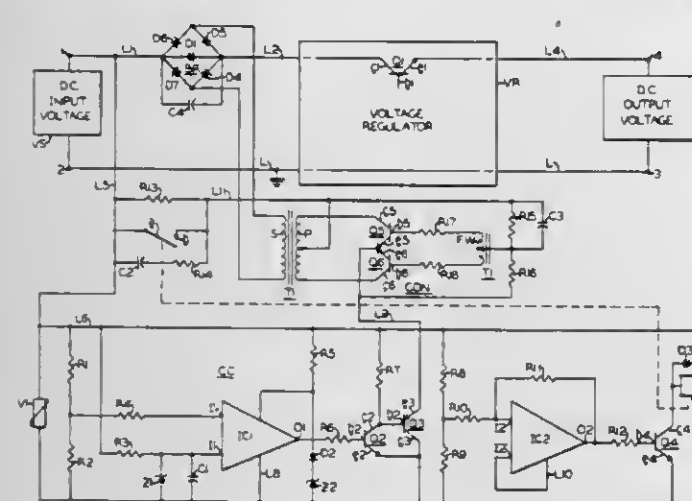
John M. McElroy, Monroeville, and John O. G. Darrow, Murrysville, both of Pa., assignors to American Standard Inc., Swissvale, Pa.

Filed Jul. 14, 1980, Ser. No. 167,857

Int. Cl.³ G05F 5/00

U.S. Cl. 323—303

11 Claims



1. A regulated power supply comprising, a regulator connectable between a d.c. voltage source and a load for regulating the d.c. voltage source so that a constant d.c. voltage is developed across the load, and a controllable d.c. to d.c. converter connectable between the d.c. voltage source and said regulator for selectively adding supplementary d.c. voltage when the magnitude of the d.c. voltage source falls below a predetermined value.

4,315,209

TEMPERATURE COMPENSATED VOLTAGE REFERENCE CIRCUIT

James C. Schmoock, San Jose, Calif., assignor to Raytheon Company, Lexington, Mass.

Filed Jul. 14, 1980, Ser. No. 168,788

Int. Cl.³ G05F 3/20

U.S. Cl. 323—313

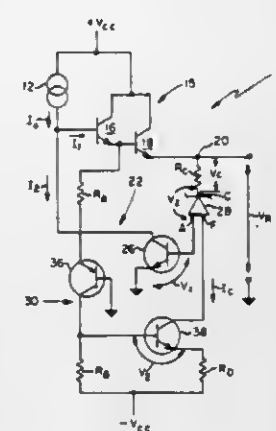
8 Claims

1. A temperature compensated voltage reference circuit, comprising:

(a) means for producing an output voltage at an output terminal comprising a reference voltage device connected between a predetermined voltage potential and the output

terminal, such reference voltage device producing a reference voltage varying with temperature over a predetermined range temperatures; and

(b) means, responsive to a compensating current, for producing a compensating voltage in series with the reference voltage,



such compensating voltage varying inversely to the voltage variation of the reference voltage over the predetermined range of temperatures, such compensating current passing serially through the reference voltage device and the compensating voltage producing means.

4,315,210

BRIDGE-BALANCING SYSTEM FOR MEASURING EXTREMELY LOW CURRENTS

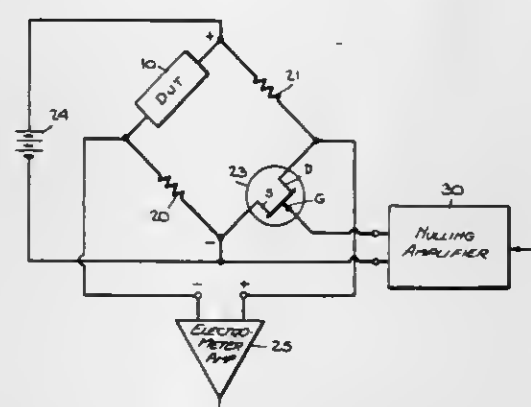
Thomas J. Michel, Hialeah, and Robert Clarke, Cooper City, both of Fla., assignors to Santek, Inc., Hollywood, Fla.

Filed Jan. 7, 1980, Ser. No. 110,251

Int. Cl.³ G01R 27/00, 27/02

U.S. Cl. 324—57 R

7 Claims



1. A bridge-balancing system for measuring direct current flow having an intensity in the sub-nanoampere range passing through a device under test having an extremely high impedance, said system comprising:

A. a bridge network having two sets of opposing arms to define input and output diagonals, one set of arms being constituted by a pair of fixed resistors having matching values, the first arm in the other set being formed by the device under test and the second arm by an adjustable impedance element formed by an MOS field-effect transistor having gate, source and drain electrodes, said transistor, at predetermined values of direct voltage applied to the drain relative to the source, operating in the variable resistance region in which the impedance presented between the drain and source electrodes inserted in said second arm depends on the potential imposed on the gate;

B. means to apply a constant direct voltage across the input diagonals of the network to cause said transistor to operate in the variable resistance region;

C. an amplifier having a high input impedance connected across the output diagonals of the network to produce an analog signal whose sense and magnitude depend on the

difference between the impedance of the device and that of the field-effect transistor; and

D. means to impose a potential on said gate having a level which brings the network into balance and nulls said signal.

4,315,211

PREAMPLIFIER FOR VOLTAGE MEASURING INSTRUMENT WITH NON-INTERACTING ZERO AND SPAN CONTROLS

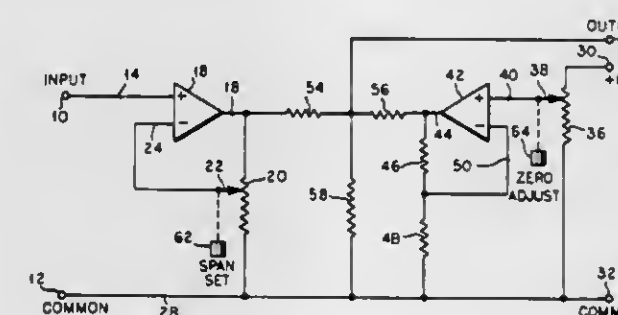
Thomas J. Walsh, Hatboro, Pa., assignor to Leeds & Northrup Company, North Wales, Pa.

Filed Mar. 3, 1980, Ser. No. 126,752

Int. Cl.³ G01R 1/30, 15/08

U.S. Cl. 324—123 R

6 Claims



1. A preamplifier for a voltage measuring circuit with a span and zero adjusting circuit, comprising:

a first amplifying circuit means having its input connected to a source of potential to be measured, said circuit being operable to produce at its output a voltage which has a proportional relationship to the voltage of said input with the relationship being continuously adjustable to determine the span of the measuring circuit;

a second amplifying circuit means having its input connected to a reference potential, said circuit being operable to produce at its output a voltage having a predetermined proportional relationship to said reference voltage, said predetermined relationship being adjustable to vary the effective zero of the measuring circuit; and

a summing network including a separate impedance in series with the output of each of said amplifying circuits and another impedance connected to said series impedances, so that said other impedance carries the current output from both amplifying circuits to produce a potential across said other impedance as an output from said preamplifier which is proportional to the sum of the voltage outputs of said amplifying circuits.

4,315,212

ELECTRONIC WATTHOUR METER

Ryouji Gamoh, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

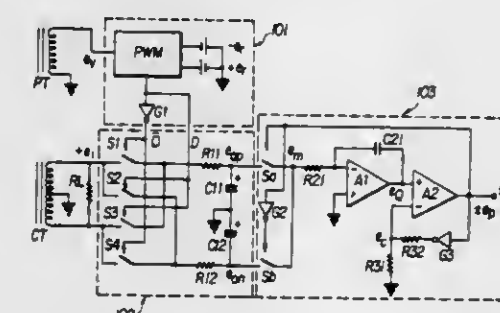
Filed Jul. 6, 1979, Ser. No. 55,480

Claims priority, application Japan, Jul. 6, 1978, 53-82232

Int. Cl.³ G01R 21/06, 11/16

U.S. Cl. 324—142

12 Claims



1. An electronic watt-hour meter for measuring the instantaneous power of a supply line by multiplying a first voltage signal proportional to the load voltage of said power line and

a second voltage signal proportional to the consumption current of said line, comprising:

a pulse width modulation circuit controlled by said first voltage signal for producing pulse wave modulated signals proportional to the amplitude of said first signal in order to provide a voltage pulse width duty cycle signal; a multiplication circuit having a plurality of analog switches which are selectively operated by said pulse width duty cycle signal from said pulse width modulation circuit so that positive and negative DC voltages, equal in absolute value, are obtained which represent the product of said second voltage signal and said first voltage signal; a frequency conversion circuit for converting said positive and negative DC voltages into a frequency signal.

4,315,213

METHOD FOR OBTAINING AN ACCELERATION OR DECELERATION SIGNAL FROM A SIGNAL PROPORTIONAL TO SPEED AND APPARATUS THEREFOR

Manfred Wolff, Ladenburg, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

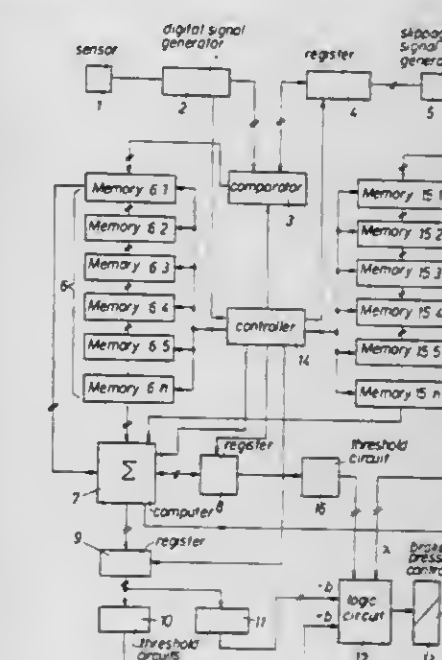
Filed Apr. 29, 1980, Ser. No. 145,200

Claims priority, application Fed. Rep. of Germany, May 10, 1979, 2918802

Int. Cl.³ G01P 3/42

U.S. Cl. 324—162

8 Claims



1. A method for obtaining an acceleration or deceleration signal from a signal sensor proportional to a speed, comprising measuring at successive times, of which adjacent times are at a constant interval of ΔT from one another, the change of the speed signal relative to the particular speed signal present at the foregoing time and the acceleration or deceleration signal obtained by means of addition of a predetermined number of successive changes, storing each measured change is stored in a memory having at least n memory possibilities for these changes, obtaining a signal at intervals of ΔT of the acceleration or deceleration signal from the particular n changes most recently stored and erasing at intervals of ΔT the particular change stored earliest in the memory.

4,315,214

DISPLACEMENT SENSOR USING A GALVANOMAGNETIC ELEMENT POSITIONED IN A PERIODICALLY INVERTED MAGNETIC FIELD

Shoei Kataoka, Tanashi, Japan, assignor to Agency of Industrial Science & Technology Ministry of International Trade & Industry, Tokyo, Japan

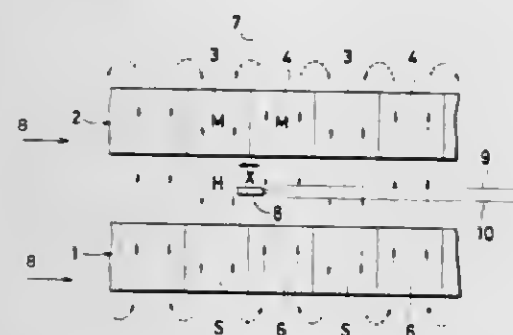
Filed Aug. 28, 1979, Ser. No. 70,653

Claims priority, application Japan, Aug. 30, 1978, 53-104976

Int. Cl.³ G01B 7/14; G11C 19/08

U.S. Cl. 324-208

7 Claims



1. A displacement sensor for detecting very minute displacements in a non-contact state, which sensor comprises a pair of plates of magnetic bubble material disposed in parallel with each other with a space left therebetween, means for applying external magnetic fields in parallel to said pair of plates said pair of plates having magnetic strip domains formed therein at regular intervals by application of external magnetic fields in parallel to the surfaces of said pair of plates, said space consequently forming therein magnetic fields periodically alternately inverted in the lengthwise direction of said pair of plates, a galvanomagnetic element disposed within said magnetic fields to be retained in a non-contact relation with said pair of plates, means for retaining said galvanomagnetic element so as to move parallel to the inner surfaces of said pair of plates, means for applying an input electric current to said galvanomagnetic element, means for obtaining an output signal from said galvanomagnetic element, and means for measuring the obtained output signal, whereby the minute displacements of said galvanomagnetic element are detected by the change of the output signals of said galvanomagnetic element obtained.

4,315,215

PLURAL FREQUENCY TYPE SUPERCONDUCTING QUANTUM INTERFERENCE FLUXMETER

Yutaka Oodera, and Tsutomu Yamashita, both of Sendai, Japan, assignors to The President of Tokoku University, Japan

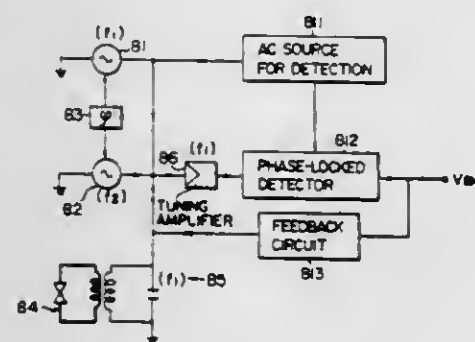
Filed Jan. 23, 1979, Ser. No. 5,775

Claims priority, application Japan, Jun. 25, 1978, 53/76900

Int. Cl.³ G01R 33/02

U.S. Cl. 324-248

6 Claims



1. A superconducting quantum interference fluxmeter, comprising an electric circuit containing a SQUID (superconducting quantum interference device) and a resonant circuit electromagnetically coupled with said SQUID, means for applying

to said SQUID through said resonant circuit at least two different radio frequency exciting currents of which the frequencies are integral multiples or integral fractions of one another, means for controlling the phase relationship of said exciting currents, tuned amplifier means coupled with said resonant circuit for amplifying from among frequency components of the output of said SQUID only a frequency which is the frequency of one only of said exciting currents and means for detecting external magnetic flux applied to said SQUID by amplifying and detecting the alternating current amplified by said amplifier means, said exciting currents being selected to produce in said SQUID, by the combined effect of said currents, internal magnetic flux which is below a critical value at which said electric circuit produces an output in the absence of external flux applied to said SQUID.

4,315,216

IMAGING SYSTEMS

Hugh Clow, Reading, and Peter E. Walters, Southall, both of England, assignors to E M I Limited, Hayes, England

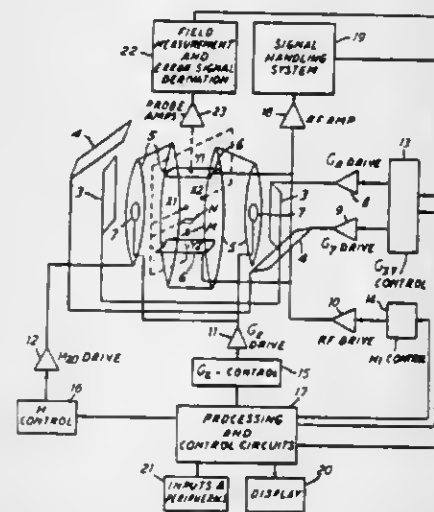
Filed May 16, 1979, Ser. No. 39,650

Claims priority, application United Kingdom, May 25, 1978, 22292/78

Int. Cl.³ G01N 27/00

U.S. Cl. 324-309

16 Claims



1. A nuclear magnetic resonance apparatus, for examining a slice of a body, the apparatus including: means for applying first magnetic fields to cause resonance preferentially in said slice; means for applying a further magnetic field which is pulsed and which has a gradient across the slice to produce phase dispersion in said resonance, the said means for applying the further field being arranged to cause a pulse, of said further, field whose rising and falling edges are not vertical; and means for sensing a resonance signal induced during said further field; wherein control means are provided for causing the means for sensing to sample the induced signal at intervals for each of which there is a field integral with respect to time for the further field such that the field integral is substantially the same in each interval between successive samples.

4,315,217

BATTERY ANALYZER FOR ELECTRIC GOLF CARTS

John M. Sharber, 1408 Doris Dr., Sulphur Springs, Tex. 75482

Filed Sep. 10, 1979, Ser. No. 73,682

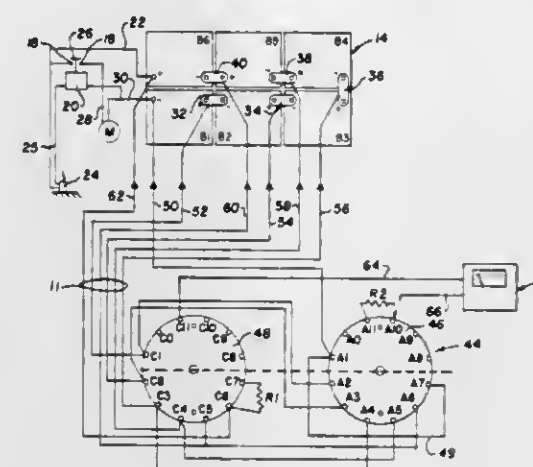
Int. Cl.³ G01N 27/42

U.S. Cl. 324-434

1 Claim

1. A battery tester in a vehicle comprising: an electrically driven vehicle; a plurality of wet cell batteries mounted in said vehicle to provide a power source; an electric motor drivingly connected to said vehicle; switch means to connect the batter-

ies to said motor; an electric meter secured to said vehicle for measuring voltage; a multi-pole rotary switch having resistors for forming a voltage divider; connector lines connecting said rotary switch to said meter; electric connectors secured between each pole of said batteries and at least one pole of said



switch such that voltage of said individual battery can be measured; electric connector means secured between each side of said switch means and said rotary switch to measure the voltage drop across the switch; and electric connectors secured between each side of said electric motor and to a pole of said rotary switch to measure voltage drop across said motor.

4,315,218

GASEOUS TUBE CONTROL CIRCUIT

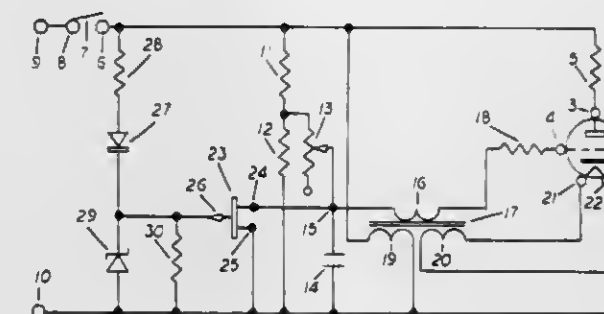
John C. Rankin, 908 S. Hobart Blvd., Los Angeles, Calif. 90006

Filed Oct. 12, 1979, Ser. No. 84,107

Int. Cl.³ H03K 5/13, 23/22

U.S. Cl. 328-8

1 Claim



1. A gaseous tube control circuit comprising: a bias voltage applied between grid and cathode of said gaseous tube to prevent current flow between plate and said cathode in the absence of an initial firing voltage applied between said grid and said cathode; a timing circuit for firing said gaseous tube consisting of a resistor and a capacitor; a source of alternating current pulses having a first and second output terminal with said first output terminal effectively connected to said plate and said second output terminal effectively connected to said cathode; the first lead of said resistor connected to the first output terminal of said source of alternating current pulses; the second lead of said resistor connected to the first lead of said capacitor to form a junction and the second lead of said capacitor connected to the said second terminal of said source of alternating current pulses; means for connecting said junction to said grid and said second lead of said capacitor to said cathode; a field effect transistor having the drain effectively connected to said first lead of said capacitor and the source connected to said second lead of said capacitor; means for applying voltage pulses between the gate and said source of said field effect transistor so that the resistance between said drain and said source is high to allow charging of said capacitor through said resistor with the voltage

polarity required to fire said grid of said gaseous tube and so that the resistance between said drain and said source is low to discharge said capacitor when said alternating current pulses are at and passing through zero amplitude.

4,315,219

AMPLITUDE CONTROLLED DIGITAL OSCILLATOR

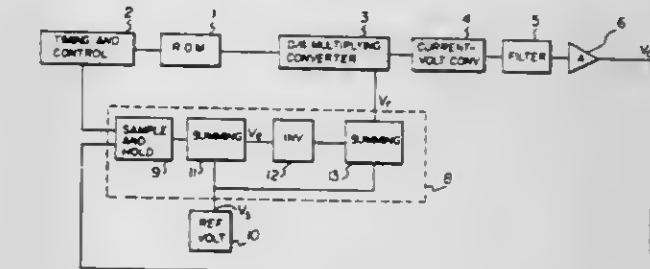
David Rocheleau, and Karl Ayukawa, both of Ottawa, Canada, assignors to Canadian Patents & Development Limited, Ottawa, Canada

Filed Apr. 7, 1980, Ser. No. 138,176

Int. Cl.³ H03K 13/02

U.S. Cl. 328-14

5 Claims



1. A digital oscillator comprising: digital to analog multiplying converter means for multiplying a parallel binary number by a reference signal to produce an analog output; memory means for storing a desired waveform in binary numbers, said memory means coupled to the converter means; control means for driving the memory means to sequentially transfer binary numbers to the converter means at a desired rate; and detector means coupled to the converter means output for monitoring the amplitude of the analog output and for controlling the reference signal to the converter means.

4,315,220

PEAK DETECTOR CIRCUIT

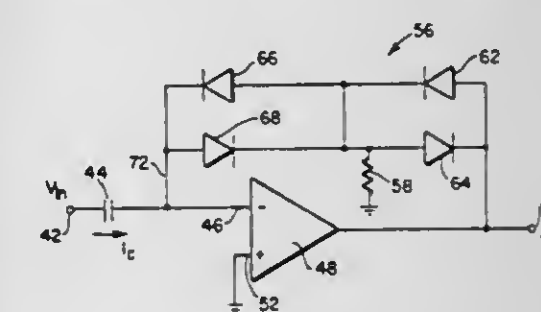
Heinz H. Findeisen, Milford, Mass., assignor to Digital Equipment Corporation, Maynard, Mass.

Filed Jun. 25, 1979, Ser. No. 51,964

Int. Cl.³ H03K 5/153

U.S. Cl. 328-150

1 Claim



1. A circuit for detecting the maxima and minima of an input voltage waveform comprising: two-terminal input and output ports; a first terminal of each port being connected to the first terminal of the other port to establish a common reference point; a capacitor having first and second leads; the second terminal of the input port being connected to a first lead of the capacitor; an operational amplifier having inverting and non-inverting inputs and an output; the second lead of the capacitor being connected to the inverting input of the operational amplifier;

the non-inverting input of the operational amplifier being connected to the common reference point; and
 a diode-resistor bridge network connected between the output and the inverting input of the operational amplifier, said network comprising:
 a first diode whose anode is connected to the output of the operational amplifier,
 a second diode whose cathode is connected to the output of the operational amplifier,
 a third diode whose anode is connected to the inverting input of the operational amplifier,
 a fourth diode whose cathode is connected to the inverting input of the operational amplifier,
 the cathodes of the first and third diode and the anodes of the second and fourth diodes being connected together at a common node, and a resistor being connected between said common node and ground.

4,315,221

SWITCHING CIRCUIT

Tatsuo Numata, and Kohji Ishida, both of Tokyo, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

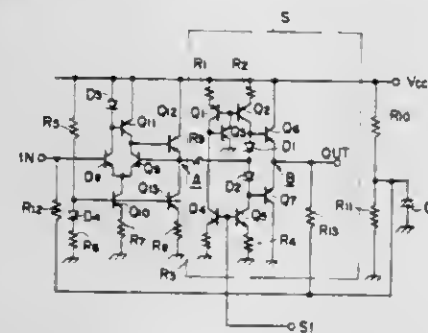
Filed Sep. 25, 1979, Ser. No. 78,621

Claims priority, application Japan, Sep. 27, 1978, 53-118816

Int. Cl.³ H03F 3/30; H03G 3/34

U.S. Cl. 330—51

6 Claims



1. In a single-ended push-pull circuit in which the emitters of a PNP transistor and an NPN transistor are commonly connected, the same signal is applied to the bases of said two transistors, and an output is provided at the commonly-connected emitters of said two transistors, the improvement comprising: a switching circuit in which a bias current applied to said two transistors is turned on and off by a current mirror circuit, and a resistor is connected between said commonly-connected emitters providing said output and a source of middle point potential so that when said two transistors are rendered nonconductive, the potential of said commonly-connected emitters of said two transistors is made equal to said middle point potential.

4,315,222

POWER COMBINER ARRANGEMENT FOR MICROWAVE AMPLIFIERS

Adel A. M. Saleh, Holmdel, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 6, 1980, Ser. No. 127,785

Int. Cl.³ H03F 3/68

U.S. Cl. 330—124 D

7 Claims

1. A microwave power combiner arrangement comprising: N microwave amplifiers (12₁, 12₂, . . . , 12_N), each amplifier capable of receiving and amplifying a separate one of a plurality of N input signals;

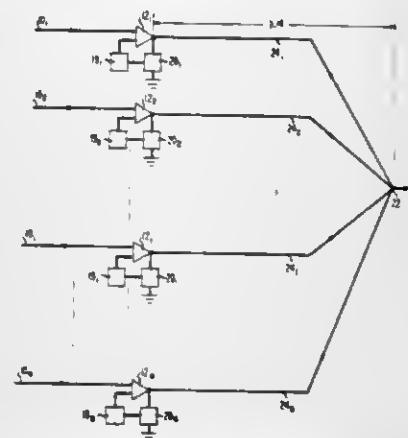
N transmission lines (24₁, 24₂, . . . , 24_N), each transmission line of a predetermined length $\lambda/4$ and coupled to the output of a separate one of said N microwave amplifiers; and

a common point (22) coupled to each transmission line at said predetermined length $\lambda/4$ from its associated amplifier, capable of combining said N amplified input signals;

CHARACTERIZED IN THAT

the microwave power combiner arrangement further comprises

N sensing means (19₁, 19₂, . . . , 19_N), each sensing means coupled to a separate one of the N microwave amplifiers and capable of sensing an amplifier failure; and



N devices (20₁, 20₂, . . . , 20_N; 30₁, 30₂, . . . , 30_N), each device coupled between a separate one of said N sensing means and an end of the transmission line associated therewith capable of being activated by said sensing means and coupling said transmission line and the common point.

4,315,223

CMOS OPERATIONAL AMPLIFIER WITH IMPROVED FREQUENCY COMPENSATION

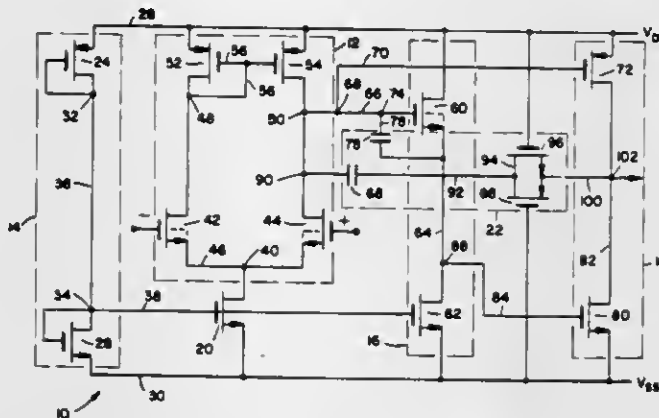
Yusuf A. Haque, Santa Clara, Calif., assignor to American Microsystems, Inc., Santa Clara, Calif.

Filed Sep. 27, 1979, Ser. No. 79,341

Int. Cl.³ H03F 3/45

U.S. Cl. 330—253

3 Claims



1. An operational amplifier circuit comprising:

a pair of power conductors adapted to be connected to two potential sources at different levels;

a bias means connected to said conductors;

a differential amplifier connected to said bias means and having an output node;

a level shift means comprising first and second MOS transistors, the gate of said first transistor being connected to said output node of said differential amplifier, and the gate of said second transistor being connected to said bias means, the drain of said first MOS transistor being connected to one of said pair of power conductors, the source of said first MOS transistor being connected to the drain of said second MOS transistor, and the source of said second MOS transistor being connected to the second of said pair of power conductors;

an output stage connected to said level shift means; and frequency compensation means connected between said differential amplifier and said output stage for allowing the dominant pole of the circuit transfer function to be situated at a relatively high frequency that increases the

gain bandwidth of the circuit, wherein said frequency compensation means comprises a first capacitor having a first and a second plate, said first plate of said first capacitor connected to said output node on said differential amplifier and said second plate of said first capacitor connected to a transmission gate connected to said output stage; and a second capacitor having a first and a second plate, said first plate of said second capacitor connected to said output node of said differential amplifier and said second plate of said second capacitor connected to said level shift means.

4,315,224

LASER STIMULATED RAMAN MOLECULAR BEAM TIME AND FREQUENCY STANDARD

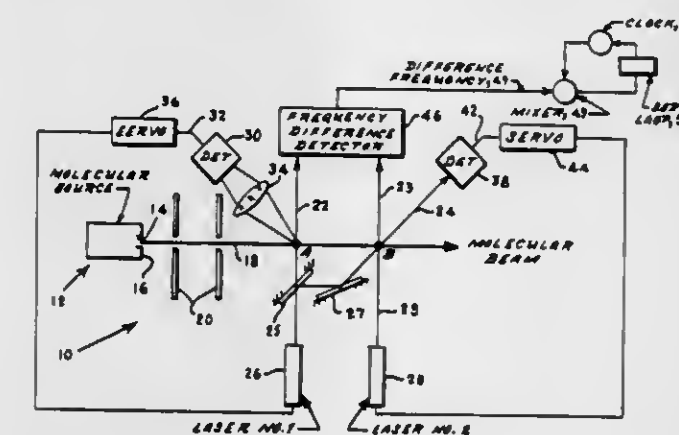
Shaoul Ezekiel, Lexington; Clare C. Leiby; Richard H. Picard, both of Bedford; Charles R. Willis, Newton, all of Mass., and Richard P. Hackel, Livermore, Calif., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed May 16, 1980, Ser. No. 150,523

Int. Cl.³ H03L 7/26

U.S. Cl. 331—3

9 Claims



1. A stimulated Raman molecular beam time and frequency standard comprising:

(a) means for producing a molecular beam

(b) means for producing a first beam of coherent electromagnetic radiation at a first preselected frequency and directing said first beam in a direction intersecting said molecular beam at a first preselected point,

whereby said first beam intersecting said molecular beam at said first preselected point pumps the molecules of said molecular beam from an initial state to an intermediate state from which said molecules fluoresce to a final state thereby state selecting said molecular beam,

(c) first means for detecting said fluorescence emitted from said intermediate state to said final state and producing a signal in accordance therewith,

(d) means operably connected between said first detecting means and said means for producing said first electromagnetic beam for feeding said signal thereto in order to lock said preselected frequency of said first beam to the resonant frequency corresponding to the transition between said initial state and said intermediate state,

(e) means for producing a second beam of coherent electromagnetic radiation at a second preselected frequency and directing said second beam in a direction intersecting said molecular beam at a second preselected point,

(f) means for directing a portion of said first beam in the form of a third beam at said first preselected frequency in a direction intersecting said molecular beam at said second preselected point simultaneous with said second beam, whereby said second beam together with said third beam intersecting said state selected molecular beam at said second preselected point causes a direct transition between said initial state and said final state in a stimulated Raman process,

(g) second means for detecting the point of maximum gain of

said third beam and producing a signal in accordance therewith,

(h) means operably connected between said second detecting means and said means for producing said second electromagnetic beam for feeding said signal thereto in order to lock said preselected frequency of said second electromagnetic beam to a resonant frequency corresponding to the transition between said final state and said intermediate state, and

(i) means optically aligned with said first and second locked electromagnetic beams for detecting a difference in frequency therebetween, said frequency detecting means producing an output signal representative of said frequency difference.

4,315,225

HEAT SINK LASER DIODE ARRAY

Louis B. Allen, Jr., Florissant; Herbert G. Koenig, Jr., St. Charles, and Danny D. Meyer, St. Louis, all of Mo., assignors to McDonnell Douglas Corporation, St. Louis, Mo.

Filed Aug. 24, 1979, Ser. No. 69,311

Int. Cl.³ H01S 3/19

U.S. Cl. 372—35

10 Claims



1. An array of heat sink mounted laser diodes including: at least two heat sink mounted laser diode assemblies, each assembly being comprised of first and second mounting plates of a predetermined shape, each mounting plate having a solder pad of a predetermined shape thereon, a laser diode soldered between said first and second mounting plates to said solder pads, at least one spacer positioned between said mounting plates having a shape similar to said predetermined shape of said mounting plates and in addition having a cutout adjacent said solder pads, adhesive to retain said spacer to said mounting plates, orienting means and means for conducting coolant; a heat sink mounted laser diode assembly spacer positioned between said first and second mounting plates of adjacent assemblies, said heat sink mounted laser diode assembly spacer including means for conducting coolant between said adjacent assemblies; first and second contact plates, said first contact plate being positioned in electrical communication with said first mounting plate of one of said assemblies and said second contact plate being positioned in electrical communication with said second mounting plate of another one of said assemblies to form a series circuit to feed electrical power to said laser diodes; and means to retain said array in a unitary structure.

4,315,226

SEMICONDUCTOR LASER DEVICE

Naoki Chinone; Kazutoshi Saito, both of Hachioji; Noriyuki Shige, Takasaki, and Ryoichi Ito, Hachioji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

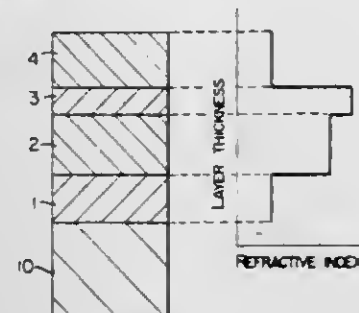
Filed Sep. 20, 1979, Ser. No. 77,735

Claims priority, application Japan, Sep. 20, 1978, 53-114676; Mar. 23, 1979, 54-36822

Int. Cl.³ H01S 3/19

U.S. Cl. 372-45

15 Claims



1. In a semiconductor laser device, an optical confinement region constituted by at least first, second, third and fourth semiconductor layers successively laminated on a predetermined semiconductor substrate, and a fifth semiconductor layer burying at least said second, third, and fourth semiconductor layers at each side face thereof which extends in parallel to the propagating direction of the laser ray, said second semiconductor layer having a relatively small refractive index as compared with that of said third semiconductor layer, said first and fourth semiconductor layers being of conductivity types opposite to each other and having relatively small refractive indexes as compared with that of said second and third semiconductor layers, said fourth and second semiconductor layers having respective band gaps which are relatively large as compared with that of said third semiconductor layer, and the fifth semiconductor layer having a smaller refractive index and a larger band gap than at least those of said third semiconductor layer, wherein difference in the band gap at least between said second semiconductor layer and said third semiconductor layer is selected not smaller than 0.15 eV.

4,315,227

GENERALIZED SWITCHED-CAPACITOR ACTIVE FILTER

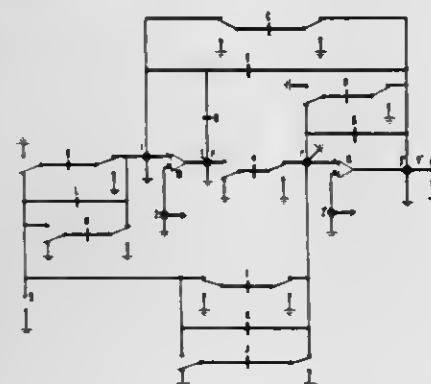
Paul E. Fleischer, Little Silver, N.J., and Kenneth R. Laker, Staten Island, N.Y., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 5, 1979, Ser. No. 100,293

Int. Cl.³ H03H 19/00; H03K 5/153

U.S. Cl. 333-173

10 Claims



1. A switched-capacitor active filter comprising: first and second operational amplifiers (10, 11), each having an inverting input port (1, 1'), a noninverting input port (2, 2'), and an output port (3, 3'); a diagonally-switched capacitor (A) connecting the output

port (3) of the first amplifier (10) to the inverting input port (1') of the second amplifier (11); an unswitched feedback capacitor (D) connected between the output port (3) of the first amplifier (10) and the inverting input port (1) of the first amplifier (10); an unswitched feedback capacitor (B) connected between the output port (3') of the second amplifier (11) and the inverting input port (1') of the second amplifier (11); a through-switched capacitor (C) connected between the output port (3) of the second amplifier (11) and the inverting input port (1) of the first amplifier (10); input circuit means for coupling an input terminal (5) of the filter to the inverting input port (1, 1') of at least one of the first and second amplifiers (10, 11); and damping means (E, F).

4,315,228

MULTIPLE CO-SURFACE ACOUSTIC WAVE FILTERS

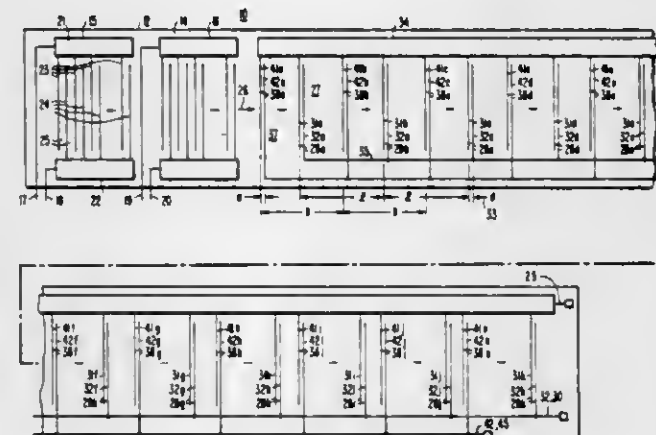
Robert A. Moore, Arnold, Md., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jul. 3, 1980, Ser. No. 165,580

Int. Cl.³ H03H 9/145, 9/42, 9/64, 9/72

U.S. Cl. 333-193

15 Claims



1. Apparatus for providing a plurality of filtered outputs comprising: a substrate having a surface suitable for propagating surface acoustic waves, an input transducer for launching surface acoustic waves in said substrate, a first plurality of evenly spaced-apart taps coupled together for providing a first output signal, a second plurality of spaced-apart taps coupled together for providing a second output signal, at least two of said second plurality of taps positioned in spaces between said first plurality of taps and wherein the spacing between said first plurality of taps is less than the spacing between said second plurality of taps.

4,315,229

BANDSTOP FILTERS

Alan J. Greaves, Ipswich; Philip E. Greenaway, and Charles Nightingale, both of Felixstowe, all of England, assignors to The Post Office, London, England

Filed Feb. 27, 1980, Ser. No. 125,049

Claims priority, application United Kingdom, Mar. 2, 1979, 07375/79

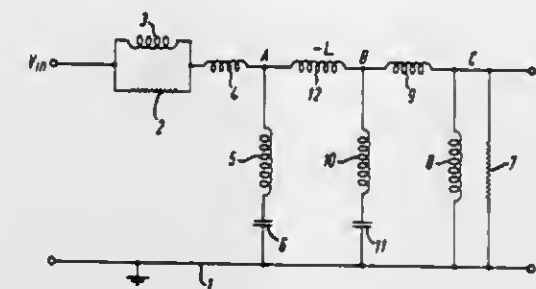
Int. Cl.³ H03H 11/04, 7/075

U.S. Cl. 333-216

12 Claims

1. An electrical filter network exhibiting a bandstop response, characterised in that the network exhibits electrical signal transfer characteristics substantially equivalent to those

of a passive low pass or high pass LC ladder network including at least one negatively valued inductance or capacitive impedance element and at least one substantially lossless resonant circuit.



dance element and at least one substantially lossless resonant circuit.

4,315,230

TEST HEAD PRODUCING DIFFERENT FREQUENCIES FOR ENDOR-TRIPLE EXPERIMENTS

Reinhard Biehl, Kassel, and Dieter Schmalbein, Karlsruhe-Durlach, both of Fed. Rep. of Germany, assignors to Bruker Analytische Messtechnik GmbH, Fed. Rep. of Germany

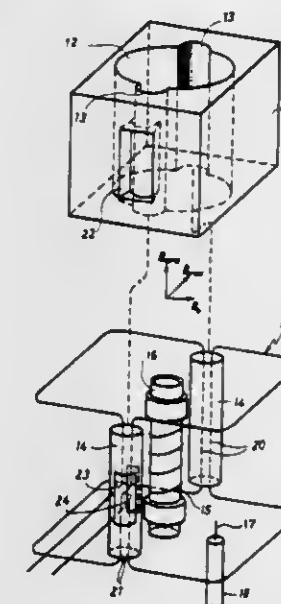
Filed Apr. 22, 1980, Ser. No. 142,652

Claims priority, application Fed. Rep. of Germany, Apr. 30, 1979, 2917471

Int. Cl.³ H01P 7/06; H03C 7/02

U.S. Cl. 333-227

6 Claims



1. A test head for ENDOR - triple experiments comprising a cylindrical cavity resonator including means for exciting electromagnetic field in the TM₁₁₀ mode, means projecting into the interior of said cavity resonator at diametrically opposite points on the wall thereof and extending over the entire length thereof, said projecting means acting to modify the electromagnetic field to provide resonance conditions for a pair of degenerated TM₁₁₀ modes having different resonance frequencies and being substantially orthogonal to each other.

4,315,231

HIGH-SPEED CIRCUIT BREAKER

Hisashi Kondo; Shozo Yamazaki, and Yukio Yamada, all of Katsuta, Japan, assignors to Hitachi, Limited, Tokyo, Japan

Filed Dec. 9, 1980, Ser. No. 214,695

Claims priority, application Japan, Dec. 10, 1979, 54/159150

Int. Cl.³ H01H 7/03

U.S. Cl. 335-61

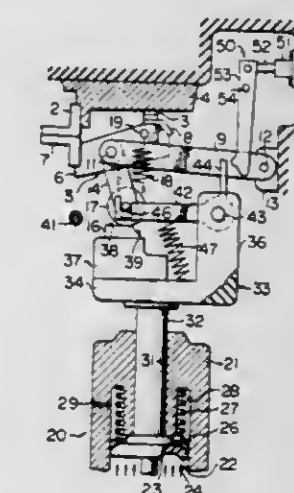
8 Claims

1. A high-speed breaker for an electric circuit, comprising: a pair of opposed contacts; a movable holder holding thereon one of said pair of contacts, said movable holder being movable toward and away from the other contact between an ON-position where said one contact engages with said the other

contact and an OFF-position where said one contact is disengaged from said the other contact;

first actuating means for actuating said movable holder to move the same between said ON-position and said OFF-position, said first actuating means including an actuating rod and a head connected to one end of said actuating rod, said movable holder being engageable with said head, said actuating rod being reciprocally movable axially thereof toward and away from said the other contact between first position where said head engages with said movable holder to move the same to said ON-position and a second position where said movable holder is moved to said OFF-position;

a release member having one end thereof connected to said head, said release member being movable between an



engaging position where the other end of said release member engages with said movable holder and a disengaging position where the other end of said release member is disengaged from said movable holder to move the same from said ON-position to said OFF-position;

second actuating means operative in response to overcurrent passing through said electric circuit when said actuating rod of said first actuating means is in said first position, for actuating said release member to cause the same to move from said engaging position to said disengaging position; and

the axis of said actuating rod of said first actuating means having an extension located between a position where said movable holder engages with said head and a position where said one end of said release member is connected to said head.

4,315,232

SUBMINIATURE AUDIO TRANSFORMER

Henry Spoldi, 43 Rockledge Rd., Bronxville, N.Y. 10708, and Joseph N. Sweeney, 9 Locust La., Huntington, N.Y. 11743

Filed Feb. 7, 1980, Ser. No. 119,447

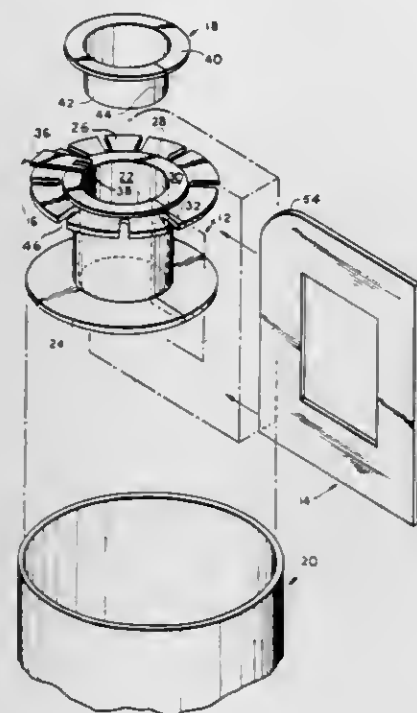
Int. Cl.³ H01F 15/10, 27/30

U.S. Cl. 336-90

8 Claims

1. A subminiature transformer comprising: a bobbin having an annular bobbin shaft having an open center section; a first flange at one end of said shaft and a second flange at the opposite end of said shaft, a rim extending beyond said first flange, and a split extending for the entire length of said bobbin into said center section; a plurality of terminal members positioned on said rim; a plurality of gapless transformer core laminations forming a

core stack, each of said laminations being passed through said split to link with said bobbin; and



a plurality of wire coils wound about said bobbin between said flanges, each end of each said coils being connected to one of said terminals.

4,315,233 DEVICE FOR SHIFTING A DOUBLE-THROW CONTACT ARRANGEMENT

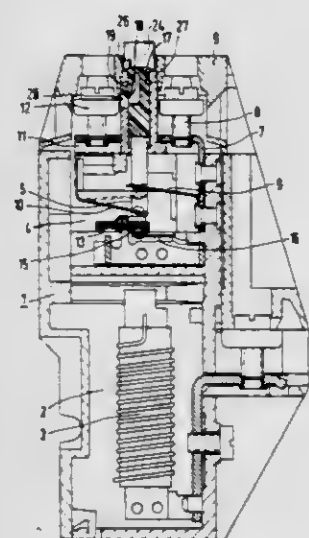
Albert Warnest, Freudenberg, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany
Filed Mar. 28, 1980, Ser. No. 134,897

Claims priority, application Fed. Rep. of Germany, Apr. 11, 1979, 2914775

Int. Cl.³ H01H 71/16

U.S. Cl. 337-66

5 Claims



1. In a device for use, in a thermally operated protective relay having a make contact, a break contact, and a double-throw contact, for shifting the contact arrangement from self-locking to automatic resetting by means of a piston which can be locked for shifting the make contact and having means for cancelling the self-locking condition by shifting an elastically resilient make contact in the closing direction by the piston which is supported freely movably against a spring force, the improvement comprising means for movably supporting the piston in the direction of the resilience of the make contact and means for rotating the piston to lock it in the position for automatic resetting.

4,315,234 COMPOSITE FUSIBLE ELEMENT AND ELECTRIC FUSE COMPRISING THE ELEMENT

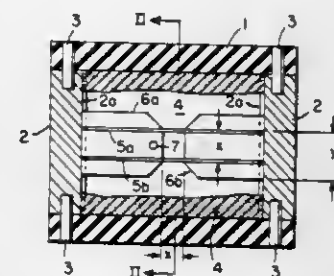
Erwin Salzer, P.O. Box 45, Waban, Mass. 02168

Filed Jul. 14, 1980, Ser. No. 168,960

Int. Cl.³ H01H 85/06, 85/12

U.S. Cl. 337-159

10 Claims



1. A composite fusible element for electric fuses comprising
 - (a) a pair of parallel straight drawn wires having a relatively small substantially circular cross-section of a metal having a relatively small melting i^2t ;
 - (b) a pair of plates of sheet metal arranged in the same plane, having a relatively large cross-section, lacking any point of reduced cross-section where arc initiation might occur under short-circuit conditions, and being of a metal having a relatively large melting i^2t ; and
 - (c) an insulating gap separating said pair of plates, said pair of wires extending across said insulating gap and conductively interconnecting said pair of plates.

4,315,235 COMPOSITE FUSIBLE ELEMENT FOR ELECTRIC CURRENT-LIMITING FUSES

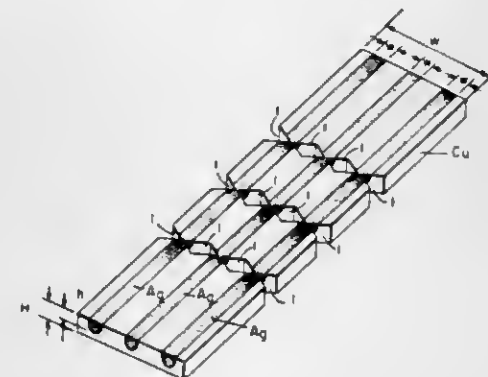
Philip C. Jacobs, Jr., 53 Waldon St., Newtonville, Mass. 02160

Filed Jul. 31, 1980, Ser. No. 173,942

Int. Cl.³ H01H 85/08, 85/10

U.S. Cl. 337-296

3 Claims



1. A composite fusible element for current-limiting fuses comprising
 - (a) an elongated straight strip of silver;
 - (b) a pair of cooling fins for said strip of silver, said pair of cooling fins being of copper and each being arranged to opposite sides of said strip of silver;
 - (c) a pair of juxtaposed incisions in said strip of silver and in said pair of cooling fins entirely severing said pair of cooling fins and extending into said strip of silver to both sides thereof and thereby reducing the cross-section of said strip of silver;
 - (d) said pair of cooling fins being formed by a unitary strip of copper defining a groove having side walls and bottom walls which are only of copper; and
 - (e) said strip of silver having the same geometrical configuration as said groove and forming an inlay of said groove resulting in a large heat flow away from said strip of silver

and toward said pair of cooling fin when said fusible element is carrying current.

4,315,236 PRESSURE SENSOR

Tamotsu Tominaga; Teruyoshi Mihara, both of Yokohama; Takeshi Oguro, Yokosuka, and Masami Takeuchi, Kokubunji, all of Japan, assignors to Nissan Motor Company, Limited, Kanagawa, Japan

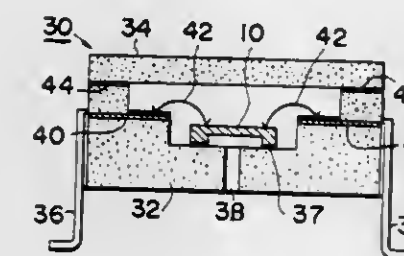
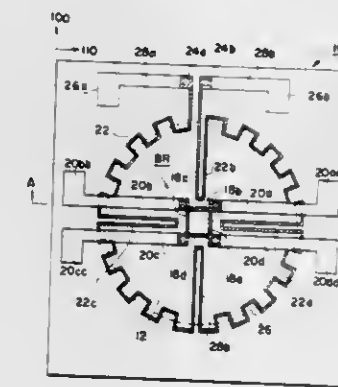
Filed Jan. 4, 1980, Ser. No. 109,476

Claims priority, application Japan, Jan. 11, 1979, 54-945

Int. Cl.³ G01L 1/22

U.S. Cl. 338-4

13 Claims



1. A pressure sensor including a sealed package having an inside space, a semiconductor block, a portion of which is in the form of a diaphragm, said semiconductor block including a circumferential support defining the periphery of said diaphragm and bonded to the inside of said package and a pressure-sensitive element including at least one diffused resistor layer formed in a surface of said diaphragm;

a diaphragm breakage detecting element comprising an electric conductor filament formed integrally in the surface of said diaphragm in an electrically insulated relationship to said at least one diffused resistor layer in a part of said diaphragm subject to a relatively large stress, the conductor filament having substantially the same material strength as the diaphragm, said conductor filament being provided zigzagging back and forth laterally across the boundary between said diaphragm and said circumferential support while following around the boundary; said block with said pressure-sensitive element and said diaphragm breakage detecting element being confined within the inside space of said package and bonded to the inside of said package so that said diaphragm, said pressure-sensitive element and said diaphragm breakage detecting element are positioned spaced from the inside of said package and a hermetically sealed space is defined between the inside of said package and a front side of said block which includes said surface of said diaphragm, said space being adapted to be kept at a predetermined reference pressure, said package having a hole bored there-through at such a position that a fluid pressure subject to measurement can be introduced into the interior of said package through said hole so as to arrive at a back surface of said diaphragm.

4,315,237 PTC DEVICES COMPRISING OXYGEN BARRIER LAYERS

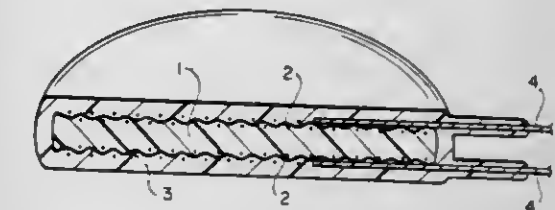
Lee M. Middleman, Portola Valley, and Alan J. Gotcher, Saratoga, both of Calif., assignors to Raychem Corporation, Menlo Park, Calif.

Continuation-in-part of Ser. No. 965,345, Dec. 1, 1978, abandoned. This application Nov. 30, 1979, Ser. No. 98,711

Int. Cl.³ H01C 7/02

U.S. Cl. 338-22 R

29 Claims



1. An electrical device which comprises
 - (1) a PTC element which is composed of a composition which exhibits PTC behavior with a switching temperature T_s and which comprises
 - (a) a macromolecular polymer; and
 - (b) conductive particles dispersed in said polymer;
 - (2) at least two electrodes which can be connected to a source of electrical power and which, when so connected, cause current to flow through said PTC element; and
 - (3) an oxygen barrier which, when the device is in air at standard temperature and pressure, restricts access of air to the PTC element so that the rate at which the PTC element absorbs oxygen is less than 10^{-6} cc/sec/gram.

4,315,238 BOUNCELESS SWITCH APPARATUS

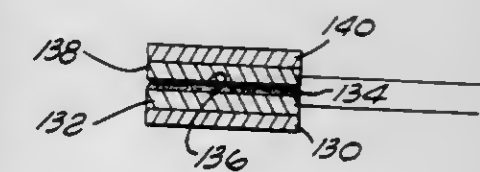
Franklin N. Eventoff, 2351 Lake View Ave., Los Angeles, Calif. 90034

Continuation-in-part of Ser. No. 78,323, Sep. 24, 1979. This application Apr. 16, 1980, Ser. No. 140,921

Int. Cl.³ H01C 10/10, 10/12

U.S. Cl. 338-99

6 Claims



1. A bounceless switch apparatus having a junction resistance which varies inversely with a pressure applied normally thereto, comprising:
 - a first conductor member;
 - a pressure sensitive composition layer including a particulate semiconducting material disposed for covering the first conductor member in intimate electrically conducting contact therewith, the layer pressure sensitive composition layer having a first surface with a multiplicity of microprotrusions of the particulate semiconducting material extending from the first surface for providing a multiplicity of surface contact locations; and
 - a second conductor member positioned in substantially non-electrically conducting relationship to the pressure sensitive composition layer whereby the bounceless switch apparatus is normally open, the switch being closed in response to a pressing force applied to urge the second conductor member and the first surface together for increasing the physical contact between the microprotrusions and the second conductor, to enable electrical conduction through the contacting microprotrusions, the amount of electrical conduction increasing as the amount

of pressing force is increased and decreasing as the amount of pressing force is decreased.

4,315,239

PROCESS FOR PRODUCING A CALIBRATED RESISTANCE ELEMENT AND INTEGRATED CIRCUITRY INCORPORATING SAME

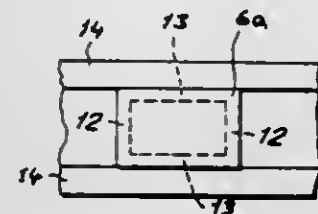
Vincenzo Daniele, Milano; Giuseppe Corda, Saronno; Andrea Ravaglia, Bologna, and Giuseppe Ferla, Milano, all of Italy, assignors to SGS Ates, Componenti Elettronici S.P.A., Milano, Italy

Division of Ser. No. 34,204, Apr. 27, 1979. This application Aug. 13, 1980, Ser. No. 177,595

Claims priority, application Italy, Apr. 28, 1978, 22788A/78 Int. Cl.³ H01C 1/02

U.S. Cl. 338—308

6 Claims



1. Integrated circuitry comprising a substrate covered with a dielectric layer forming a pedestal of greater height, a coating of different material on said pedestal, at least one exposed edge of said pedestal having an undercut of generally semicylindrical shape extending over the entire length thereof, and a filament resistance element of complementary shape embedded in said undercut while being substantially flush with an overlying edge of said coating.

4,315,240

VISUAL DISPLAY APPARATUS

Archer M. Spooner, Orlando, Fla., assignor to Redifon Simulation Ltd., Crawley, England

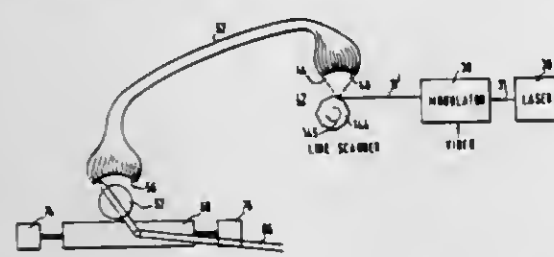
Filed Jan. 11, 1980, Ser. No. 111,282

Claims priority, application United Kingdom, Jan. 11, 1979, 01009/79; Dec. 21, 1979, 44045/79

Int. Cl.³ G09G 3/02

U.S. Cl. 340—27 R

5 Claims



1. Head-coupled, area-of-interest, visual display apparatus providing stereoscopic viewing for more than one viewer comprising a part-spherical retro-reflective/concave screen of area greater than a viewer's instantaneous field of view and, for each viewer, a helmet, sensing means for sensing the orientation of the respective viewer's head and helmet, visual image generating means for generating a simulated scene in the direction of the respective viewer's instantaneous line of view according to a common simulated vehicle position and orientation and under control of the respective sensing means, the said respective image generating means being adapted for providing a stereoscopic pair of images corresponding to the respective viewer's left eye and right eye views, a laser beam source for producing laser beams, separate laser beam modulators for the left eye and right eye views for modulating said laser beam, separate line scanners for each said view for scanning the modulated laser beams over the input ends of respective fibre optic light guides, the said fibre optic light guides having their

output ends at spaced-apart positions on the respective viewer's helmet, and frame scanning means mounted on the said helmet for receiving light from the light guide outputs and projecting the light as a scanned image upon the said screen.

4,315,241

VISUAL DISPLAY APPARATUS

Archer M. Spooner, Orlando, Fla., assignor to Redifon Simulation Limited, Crawley, England

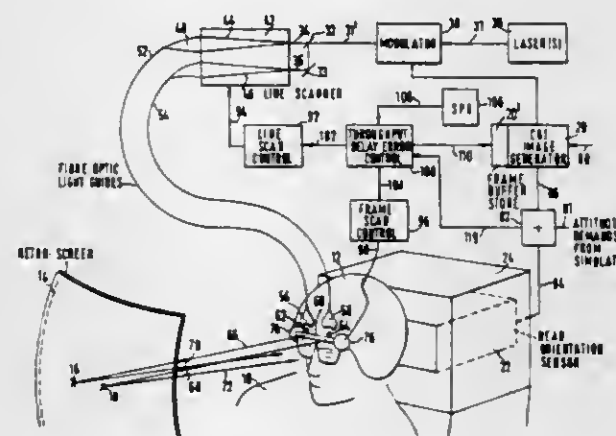
Filed Jan. 11, 1980, Ser. No. 111,283

Claims priority, application United Kingdom, Jan. 11, 1979, 01008/79; Dec. 21, 1979, 44047/79

Int. Cl.³ G09G 3/02

U.S. Cl. 340—27 R

5 Claims



1. Head-coupled, area-of-interest, visual display apparatus providing pseudo-collimated viewing for one viewer, comprising a part-spherical concave retro-reflective screen positioned for viewing by the viewer, a helmet, sensing means for sensing the orientation of the viewer's head and helmet, visual image generating means for generating a simulated scene in the direction of the viewer's instantaneous line of view according to the viewer's simulated position and orientation and under control of the said sensing means, a laser light beam source for producing laser beams, a laser beam modulator for modulating said laser beams, optical beam-splitter means for providing identical left eye and right eye views, separate line scanners for each said view for scanning the modulated laser beams over the input ends of more than one fibre optic light guide, the said fibre optic light guides having their output ends at spaced-apart positions on the viewer's helmet, and frame scanning means mounted on the said helmet for receiving light from the light guide outputs and projecting the light as a scanned image upon the said screen.

4,315,242

DEVICE FOR DETERMINING THE MOMENT WHEN COMPETITORS IN A RACE ARE PASSING THE FINISHING LINE

Heinz Lueg; Hanno Blackert; Dirk Wimmenauer, all of Aachen, Fed. Rep. of Germany, and Winfried Hermanns, Lütticherstr. 181, D-5100 Aachen, Fed. Rep. of Germany, assignors to Winfried Hermanns, Aachen, Fed. Rep. of Germany

Filed Mar. 25, 1980, Ser. No. 133,838

Claims priority, application Fed. Rep. of Germany, Apr. 7, 1979, 2914137

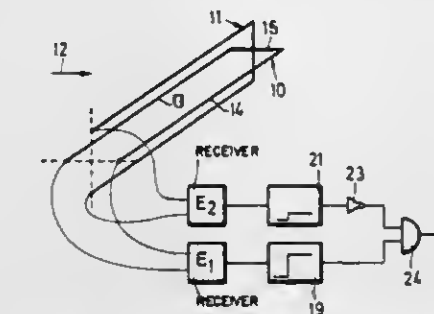
Int. Cl.³ G08C 21/00; G08G 1/01

U.S. Cl. 340—38 L

9 Claims

7. A system for determining the moment when competitors in a race pass the finish line, each competitor being fitted with a transmitter, said system comprising: two receiving antennas arranged as the finish line so that the directional sensitivity of the first antenna is substantially vertical and the directional sensitivity of the second antenna is substantially horizontal, first and second receivers connected to the respective first and second antennas,

first threshold means, connected to said first receiver, for producing a first output signal when the signal picked up by said first antenna exceeds a first relatively high threshold value, second threshold means, connected to said second receiver, for producing a second output signal when the signal



picked up by said second antenna is below a second relatively low threshold value, and logical combining means for producing a single output pulse only when said first and second output signals occur concurrently, said output pulse indicating that a competitor has crossed the finish line.

4,315,243

UNUSED FUEL INDICATOR FOR AUTOMOTIVE ENGINES EMPLOYING CATALYTIC CONVERTERS

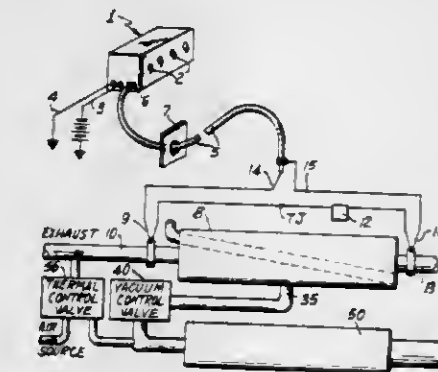
Willard R. Calvert, Sr., 809 Teakwood Dr., Severna Park, Md. 21146

Filed Sep. 16, 1980, Ser. No. 187,485

Int. Cl.³ B60Q 1/00; G01K 7/04, 17/08

U.S. Cl. 340—52 R

12 Claims



1. An unused fuel indicator for indicating the operating condition of an automobile engine emission control system employing a catalytic converter while the engine is running, said unused fuel indicator comprising:

- converter inlet temperature sensing means for effectively sensing the temperature of the engine exhaust gases supplied to the inlet of the catalytic converter and deriving an inlet temperature electric signal representative of the inlet exhaust gas temperature;
- converter outlet temperature sensing means for effectively sensing the temperature of the exhaust gases emitted from the outlet of the catalytic converter and deriving an outlet temperature electric signal representative of the converter outlet exhaust gas temperature;
- means for differentially processing said inlet and outlet temperature electric signals and deriving therefrom a temperature difference electric signal representative of the difference between the inlet and outlet temperatures of the exhaust gases being processed by the catalytic converter;
- electronic processing circuit means supplied with said temperature difference electric signal for processing said temperature difference electric signal to derive different value temperature indicating electric signals representative of different operating temperature ranges for the difference temperature between the inlet and outlet tem-

peratures of the catalytic converter for both normal and abnormal operating conditions; and (e) indicator means responsive to said different value temperature indicating electric signals for indicating the operating condition of the automobile engine emission control system during operation.

4,315,244

VEHICLE ALARMS

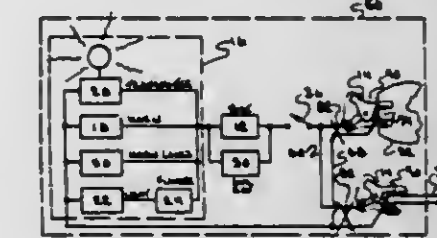
Loren F. Cole, Jr., 5310 NE. 67th St., Seattle, Wash. 98115

Filed Aug. 17, 1979, Ser. No. 67,215

Int. Cl.³ B60R 25/10

U.S. Cl. 340—63

1 Claim



1. An alarm circuit for alerting the user and others to the in-process theft of a motorcycle, said alarm comprising: a battery for supplying current in the alarm circuit; and alarming means powered by said battery and controlled by an alarm circuit switch for notifying the user and others of an in-process motorcycle theft; said alarm circuit switch for attachment to a tire of said motorcycle, said circuit switch having a first electrically conductive jaw which is spring biased to close upon a second jaw in response to rotation of said tire due to in-process motorcycle theft and; a first wire fixed to said second jaw such that the closing of said electrically conductive first jaw upon said second jaw causes an electrically conductive pathway to be created through said first jaw and said first wire; a second wire fixed to said electrically conductive first jaw such that a closing of said first jaw upon said second jaw causes an electrically conductive pathway to be created through said second wire, first jaw and thence through said first wire such that when said first and second jaws are closed the alarm circuit switch is closed and the alarming means is empowered by the battery and when said first and second jaws of said switch are grasping the tire of said motorcycle and the tread is interposed between said first and second jaw, the alarm circuit remains open; an extension of said first and second wires from said respective second and first jaws to an anchoring means on said motorcycle frame with the length of said extension permitting a limit but definite movement of the motorcycle prior to detachment of said alarm circuit switch and a closing of said alarm circuit switch.

4,315,245

OPTICAL INFORMATION READING DEVICE

Tsunoo Nakahara; Kenichi Yoshida; Koichi Tsuno, and Isao Isshiki, all of Osaka, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Apr. 5, 1979, Ser. No. 27,416

Claims priority, application Japan, Apr. 5, 1978, 53/40011

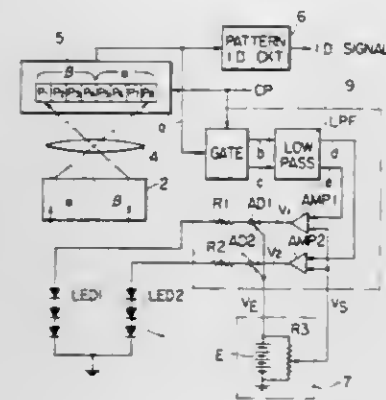
Int. Cl.³ G06K 9/22

U.S. Cl. 340—146.3 AG

14 Claims

1. An optical information reading device comprising: a source of electrical power, a light source actuated by said power source and comprising a plurality of luminous diodes, a sensor means for reading signals comprising an array of photo-electric conversion elements, means for processing the signals read by said sensor means, said plurality of luminous diodes

divided into a plurality of luminous diode groups, and, means receiving the output of said sensor means and selectively con-



trolling the power to said diode groups, whereby characters and the like to be read are uniformly illuminated by controlling the illumination of said luminous diode groups.

4,315,246

DOCUMENT CHARACTER RECOGNITION SYSTEM FOR IDENTIFYING MAGNETIC INK CHARACTERS ON BANK CHECKS AND THE LIKE

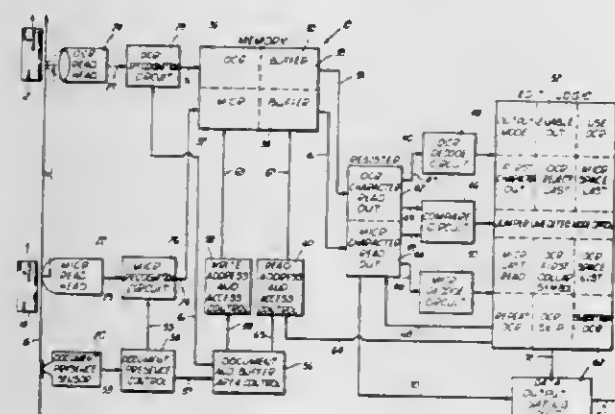
Richard E. Milford, Oklahoma City, Okla., assignor to Magnetic Peripherals, Inc., Oklahoma City, Okla.

Filed Jul. 11, 1979, Ser. No. 56,720

Int. Cl.³ G06K 9/00

U.S. Cl. 340-146.3 D

6 Claims



1. A character recognition system for selectively reading and identifying a plurality of characters printed in magnetic ink on documents, the documents being bank checks and the like, the documents transported on a document transport mechanism, the system comprising:

a magnetic ink character recognition, i.e. MICR read head and recognition circuit disposed adjacent the document transport mechanism for reading the magnetic ink characters on the document and providing a character recognition code for each character read;

an optical character recognition, i.e. OCR read head and recognition circuit disposed adjacent the document transport mechanism and positioned at a fixed distance downstream from the MICR read head, the OCR read head and circuit optically reading the magnetic ink characters on the document and providing a character recognition code for each character read;

a memory having write and read access control with document and buffer area control connected to the MICR and OCR circuitry, the memory having the capacity to store all of the OCR and MICR character recognition codes for a single document; and

edit logic connected to the memory for comparing corresponding character codes from the memory and putting out a final character code or skipping and repeating character codes to achieve a character correspondence.

4,315,247 SECURITY SYSTEMS EMPLOYING AN ELECTRONIC LOCK AND KEY APPARATUS

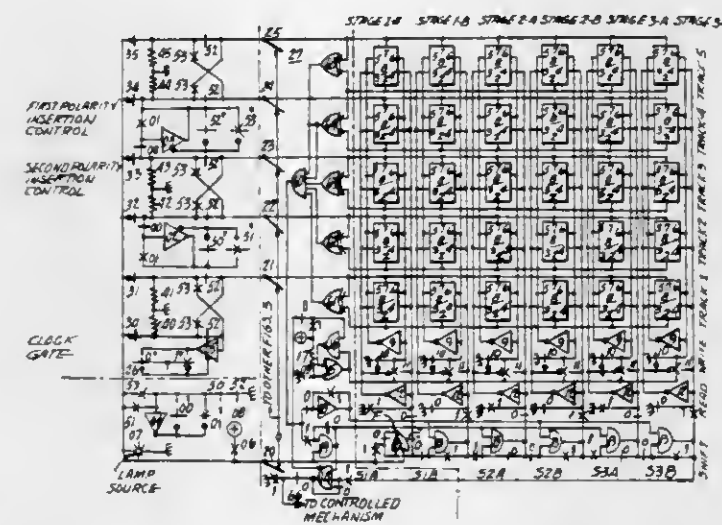
Charles E. Germanton, 38 Mountain Ave., Summit, N.J. 07901

Filed Aug. 13, 1979, Ser. No. 65,769

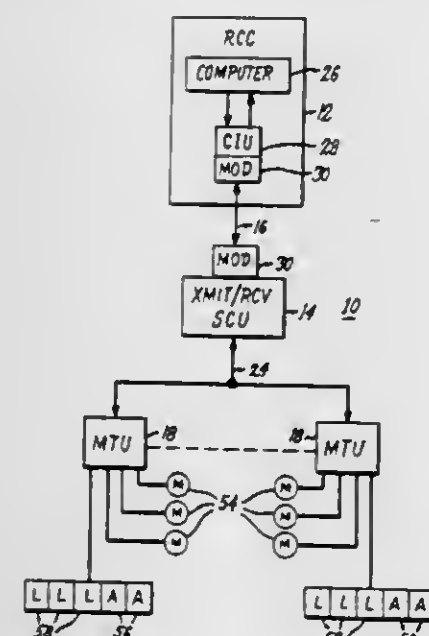
Int. Cl.³ H04Q 9/00

U.S. Cl. 235-382

9 Claims



effect the immediate execution of the functions as specified by said function code portion when said decode means recognizes a first address type contained in said action field portion and further recognizes an address assigned to said terminal unit as specified by at least a portion of the contents of the first address type; and to effect the execution of the functions as specified by said



function code portion at a specified time when said decode means recognizes a second address type contained in said action field portion, said time of execution being specified by a time field portion of the contents of said second address type, and further recognizes an address assigned to said terminal unit as specified by an address portion of the contents of said second address type.

4,315,252

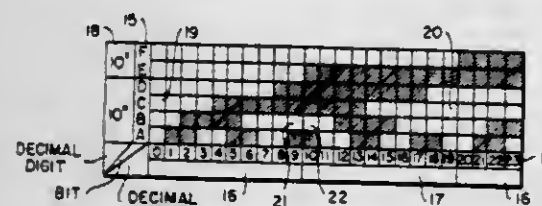
APPARATUS FOR DETECTING THE RELATIVE POSITION OF TWO MOVABLE BODIES

Ichizo Tagami, Hachioji, Japan, assignor to Ishikawajima-Harima Jukogyo Kabushiki Kaisha, Tokyo, Japan
Continuation-in-part of Ser. No. 826,666, Aug. 22, 1977. This application Dec. 20, 1979, Ser. No. 105,646

Claims priority, application Japan, Aug. 23, 1976, 51/100367
Int. Cl.³ H03K 13/02, 13/18

U.S. Cl. 340-347 P

2 Claims



1. In an apparatus for detecting the relative position or displacement between two movable bodies of the type wherein a code pattern representing the relative position or displacement between said two movable bodies is marked on one of said two movable bodies in the direction of movement or displacement, and a reading means is mounted on the other movable body for reading said code pattern on said one movable body, the improvement

- wherein said code pattern on said one movable body represents numeric words of base-n number (where $n \geq 2$), the characters corresponding to each order of base-n number being represented by binary numerals;
- wherein said characters comprise elements of each one code of "m" codes in one cycle, (where "m" is an aliquot part or submultiple of "n") one or more of said cycles being arranged in a chain or in a link corresponding to the respective order of base-n number except the highest

order represented by another code, all of said codes being characterized in that the characters representative of successive numbers in each code are arranged to differ in only one binary number;

- wherein between the consecutive codes in each order of base-n numbers, the state of binary numerals representing the character "n-1" in the preceding code is the same with the state of binary numerals representing the character "0" in the succeeding code; and
- wherein when "n" is an even number, "m" is two, and two kinds of codes are included in said one cycle, wherein when "n" is a multiple of three, "m" is three and three kinds of codes are included in said one cycle, and wherein when "n" is "5" or a further odd number, at least four kinds of codes are included in said one cycle;
- and further wherein said reading means includes a code converter circuit for converting said code pattern representing the base-n number into a suitable binary code, said code converter circuit including a transmitting circuit at the least significant digit, and a converter circuit including both a transmitting circuit and a character discriminating circuit for outputting a discriminating signal at each of the remaining digits, at least one code being inputted into the transmitting circuit and the character discriminating circuit at the highest order, at the least significant digit three or more kinds of codes as well as the discriminating signal from a respective preceding digit being inputted into the transmitting circuit, while at each of the remaining digits three or more kinds of codes as well as the discriminating signal from a respective preceding digit are inputted into the transmitting circuit and the character discriminating circuit, respectively, whereby the relative position or displacement between said two movable bodies may be represented by said binary coded base-n number.

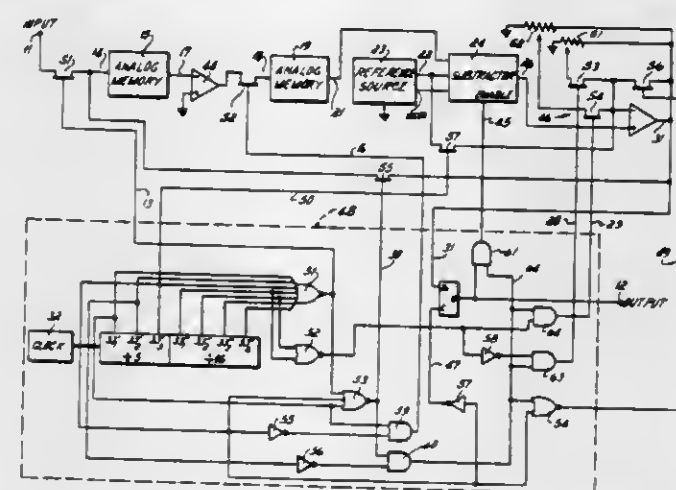
4,315,253

ERROR CORRECTION IN RECIRCULATING REMAINDER ANALOG-TO-DIGITAL CONVERTERS

Hulbert T. Tytus, 6714 Maple St., Cincinnati, Ohio 45227
Division of Ser. No. 10,173, Feb. 7, 1979, abandoned. This application Oct. 15, 1979, Ser. No. 84,767
Int. Cl.³ H03K 13/09

U.S. Cl. 340-347 CC

21 Claims



1. In a recirculating remainder converter for converting an analog signal into a digitally encoded signal, said converter including two analog memories for sampling and storing analog signals related to a voltage to be converted, means for comparing said stored signals with a reference signal, means responsive to said comparison for providing a code bit, means responsive to said comparison for producing a remainder signal, means for amplifying said remainder signal, means for recirculating said amplified remainder signal to one of said analog memories, the improvement in said converter, comprising:

error nulling means including inverting means for inverting the polarity of the recirculated signal, the polarity of said

signal being inverted an even number of times between successive comparisons.

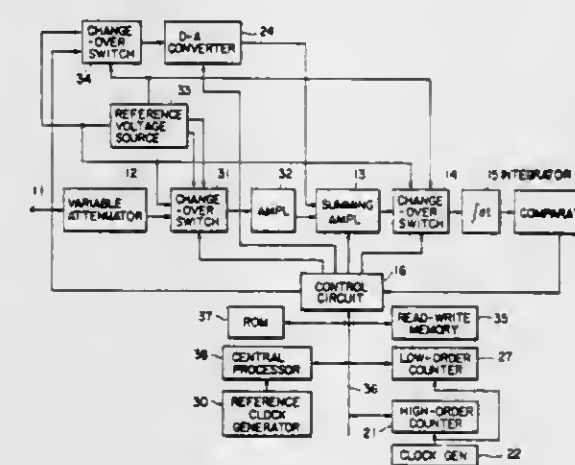
4,315,254

SELF-COMPENSATING A-D CONVERTER

Jun Honjyo, and Yukimitsu Watanabe, both of Gyoda, Japan, assignors to Takeda Riken Kogyo Kabushiki Kaisha, Japan
Filed Jan. 11, 1980, Ser. No. 111,303
Int. Cl.³ H03K 13/02

U.S. Cl. 340-347 CC

9 Claims



1. An A-D converter comprising:
means for providing an input analog signal;
first A-D converting means for converting the input analog signal to a first digital signal to obtain a highorder digit output;
A-D converting means, operatively connected to said first A-D converting means, for re-converting the first digital signal to an analog signal;
amplifying means, operatively connected to said D-A converting means, for amplifying the difference between the reconverted analog signal and the input analog signal;
second A-D converting means, operatively connected to said amplifying means, for converting the amplified difference signal to a second digital signal to obtain a low-order digit output;
reference voltage means, operatively connected to said amplifying means, for providing a reference voltage for the converted output available from said D-A converting means when an input is applied thereto for each one of its bits, one at a time;
control means, operatively connected to said D-A converting means, said reference voltage means and said second A-D converting means, for determining the difference between the converted output from the D-A converting means, when the input thereto is applied for each bit, and the corresponding reference voltage from the reference voltage means, said second A-D converting means converting the difference to a third digital signal to obtain an error signal for each bit of said D-A converting means;
memory means, operatively connected to said second A-D converting means, for storing the third digital signal corresponding to the error signal; and
calculating means, operatively connected to said memory means, for performing a corrective calculation for the low-order digit output using the error signal.

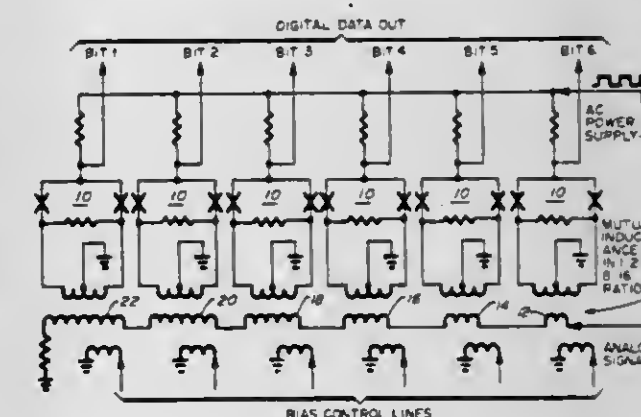
4,315,255

MULTIPLE-QUANTUM INTERFERENCE SUPERCONDUCTING ANALOG-TO-DIGITAL CONVERTER

Richard E. Harris, and Clark A. Hamilton, both of Boulder, Colo., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Oct. 27, 1980, Ser. No. 201,669
Int. Cl.³ H03K 13/02

U.S. Cl. 340-347 AD

3 Claims



1. An analog-to-digital converter comprising:
a plurality of superconducting interferometers connected in parallel,
each of said interferometers comprising at least two Josephson junctions connected in a superconducting loop,
circuit means for coupling an analog signal as the control current to each of said interferometers with factor of two changes in coupling to each successive interferometer, each of said interferometers having an inductance means for coupling the input analog signal to said interferometers, and
circuit means for connecting a gating voltage across said parallel connected interferometers for biasing all of said interferometers, whereby each interferometer for which the bias level exceeds its threshold level will switch from a zero voltage to a voltage state producing an output pulse.

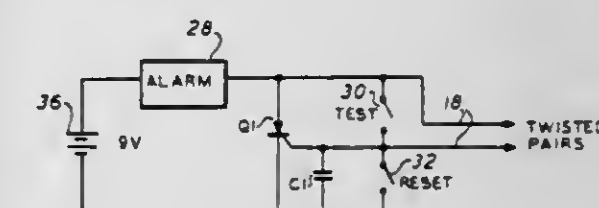
4,315,256

CHIMNEY FIRE DETECTOR

John R. Dennis, P.O. Box 396, Milford, Pa. 18337
Filed Jan. 28, 1980, Ser. No. 116,002
Int. Cl.³ G08B 17/06

U.S. Cl. 340-590

7 Claims



1. A chimney fire detector comprising:
an outer pair of twisted wires having an outer portion mounted at the outlet of said chimney;
a lead pair of twisted wires connected to said outer pair of twisted wires;
sensing means connected with said lead pair of twisted wires for detecting electrical contact between said lead pair of twisted wires or between said outer pair of twisted wires;
an outer insulator mounted between said outer pair of twisted wires; and
a lead insulator mounted between said lead pair of twisted wires, said outer and lead insulators allowing said outer and lead pairs of twisted wires, respectively to contact

electrically in response to temperatures in excess of different predetermined temperatures.

4,315,257

METHOD AND DEVICE FOR ADDRESSING A PAGE MEMORY IN A VIDEOTEX SYSTEM

Charles Hernandez, Villejuif, France, assignor to Telediffusion de France & Compagnie Continentale de Signalisation, Paris, France

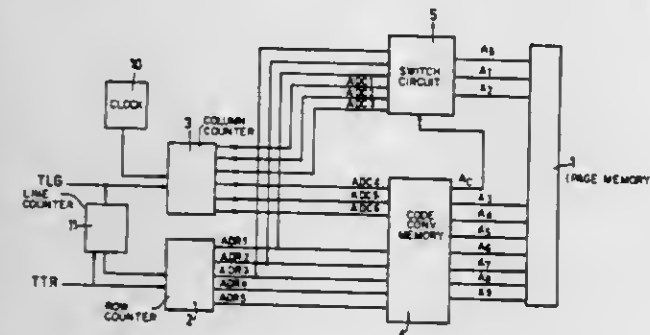
Filed May 22, 1980, Ser. No. 152,497

Claims priority, application France, May 23, 1979, 79 13240

Int. Cl.³ G09G 1/16

U.S. Cl. 340—723

4 Claims



1. A method for addressing a page memory in a videotex system, said page memory being capable of storing the character data required for displaying one page of text, each page comprising 25 rows of 40 characters each, the first row being a service row, said memory having 1024 available positions, wherein the 24 positions not dedicated to character data are respectively allocated to the 24 rows other than the first row for reading out data common to all the characters of the row in consideration.

4,315,258

TRANSMISSIVE AND REFLECTIVE LIQUID CRYSTAL DISPLAY

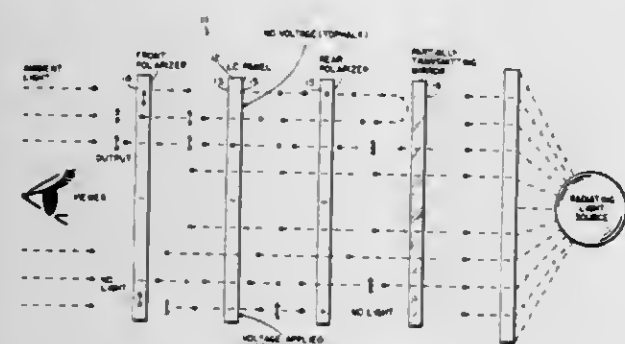
William H. McKnight, San Diego; Larry B. Stotts, Chula Vista, and Michael A. Monahan, Poway, all of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 15, 1980, Ser. No. 121,948

Int. Cl.³ G09G 3/36

U.S. Cl. 340—784

2 Claims



1. An apparatus having the capability for providing a visual display in the transmissive mode comprising:
means for providing a source of ambient light;
means for radiating light through a predetermined volume;
a nematic liquid crystal interposed between the ambient light providing means and the light radiating means in the predetermined volume for selectively rotating the polarization axis of transmitted and reflected light therethrough in select areas thereof in response to applied potentials to create relatively bright areas to a viewer located in the ambient light area when an applied potential is impressed thereacross;
first means disposed between the ambient light providing

means and the nematic liquid crystal for polarizing the ambient light into a single linearly polarized component;
second means disposed between the light radiating means and the nematic liquid crystal for polarizing the radiated light into a single component, the first polarizing means and the second polarizing means being a pair of linear polarizers disposed in a parallel orientation; and
a "one way" mirror, partially transmissive and interposed between the second polarizing means and the light radiating means for partially transmitting portions of the radiated light and specularly reflecting portions of the ambient light, the twisted nematic liquid crystal creating relatively bright areas to a viewer located in the ambient light area when an applied potential is impressed thereacross whereby the contrast of the visual display is enhanced and washout is reduced.

4,315,259

SYSTEM FOR OPERATING A DISPLAY PANEL HAVING MEMORY

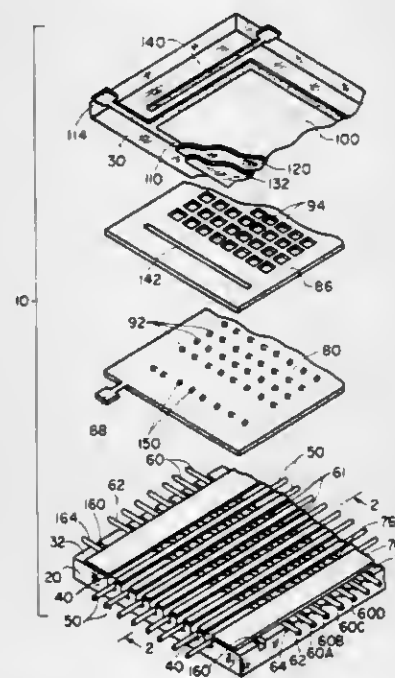
Joseph E. McKee, Annandale, N.J., and James Y. Lee, Sugar Land, Tex., assignors to Burroughs Corporation, Detroit, Mich.

Filed Oct. 24, 1980, Ser. No. 200,160

Int. Cl.³ H05B 37/00

U.S. Cl. 340—799

4 Claims



1. A system for operating a display panel with memory wherein the display panel includes
a gas-filled envelope,
a first layer of D.C. scan cells disposed in rows and columns and including row scan anodes and column scan cathodes which cross each other, with the crossings defining said D.C. cells,
an apertured electrode defining rows and columns of display cells, each display cell being in communication with a D.C. scan cell, and
an A.C. electrode associated with and insulated from said apertured electrode and operating therewith as the electrodes for said display cells,
said system comprising
first means coupled to all of said scan anodes for applying operating potential thereto,
second means coupled to said scan cathodes for applying operating potential to each cathode in turn to fire and turn on each column of scan cells in turn sequentially,
third means coupled to said scan anodes for applying data signals to selected ones of said anodes as its column of scan cells is fired and turned on, and
fourth means coupled to said apertured electrode and said A.C. electrode for applying sustainer signals thereto, the

application of said sustainer signals and said data signals being synchronized so that, when the data signals are applied, glow is generated in the selected display cells associated with the scan anodes to which the data signals are applied, the sustainer signals sustaining the display glow in such selected display cells,
said fourth means comprising an electronic circuit including means generating a sustainer signal including positive and negative pulses generated about a positive reference voltage level, said means including a diode bridge and a plurality of semiconductor switches coupled thereto so as to provide said sustainer signal as each semiconductor switch is turned on in an operating sequence.

4,315,260

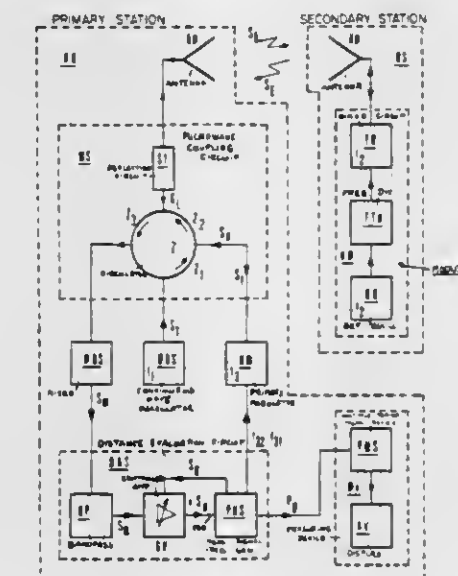
METHOD AND APPARATUS FOR MEASURING THE DISTANCE BETWEEN A PRIMARY STATION AND A SECONDARY STATION

Hanspeter Küpfer, Uitikon, Switzerland, assignor to Siemens-Albis Aktiengesellschaft, Zürich, Switzerland
Continuation-in-part of Ser. No. 888,024, Mar. 20, 1978, abandoned. This application Sep. 10, 1979, Ser. No. 74,234
Claims priority, application Switzerland, Apr. 7, 1977, 4433/77

Int. Cl.³ G01S 13/32

U.S. Cl. 343—7.5

17 Claims



3. A circuit for measuring the distance between a primary station and a secondary station, comprising:
a respective antenna provided for each said primary station and secondary station;
said primary station containing:
a microwave coupling circuit;
a primary modulator and a mixer connected with said microwave coupling circuit;
a distance evaluation circuit;
said mixer being connected with said distance evaluation circuit;
said distance evaluation circuit including a measuring signal frequency generator having a first output side and a second output side;
a measuring device;
said measuring signal frequency generator being connected at its first output side with said primary modulator and at its second output side with said measuring device;
said measuring frequency signal generator including a controlled oscillator which modulates and controls the frequency of the measuring signal so as to assume a mean value;
said distance evaluation circuit further including a band-pass filter;
said measuring signal frequency generator having an input side;
said input side of said measuring signal frequency genera-

tor being connected by means of said bandpass filter with said mixer.

4,315,261

RADAR SIGNAL DETECTOR

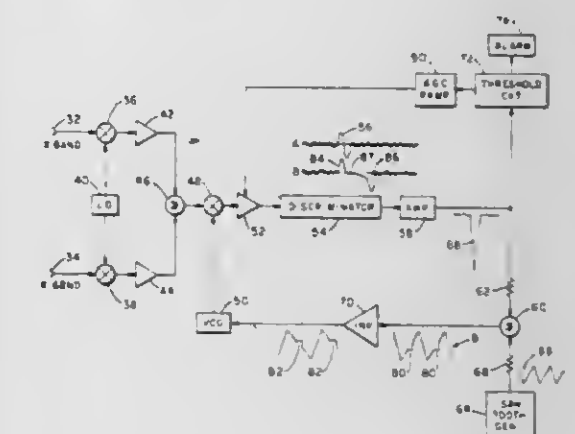
Richard K. Mosher, Sudbury, Mass., assignor to Controlonics Corporation, Littleton, Mass.

Filed Jun. 3, 1980, Ser. No. 156,102

Int. Cl.³ G01S 7/28, 7/36

U.S. Cl. 343—18 E

9 Claims



1. A radar signal detector comprising:
means for receiving an incoming radar signal at a frequency within a range of frequencies;
means for generating a frequency swept signal at a predetermined sweep rate;
means for multiplying the signal from the receiving means with said frequency swept signal to produce a difference signal;
narrow band discriminator means responsive to said difference signal and operative to provide FM demodulation thereof;
an amplifier coupled to the demodulated output of said discriminator means; and,
means responsive to the output of said amplifier for reducing the sweep rate of said frequency swept signal generating means; and,
means for providing an indication of a received signal in response to a predetermined output of said amplifier.

4,315,262

SATELLITE COMMUNICATION SYSTEM WITH A PLURALITY OF LIMITED SCAN SPOT BEAMS

Anthony Acampora, Freehold, and Douglas O. Reudink, Sea Girt, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Apr. 26, 1979, Ser. No. 33,735

Int. Cl.³ H04B 7/00

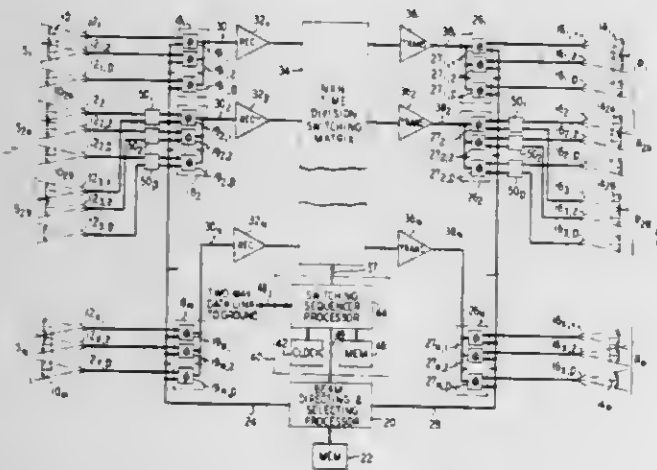
U.S. Cl. 343—100 ST

6 Claims

1. In a satellite communication system, an on-board satellite switching subsystem comprising:
a plurality of x scannable receiving antenna ports (12₁–12_x), each receiving antenna port being associated with a separate one of x possible up-link beams (10₁–10_x) and only n of x beams are concurrently receivable at any instant of time, where n ≤ x, each up-link beam being capable of propagating bursts of information in a predetermined time division multiple access (TDMA) sequence during a system frame period from a predetermined number of a plurality of m spaced-apart ground areas forming an overall system service region to the associated scannable receiving antenna port, where n ≤ m and different traffic demands exist between each of the pairs of the m ground areas;
a plurality of x scannable transmitting antenna ports (16₁–16_x), each transmitting antenna port being capable of

forming a separate scannable down-link spot beam and the x scannable transmitting antenna ports are capable of transmitting the bursts of information concurrently received at the n of x scannable receiving antenna ports at any instant of time toward the destined ground areas in appropriate n of x concurrently transmitted down-link beams in accordance with said predetermined TDMA sequence; and

switching means (34) disposed between the plurality of x scannable receiving antenna ports and the plurality of x scannable transmitting antenna ports and capable of selectively transferring the n bursts of information concurrently received at the receiving antenna ports at any instant of time to the appropriate transmitting antenna ports in accordance with said predetermined TDMA sequence for appropriate transmission in the n of x concurrently transmitted down-link beams to the destined ground areas;



characterized in that

the x antenna ports of each of the plurality of scannable receiving and transmitting antenna ports are each scannable over only a separate limited portion of the plurality of m ground areas forming the overall system service region and are formed into n groups of one or more antenna ports, each group of receiving and transmitting antenna ports being associated with a separate one of the n concurrently received and transmitted beams, respectively, in a manner so that each group of receiving and transmitting antenna ports handles the traffic requirements of a separate one of n limited non-interfering transmitting communication zones (S_1-S_N) and n limited non-interfering receiving communication zones (R_1-R_N), respectively, and each of said limited non-interfering transmitting and receiving communication zones comprises a substantially equal traffic requirement.

4,315,263

NAVIGATIONAL SYSTEMS USING PHASE ENCODED ANGULAR COORDINATES

Norman S. Neidell, 13054 Taylorcrest, Houston, Tex. 77079

Continuation of Ser. No. 925,903, Jul. 19, 1978, which is a continuation-in-part of Ser. No. 691,674, Jun. 1, 1976, Pat. No. 4,114,153, which is a continuation of Ser. No. 483,202, Jun. 26, 1974, abandoned. This application Sep. 18, 1979, Ser. No. 76,695 Int. Cl.³ G01S 3/02

U.S. Cl. 343—112 C

18 Claims

1. In a method of ascertaining for at least one mobile unit, navigational information in terms of at least one angular coordinate, radial ranges, and relative velocity components, by transmitting from at least one transmitter and receiving with at least one receiver, at least one component signal in a medium of known propagation velocity, characterized by:

forming each said component signal to consist of at least one member signal, all said component signals being separable; phase encoding in at least one said member signal a distinction in phase according to at least one angular coordinate; receiving said component signals, separating them, and

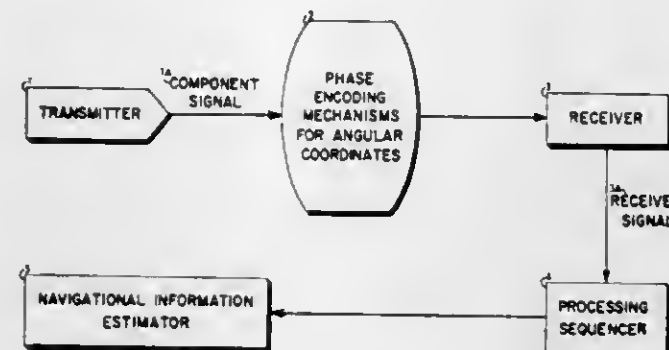
identifying within each said component signal each individual member signal;

measuring phases for each one of said identified member signals;

decoding each said angular coordinate from said measured phases and said encodings produced by said encoding step;

measuring signal transit times for any member signal having a known time of initiation;

measuring interval times between member signals for any member signals whose interval time is initially known;



forming corrected measured signal transit times and interval times by compensating each so formed time for any linear elements in said phase encodings;

producing mobile unit relative velocity components from any said corrected measured interval times;

producing mobile unit radial ranges from any corrected signal transit times, and

correcting any said radial ranges for any known relative velocity components.

4,315,264

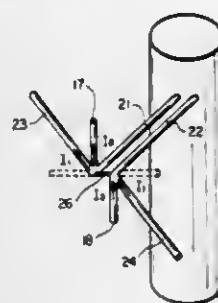
CIRCULARLY POLARIZED ANTENNA WITH CIRCULAR ARRAYS OF SLANTED DIPOLES MOUNTED AROUND A CONDUCTIVE MAST

Raymond H. DuHamel, 12001 Rhus Ridge Rd., Los Altos Hills, Calif. 94022

Continuation-in-part of Ser. No. 885,444, Mar. 10, 1978, abandoned. This application Nov. 16, 1979, Ser. No. 95,051 Int. Cl.³ H01Q 21/26

U.S. Cl. 343—797

8 Claims



1. A circularly polarized antenna comprising an elongated support having a conductive outer surface; at least one circular array of radiating elements where the number of radiating elements N is at least three, each of said radiating elements comprising a long dipole at a slant angle with respect to a plane perpendicular to the elongated support and said plane passing through the mid points of said long dipoles and a short dipole connected to said long dipole and fed in parallel with said long dipole and disposed at an angle with respect to the long dipole, said short dipole having a length substantially less than one-half wavelength at the operating frequency and said long dipole having a length of approximately one-half wavelength at the operating frequency; said long dipole and said short dipole each comprising first and second sections extending away from said plane and first and second support means extending outwardly from said support and engaging the ends of said first and second sections respectively at said plane and means for

feeding the supported ends of said radiating elements in each circular array with voltages of equal amplitude and progressive phase shift of $2\pi M/N$ radians where M is the mode number.

4,315,265

RIGID COLLAPSIBLE DISH STRUCTURE

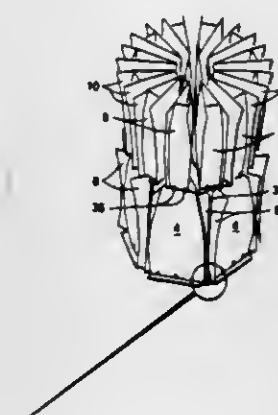
William B. Palmer, Palos Verdes Estates, and Martin M. Giebler, Redondo Beach, both of Calif., assignors to TRW Inc., Cleveland, Ohio

Filed Jun. 11, 1980, Ser. No. 158,412

Int. Cl.³ H01Q 15/20

U.S. Cl. 343—840

13 Claims



1. An improved collapsible dish structure comprising:

a rigid symmetrical center support;

a plurality of concentric rows of petal assemblies arranged around said central support, including an inner row of petal assemblies and at least one outer row of petal assemblies;

each petal assembly containing a rigid center petal and two rigid side petals;

a first hinge means pivotally joining the center and side petals on hinge axes along the adjacent petal edges;

a second hinge means pivotally connecting said center petals to said support on pivot axes tangent to concentric circles about the axis of said support;

a third hinge means pivotally joining the adjacent side petals of adjacent petal assemblies on pivotal axes along the adjacent longitudinal edges of the adjacent said petals;

said petals being deployable outwardly about their hinge axes to deployed positions;

said petals being rotatable inwardly about their hinge axes from said deployed positions to folded positions wherein the adjacent side petals extend inwardly from and in transverse relation to their respective center petals and in face to face relation to one another and the petals are contained within a cylindrical envelope having a ratio of diameter deployed to diameter collapsed of 3.4 or better.

4,315,266

SPIRAL SLOTTED PHASED ANTENNA ARRAY

Robert A. Froesch, Administrator of the National Aeronautics and Space Administration, with respect to an invention of, and Haynes Ellis, Jr., Chino, Calif.

Filed Jul. 25, 1980, Ser. No. 172,099

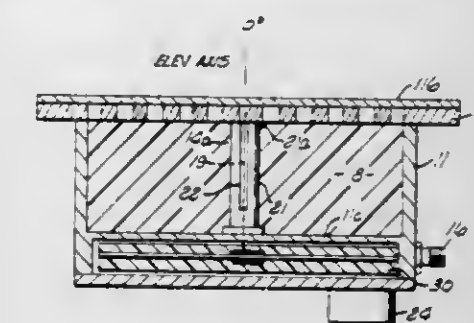
Int. Cl.³ H01Q 1/36

U.S. Cl. 343—895

10 Claims

1. A cavity-backed, flush-mountable antenna comprising: a conductive-walled cavity of generally elliptical cross-section and having a substantially elliptical aperture plate constituting one face thereof, said cavity being of substantially uniform depth measured normal to said aperture plate; first and second radiator slot pairs cut through the thickness of said aperture plate, the slots of said pairs spiralling in the same rotation sense from corresponding first and second slot center points adjacent

on either side of the center of said aperture plate; and slot feed means for separately feeding said first and second slot center



4,315,267

METHOD OF MAGNETOFLUIDIC RECORDING

Nobuo Sonoda, Settsu; Wataru Shimotsuma, Ibaraki; Yoshio Kishimoto, and Yoichi Sekine, both of Hirakata, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

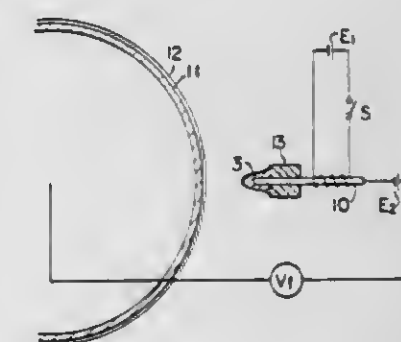
Continuation of Ser. No. 924,872, Jul. 14, 1978, abandoned. This application Apr. 9, 1980, Ser. No. 138,682

Claims priority, application Japan, Jul. 22, 1977, 52/88712; Dec. 13, 1977, 52/150214; Dec. 19, 1977, 52/153233; Dec. 19, 1977, 52/153234; Dec. 19, 1977, 52/153235; Apr. 13, 1978, 53/43981; Apr. 13, 1978, 53/43982; Apr. 13, 1978, 53/43983

Int. Cl.³ G01D 15/16

U.S. Cl. 346—1.1

20 Claims



1. A method for nozzleless magnetofluidic recording comprising the steps of providing a magnetofluidic material on the surface of a nozzleless support member for emitting a concentrated magnetic flux, said support being disposed opposite to and facing a recording surface, applying a magnetic force by at least the concentrated magnetic flux emitted from said nozzleless support member to said magnetofluidic material to cause a protrusion of said magnetofluidic material from said surface of said support member in a direction toward said recording surface, said protrusion being free from contact with said recording surface, applying an electrostatic or magnetic flinging or migrating force between said support member and an opposing pole provided near said recording surface to fling or migrate magnetofluidic material from a protruded part of said protruded magnetofluidic material to said recording surface, and producing a recording image by causing at least one of said magnetic force or said flinging or migrating force to vary in correspondence with a recording signal.

4,315,268

RECORDING APPARATUS

Shigemitsu Tazaki, Matsudo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed May 20, 1980, Ser. No. 151,701

Claims priority, application Japan, Jun. 4, 1979, 54-69618

Int. Cl.³ G01D 15/28

U.S. Cl. 346—17

5 Claims

1. Recording apparatus comprising: linear motor means;

one of said load terminals being in named order series circuit so that control current will flow from said control current input through said series circuit to said main cathode electrode during charging of said capacitor and switching of said main thyristor, and so that with full charging of said capacitor there will be blocking of further current flow through said main thyristor gate electrode; and means for discharging the electric charges stored in said capacitor.

4,315,275

ACOUSTIC STORAGE DEVICE INTENDED IN PARTICULAR FOR THE CORRELATION OF TWO HIGH-FREQUENCY SIGNALS

Alain Bert; Bernard Leclerc, and Yves Archambault, all of Paris, France, assignors to Thomson-CSF, Paris, France

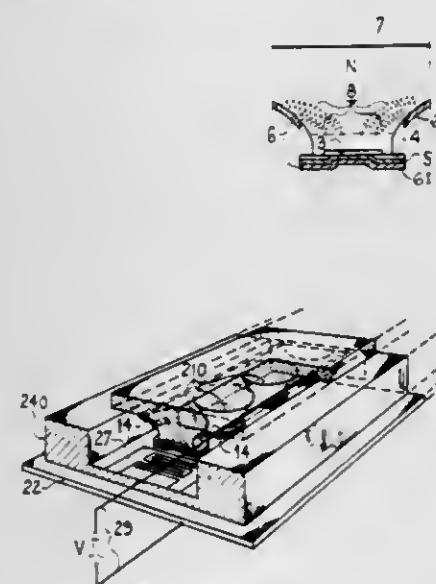
Filed Jun. 25, 1979, Ser. No. 51,958

Claims priority, application France, Jun. 29, 1978, 78 19504

Int. Cl.³ H01L 29/06, 27/02, 29/92

U.S. Cl. 357—56

5 Claims



1. Acoustic storage device intended in particular for the correlation of two high-frequency signals, comprising a network of cells, each cell constituted by a diode in series with a capacitor, each diode comprising an insulated electrode disposed on the surface of a semiconductor substrate, the dielectric of the capacitors being formed by an insulated piezoelectric material with their electrodes being formed on the one hand by the insulated electrodes of the diodes, and on the other hand by a conductive electrode which is common to all the cells, acoustic surface waves being created on the piezoelectric material and collected by two transducers and the diodes aligned in the direction of propagation of the waves forming a network which is realized on a semiconductor substrate of high resistivity, amounting to several tens to several hundred ohm-centimeter, each diode comprising:

- a planar junction on the semiconductor substrate;
- an insulating ring covering the periphery of the junction and projecting beyond the substrate, this insulating ring having external dimensions smaller than the second face of the substrate reserved for each diode, the dimensions of the first face of the substrate being reduced by a mesa attack so that the insulating ring projects beyond the first face;
- a metallic layer establishing an ohmic contact with the central part of the first face and forming said insulating electrode;
- a metallic layer also covering the lateral walls of the diode formed by the mesa attack except for those zones of these walls beyond which the insulating ring projects and constituting another electrode which is common to all the cells; whereby the metallic layer covering the lateral walls enables the radio-frequency losses to be limited; the increase the depth of valleys between mesas reduces parasitic capacitance; and said high resistivity substrate with

the mesa and electrode structure improves the memorization time of the acoustic storage device.

4,315,276

VIDEO SIGNAL DEFECT COMPENSATION SYSTEM

Tsuyoshi Harada, 3223-1 Bushozanchokouchome, Takamatsushi, Kagawa-ken, and Yoshie Oritake, 7-18-401, Hanamigawa, Chiba-shi, Chiba-ken, both of Japan

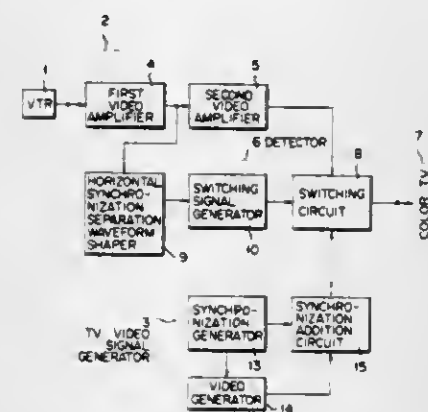
Filed Jun. 26, 1979, Ser. No. 52,164

Claims priority, application Japan, Oct. 21, 1978, 53-129751

Int. Cl.³ H04N 5/76

U.S. Cl. 358—8

8 Claims



1. A video signal defect compensation system for use with a video signal reproducing device, the device having a reproduction video signal output corresponding to a prerecorded program displayed on a video monitor, comprising:

- means for detecting the presence or absence of the reproduction video signal, said detecting means comprising:
- a synchronization separating circuit for separating the synchronizing signal from the reproduction video signal of the video signal reproducing device; and,
- a switching signal generator for receiving the synchronizing signal separated by the synchronization separating circuit and for producing a first switching control signal representing the absence of the reproduction video signal, when a plurality of drop outs occurs in the synchronization separating circuit signal output and for producing a second switching control signal representing the lapse of a predetermined time from when the synchronization separating circuit detects the synchronizing signal after absence of the reproduction video signal has been previously determined;

a video signal generator for generating a composite video signal to be displayed on the monitor when the reproduction video signal drops out, said video signal generator comprising:

- a synchronization generator for generating a composite synchronizing signal;
- a video generator for generating a video signal, having information content independent of the prerecorded program, to display an image on the video monitor; and,

switching means for selecting either the reproduction signal or the generated composite signal in response to the switching control signals of the detecting means, and for supplying the selected signal to the video monitor, the reproduction signal being selected when the detecting means detects the reproduction signal and the generated composite signal being selected when the detecting means detects the absence of the reproduction video signal, whereby a picture image will be displayed on the monitor whenever the reproduction video signal drops out, but absence of the synchronizing signal immediately after video playback commences will not result in unnecessary interruption of the program.

4,315,277

NON-LINEAR APERTURE CORRECTION CIRCUIT HAVING A SIGNAL BYPASS ARRANGEMENT

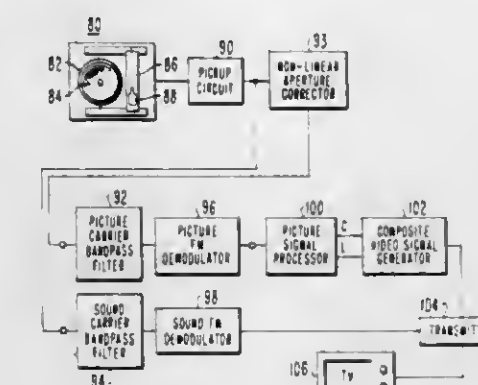
Walter G. Gibson, and Theodor M. Wagner, both of Princeton, N.J., assignors to RCA Corporation, New York, N.Y.

Filed Feb. 19, 1980, Ser. No. 122,723

Int. Cl.³ H04N 5/78, 5/76

U.S. Cl. 358—8

7 Claims



7. In a disc record player for information recovery of video and sound signals, said player including means for recovering modulated information signals including composite color video signals occupying a given band of frequencies with sound accompaniment from a disc record, said composite color video signals containing a plurality of undesired interference components in said given band of frequencies; means for demodulating said information signals, means, coupled to said demodulating means, for processing said demodulated signals, and a non-linear compensator, for effecting a substantial removal of said undesired interference components, said non-linear compensator comprising:

- a terminal;
 - a linear signal path, coupled to said terminal, for transferring signals having said undesired interference components to a summing node, said first signal path having a negligible phase shift over said given band of frequencies;
 - a first non-linear signal path, coupled to said terminal, for transferring signals to said summing node and for generating a correction signal complementary to a first undesired interference component; and
 - a second non-linear signal path, coupled to said terminal, for transferring signals to said summing node and for generating another correction signal complementary to a second undesired interference component;
- the resulting signal formed by the combination of the signals from the linear signal path and the first and second non-linear signal paths at said summing node being substantially free of said first and second undesired interference components.

4,315,278

APPARATUS FOR PROVIDING ERROR COMPENSATION IN A DIGITAL VIDEO RECORDING AND REPRODUCING SYSTEM

Leonard A. Pasdera, Redwood City, Calif., assignor to Ampex Corporation, Redwood City, Calif.

Filed May 23, 1980, Ser. No. 153,111

Int. Cl.³ H04N 9/39, 9/491

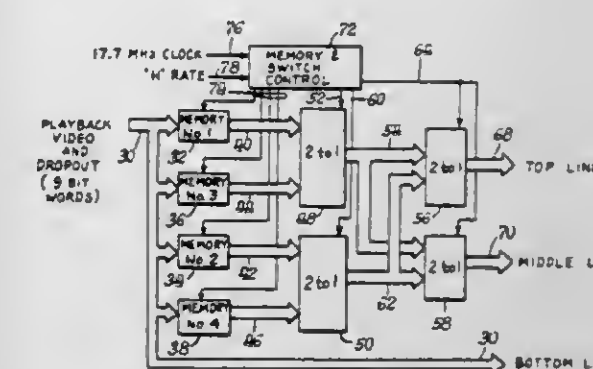
U.S. Cl. 358—16

13 Claims

1. Apparatus for providing substitute digital data words in a stream of digital data word samples representing a video information signal of a PAL television format that has been digitally sampled alternately along the U and V axes to produce U and V data word samples at a rate of four times the chrominance subcarrier frequency, comprising:

- means for receiving and storing said video data word samples from at least three successive horizontal video lines;
- means operatively coupled to said storing means for generating a substitute data word sample for any defective one of said U and V samples, a U sample being generated by

averaging the value of the immediately preceding U sample from the adjacent preceding horizontal line and the immediately succeeding U sample from the adjacent succeeding video line, a V sample being generated by averaging the value of the immediately succeeding V sample



from the adjacent preceding video line and the immediately preceding V sample from the adjacent succeeding video line; switching means for providing one of said generated samples at the output in response to an activating signal being received.

4,315,279

COLOR IMAGE DETECTING DEVICE

Tetsuro Kuwayama, Yokohama, and Kazuo Tanaka, Tokyo, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

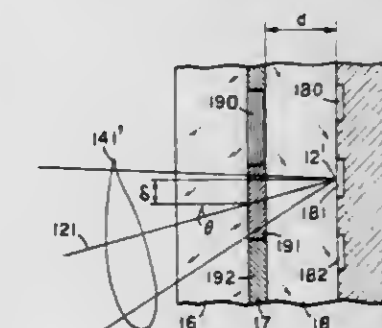
Filed Sep. 8, 1980, Ser. No. 184,753

Claims priority, application Japan, Sep. 13, 1979, 54-117784

Int. Cl.³ H04N 9/07

U.S. Cl. 358—44

5 Claims



1. A color image detecting device comprising: a photodetector having a plurality of image element areas arranged one-dimensionally or two-dimensionally; an imaging optical system for forming an object image on the light-receiving surface of said photodetector; and a color filter having a plurality of filter elements each having a spectrum transmittivity for obtaining a color signal, said filter elements being arranged correspondingly to said image element areas and set at a pitch shorter than the division interval of said image element areas.

4,315,280

METHOD FOR REPRODUCING COLOR SEPARATION PICTURES ON A RECORDING MATERIAL FROM ORIGINAL PICTURES

Masanori Tsuda, Kyoto, Japan, assignor to Dainippon Screen Seizo Kabushiki Kaishi, Kyoto, Japan

Filed Mar. 24, 1980, Ser. No. 133,588

Claims priority, application Japan, Apr. 13, 1979, 54-44216

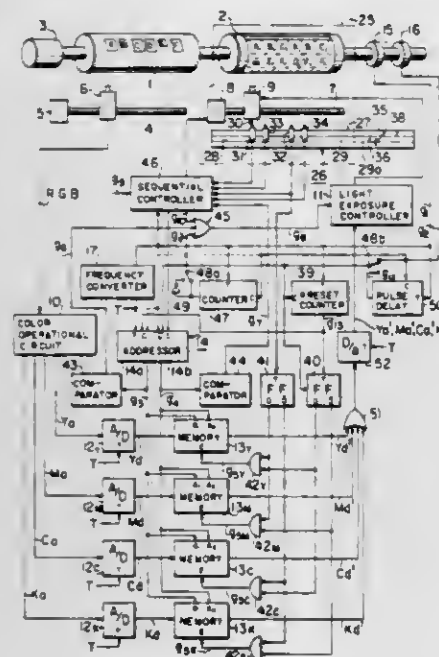
Int. Cl.³ G03F 3/00

U.S. Cl. 358—80

3 Claims

1. A method for reproducing color separation pictures on a recording material from original pictures, wherein an original picture is color-separated and color-corrected to obtain color

separation picture signals of primary colors, and then said color separation picture signals obtained are stored in a memory, and when color separation pictures of the original picture are reproduced in recording areas to which each of color inks is allocated corresponding to the primary colors or a reproducing material according to the other separation picture signals read out of said memory, characterized by comprising the following steps:

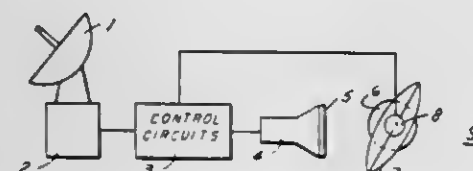


dividing said recording areas into a number of recording sub-areas corresponding to the number of original pictures;
allocating the original pictures to said sub-areas; and
recording each of said color separation printing plates obtained by scanning each of said original pictures on said respective allocated sub-areas.

4,315,281

THREE-DIMENSIONAL DISPLAY DEVICE
Jack Fajans, 1133 Magnolia Rd., Teaneck, N.J. 07666
Filed Jun. 27, 1978, Ser. No. 919,725
Int. Cl.³ H04N 9/54; G01S 7/20
U.S. Cl. 358—88

5 Claims



1. A device for displaying the location of an object relative to three axis intersecting each other perpendicularly in a space, the device comprising:

- a source of a location signal indicative of the instantaneous coordinates of said object with respect to each of said three axes in said space;
- means defining a surface and two axes of a system of coordinates in said surface perpendicularly intersecting each other;
- optical means for projecting an image of a point in said surface, said optical means having an optical axis and a focal length;
- rotating means for rotating said optical means about an axis of rotation transverse to said optical axis and extending in a common direction with said surface, said axis of rotation being spaced from said surface;
- first signal generating means for generating an angle signal indicative of the instantaneous angle defined by said optical axis and a line perpendicular to said surface; and
- second signal generating means operatively connected to said source and to said first signal generating means for

producing a visible, luminous signal in said point of said surface when said instantaneous angle assumes a predetermined value,

- (1) the position of said point relative to one of said axes in said surface being a function of the spacing of said axis of rotation from said surface and of the ratio of the respective coordinates of said object with respect to a first and a second one of said three axes in said space,
- (2) the position of said point relative to the other axis in said surface being a function of said spacing and of the ratio of the respective coordinates of said object with respect to the second and third axes in said space,
- (3) said predetermined value being a function of said spacing, of said focal length, and of coordinates of said object with respect to two of said three axes in said space.

4,315,282

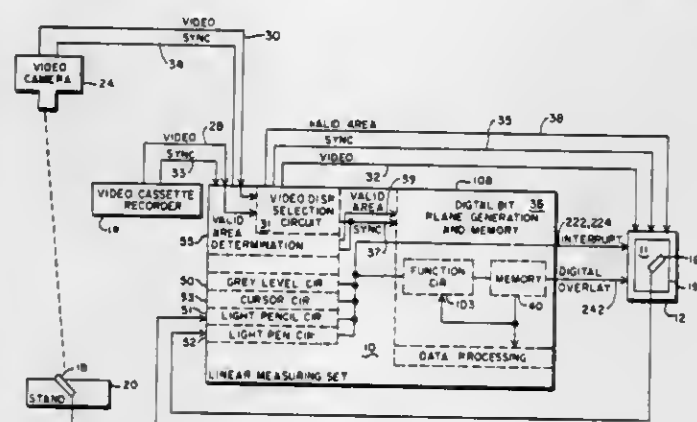
WRITE AND EDIT CIRCUITRY FOR ELECTRONIC MARKING OF DISPLAYED TV SIGNAL IMAGES
Peter M. Schumacher, Great Falls, Mont., assignor to Electronic Devices Incorporated, Mont.

Filed Sep. 11, 1980, Ser. No. 186,392

Int. Cl.³ H04N 7/18

U.S. Cl. 358—107

34 Claims



1. Write and edit circuitry for electronic marking of electronically displayed video images comprising
video image generating means for generating at least one video image signal to be displayed;
electronic marking means for providing a logic level signal to be displayed;
video overlay means connected to the electronic marking means for generating a digital bit plane overlay signal to be displayed which is synchronized with the video image signal comprising;
memory means for selectively storing the logic level signals as data bits for the digital bit plane overlay signal; and
display means connected to the video image generating means, the electronic marking means and the video overlay means comprising;
means for displaying the video image;
means for displaying the logic level signals as they are generated; and
means for displaying the data bits stored in the memory means;
wherein the logic level signals generated by the marking means are displayed during the same scan that the logic level signals are generated and are displayed in subsequent scans if stored as data bits in the memory means.

4,315,283

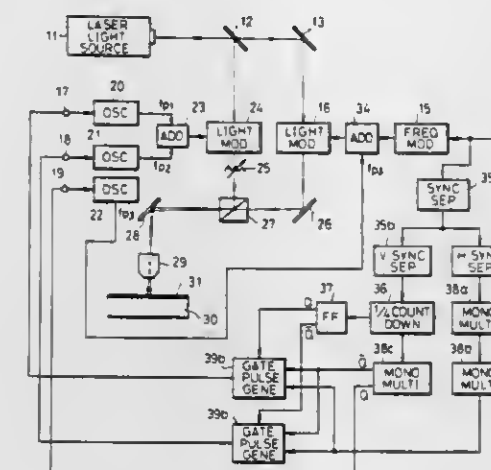
HIGH DENSITY RECORDING SYSTEM USING SIDE-BY-SIDE INFORMATION AND SERVO TRACKS
Hisao Kinjo, and Keiji Ozawa, both of Yokohama, Japan, assignors to Victor Company of Japan, Ltd., Yokohama, Japan
Continuation-in-part of Ser. No. 785,095, Apr. 6, 1977. This application Apr. 25, 1979, Ser. No. 33,324

Claims priority, application Japan, Apr. 8, 1976, 51-38809; Oct. 26, 1976, 51-127767

Int. Cl.³ H04N 5/76; G11B 11/12

U.S. Cl. 358—128.6

2 Claims



1. An information signal recording system comprising:
means for rotating a recording disc;
means for producing two light beams;
means for producing and sequentially switching first and second reference signals which have different frequencies, such that said reference signals correspond to each rotating period of the recording disc, and means for further producing a third reference signal which has a frequency that is different from the frequencies of the first and second reference signals, said third signal being produced responsive to said switching of the first and second reference signals;
means for adding said third reference signal and an information signal which are to be recorded;
a first light modulating means for modulating one of said two light beams with the output signal of said adding means;
a second light modulating means for modulating the other of said two light beams responsive to the first and second reference signals; and
recording means for simultaneously forming an information signal track on the recording disc responsive to the light beam modulated by the first light modulating means and a reference signal track on an intermediate part of said recording disc between center lines of adjacent information signal tracks, said recorded signals being responsive to the light beam modulated by the second light modulating means,
said first and second reference signals being alternately recorded on the reference signal track each rotating period of the recording disc, said third reference signal being recorded at a predetermined position on the information signal track each rotating period of the recording disc.

4,315,284

THERMAL SCANNING DEVICES
Peter F. T. C. Stillwell, Aldershot; William T. Moore, London, and David G. A. Demaine, Leeds, all of England, assignors to The Rank Organisation Limited, London, England
Filed Jul. 18, 1980, Ser. No. 170,177

Claims priority, application United Kingdom, Jul. 20, 1979, 25362/79

Int. Cl.³ H04N 5/30

U.S. Cl. 358—209

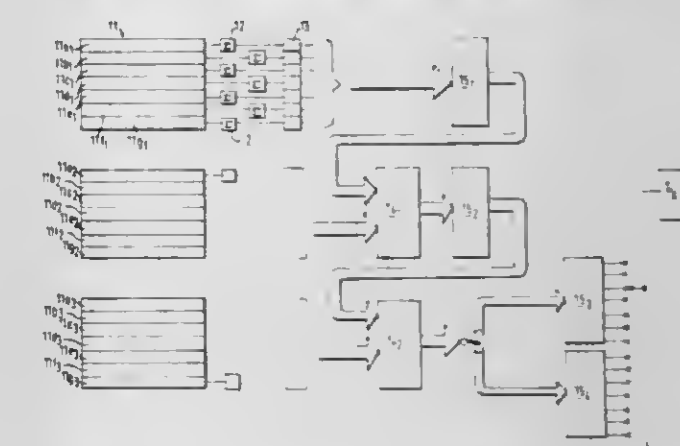
6 Claims

1. An optical scanning device for producing electrical pic-

ture-information signals representative of a scene under surveillance, said device comprising:

a detector array having a predetermined number of rows each of at least one detector element and such arranged to product electrical output signals indicative of light incident thereon,

optical means arranged to cause a repeated monitoring of the whole of said scene by repeatedly effecting a number of scans during each of which incident light received from a corresponding band of the surveyed scene is scanned across said detector array, the output signals produced by



each said rows of the detector array during a said scan representing a respective line of picture information taken from the corresponding band of the surveyed scene, said optical means being so arranged that during each monitoring of the scene successively scanned bands overlap each other in a direction transverse to the direction of scanning by an amount sufficient to cause each said line of picture information to be represented more than once, and
signal processing means arranged to receive the said output signals produced by the detector array during each monitoring and to combine together those signals which represent the same line of picture information.

4,315,285

METHODS FOR CONVERTING A VIDEO SIGNAL INTO A BLACK/WHITE SIGNAL

Ruediger Sommer, Ralsdorf, and Hermann Wilscher, Kiel, both of Fed. Rep. of Germany, assignors to Dr.-Ing. Rudolf Hell GmbH, Kiel, Fed. Rep. of Germany

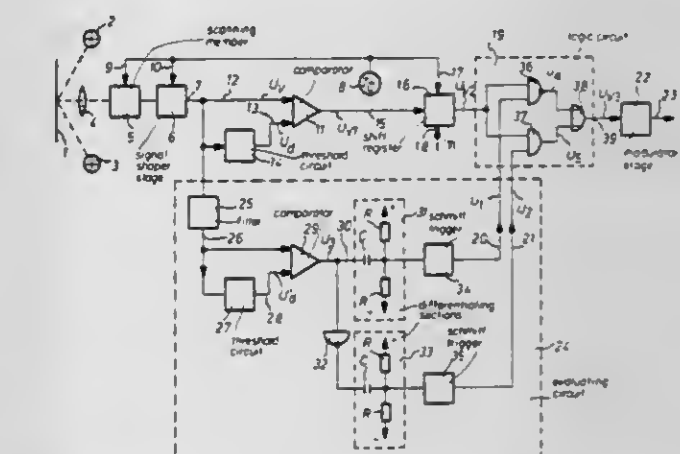
Filed Aug. 1, 1979, Ser. No. 62,696

Claims priority, application Fed. Rep. of Germany, Aug. 21, 1978, 2836571

Int. Cl.³ H04N 1/00

U.S. Cl. 358—280

12 Claims



1. An arrangement for converting a video signal into a bi-level black/white recording signal in facsimile reproduction, comprising
a scanning member for obtaining a video signal by scanning

an original having white, black, and tinted (grey or colored) areas,
 a threshold circuit following said scanning member and arranged to form a first dynamic threshold signal,
 a comparator to which said video signal and said dynamic threshold signal are applied, for generating a bilevel black/white signal,
 a device connected to said scanning member for generating a modified video signal by suppressing the DC component of said video signal,
 a further threshold circuit following said device, arranged to form a second dynamic threshold signal,
 a further comparator to which said modified video signal and said second dynamic threshold signal are applied, for generating a modified bilevel black/white signal, and means for switching said bilevel black/white signal, if previously black, from black to white for a short interval of time and then back to black, in the region of each transition on the original from tinted to black, and for switching said bilevel black/white signal, if previously white, from white to black for a short interval of time and then back to white, in the region of each transition on the original from tinted to white, to obtain a black/white facsimile recording signal which produces a facsimile having a contrasting boundary at each such transition,
 said means comprising a pulse generating stage, connected to said further comparator, for generating control signals from the modified video signal, and a logic switching circuit connected to said comparator and said pulse generating stage.

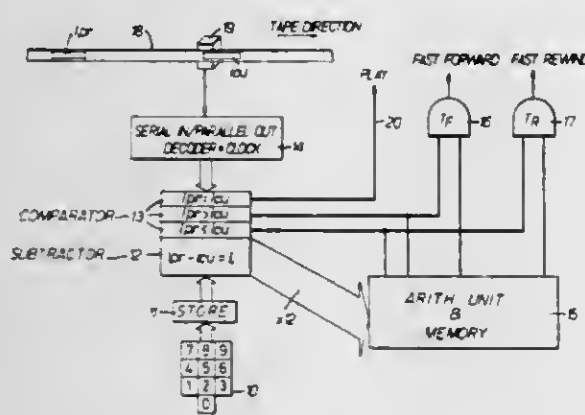
4,315,286 RECORDERS

Peter Copeland, 11, June Close, Pagham, Bognor Regis, Sussex PO21 4UH, England

Filed Sep. 6, 1979, Ser. No. 72,904
 Int. Cl.³ G11B 15/18, 27/24

U.S. Cl. 360—72.2

5 Claims



1. An attachment for a data recording machine having a movable data recording medium which comprises:
 (a) means for receiving and storing a first signal at a predetermined instant of time, said first signal being indicative of a rest position of the data recording medium, said receiving and storing means being decoupled from said recording medium during a subsequent movement thereof;
 (b) means for entering a second signal indicative of a required position of the data recording medium; and
 (c) comparison and actuation means, said comparison and actuation means being arranged to compare said first and second signals, said comparison and actuation means including means for computing an interval of time commencing at said predetermined instant of time and terminating at a second instant of time when the recording medium would reach said required position upon a moving of said recording medium, thereby predicting any required operation of fast-rewind or fast-forward controls of the data recording machine, an actuator of said comparison and actuation means imparting motion to said record-

ing medium during said time interval and terminating said motion at said second instant of time.

4,315,287

MAGNETIC TAPE TRANSPORT SYSTEM

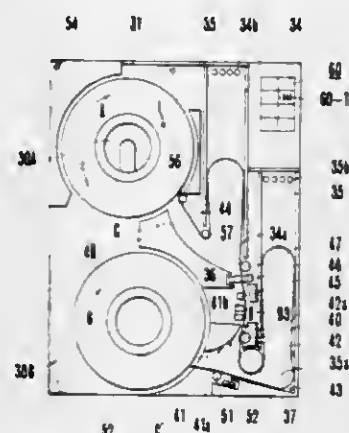
Kunio Noguchi, Tokyo, Japan, assignor to Nippon Electric Company, Ltd., Japan

Filed Jun. 6, 1979, Ser. No. 46,189

Claims priority, application Japan, Jun. 19, 1978, 53/74415
 Int. Cl.³ G11B 15/58, 15/66

U.S. Cl. 360—95

8 Claims



1. A magnetic tape transport system of the vacuum column tape comprising: a housing having a base member; a pair of reel mounting means disposed one over the other and closely adjacent to each other for removably mounting an upper tape supply reel and a lower tape take up reel; guide means for guiding a tape from said upper supply reel to said lower take up reel along a predetermined essentially straight line tape path that extends downwardly towards the base member and take up reel; a supply vacuum column disposed adjacent to said supply reel and having an open end for receiving tape delivered from said supply reel while said transport system is running located along the predetermined tape path; a take up vacuum column juxtaposed to and extending substantially parallel with said supply vacuum column, said take up vacuum column having an open end for receiving said tape while said tape transport system is running positioned at a location further along the path of movement of said tape from the open end of said supply vacuum column; said supply and take up vacuum columns having the open ends thereof extending downwardly toward the base member in the same direction and disposed substantially along the predetermined tape path of movement at spaced-apart locations; a magnetic head assembly positioned along the tape path of movement between the spaced-apart locations of the open ends of the supply and take up vacuum columns and disposed substantially on a line that extends in common with a wall of said supply vacuum column and a juxtaposed wall of the adjacent take up column, said magnetic head assembly opposing said tape and serving as part of the guide means for tape delivered from said supply vacuum column; an upper tape threading guide member located on the tape path between said supply reel and said magnetic head for guiding the tape during threading past the magnetic head assembly; lower automatic tape threading means located on the tape path between said magnetic head and said take up reel of providing automatic take up of said magnetic tape on said take up reel during threading, said lower automatic tape threading means comprising tangential air ejecting means for ejecting air in a direction tangential to the direction of said magnetic tape path during threading for moving the tape in the direction of the take up spool, and transverse air ejecting means disposed on the opposite side of said magnetic tape with respect to said tangential air ejecting means for ejecting air transversely against said magnetic tape to cause it to bend toward said take up reel during threading so as to be automatically wound therearound; and a capstan disposed substantially on said line

and immediately adjacent the open end of said take up vacuum column, for driving said tape after threading, said capstan being located at a position on the tape path of movement below said magnetic head assembly and where the tape is reversed back into the open end of said take up vacuum column during operation prior to passing to the take up reel.

4,315,288

DISK HOUSING FOR DISK MASS STORAGE UNIT INCLUDING INTEGRAL MEANS FOR REDUCING TEMPERATURE DIFFERENTIALS AMONG DISKS

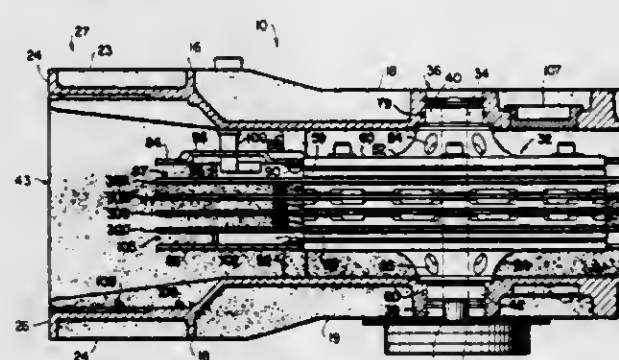
Frank W. Bennett, and Peter R. Svendsen, both of Colorado Spring, Colo., assignors to Digital Equipment Corporation, Maynard, Mass.

Filed Feb. 29, 1980, Ser. No. 126,021

Int. Cl.³ G11B 17/02, 23/02

U.S. Cl. 360—98

7 Claims



1. A housing assembly for a plurality of rotatable, spaced-apart, coaxial disks for use in a mass information storage subsystem of a data processing system, at least one of the disks constituting an outer disk and at least one of the disks constituting an inner disk, said housing assembly comprising a housing defining a chamber for receiving said disks, said housing including means integral therewith inside the chamber for reducing the temperature differential between the outer disk and the inner disk including a flange means supported by said housing and extending at least a portion of the way around the periphery of the outer disk to limit the air flow over the outer surface of said outer disk.

4,315,289

MAGNETIC DISK DRIVE MACHINE

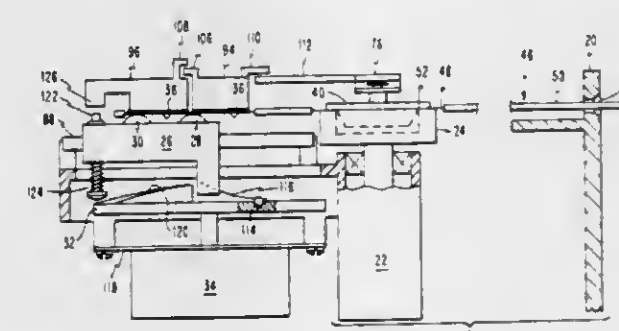
Joseph J. Holecsek, Kasson, and Michael N. Zell, Rochester, both of Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 9, 1979, Ser. No. 82,447

Int. Cl.³ G11B 5/016, 21/08, 17/02, 5/55

U.S. Cl. 360—99

4 Claims



1. A drive machine for a magnetic disk including:
 a machine frame,
 means carried by said frame for gripping the disk at its center and rotatably driving the disk and including a rotatable disk drive spindle carried by said frame,
 a carriage carrying a pair of transducers adapted to be in data transfer position with respect to one face of the disk, means movably mounting said carriage with respect to said

frame so that the transducers move across the disk toward and away from an outer edge thereof with each of the two transducers traversing about one-half of the radial dimension of the usable data recording space on the disk,

a pair of pads,
 a pair of swing arms swingably mounted on said frame for holding said pads respectively in engagement with the other face of the disk each aligned opposite one of said two transducers,
 a face cam having a spiral edge traversing a distance equal to substantially one-half of said radial dimension,
 a follower connecting said spiral edge and said carriage whereby each of said heads move across substantially one-half of said radial dimension, and
 a cam portion on said face cam and interconnections between said cam portion and said two swing arms so that, when said face cam is rotatably moved to bring said two transducers to limits of their movements, said cam portion and said interconnections coast with said swing arms to swing the arms and move said pads out of engagement with the disk.

4,315,290

APPARATUS FOR SHIFTING THE MAGNETIC READ/WRITE HEAD CARRIAGE IN A FLOPPY DISK DRIVE UNIT

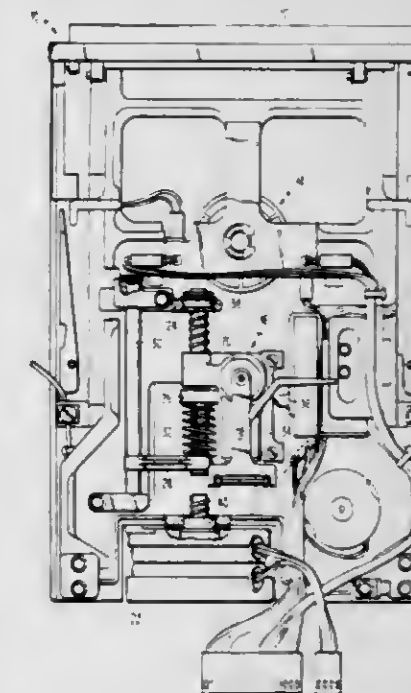
Jagmohan S. Kukreja, Claremont, Calif., assignor to Siemens Corporation, Iselin, N.J.

Filed Jan. 11, 1980, Ser. No. 111,226

Int. Cl.³ G11B 21/08, 5/55

U.S. Cl. 360—106

6 Claims



1. A magnetic recording device having a carriage supporting at least one magnetic head and means for shifting said carriage in a radial direction relative to a center driven, pliant magnetic disk to effect data transfer with selectable tracks on at least one side of the disk, the improvement wherein said means for shifting said carriage comprises, in combination:

- (a) a rotatable shaft having a helical screw portion;
- (b) a carriage nut arranged on said screw portion and moveable in the axial direction of said shaft when said shaft is rotated, thereby to move said carriage in said radial direction;
- (c) a stepper motor having a permanent magnet rotor arranged coaxially with and rigidly attached to one end of said shaft for selectively rotating said shaft;
- (d) a first bearing disposed adjacent said rotor for rotatably holding both said rotor and said shaft in the region of said motor; and
- (e) a second bearing disposed adjacent the end of said shaft

opposite said motor for rotatably holding said shaft at said opposite end;
whereby said shaft and said rotor are held in position only by said first and second bearings.

4,315,291

MAGNETIC TRANSDUCTION DEVICE WITH MAGNETORESISTANCES

Jean-Pierre Lazzari, Montfort l'Amaury, France, assignor to Compagnie Internationale pour l'Informatique CII-Honeywell Bull (Societe Anonyme), Paris, France

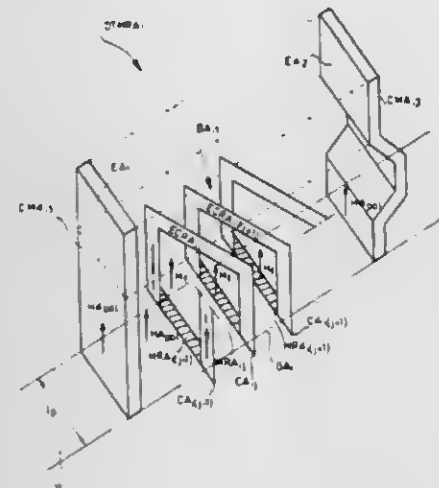
Filed Dec. 18, 1979, Ser. No. 104,852

Claims priority, application France, Apr. 25, 1979, 79 10562

Int. Cl.³ G11B 5/22, 5/20, 5/30

U.S. Cl. 360—113

4 Claims



1. A magnetic transduction device for reading and/or writing data contained on a magnetic support comprising:
two thin superposed magnetic layers magnetically coupled at one end and adapted to be arranged at the other end close to the magnetic support and substantially perpendicular thereto, said layers being spaced from each other at said other end so as to form an air gap therebetween;
a coil between thin magnetic layers, said coil comprising a plurality of thin conductive layers superposed in a direction perpendicular to the plane of the said magnetic layers and separated from each other by thin conductive layers having a part extending into said air gap and at least one magnetoresistance disposed in said part and situated in the air gap so as to be submitted to the magnetic leakage field of the data of the support.

4,315,292

BEVELED MAGNETIC HEADS FOR FLOPPY DISK

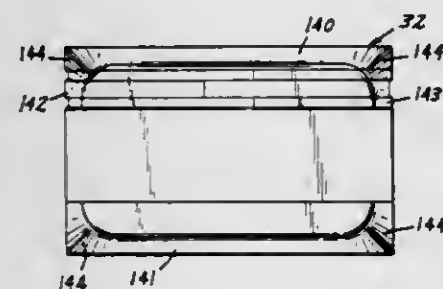
Leonard E. Kronfeld, Minneapolis, Minn., assignor to Nortronics Company, Inc., Minneapolis, Minn.

Filed Oct. 5, 1979, Ser. No. 82,235

Int. Cl.³ G11B 5/22, 5/48, 5/54, 21/16

U.S. Cl. 360—122

5 Claims



1. A magnetic transducer for use in a magnetic disk data storage system, comprising core and ceramic pieces bonded together to form a transducer body having a planar face with the gap positioned therein for contact with a disk recording

medium in data transfer operations, the edges of the transducer body adjacent said face being beveled, the corners at the intersections of the adjacent edges being beveled, and the edge and corner bevels blended or radiused into the planar face to avoid surface discontinuities, whereby stress concentrations on the recording medium are avoided in case of engagement of the corners or edges of the transducer with the recording medium during transducer loading and unloading.

4,315,293

TRANSDUCER PROTECTION GUIDE FOR DISKETTE INSERTION AND REMOVAL

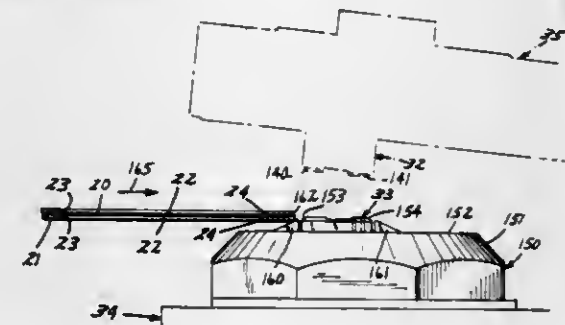
Thomas J. Winkler, Isanti, Minn., assignor to Nortronics Company, Inc., Minneapolis, Minn.

Filed Oct. 5, 1979, Ser. No. 82,234

Int. Cl.³ G11B 5/22, 5/48, 5/54, 21/16

U.S. Cl. 360—130.2

4 Claims



1. A magnetic transducer supporting assembly for a double sided floppy diskette recording system, comprising:
a transducer support carriage;
a transducer support housing mounted on said carriage;
a first magnetic transducer having a planar face for operatively contacting the diskette recording medium;
means for mounting the first transducer to said housing with at least a portion thereof including the planar face projecting from the surface of the housing to permit contact with the disk recording medium during data transfer operations;
a support arm having a second magnetic transducer mounted adjacent one end thereof and hinged at its other end to said carriage with the first and second transducers in generally opposed relationship, so that the support arm can be opened to permit insertion of a diskette generally between the carriage and the support arm, and so that the support arm can be closed to bring the first and second transducers into operative contact with opposite sides of the diskette recording medium; and
a guide ramp attached to said housing and positioned adjacent the projecting portion of said first transducer along the side portion thereof which faces in the direction from which the diskette is inserted, said ramp having a surface which slopes from the surface of the housing toward but not to the plane of the face of the first transducer to engage the advancing edge of a diskette jacket during insertion thereof and to guide it over the first transducer.

4,315,294

COMPUTER TAPE DRIVE AND CLEANER APPARATUS

Terrance J. Wilson, 1804 Madison, Bellevue, Nebr. 68005

Filed Mar. 26, 1980, Ser. No. 133,980

Int. Cl.³ G11B 25/06; B08B 1/02

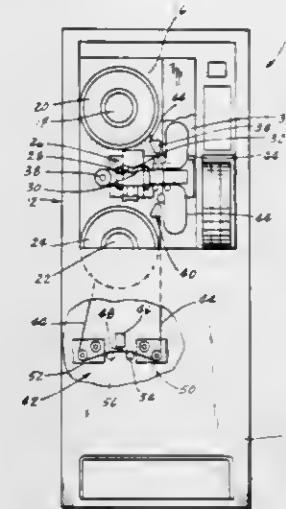
U.S. Cl. 360—137

14 Claims

1. A combination tape drive and tape cleaner unit for a computer system wherein information is stored on a magnetic tape carried on a tape supply reel and tape take-up reel, said unit comprising

a housing,
means for rotatably supporting a tape supply reel on said housing,

means for rotatably supporting a tape take-up reel on said housing,
a read-write head assembly mounted on said housing and adapted to read and write information on a magnetic tape carried on the supply and take-up reels,
guide means for operatively directing the tape past said read-write head assembly whereby information may be written thereon or read therefrom,
a capstan assembly for driving the tape in a forward direc-



tion from said supply reel past said read-write head assembly and to said take-up reel and in a reverse direction from said take-up reel, past said read-write head assembly and onto said supply reel, and

a tape cleaner apparatus supported on said housing and adapted to contact tape being driven between said supply reel and take-up reel, said tape cleaner apparatus including a blade holder assembly and a blade supported therein and arranged in engagement with said tape for cleaning the same.

4,315,295

TIMING CIRCUIT FOR AN OVERCURRENT RELAY

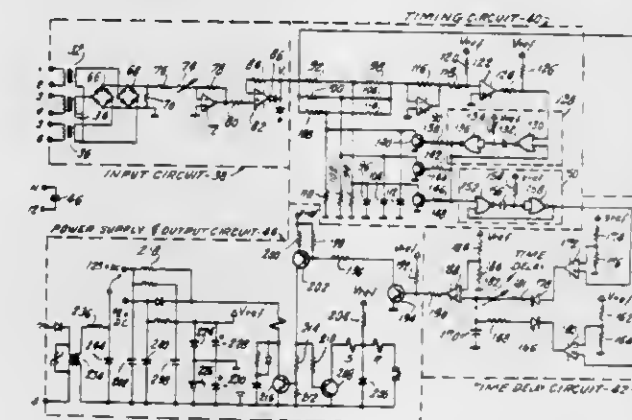
Stanley E. Zocboll, Holland, Pa., assignor to Gould Inc., Rolling Meadows, Ill.

Filed Dec. 17, 1979, Ser. No. 104,199

Int. Cl.³ H02H 3/093

U.S. Cl. 361—96

15 Claims



1. An overcurrent relay timing circuit, comprising:
a plurality of non-interacting R-C circuits, each producing a respective signal; and
summing means comprising an inverting amplifier for generating a first signal representative of the sum of said respective signal of said R-C circuits.

4,315,296

RELIABLE OVER-TEMPERATURE CONTROL CIRCUIT

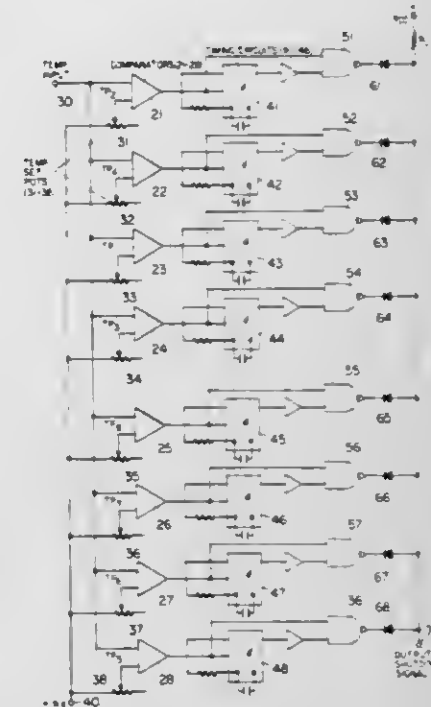
Geoffrey Hancock, Simi Valley, Calif., assignor to Semco Instruments, Inc., North Hollywood, Calif.

Filed Oct. 14, 1980, Ser. No. 197,008

Int. Cl.³ H02H 5/04

U.S. Cl. 361—103

6 Claims



1. A digitized over-temperature monitoring and shut-off circuit for turbine engines, comprising:
means for generating an electrical signal corresponding to the temperature of a turbine engine;
a plurality of comparator triggering circuits, each coupled to receive said electrical signal representing temperature, for producing an output signal when the temperature exceeds a preset level;
timing circuit means associated with each comparator triggering circuit for producing an output signal following a predetermined delay interval;
gate output circuit means for receiving input signals, respectively, from each of said comparator triggering circuits and from each said associated timing circuits and for producing an output signal when both signals are present; and
an output control circuit for shutting off the turbine engine when a signal is received from any of said gate output circuits.

4,315,297

HAMMER DRIVE SAFETY DEVICE FOR PRINTER

Tsuneki Kobayashi, and Hiroshige Nakano, both c/o Hitachi Koki Company Limited, No. 1060, Tateda, Katsuta-shi, Ibaraki, Japan

Continuation-in-part of Ser. No. 862,815, Dec. 21, 1977, abandoned. This application Jul. 11, 1979, Ser. No. 56,736

Claims priority, application Japan, Dec. 23, 1976, 51-157028

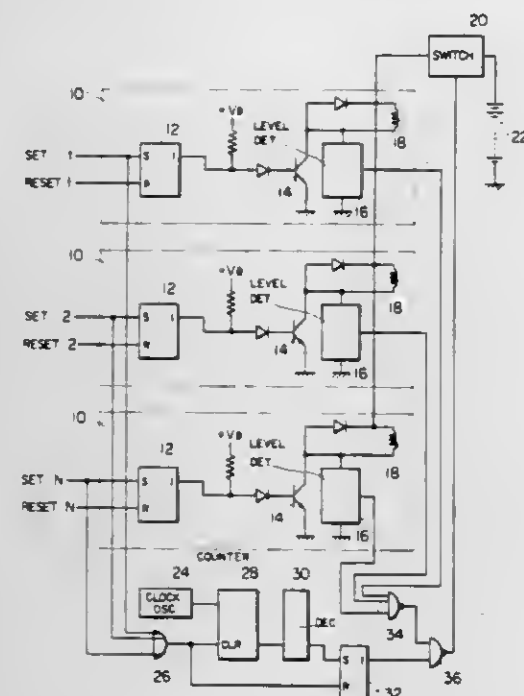
Int. Cl.³ H02H 3/24

U.S. Cl. 361—191

7 Claims

1. A hammer drive safety device for use in a printer which has a plurality of hammer drive circuits, each including a solenoid for driving its associated hammer provided along a character printing line and a switching element coupled to said solenoid, wherein said printer produces a character print command signal and said switching element is rendered conductive responsive to a character print command signal and driving power is supplied from a power source to said solenoid for driving its associated hammer when said switching element is rendered conductive, the improvement comprising: time limiting means adapted to produce an output when said character print command signal is not produced for more than a prede-

terminated duration, detection means for detecting the conduction and nonconduction of said switching element and disconnection means interposed in a current path between said sole-



4,315,298

IGNITER PLUG

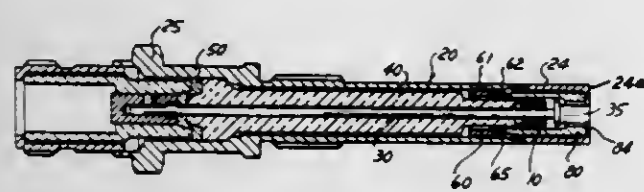
George F. Mulkins, Bainbridge; Jerome P. Dombrowski, and Gaston R. Isliker, both of Sidney, all of N.Y., assignors to The Bendix Corporation, Southfield, Mich.

Filed Apr. 28, 1980, Ser. No. 144,121

Int. Cl.³ F23Q 3/00

U.S. Cl. 361—253

1 Claim



1. In combination with an igniter plug of the type having an inner elongated electrode having a front portion and a rear portion; an intermediate elongated insulator disposed around at least a portion of the electrode, said insulator having a front portion, a rear portion, and an axial passage extending through said insulator and having a portion of said electrode mounted therein; an outer elongated electrode comprising a metal shell mounted on the intermediate elongated insulator and disposed around the electrode and electrically isolated therefrom by the insulator, said metal shell having a rear portion and a front end portion which is arranged to provide a spark gap with the end of the front portion of said electrode; means for mounting a portion of the inner electrode within the elongated insulator; means for providing a pressure tight seal between said inner electrode, said elongated insulator and said metal shell; a forward insulator electrically isolating said forward portion of said outer shell from the forward portion of said electrode and being separated by an air space from said inner electrode; means for mounting said forward insulator to said outer shell, the improvement wherein said last mounting means comprises: a metal ring welded to said outer shell and brazed to the forward insulator.

4,315,299
POWER CAPACITOR WITH HIGH HEAT DISSIPATION
Roland Saint Marcoux, and Leon Fink, both of Paris, France, assignors to L.C.C.-C.I.C.E. Compagnie Europeenne de Composants Electroniques, Bagnolet and Thomson-CSF, Paris, both of, France

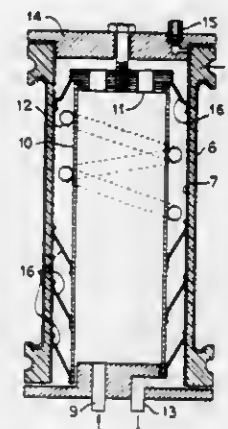
Filed Jan. 21, 1980, Ser. No. 113,503

Claims priority, application France, Jan. 19, 1979, 79 01339

Int. Cl.³ H01G 1/08

U.S. Cl. 361—274

11 Claims



1. A power condenser with high thermal dissipation, comprising:
a hollow dielectric body;
an external armature supported by the outer surface of said body;
an internal armature supported by the inner surface of said body;
a sleeve coaxial with said hollow dielectric body and having a diameter close to the diameter of said body, whereby a space is formed therebetween;
connecting means communicating the side of said sleeve opposite said space with said space; and
at least one static device arranged along a helicoidal pattern in said space, whereby a cooling liquid can flow longitudinally past said opposite side of said sleeve to said connecting means and into said space, whereby said cooling liquid can flow through said space in a helicoidal flow pattern to thereby become stirred and increase the heat transfer between said cooling liquid and said condenser.

4,315,300

COOLING ARRANGEMENT FOR PLUG-IN MODULE ASSEMBLY

James K. Parmerlee, and B. Dale Tague, both of Indianapolis, Ind., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 29, 1979, Ser. No. 7,524

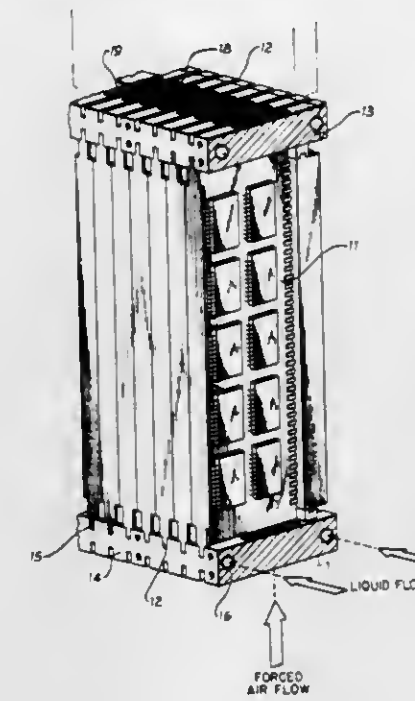
Int. Cl.³ H05K 7/20

U.S. Cl. 361—382

5 Claims

1. A modular electronic system comprising,
a support assembly having first and second side plates each having a plurality of spaced grooves therein,
a plurality of electronic modules each having a metallic frame with the ends of each said metallic frame being slidably mounted in opposed grooves in said first and second side plates,
a plurality of through slots in said first and second side plates, each said slot being positioned between adjacent grooves to provide air passages through said first and second side plates,
means for circulating air through said plurality of slots thereby transferring heat from said electronic modules to said first and second side plates,
a first longitudinal cooling passage in each said side plate

positioned above said through slots and behind said spaced grooves and a second longitudinal cooling passage



in each said side plate positioned below said through slots and behind said spaced grooves, and means for circulating cooling liquid through said passages.

4,315,301

GENERATOR FLASHLIGHT

Carlos L. Jimena, 327 Douglas St., Salt Lake City, Utah 84102

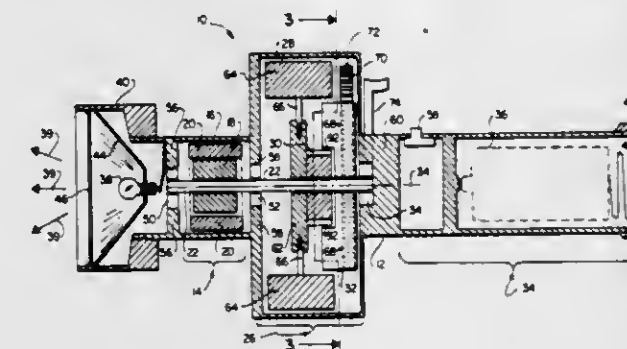
Continuation-in-part of Ser. No. 951,783, Oct. 16, 1978,

abandoned. This application Jun. 2, 1980, Ser. No. 155,217

Int. Cl.³ B62J 5/08

U.S. Cl. 362—193

15 Claims



flywheel from externally applied manual energy during a non-excitation period; and
a plurality of bearings selectively positioned along said shaft for holding said shaft in its desired central position and for minimizing frictional and other losses associated with the rotation of said flywheel, shaft, and rotor of said generator, thereby allowing said flywheel, shaft, and generator rotor to rotate for a relatively long period of time after the application of a short burst of manual rotational energy to said flywheel through said manual means;
whereby said flashlight provides a continuous source of light over both said excitation and non-excitation periods, said non-excitation period being at least four times as long as said excitation period.

4,315,302

QUARTZ LIGHT FIXTURE

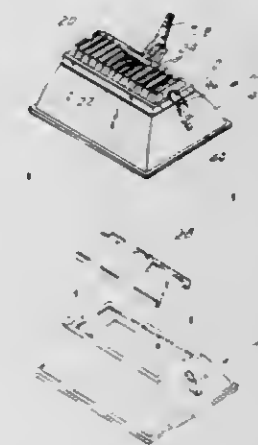
Salvatore C. Petralia, Sayreville, N.J., assignor to Keene Corporation, New York, N.Y.

Filed Mar. 13, 1978, Ser. No. 885,634

Int. Cl.³ H01R 33/00

U.S. Cl. 362—226

6 Claims



1. A quartz light fixture comprising: a base unit having side walls and a base portion; a top surface of said base portion from which said side walls extends, lamp receiving socket means secured to said top surface; a reflector assembly including a portion seating on a gasket provided between said reflector assembly portion and a top surface of said side walls, said reflector assembly portion surrounding said lamp socket and means for releasably coupling said reflector assembly portion to said base portion.

4,315,303

DC CONVERTER

Donald W. Snyder, Napa, Calif., assignor to Real Gas & Electric Company, Inc., Santa Rosa, Calif.

Filed Dec. 13, 1979, Ser. No. 103,371

Int. Cl.³ H02M 3/335

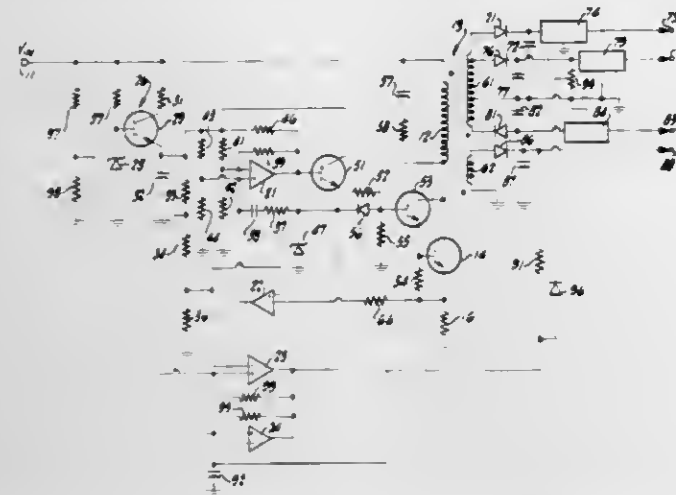
U.S. Cl. 363—21

6 Claims

1. A self-generating hand-held flashlight comprising:
a tubular housing having first and second coaxial compartments, said second compartment having a diameter that is at least 1.5 times as large as the diameter of said first compartment;
a bulb mounted in a reflector plate positioned at one end of said housing;
a generator positioned in said first compartment of said housing, said generator having a rotor adapted to rotate about a central axis of said tubular housing and said generator being electrically coupled to said bulb;
a high inertia balanced flywheel rotatably mounted in said second compartment about said central axis, said flywheel being directly coupled through a central rotatable shaft to said rotor of said generator, said flywheel having a diameter at least 1.4 times as large as the diameter of said first housing;
manual means for coupling a burst of rotational energy to said flywheel, said means including a slip-clutch adapted to couple said flywheel to externally applied manual energy during an excitation period, and for de-coupling said

1. A converter circuit for producing low voltage regulated DC output current from a DC input that may vary widely with time comprising
a transformer having a primary winding connected in series with a switch and a resistor across an input,
a plurality of comparators with a first comparator connected in an oscillator circuit to said input and to control said switch whereby current through the primary winding of said transformer pulses at oscillator frequency and a second comparator connected for control from the juncture of said switch and resistor and having an output connected in said oscillator circuit to limit successive oscillation pulse durations for peak current protection,
said transformer also having at least one secondary winding connected to an output circuit including a diode and

capacitor for the transfer of energy, a termination of each current pulse in the transformer primary winding, and



a connection from said output circuit to control a third comparator having the output coupled to control said switch for limiting power in the output circuit.

4,315,304

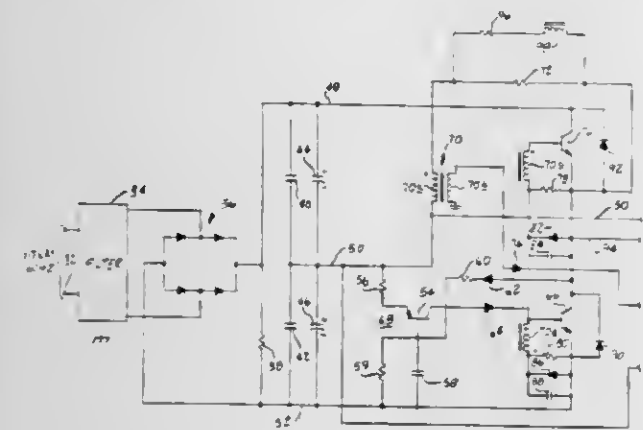
STARTING CIRCUIT FOR A HIGH FREQUENCY MAGNETIC AMPLIFIER POWER SUPPLY

Alejandro Marez, and Jon J. Spykerman, both of Fort Worth, Tex., assignors to Kyber Engineering, Inc., Fort Worth, Tex. Division of Ser. No. 864,771, Dec. 27, 1977, abandoned. This application Nov. 6, 1979, Ser. No. 91,791

Int. Cl.³ H02P 1/02

U.S. Cl. 363-49

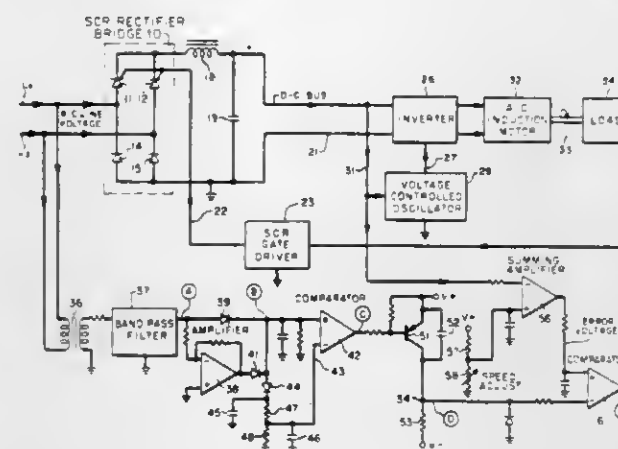
5 Claims



1. A starting circuit for generating an output pulse to initiate an oscillator circuit, the oscillator circuit including first and second transistors, having a common connection as an output terminal, comprising in combination:

- a transistor having one electrode connected to the base electrode of one transistor of the oscillator circuit and a second electrode as an input terminal,
- voltage supply means for generating a voltage at a first terminal to the input terminal of said transistor,
- a capacitor connected to a third electrode of said transistor and to a second terminal of said voltage supply means, and
- a resistor connected between the interconnection of the first and second transistors of the oscillator circuit and the interconnection of the third electrode of said transistor with said capacitor to charge said capacitor to reverse bias said transistor.

4,315,305
CONTROLLED D-C POWER SUPPLY
Edward C. Siemon, Newfield, N.Y., assignor to Borg-Warner Corporation, Chicago, Ill.
Filed Sep. 12, 1979, Ser. No. 75,307
Int. Cl.³ H02P 13/26
U.S. Cl. 363-88
3 Claims



1. A controlled d-c power supply for rectifying applied a-c line voltage to develop therefrom d-c voltage of a desired magnitude, the a-c line voltage being subject to undesired amplitude variations, comprising:

- an SCR rectifier bridge, having at least two SCR's, for rectifying the a-c line voltage to produce d-c voltage of a magnitude determined by the conduction angle of the SCR's during each half cycle of the a-c line voltage;
- pulse generating means, responsive to the a-c line voltage, for developing a ramp-shaped pulse during each half cycle of the a-c line voltage;
- control means for utilizing said ramp-shaped pulses to trigger said SCR's into conduction at a desired phase angle, following the beginning of each half cycle of the a-c line voltage, thereby to control the conduction angle in order to establish the d-c voltage at a selected desired amplitude level;

and regulating means, included in said pulse generating means, for maintaining a constant pulse width for said ramp-shaped pulses despite wide variations in the a-c line voltage, thereby rendering said control means immune to line voltage fluctuations,

said pulse generating means including a band pass filter for attenuating, in the a-c line voltage, frequencies above and below the fundamental commutating frequency, while at the same time introducing no phase shift to that fundamental frequency.

4,315,306

HIGH-VOLTAGE GENERATING DEVICE

Franciscus Tol, and Albertus B. A. Baggermans, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jan. 28, 1980, Ser. No. 115,971

Claims priority, application Netherlands, Feb. 19, 1979, 7901280

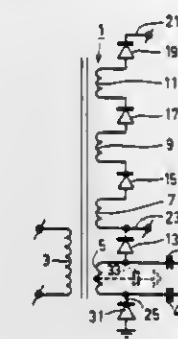
Int. Cl.³ H02M 7/06

U.S. Cl. 363-126

7 Claims

1. A high-voltage generating device comprising, a transformer having a primary coil and a secondary coil which is divided into a plurality of sections, a plurality of diodes, means connecting the end of each section, except for the end of the last section, to the anode of a diode, the cathode of which is connected to the beginning of the next section, means connecting the end of the last section to the anode of a diode whose cathode is connected to a high-voltage lead, means connecting the cathode of at least one of the other diodes to a tapping lead, means connecting the beginning of the first section to the

cathode of a diode whose anode is connected to a point of fixed potential, and means connecting the beginning and the end of



the first section to the point of fixed potential via first and second capacitors, respectively.

4,315,307

SWITCHING DEVICE AND SWITCHED-TYPE POWER SUPPLY USING THE SAME

Christian Jacquart, Gattieres, France, assignor to International Business Machines Corp., Armonk, N.Y.

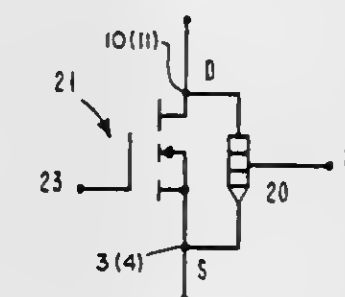
Filed Jun. 2, 1980, Ser. No. 155,288

Claims priority, application France, Jun. 12, 1979, 79 15736

Int. Cl.³ H02M 7/537

U.S. Cl. 363-134

3 Claims



1. A switching device having an ON (closed) position and an OFF (open) position and controlled by control signals, comprising:

- a bipolar transistor and timing means connected to the base of the bipolar transistor to apply a first control signal at a first level to cause said transistor to turn ON and at a second level to cause said transistor to turn OFF,
- a field effect transistor; means connecting the collector and the emitter of said bipolar transistor to the drain and to the source of said field effect transistor; and means connected to the gate of the field effect transistor to apply a second control signal that has the same frequency as the first, said second control signal being applied at a third level for causing said field effect transistor to turn ON and at a fourth level for causing said field effect transistor to turn OFF, the time interval during which said second control signal is at said third level being longer than the time interval during which said first control signal is at said first level.

4,315,308

INTERFACE BETWEEN A MICROPROCESSOR CHIP AND PERIPHERAL SUBSYSTEMS

Daniel K. Jackson, Portland, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

Filed Dec. 21, 1978, Ser. No. 972,007

Int. Cl.³ G06F 13/00

U.S. Cl. 364-200

9 Claims

1. A bus interface unit for use in combination with a microprocessor interface of the type having

- a bidirectional multiline bus for carrying address bits, control bits and data bits, said bus having a total number of

lines which is less than the total number of bits comprising said address;

an output line (ISA);

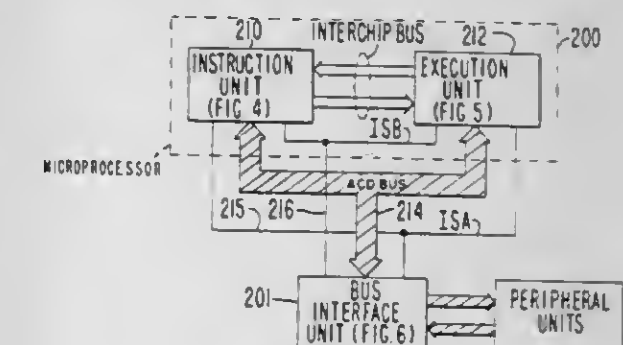
an input line (ISB);

means connected to said bus, operative during a first cycle for placing a first number of bits of said address on a first number of said bus lines, and a control specification specifying the direction of data transfer and the amount of data to be transferred, said control specification being placed on a second number of said bus lines; and,

means connected to said bus operative during a second cycle following said first cycle for placing a second number of bits of said address on said first number and said second number of said bus lines, said data transfer to take place, to or from a location specified by said address, during cycles subsequent to said first and second cycles;

said bus interface unit comprising:

logic means connected to said output line (ISA) and to said first number and said second number of said bus lines, said logic means including first and second address registering means, said logic means operative in response to said



output line (ISA) and to said first number of bits of said address on said first number of bus lines and to said control specification of said second number of bus lines, during said first cycle, for decoding said control specification and for registering said first number of bits of said address, in said first address registering means, said logic means being further operative in response to said output line (ISA) during said second cycle for registering said second number of bits of said address, in said second address registering means, whereby a complete address comprised of said first and second number of bits is registered by the end of said second cycle;

first means connected to said logic means and to said multiline bus for controlling the direction of said data transfer on said multiline bus; and,

second means connected to said logic means and to said multiline bus for controlling the amount of data transferred on said multiline bus,

said first and second controlling means being operative in accordance with control information contained in said control specification.

4,315,309

INTEGRATED MEDICAL TEST DATA STORAGE AND RETRIEVAL SYSTEM

Robert D. Coli, 470 Tollgate Rd., Warwick, R.I. 02886

Filed Jun. 25, 1979, Ser. No. 51,714

Int. Cl.³ G06F 15/42

U.S. Cl. 364-200

30 Claims

1. Apparatus for generating, storing and reporting medical test data resulting from the performance of various medical tests selected from a predetermined set of known medical tests which are divisible into subsets of tests useful to patient treatment personnel in diagnosing and treating organ system related diseases, such tests being conducted on a plurality of medical patients which collectively define a continually changing patient population, said apparatus comprising

- (a) electronic data generating means for generating a digital

4,315,312

CACHE MEMORY HAVING A VARIABLE DATA BLOCK SIZE

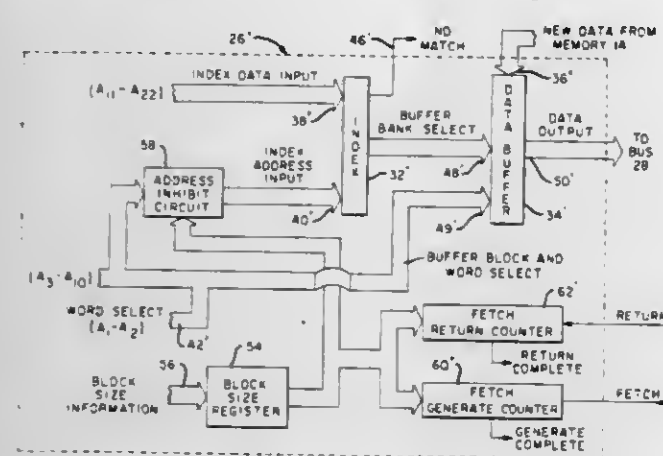
Carson T. Schmidt, Poway, Calif., assignor to NCR Corporation, Dayton, Ohio

Filed Dec. 19, 1979, Ser. No. 105,186

Int. Cl.³ G06F 13/00

U.S. Cl. 364—200

8 Claims



1. In a data processing system having a main memory for storing data, a processor for processing data from said main memory, and a cache memory within said processor for storing data blocks, with all of the data blocks comprised of the same number of data words, the improvement wherein the number of data words in the data blocks may be varied and wherein said cache memory comprises:

- a data buffer for receiving and storing data blocks from said main memory with the data blocks in data buffer arranged in banks with each bank having a plurality of data blocks;
- a set associative index for storing an address block corresponding to each data block stored in said data buffer, each address block comprised of bits in the main memory address of the corresponding data block, said index including an index data input for receiving main memory address bits for comparison with the main memory address bits of the address blocks stored in said index, and an index address input for receiving index address input bits selecting a set of address blocks having the main memory address bits for comparison with the main memory address bits at said index data input; and
- inhibit means for inhibiting selected ones of the index address input bits at said index address input in order to reduce the number of addressable address blocks in said index so that the number of data words in the corresponding data blocks in said data buffer may be increased.

4,315,313

DIAGNOSTIC CIRCUITRY IN A DATA PROCESSOR

Rolfe D. Armstrong, Escondido, and Dennis A. Walsb, San Marcos, both of Calif., assignors to NCR Corporation, Dayton, Ohio

Filed Dec. 27, 1979, Ser. No. 107,735

Int. Cl.³ G06F 11/00

U.S. Cl. 364—200

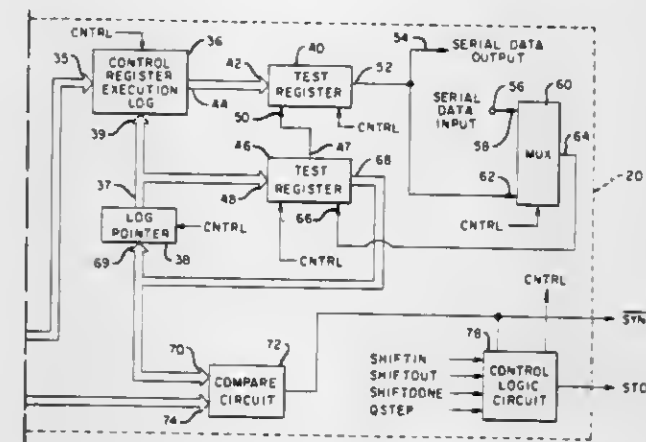
6 Claims

5. In a data processing system having a processor with a plurality of pipelined stages and a control store for storing microinstructions to be passed through the stages in order to be executed in said processor, the improvement comprising:

- a control register associated with at least one of the stages, said control register for holding a control store address associated with the microinstruction in its associated stage;
- a last-in-first-out log having a plurality of storage locations and connected for storing the control store address of each microinstruction executed by the processor;
- a log pointer for providing a log address of each storage location in said log, said log pointer connected to said log so that the log address of a storage location is provided by

said log pointer to said log when a control store address is to be stored in said log and when a control store address is to be read from said log;

- a first test register having a parallel data input connected for receiving the control store address stored in one of the storage locations in said log;
- a second test register having a parallel data input connected for receiving the log address provided by said log pointer and having a parallel data output;
- an external serial data output, said first and said second test registers interconnected, with a serial output of one of said first and said second test registers connected to said external serial data output so that a control store address in one of the storage locations in said log and the log address of that storage location in said log pointer are serially read



from said first and second registers and provided at said external serial data output;

- a compare circuit connected for receiving data stored in said second test register from its parallel data output and for receiving the control store address of a microinstruction executed by the processor and held in the control register; and
- an external serial input connected for providing data in the form of a preselected control store address to said second test register so that when the microinstruction associated with the preselected control store address is executed by the processor, said compare circuit provides a signal indicating a match of the data in said second test register and the control store address of the microinstruction executed by the processor.

4,315,314

PRIORITY VECTORED INTERRUPT HAVING MEANS TO SUPPLY BRANCH ADDRESS DIRECTLY

Paul M. Russo, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 865,796, Dec. 30, 1977, abandoned. This application Dec. 19, 1979, Ser. No. 105,121

Int. Cl.³ G06F 9/42

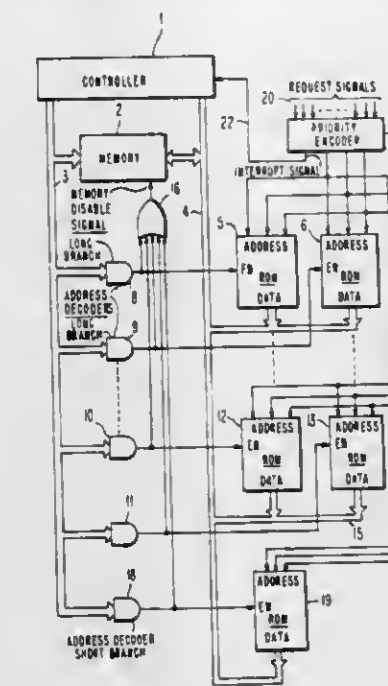
U.S. Cl. 364—200

8 Claims

1. In a computer system comprising a main memory storage means having a main program and sub-routines, control logic means, a main program counter, and means for receiving source identifying service requests from external sources, means for accessing and executing a sub-routine requested by and in response to each service request and with said accessing and executing means comprising:

- first storage means containing first sub-routine addresses addressable by said service requests;
- register means containing a given instruction address;
- said control logic means responsive to a received service request to enable said register means to replace said main program counter as the system program counter and to point to said given instruction;
- said control logic means further comprising means responsive to the execution of said given instruction to alter the contents of said register means in a predetermined manner;

said first storage means further comprising first enabling means and responsive to said altered contents of said register means and to said received service request for supplying the requested sub-routine address to said control logic means;



said control logic means responsive to the reception of said requested sub-routine address to load said requested sub-routine address into said register means which responds thereto to function as the active program counter for the execution of said requested sub-routine.

4,315,315

GRAPHICAL AUTOMATIC PROGRAMMING

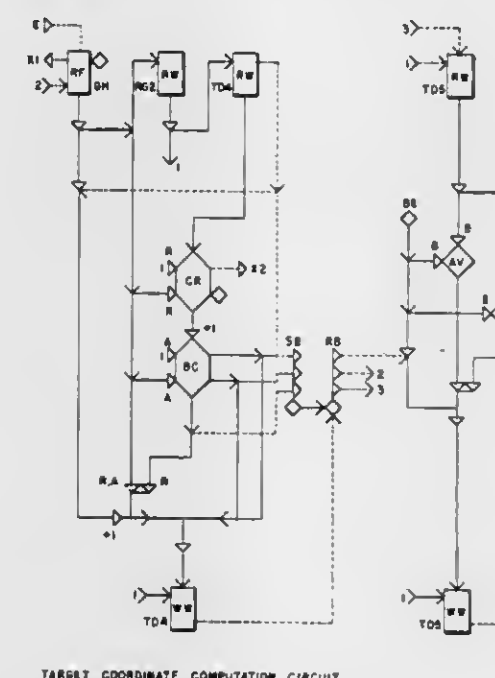
Alexander Kossiakoff, Brookville, Md., assignor to The Johns Hopkins University, Baltimore, Md.

Filed Mar. 9, 1971, Ser. No. 122,494

Int. Cl.³ G06F 15/20

U.S. Cl. 364—300

34 Claims



1. A method of designing a computer program from a representation of the flow of data as a data flow circuit in a form directly analogous to an electronic circuit diagram, in which a computing machine performs machine functions in the design process in lieu of human mental steps in designing said computer program, which comprises the steps of:

- representing such program as a data flow circuit, and storing the data flow circuit in the memory of a general purpose digital computer,
- the representation making clear the operations to be per-

formed by said computer on each data variable in said data flow circuit as well as showing conditional and unconditional logical branching in such circuit so that the method can be used to efficiently organize the operations and minimize redundancy therein.

4,315,316

DIGITAL ARRANGEMENT FOR DETERMINING AVERAGE CURRENT OF A CIRCUIT BY MONITORING A VOLTAGE

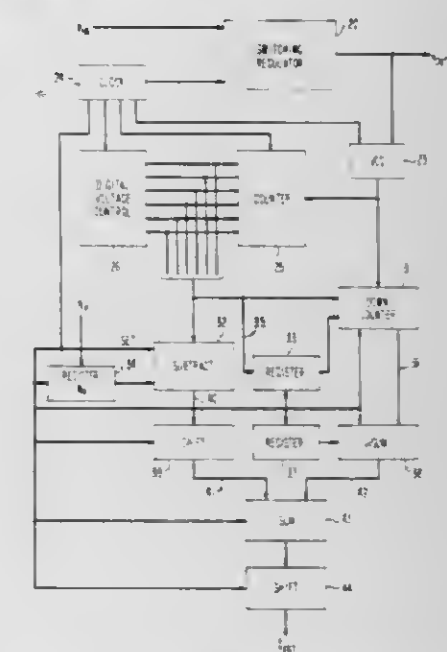
Victor B. Boros, New York, N.Y., and Frederick E. Thau, Teaneck, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 29, 1979, Ser. No. 98,475

Int. Cl.³ G05F 1/56

U.S. Cl. 364—483

7 Claims



4. A signal monitoring system for estimating an average current of a circuit by monitoring a voltage output of the circuit comprising:

- first means for deriving a first numerical value functionally related to an average of the voltage output,
- said first means comprising a voltage-to-frequency converter and counting means for counting cycles of a signal frequency generated by said voltage-to-frequency converter, whereby a numerical value proportional to an average of the voltage output is obtained,
- second means for deriving a second numerical value functionally related to a differential of an average of the voltage output;
- said second means comprising a down counter responsive to be decremented by said voltage-to-frequency converter and first register means to preset said down counter with a numerical value generated by said voltage-to-frequency converter in a previous cycle of operation of the signal monitoring system,
- arithmetical means responsive to said first and second means to weigh and combine said first and second numerical value in accord with a relation

$$A\hat{V} + B\frac{d\hat{V}}{dt} = \hat{I}$$

to obtain an estimated output current value, wherein A and B are constants determined by physical parameters of the circuit, said arithmetical means including subtract means responsive to the counting means for determining a numerical value proportional to a deviation of the average output voltage from a desired output voltage value, summing means for weighting numerical values derived by the down counter and said subtract means, and shifting

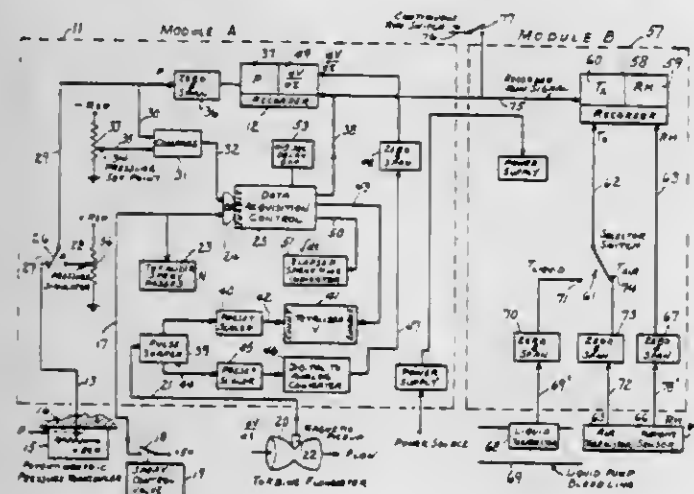
means responsive to said summing means to adjust count values of the summing means to obtain a numerical value proportional to an average output current of a circuit.

4,315,317 PESTICIDE SPRAY MONITORING SYSTEM FOR SPRAY VEHICLES

Richard D. Orchard, Juneau, Ak.; Kurt L. Barbee, Lafayette, Colo.; Bradford S. Whiting, Corvallis, Oreg.; William C. Heussy, deceased, late of Shedd, Oreg., and by Loyal L. Pavenstedt, executrix, Portland, Oreg., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Dec. 4, 1979, Ser. No. 100,081
Int. Cl.³ B05B 12/00

U.S. Cl. 364—510



1. A spray monitoring system for a vehicle comprising spray control means, spray pressure electrical sensing means in the spray flow path generating an electrical spray pressure signal corresponding to the sensed spray pressure responsive to emission of spray fluid from the vehicle, recorder means including a pressure indicator and means to record the display of the pressure indicator, circuit means connecting said sensing means to the pressure indicator, threshold pressure means to establish a pressure threshold electrical signal, means to compare the sensed electrical spray pressure signal with said threshold signal, circuit means to enable said recorder means responsive to activation of said control means, and means to enable said recorder means to continuously record the display of the spray pressure indicator while said sensed pressure signal is greater than said pressure threshold signal.

4,315,318 METHOD AND APPARATUS FOR PROCESSING A RADIATION IMAGE

Hisatoyo Kato; Masamitsu Ishida, and Seiji Matsumoto, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Dec. 18, 1979, Ser. No. 104,855
Claims priority, application Japan, Dec. 26, 1978, 53-163571; Jul. 11, 1979, 54-87800; Nov. 22, 1979, 54-151398; Nov. 22, 1979, 54-151400; Nov. 22, 1979, 54-151402

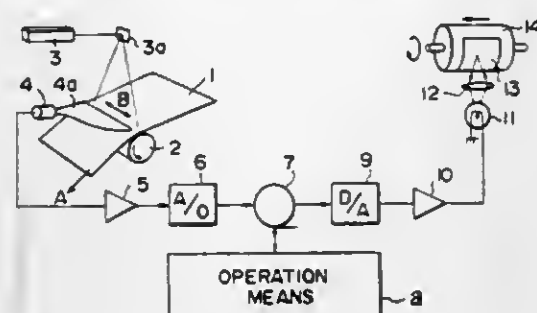
Int. Cl.³ H04N 1/40
U.S. Cl. 364—515

1. A method of recording an enhanced radiation image in a radiation image recording system comprising the steps of: scanning a stimutable phosphor with a stimulating beam; reading out and converting radiation image information recorded in said stimutable phosphor into an original image electric signal upon stimulation thereof; processing said original signal to produce an output signal in accordance with

$$S' = \text{Sorg} + \beta(\text{Sorg} - \text{Sus})$$

where Sorg is said original image signal, β is an emphasis coefficient, Sus is an unsharp mask signal corresponding to a

predetermined super-low spatial frequency at every scanning point, and S' is said output signal whereby a frequency compo-



18 Claims

ment above said predetermined super-low spatial frequency is emphasized; and displaying a visual image in response to said output signal.

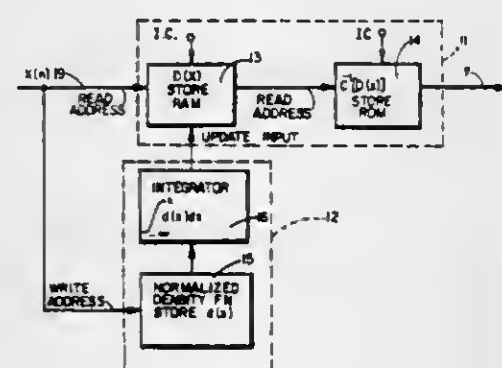
4,315,319 NON-LINEAR SIGNAL PROCESSOR

Stanley A. White, Santa Ana, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Feb. 1, 1980, Ser. No. 117,502
Int. Cl.³ G06F 15/36

U.S. Cl. 364—571

14 Claims



2. A device for the correction of signal distortion occurring in a signalling channel, and comprising: signal sampling means adapted to be responsive to an applied signal input (x) as a write-address for generating a statistical amplitude distribution function D(x); and inverse distribution function means responsive to addressing by the distribution function output of said signal sampling means for providing an output signal, y, corresponding to a compensatorily modified amplitude of the applied signal input (x).

4,315,320 EDUCATIONAL ANALOG COMPUTER LABORATORY

Edwin Z. Gabriel, 318-B South St., Eatontown, N.J. 07724

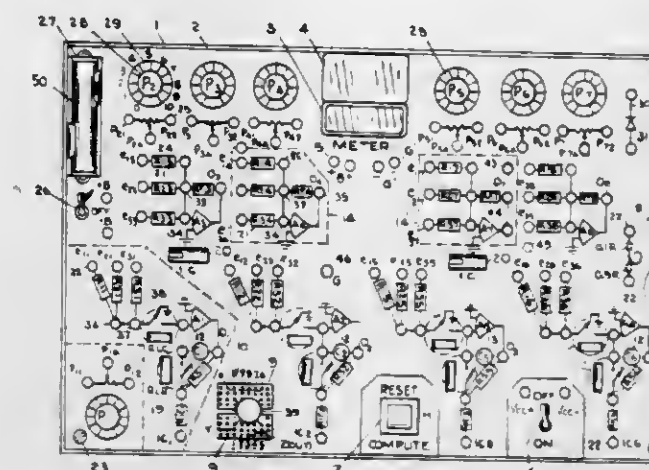
Filed Aug. 16, 1979, Ser. No. 67,123
Int. Cl.³ G06G 7/06, 7/32; G09B 23/02

U.S. Cl. 364—808

11 Claims

1. An analog computer comprising a panel including a plurality of computing assemblies, some of said assemblies being exposed integrator circuits and some being exposed summing circuits, and means for connecting the output of one assembly to the input of another assembly, each said assembly further comprising exposed coil spring terminals, one Op amplifier of a quad Op amplifier integrated circuit, diagram of an Op amplifier and associated artwork to show between which of two of said spring terminals a discrete passive-component is to be placed for solution of a differential equation, and wherein said panel further comprises a plurality of coefficient potentiometers, an on/off switch for supply voltage application to said quad Op amplifiers, patch cords; said spring terminals being the means for interconnecting selected said computing assem-

blies for forming an analog model of a physical system, each of said terminals enabling several patch cords to be connected to it as well as enabling magnets to be used at the end of each of said patch cords for electrically connecting said spring terminals; said computing assemblies arranged on said panel to



minimize the lengths of said patch cords when attempting to solve a differential equation to avoid confusion on the part of the user, said summing circuits being placed in one row, said integrator circuits being placed in another parallel row and said potentiometers being placed in a third parallel row.

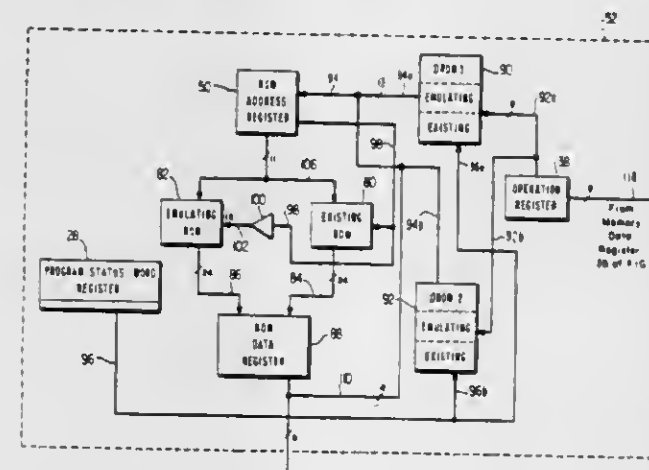
4,315,321 METHOD AND APPARATUS FOR ENHANCING THE CAPABILITIES OF A COMPUTING SYSTEM

William L. Parks, III, Bethesda, Md., and Clifford Harwood, Wheaton, Ill., assignors to The Kardos Systems Corporation, Gaithersburg, Md.

Filed Jun. 16, 1978, Ser. No. 916,255
Int. Cl.³ G06F 9/26

U.S. Cl. 364—900

5 Claims



1. A bimodal processor for executing virtually simultaneously, on a time-shared basis, and without pre-processing, at least two microprograms, execution of each given one of said at least two microprograms defining a corresponding processing mode of said processor, said processor comprising: a main memory containing a first microprogram including operational codes corresponding to a first distinct instruction set; data register means connected to said main memory for reading out said operational codes therefrom; first read only memory means for holding operational instructions from said first distinct instruction set to be executed by said processor; second read only memory means for holding a second microprogram comprising further operational instructions from a second distinct instruction set different from said first distinct instruction set; enabling means responsive to occurrence of each said corre-

sponding processing mode of said processor for automatically issuing a selective enabling signal, and decode unit means responsive to said selective enabling signal for selectively converting said operational codes, read out from said main memory by said data register means, into either addresses of corresponding said operational instructions in said first read only memory means or addresses of corresponding said further operational instructions in said second read only memory means, and for selectively accessing either said corresponding operational instructions in said first read only memory means or said corresponding further operational instructions in said second read only memory means, whereby said bimodal processor automatically and switchably executes, without pre-processing, one of said first microprogram and said second microprogram in accordance with occurrence of respective said corresponding processing mode of said processor.

4,315,322 MICROIMAGE REGISTRATION SYSTEM FOR LOADING AND/OR UPDATING MICROFICHES IN MICROFILM CASSETTE LIBRARY

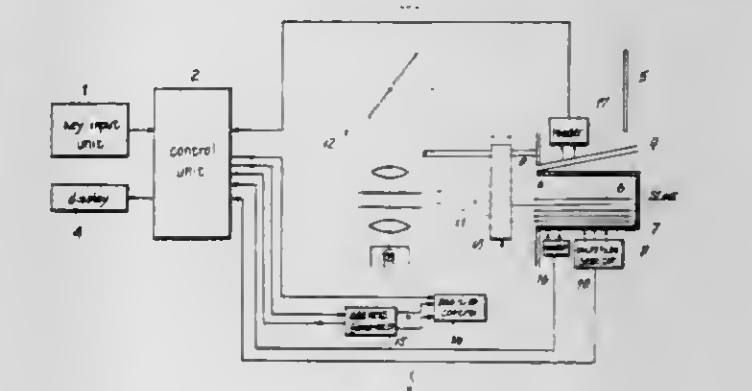
Mikio Osaki, Kashihara; Hiroshi Kamada, Yamatokoriyama; Kohichi Kakimoto, Matsuyama, and Toshiaki Tabuchi, Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 600,137, Jul. 30, 1975, abandoned. This application Jul. 3, 1979, Ser. No. 54,451

Claims priority, application Japan, Jul. 30, 1974, 50/88842; Aug. 2, 1974, 50/89222

Int. Cl.³ G06F 3/00
U.S. Cl. 364—900

7 Claims



1. Means for registering microimages in a microfilm retrieval library system to update said system wherein a plurality of cassettes are stored, each of said cassettes containing a predetermined number of film members, each of the latter carrying a predetermined number of microimages and each of said cassettes having a precoded cassette identity number and each of said film members having a precoded film identity number, said system comprising an optical viewing screen for projecting thereon information recorded on each of said microimages and an X-Y position control associated with said viewing screen for receiving a said film member and controlling the position of said respective microimages thereon for projecting purposes, said means for registering new microimages comprising: receiving means for receiving a new film member to be loaded into said system and a cassette for retaining said new film member therein; storage means for registering the identity of each film member, each microimage identity thereon, the category of information contained therein, and the cassette identity thereof when a new film member is loaded into said system; a key input means selectively activated subsequent to receipt of a said new film member in said receiving means for introducing key words into said system corresponding to

a given category of information contained in the microimages in said new film member;

an X-Y coordinate counter enabled by said key input means and presettable at a given count subsequent to receipt of said new film member in said X-Y position control, of which the count provides a control constraint for said X-Y position control;

a first reader enabled by said key input means for reading out a said precoded cassette identity number from and corresponding to said cassette for retaining said new film member subsequent to receipt of said new film member in said receiving means;

a second reader enabled by said key input means for reading out said precoded film identity number from and corresponding to said new film member subsequent to receipt of said new film member in said receiving means;

said X-Y position control means being responsive to said key input means for positioning a first microimage for projection;

frame address means receiving said count from said X-Y coordinate counter and responsive to said key input means to constrain said X-Y position control means to position each additional microimage on said new film member for projection and for reading out the count of said X-Y coordinate counter as an image identity number corresponding to each said microimage positioned for projection on said viewing screen; and

control means responsive to said key input means, for interconnecting said storage means, said first and second readers and said frame address means for putting into said storage means within said system the said key word from said key input means, the said precoded cassette identity number from said first reader, the said precoded film identity number from said second reader, and the said microimage identity number from said frame address means to register each of said microimages and thereby load said new film member into said system subsequent to the receipt of said new film member in said receiving means.

4,315,323

CASSETTE RECORDER SYSTEM FOR LOADING PROGRAMS

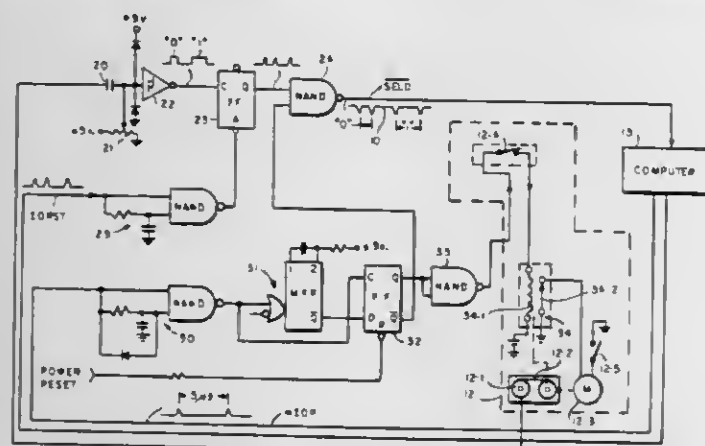
Larry F. Bronisz, Holliston, and Eugene V. Sahr, Littleton, both of Mass., assignors to Data General Corporation, Westboro, Mass.

Continuation of Ser. No. 794,015, May 5, 1977, abandoned. This application Feb. 22, 1980, Ser. No. 123,757

Int. Cl.³ G06F 3/08

U.S. Cl. 364-900

2 Claims



1. A control system for reading data stored on a magnetic tape into a computer comprising a tape drive and readout system including a motor, said magnetic tape storing a program thereon represented by sine waves of two different audio frequencies, one frequency representing a "0" bit and the other frequency representing a "1" bit, said magnetic tape supported by said tape drive system for movement upon operation of said motor, a Schmitt trigger circuit coupled to said tape drive and readout system to a pulse waveform representing the "1" and

"0" bits represented on said tape, a flip-flop coupled to the Schmitt trigger and a NAND circuit coupled to said flip-flop, a computer, said NAND circuit coupled to said computer for providing program data signals to said computer, said flip-flop resettable by a timing signal from said computer, said computer providing control signals to control the operation of the tape drive and readout system, said control system including a monostable flip-flop coupled to a bistable flip-flop, said bistable flip-flop coupled to said NAND circuit and to means for controlling energy to said motor, the appearance of first and second control signals from said computer within a predetermined period of time causing the motor to be energized and the NAND circuit to be enabled whereas if no second control signal appears after the first control signal within said predetermined period of time the motor remains de-energized and the NAND circuit is disabled.

4,315,324

DIRECTLY MODULATED SONOBUOY TRANSMITTER USING SURFACE ACOUSTIC WAVE SENSOR

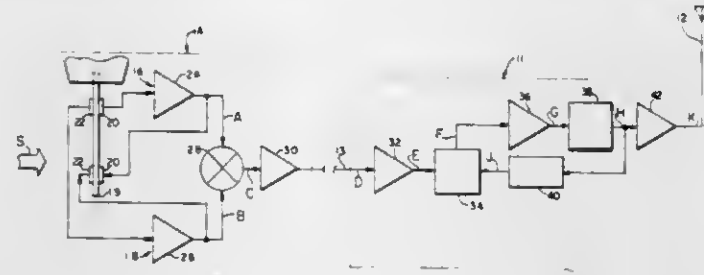
Michael T. Junod, and Albert M. Bates, both of Southampton, Pa., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sep. 11, 1980, Ser. No. 186,354

Int. Cl.³ H04B 1/59

U.S. Cl. 367-3

3 Claims



1. A sonobuoy for detecting sound pressure indicative of acoustic information and for transmitting a modulated carrier signal at a selected one of a plurality of equally spaced carrier frequencies containing said information to a remote receiver, comprising:

hydrophone means responsive to the sound pressure including first and second SAW oscillator means for producing a first and a second resonant frequency signal which respectively increases and decreases with pressure, and having the frequency difference at no sound pressure between the first and second signals of a predetermined submultiple of the spaced carrier frequencies; and mixer means connected to receive said first and second signals for producing a sum and difference frequency signal thereof indicative of the sound pressure;

cable means having low pass filter characteristics connected to receive the sum and difference frequency signal for passing only the difference signal; and

buoyant transmitter means connected to receive and multiply the difference signal to produce the carrier signal at the selected frequency, and for transmitting the carrier signal to the remote receiver.

4,315,325

ECHO RANGING PULSE DISCRIMINATION CIRCUIT

Frederick K. Blades, Boulder, Colo., assignor to PureCycle Corporation, Boulder, Colo.

Filed Jul. 2, 1980, Ser. No. 165,254

Int. Cl.³ G01S 15/04

U.S. Cl. 367-98

6 Claims

1. An echo ranging system comprising:

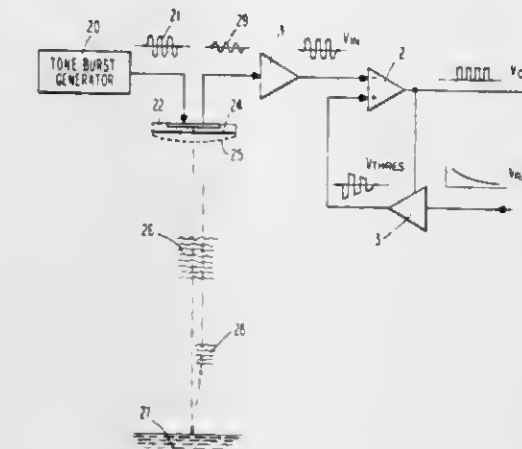
means for generating and transmitting a pulse;

means for receiving a reflection of said transmitted pulse and converting said reflection into an input signal; and

circuit means for discriminating said received pulse from noise and for providing a signal in response to said received pulse, said circuit comprising:

means for providing a threshold level varying with time,

means for comparing said input signal to said threshold



level, means for providing an output signal when said input signal exceeds said threshold level and means for inverting the relative polarity of said threshold level with respect to said input signal when said input signal exceeds said threshold level.

4,315,326

INERTIAL MEASUREMENT UNDERWATER TRACKING SYSTEM

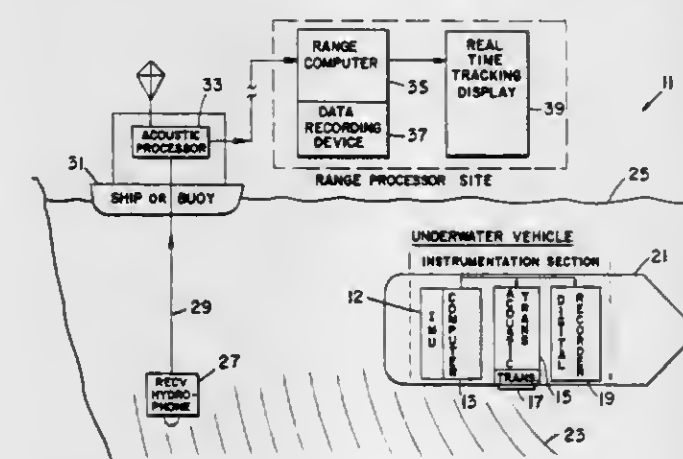
Jay V. Chase, Jr., Poulsbo, Wash., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 31, 1980, Ser. No. 202,518

Int. Cl.³ H04B 11/00

U.S. Cl. 367-134

14 Claims



1. An underwater tracking system comprising:

- (a) an underwater vehicle;
- (b) an inertial measurement unit mounted on said vehicle including measuring means for measuring information from which the position of said vessel may be defined;
- (c) a position device for determining the position of said vessel from the output of said inertial measurement unit;
- (d) the output of said inertial measurement unit applied to the input of said position device;
- (e) a transmitter; and
- (f) the output of said position device applied to the input of said transmitter for transmission to a remote receiver for determining the position of said underwater vehicle.

4,315,327

AIR OPERATED CLOCK

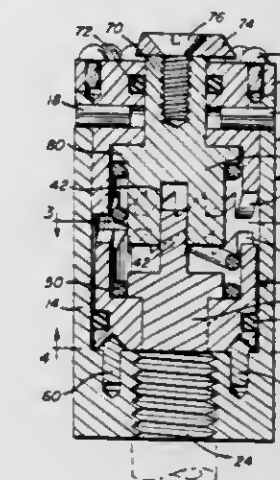
Edgar W. Bremer, P.O. Box 47, Okolona, Ohio 43550

Filed Jul. 29, 1980, Ser. No. 173,896

Int. Cl.³ G04B 1/26

U.S. Cl. 368-65

8 Claims



1. In an air pressure operated clock having a housing including a cylindrical bore formed therein, a first end having a plurality of time indicator markings, a shaft rotatably mounted through an opening in said first end and an indicator arm attached to said shaft for rotation therewith, said housing having a second end including an air inlet opening communicating with said cylindrical bore, a piston rotatably and axially displaceably mounted within said cylindrical bore, the improvement comprising: a two-piece rotor mounted within said cylindrical bore, one piece of said two-piece rotor being fixedly attached to said piston, the other piece of said two-piece rotor being fixedly attached to said shaft, a key extending from one piece of said two-piece rotor, a keyway formed in the other piece of said two-piece rotor receiving said key, and motion translation means for converting axial movement of said piston to rotational movement of said piston and rotor.

4,315,328

BATTERY-DRIVEN CLOCK WITH INDICATOR OF THE END OF LIFE OF THE BATTERY

Jean-Francois Schwab, Schwalbach, Switzerland, assignor to Quartz-Zeit AG, Frankfurt am Main, Fed. Rep. of Germany

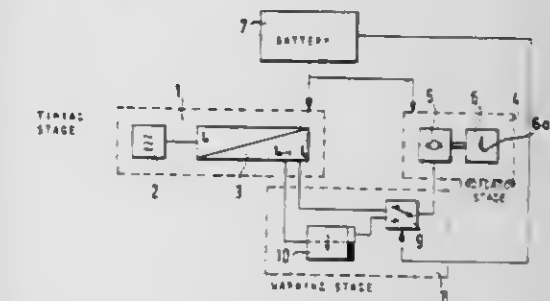
Filed Mar. 12, 1979, Ser. No. 19,817

Claims priority, application Fed. Rep. of Germany, Mar. 16, 1978, 2811391

Int. Cl.³ G04B 9/00, 19/04

U.S. Cl. 368-66

11 Claims



1. A clock driven by a battery comprising

a timing stage means for emitting a control signal of a certain frequency,

an electric indicator stage operatively connected to said timing stage means so as to receive said control signal and to indicate the clock time,

a warning stage means for detecting an approaching end of the service life of the battery constituting a warning situation,

said warning stage means for influencing the frequency of

said control signal so as to advance the clock time indicated by the indicator stage in the warning situation, said indicator stage is an analog clock comprising clock hands, said clock hands constituting means for indicating the clock time as well as the advanced clock time in said warning situation, respectively, in response to said control signal, said warning stage means is for increasing the frequency until the end of the battery service life, such that after a predetermined time duration respectively the clock advances by a certain constant amount.

4,315,329

LOAD MEASURING DEVICE FOR THE GEAR TRAIN OF A TIMEPIECE

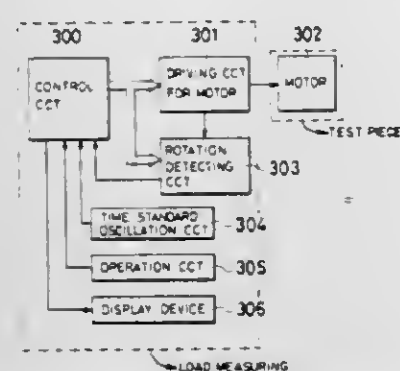
Akira Torisawa, Makoto Ueda, and Masaharu Shida, all of Tokyo, Japan, assignors to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

Filed May 24, 1979, Ser. No. 42,073

Claims priority, application Japan, Sep. 12, 1978, 53/112009
Int. Cl.³ G04B 19/00

U.S. Cl. 368—76

5 Claims



1. A load measuring apparatus for measuring a varying load of a stepping motor of an analogue electronic timepiece having a stator, a rotor and a coil, comprising: means for producing a range of normal driving pulses having discretely different pulse widths each corresponding to a different magnitude of load on the stepping motor; pulse applying means for successively applying the normal driving pulses to the stepping motor coil; detecting means for detecting whether the stepping motor rotor has rotated or not in response to the application of each normal driving pulse; controlling means responsive to the detection by the detecting means for controlling the pulse applying means to effect the application of the normal driving pulses having the minimum pulse width capable of driving the stepping motor rotor in accordance with the load on the motor, the controlling means comprising means for producing correction driving pulses, and means for controlling the pulse applying means to apply to the stepping motor coil a correction driving pulse immediately after a normal driving pulse in response to the detection of nonrotation by the detecting means; and analyzing means for analyzing the pulse widths of the normal driving pulses applied to the stepping motor coil and providing information representative of the varying load on the motor.

4,315,330

MULTIPLE DATA RATE TESTING OF COMMUNICATION EQUIPMENT

Norman F. Brickman, Potomac, and Bruno R. Graziano, Damascus, both of Md., assignors to IBM Corporation, Armonk, N.Y.

Filed Mar. 7, 1980, Ser. No. 128,057

Int. Cl.³ H04J 3/14

U.S. Cl. 370—104

7 Claims

1. In a TDMA communications controller having a plurality of input/output ports for transferring data from respective, local data users to a transmit bus and transferring data from a receive bus to said respective local users on a time interleaved

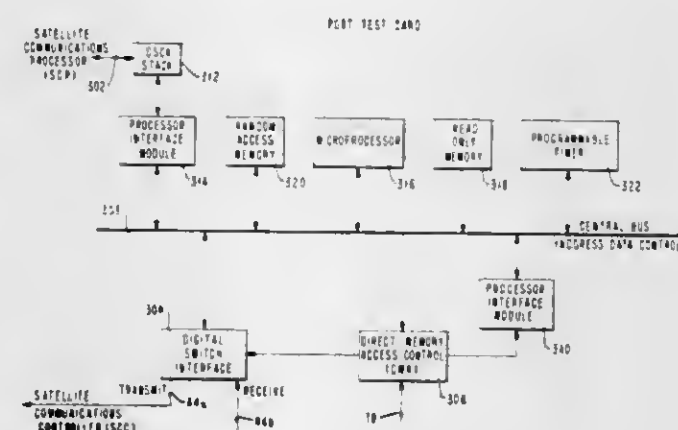
basis during periodic TDMA frames, each port operating at its own data rate R_i , an apparatus for testing one of said ports having a data rate R_j while other ones of said ports continue their communication function, comprising:

a test card including a read-only memory (ROM) for storing test patterns for each of said data rates R_i , a random access memory (RAM) having an input connected to said ROM, for storing one of said test patterns from said ROM, a processor having control outputs to said RAM and said ROM for controlling the transfer of one of said test patterns from said ROM to said RAM for said data rate R_j and a direct memory access (DMA) control connected between a data output from said RAM and said transmit bus and connected between a data input to said RAM and said receive bus;

an intranodal buffer having a data input connected to said transmit bus and a data output connected to said receive bus, having a plurality of addressable storage locations for transferring data between said ports;

a scanner having a periodic cycle of m scans per TDMA frame, there being a frame rate of f frames per second;

a switch control memory (SCM) having an address input connected to the output of said scanner, a port select output connected to a control input to each of said ports



and to a control input to said DMA controller in said test card and a stored address output connected to an address input of said intranodal buffer, for storing a plurality of $2n$ slots of SCM control words, a first subplurality of n slots, which when scanned by said scanner, issue a port select signal to said one port to be tested and issue n addresses to said intranodal buffer, a second subplurality of n slots, which when scanned by said scanner, issue a port select signal to said DMA controller in said port test card and issue n addresses to said intranodal buffer, where $n = R_j/mf$;

said DMA controller transferring a plurality of said test patterns from said RAM in said test card through said accessed storage locations in said intranodal buffer to said one port to be tested, at said data rate R_j , in response to said outputs from said SCM;

said data port under test having its said user output connected to its said user input to transfer said test patterns received on said receive bus to said transmit bus and through the accessed storage locations in said intranodal buffer to said DMA controller in said test card, at said data rate R_j , in response to said outputs from said SCM; whereby ports of any data rate R_i in said communications controller can be tested.

4,315,331

APPARATUS FOR PROVIDING DROP-OUT COMPENSATION IN RECORDING AND REPRODUCING SYSTEMS

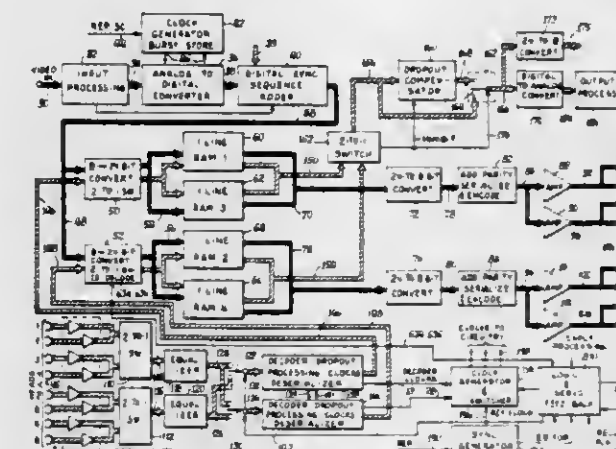
Maurice G. Lemoine, and Leonard A. Pasdera, both of Redwood City, Calif., assignors to Ampex Corporation, Redwood City, Calif.

Filed Feb. 1, 1980, Ser. No. 117,422

Int. Cl.³ H04N 5/94; G06F 11/00

U.S. Cl. 371—31

12 Claims



1. Apparatus for providing substitute digital data in a stream of current television digital data, said apparatus having an input for receiving said data stream of current television digital data and an output for providing one of either the current or substitute digital data, comprising:

means for storing said current data received at said input; means for controlling said storing means to store current data therein in place of data that was received at said input and stored previous to said received current data, said controlling means being responsive to the occurrence of horizontal and vertical blanking intervals in the received current data and being responsive to an error signal indicating the current data is defective to inhibit storing of the received current data, said controlling means being responsive to said error signal for controlling said storing means to provide stored data at the output that represents video data at the same location within a line interval that occurred at least one multiple of 262 line intervals previous to said defective current data; and, switching means for providing said stored data at the output in response to receiving said error signal.

4,315,332

ELECTRONIC TIMEPIECE RADIO

Ryoichi Sakami, and Yoshihiko Hirayama, both of Tokyo, Japan, assignors to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

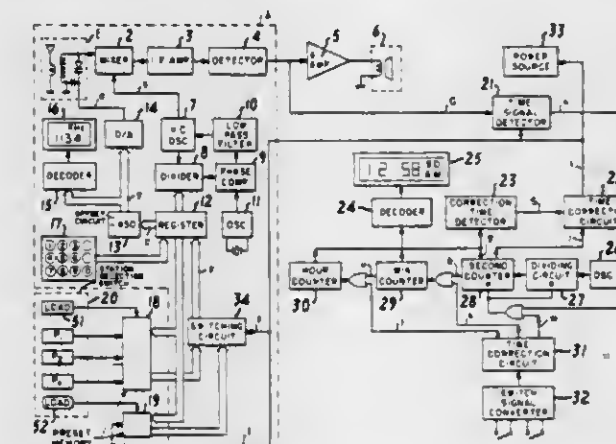
Filed Apr. 8, 1980, Ser. No. 138,299

Claims priority, application Japan, Apr. 13, 1979, 54-45123

Int. Cl.³ H04B 1/16; G04C 11/02

U.S. Cl. 455—181

5 Claims



1. An electronic timepiece radio comprising: an electronic

timepiece circuit including a standard signal oscillator, a time counting circuit and means for displaying a time determined by the count of the time counting circuit; a radio receiver circuit including a tuning circuit, station selecting means for selecting different broadcast station frequencies, detecting means for detecting received signals applied from said tuning circuit, and means for producing audible frequency signals in response to the output of said detecting means; a correction time detector connected to said time counting circuit for detecting when time correction is to occur and for developing an output signal to indicate detection; time correcting means for detecting a time signal from said detecting means and correcting the time displayed by said timepiece circuit in response to the output of said correction time detector; preset memory means for storing contents representative of at least two broadcasting station frequencies and responsive to the operation of said station selecting means; and switching means for changing from one broadcasting station to a specified station capable of producing said time signal in response to the output of said correction time detector.

4,315,333

CIRCUIT ARRANGEMENT FOR A WIDE-BAND VHF-UHF TELEVISION DOUBLE SUPERHETERODYNE RECEIVER

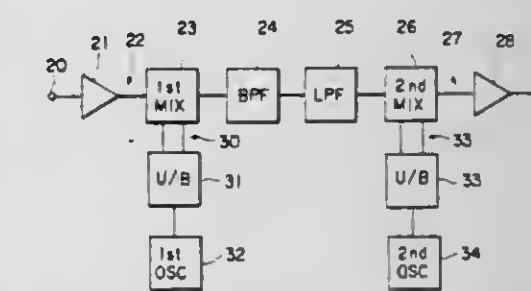
Sadahiko Yamashita; Hiroshi Onishi; Mitsuo Saito, and Morikazu Sagawa, all of Kawasaki, Japan, assignors to Matsushita Electric Industrial Company, Limited, Osaka, Japan
Filed Apr. 23, 1980, Ser. No. 143,809

Claims priority, application Japan, Apr. 26, 1979, 54-52089

Int. Cl.³ H04B 1/26

U.S. Cl. 455—189

6 Claims



DESIGN PATENTS

GRANTED FEB. 9, 1982

ERRATA

For
CLASS

See
PATENT NO.

D34-024 262,974

DESIGNS

FEBRUARY 9, 1982

262,920

LATCH HOOK

Fred R. Birtcil, 7271 Lassen View Dr., Palo Cedro, Calif. 96073

Filed Dec. 26, 1979, Ser. No. 106,696

Term of patent 14 years

Int. Cl. D02-07

U.S. Cl. D3-18



262,921

COMBINED TABLE AND OTTOMAN

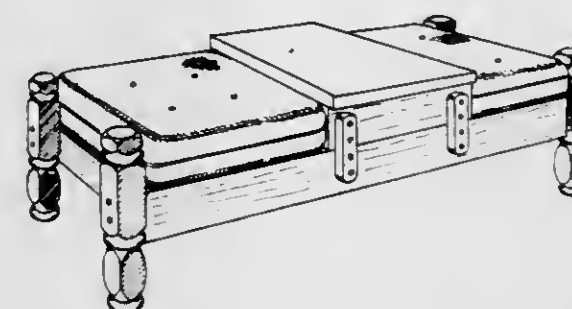
Benjamin C. Poole, Florence, Ala., assignor to Ajax Industries, Inc., Florence, Ala.

Filed Jun. 28, 1979, Ser. No. 53,055

Term of patent 14 years

Int. Cl. D6-05

U.S. Cl. D6-4



262,922

COMBINED TOOTHBRUSH AND TUMBLER HOLDER

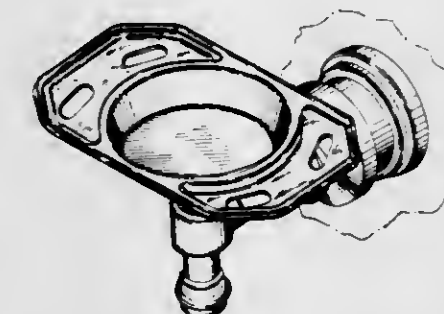
Gary A. Fleischmann, Sheboygan, Wis., and Lawrence C. Peabody, Rindge, N.H., assignors to Kohler Co., Kohler, Wis.

Filed Apr. 10, 1980, Ser. No. 138,836

Term of patent 14 years

Int. Cl. D23-02

U.S. Cl. D6-92



262,923

REFILL CONTAINER FOR PASTY SUBSTANCE DISPENSER OR SIMILAR ARTICLE

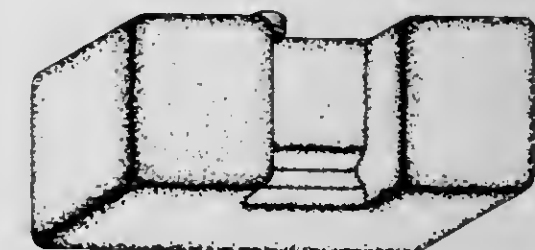
Bernard Broilliard, Lioudit "Sur Avellard", Sevrier, Haute Savoie, France

Filed Aug. 24, 1978, Ser. No. 936,622

Term of patent 14 years

Int. Cl. D23-02; D9-01

U.S. Cl. D6-95



262,924

SPARE TOILET PAPER ROLL HOLDER

Else S. Rorbech, 3131 College Ave., Apt. #2, Berkeley, Calif., and Opal D. Samora, 84 Geoffrey Dr., 3777 Willow Pass, West Pittsburg, Calif.

Continuation-in-part of Ser. No. 836,693, Sep. 26, 1977, abandoned. This application Jun. 7, 1979, Ser. No. 46,335

Term of patent 14 years

Int. Cl. D23-02; D6-04; D3-02

U.S. Cl. D6-97



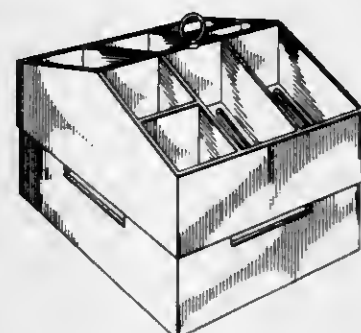
262,925

STORAGE RACK FOR TWO HOLSTERED HANDGUNS
 Maurice L. Phillips, 3211 Wendover La., Richmond, Va. 23230
 Filed Jan. 3, 1979, Ser. No. 725
 Term of patent 14 years
 Int. Cl. D6—04; D8—06, 08
 U.S. Cl. D6—114



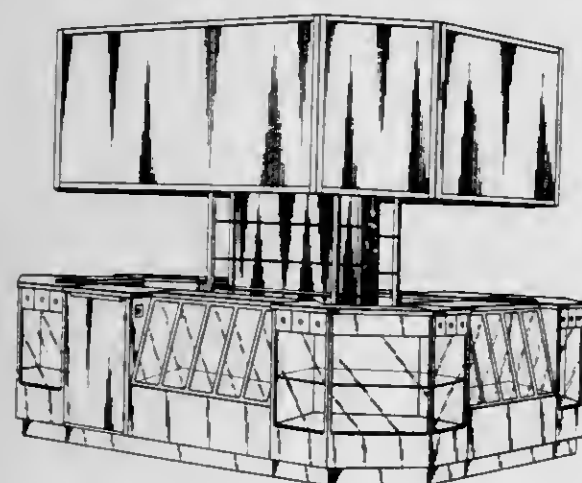
262,928

COMBINED TRAY AND COMPARTMENT FOR PACKAGED SEASONINGS OR THE LIKE
 Milford L. Medders, Sherman, Tex., assignor to M & M Plastic Manufacturing Company, Balch Springs, Tex.
 Filed Mar. 30, 1979, Ser. No. 25,385
 Term of patent 14 years
 Int. Cl. D6—04; D3—02; D7—06; D99—00
 U.S. Cl. D6—157



262,926

MERCHANDISING KIOSK
 Anthony Y. Woolford, P.O. Box 532, Amherst, N.H. 03101
 Filed Feb. 1, 1979, Ser. No. 8,252
 Term of patent 14 years
 Int. Cl. D20—02
 U.S. Cl. D6—144



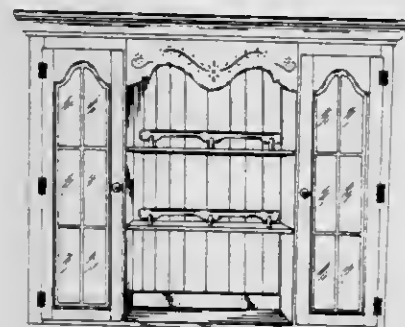
262,929

FURNITURE DOOR
 Hilco Woudstra, 1123 Forest Hills Dr., High Point, N.C. 27262
 Filed Apr. 23, 1979, Ser. No. 32,668
 Term of patent 7 years
 Int. Cl. D6—06
 U.S. Cl. D6—193



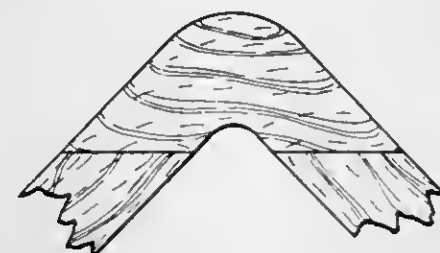
262,927

HUTCH
 Melbourne F. Smith, Jr., Hickory, N.C., assignor to Broyhill Furniture Industries, Inc., Lenoir, N.C.
 Filed Oct. 30, 1978, Ser. No. 956,204
 Term of patent 14 years
 Int. Cl. D6—04
 U.S. Cl. D6—153



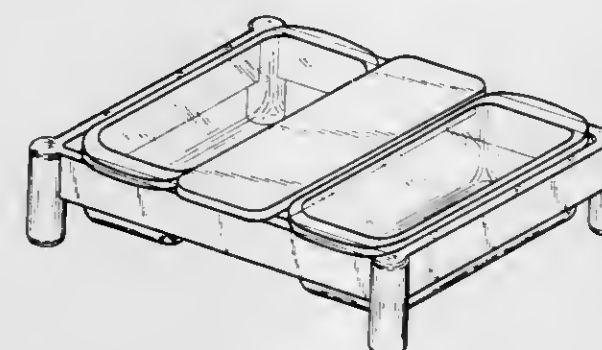
262,930

FRAME FOR PICTURES AND THE LIKE
 Bernard H. Gurevitz, 2 Tudor City Pl., New York, N.Y. 10017
 Filed Feb. 3, 1977, Ser. No. 765,373
 Term of patent 14 years
 Int. Cl. D6—07
 U.S. Cl. D6—242



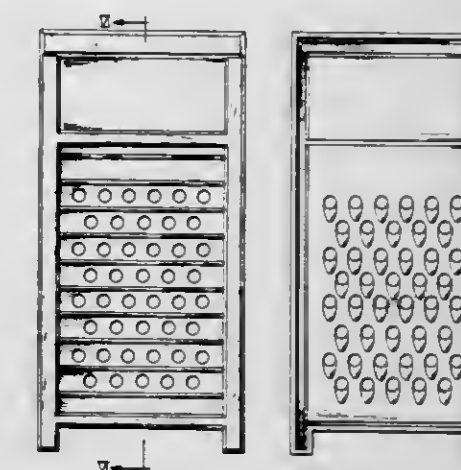
262,931

COMBINED CUTTING BOARD, SERVING DISHES AND SUPPORT STAND
 Kenneth R. LeVan, Addison, N.Y., assignor to Corning Glass Works, Corning, N.Y.
 Filed Dec. 13, 1978, Ser. No. 969,245
 Term of patent 14 years
 Int. Cl. D07—01
 U.S. Cl. D7—3



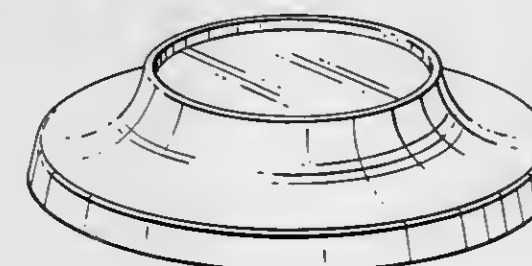
262,933

FOOD GRATER
 Roger L. Stoll, Pella, Iowa, assignor to Enduro Corporation, Pella, Iowa
 Filed Mar. 19, 1979, Ser. No. 21,619
 Term of patent 14 years
 Int. Cl. D7—04
 U.S. Cl. D7—47



262,932

CLOSURE FOR A BOWL OR THE LIKE
 Robert H. C. M. Daenen, Hekelgem, Belgium, assignor to Dart Industries Inc., Los Angeles, Calif.
 Filed Jan. 17, 1980, Ser. No. 112,968
 Term of patent 14 years
 Int. Cl. D07—01
 U.S. Cl. D7—40



262,934

GRAPEFRUIT KNIFE
 Clare Gross, Heatherwood Condominiums, 1310 Castlerock, Unit 20, Wenatchee, Wash. 98801
 Filed Aug. 31, 1979, Ser. No. 71,556
 Term of patent 14 years
 Int. Cl. D07—04
 U.S. Cl. D7—147



262,935

ROTATABLE BEVERAGE MIXER

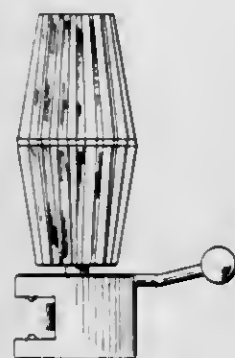
Gunter A. H. von Elm, 1207 - 79th St., North Bergen, N.J. 07047

Filed Jan. 14, 1980, Ser. No. 111,846

Term of patent 14 years

Int. Cl. D7-04

U.S. Cl. D7-157



262,937

SCISSORS

Heinz-Max Huthmann, Harsefeld, Fed. Rep. of Germany, assignor to J. A. Henckels-Zwillingwerk Aktiengesellschaft, Solingen, Fed. Rep. of Germany

Filed May 29, 1979, Ser. No. 42,841

Claims priority, application Fed. Rep. of Germany, Nov. 29, 1978, 250/78

Term of patent 14 years

Int. Cl. D08-03

U.S. Cl. D8-57



262,936

MOP

Masanobu Nishiyama; Yosuke Yamamoto, both of Osaka; Toshikazu Murakami, Nishinomiya, and Hisaji Tanaka, Osaka, all of Japan, assignors to Duskin Franchise Kabushiki, Osaka, Japan

Filed Jan. 8, 1980, Ser. No. 110,452

Term of patent 14 years

Int. Cl. D7-05

U.S. Cl. D32-40



262,938

DRILLING ALIGNMENT TOOL

Herbert C. Schulze, P.O. Box 6070, Incline Village, Nev. 89450

Filed Jul. 5, 1978, Ser. No. 922,152

Term of patent 14 years

Int. Cl. D8-01

U.S. Cl. D8-70



262,939

SAFETY LOCKING DEVICE FOR GARAGE DOORS

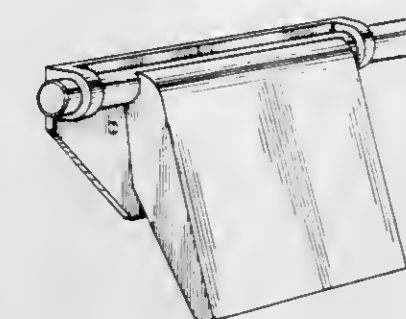
Daniel E. Shook, 2543 Orange St., Costa Mesa, Calif. 92626, and Lawrence R. Klingler, 124 20th St., Huntington Beach, Calif. 92648

Filed Apr. 5, 1976, Ser. No. 673,617

Term of patent 7 years

Int. Cl. D8-07

U.S. Cl. D8-336



262,942

COLLAPSIBLE DISPENSING TUBE

Joseph A. DiPisa, Sr., Lyndhurst, N.J., assignor to Puritan Industries, Auburn, Mass.

Continuation of Ser. No. D. 833,398, Sep. 14, 1977, abandoned.

This application Jan. 30, 1980, Ser. No. 116,917

Term of patent 14 years

Int. Cl. D9-01

U.S. Cl. D9-302



262,940

COUPLING NUT

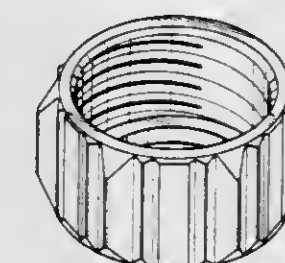
Georg Spinner, Am Eichberg 12, 8152 Feldkirchen-Westerham 1, Fed. Rep. of Germany

Filed Oct. 1, 1979, Ser. No. 80,471

Term of patent 14 years

Int. Cl. D8-08

U.S. Cl. D8-397



262,943

COMBINED SCOOP AND CONTAINER FOR ANIMAL WASTE

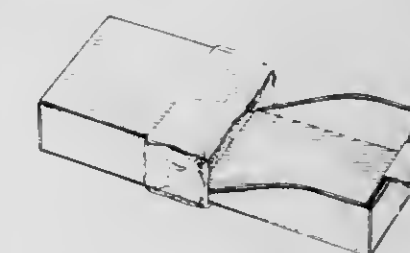
Weodelin Schädler, Poststrasse 11, 7000 Chur, Switzerland

Filed Feb. 21, 1979, Ser. No. 13,715

Term of patent 14 years

Int. Cl. D9-03

U.S. Cl. D9-337



262,944

PACKAGING CONTAINER FOR FOOD OR THE LIKE

Nicholas D. Comisso, Victor, N.Y., assignor to Mobil Oil Corporation, New York, N.Y.

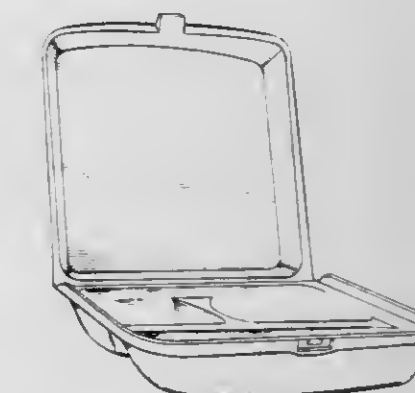
Filed Jun. 27, 1977, Ser. No. 810,555

The portion of the term of this patent subsequent to Feb. 9, 1996, has been disclaimed.

Term of patent 14 years

Int. Cl. D9-03

U.S. Cl. D9-347



262,941

PACKAGING UNIT OF CAPS FOR MARKING PINS

Kurt Lorber, Schurwaldstr. 114, D-7307 Aichwald 2, Fed. Rep. of Germany

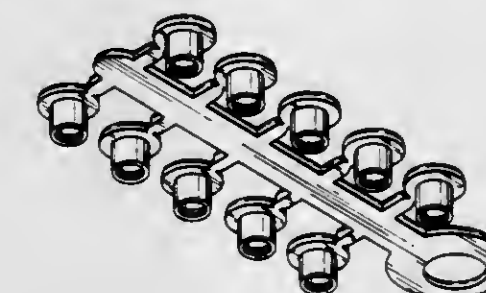
Filed Nov. 29, 1978, Ser. No. 964,773

Claims priority, application Fed. Rep. of Germany, Jun. 9, 1978, 565/78

Term of patent 14 years

Int. Cl. D8-08; D9-99

U.S. Cl. D8-499



262,945

CONTAINER FOR EJECTED USED STENCILS

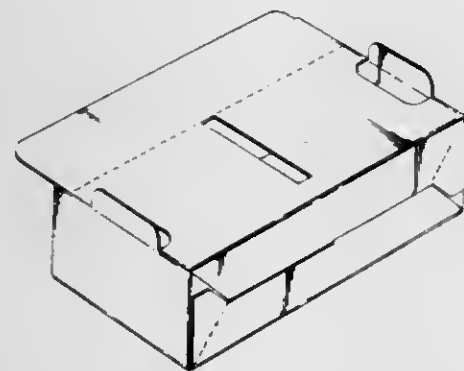
Eric K. Lytra, Luton, England, assignor to Gestetner Limited, London, England

Filed Jan. 31, 1979, Ser. No. 8,192

Claims priority, application United Kingdom, Aug. 11, 1978, 985879/78

Term of patent 14 years
Int. Cl. D9—03

U.S. Cl. D9—415



262,946

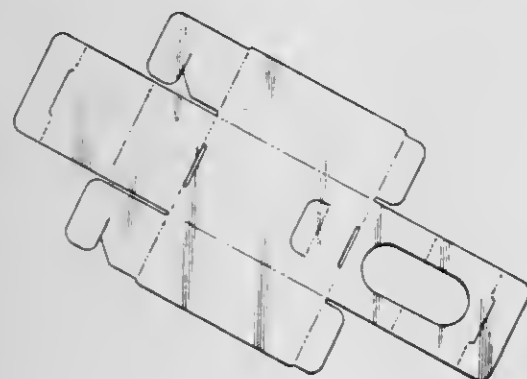
BLANK FOR A PACKAGING TRAY

Janet L. Mills, Los Angeles, and Conrad D. Wiedmann, Inglewood, both of Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed Mar. 5, 1979, Ser. No. 17,222

Term of patent 14 years
Int. Cl. D9—03

U.S. Cl. D9—433

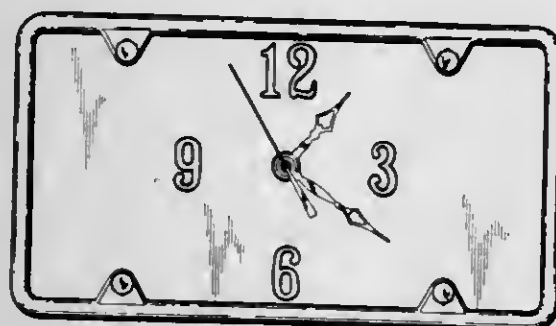
262,947
CLOCK

Stephen Barsanti, 3217 Dorcich St., San Jose, Calif. 95117

Filed Dec. 3, 1979, Ser. No. 99,647

Term of patent 14 years
Int. Cl. D10—01

U.S. Cl. D10—6



262,948

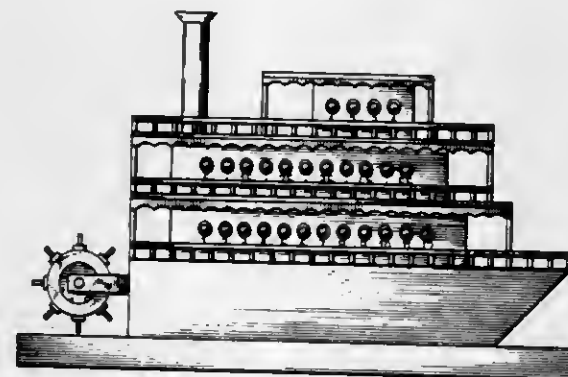
BOAT CLOCK

Patricia D. Mayenschein, P.O. Box 67, and Joseph M. Mayenschein, Box 85, both of Sextonville, Wis. 53584

Filed Feb. 11, 1980, Ser. No. 120,508

Term of patent 14 years
Int. Cl. D10—01

U.S. Cl. D10—15



262,949

BRACELET WATCH

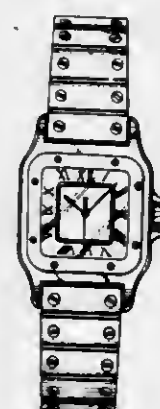
Alain D. Perrin, Rueil-Malmaison, France, assignor to Interdica S.A., Villars-sur-Glane, Switzerland

Division of Ser. No. 968,169, Dec. 11, 1978. This application Feb. 28, 1979, Ser. No. 15,761

Claims priority, application France, Jun. 12, 1978, 76645

Term of patent 14 years
Int. Cl. D10—02

U.S. Cl. D10—32



262,950

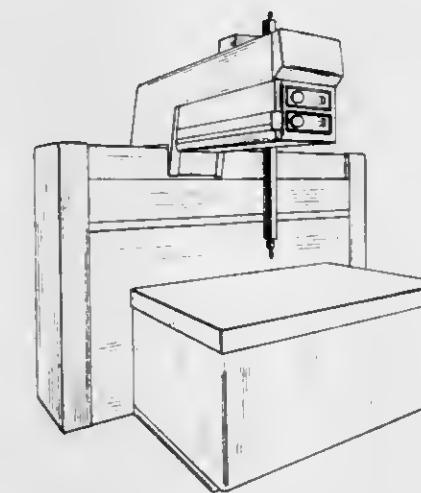
COORDINATE MEASUREMENT MACHINE FOR USE IN MEASURING SIZES, SHAPES, DIMENSIONS AND THE LIKE

Russell E. Orr, II, El Toro, Calif., assignor to The Bendix Corporation, Southfield, Mich.

Filed Mar. 26, 1979, Ser. No. 23,877

Term of patent 14 years
Int. Cl. D10—04

U.S. Cl. D10—46



262,952

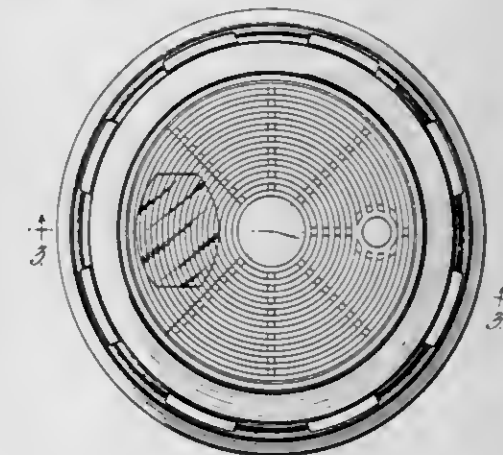
HOUSING FOR A FIRE AND SMOKE DETECTOR

Harvey Hanig, North Aurora, Ill., assignor to Pittway Corporation, Northbrook, Ill.

Filed Jan. 8, 1979, Ser. No. 1,769

Term of patent 7 years
Int. Cl. D10—05

U.S. Cl. D10—106



262,953

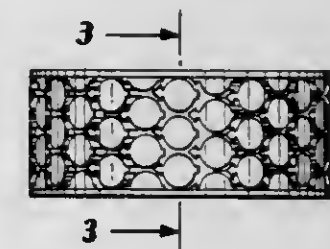
FINGER RING OR SIMILAR ARTICLE

Max Bogner, and Larry Grun, both of 2 W. 47th St., New York, N.Y. 10036

Filed Feb. 12, 1980, Ser. No. 120,736

Term of patent 14 years
Int. Cl. D11—01

U.S. Cl. D11—38



262,951

DARTS SCORING MACHINE

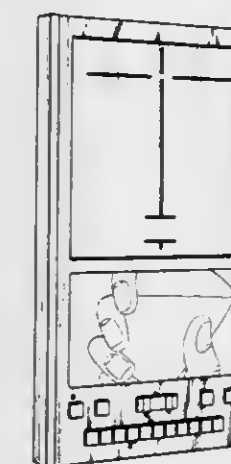
William J. Martin, Jr., London, England, assignor to Nodor Scores Limited, London, England

Filed Aug. 23, 1979, Ser. No. 69,337

Claims priority, application United Kingdom, Mar. 5, 1979, 988820

Term of patent 14 years
Int. Cl. D21—01

U.S. Cl. D10—46.1



262,954

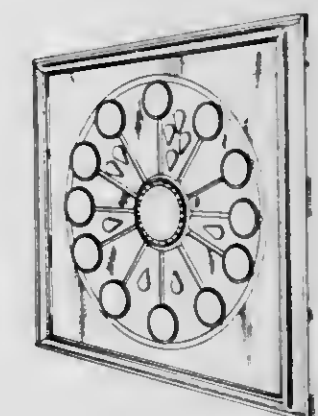
ASTROLOGY CHART DISPLAY

Edward H. Shores, 6260 Melody Ln., Dallas, Tex. 75231

Filed Apr. 9, 1979, Ser. No. 28,126

Term of patent 14 years
Int. Cl. D11—02

U.S. Cl. D11—132



262,955
VEHICLE

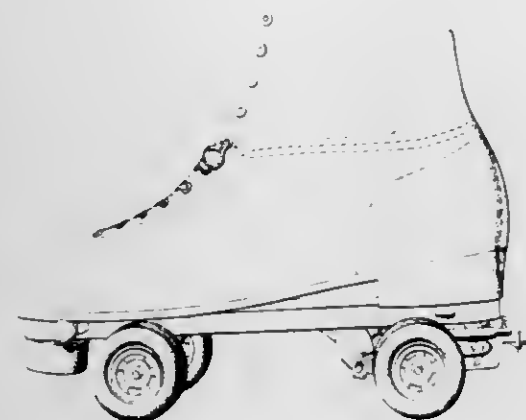
John T. Strickland, Jr., Ormond Beach, Fla., assignor to Skate Car, Inc., Ormond Beach, Fla.

Filed Oct. 16, 1978, Ser. No. 951,847

Term of patent 14 years

Int. Cl. D12—08

U.S. Cl. D12—83



262,956
GAS TANK EXTENSION

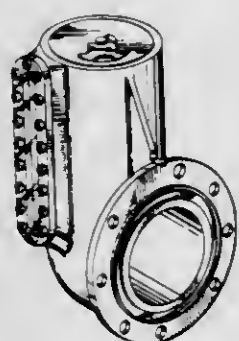
Robert B. McNab, Rte. 12, Dawn Dr., and James A. Wolfe, Rte. 10, Box 199, both of Jonesboro, Tenn. 37659

Filed Aug. 27, 1979, Ser. No. 69,632

Term of patent 14 years

Int. Cl. D12—16

U.S. Cl. D12—155



262,957
MOTORCYCLE ENCLOSURE

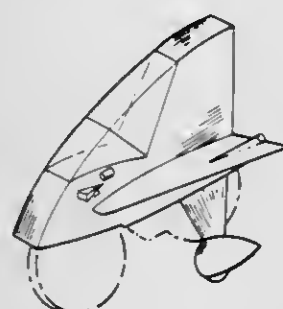
Royal J. Harmer, 2515 Arlington Ave., Torrance, Calif. 90501

Filed Oct. 30, 1978, Ser. No. 956,069

Term of patent 14 years

Int. Cl. D12—17

U.S. Cl. D12—156



262,958
STORAGE RACK FOR ATTACHMENT TO THE CAB OF A SEMI-TRAILER FOR HOLDING A PAIR OF SAFETY STRUTS

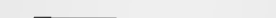
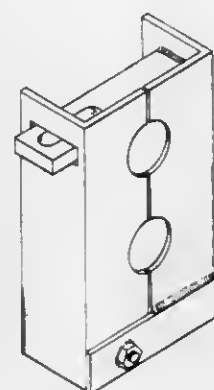
Arlie G. Parrish, 603 N. Meridian, Valley Center, Kans. 67147

Filed May 10, 1979, Ser. No. 37,678

Term of patent 14 years

Int. Cl. D12—16

U.S. Cl. D12—157



262,959
SHOCK ABSORBER

Arnold A. Cowan, Encino, Calif., assignor to Interpart Corporation, Gardena, Calif.

Filed Aug. 13, 1979, Ser. No. 65,888

Term of patent 14 years

Int. Cl. D12—16

U.S. Cl. D12—159



262,960
FLANGED-COLLAR HEAT SINK FOR ELECTRONIC DEVICES

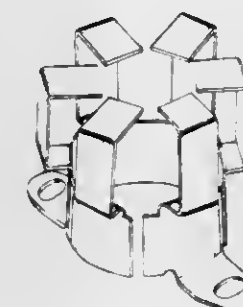
Philip A. Johnson, Kingston, and Alfred F. McCarthy, Belmont, both of N.H., assignors to Aavid Engineering, Inc., Laconia, N.H.

Filed Apr. 24, 1979, Ser. No. 32,923

Term of patent 14 years

Int. Cl. D13—03

U.S. Cl. D13—23



262,962
SILICON WAFER EMITTER ELECTRODE CONFIGURATION

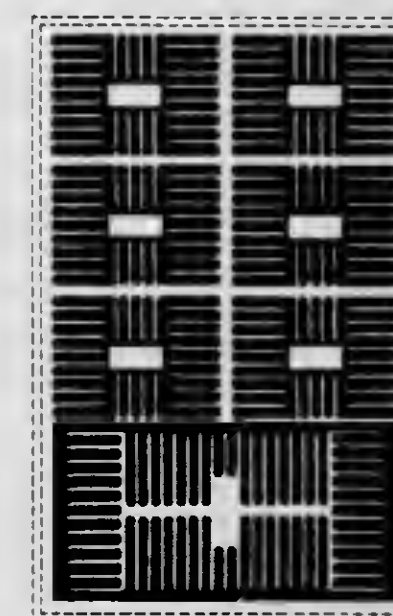
Winton C. Strumpell, 6027 Corning Ave., Los Angeles, Calif. 90056

Filed Nov. 3, 1978, Ser. No. 957,770

Term of patent 14 years

Int. Cl. D13—99

U.S. Cl. D13—99



262,961
CLIP-ON HEAT SINK FOR ELECTRONIC DEVICES

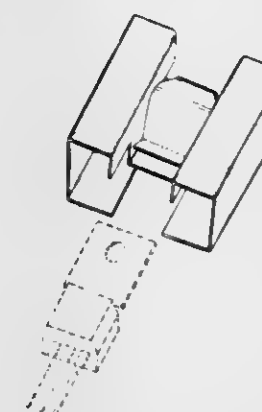
Alfred F. McCarthy, Belmont, N.H., assignor to Aavid Engineering, Inc., Laconia, N.H.

Filed Sep. 17, 1979, Ser. No. 75,958

Term of patent 14 years

Int. Cl. D13—03

U.S. Cl. D13—23



262,963
VIDEO DISC PLAYER

Takayuki Hiraki, Tokyo, Japan, assignor to Pioneer Kabushiki Kaisha, Tokyo, Japan

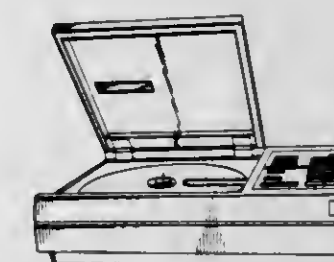
Filed Jan. 11, 1980, Ser. No. 111,395

Claims priority, application Japan, Jul. 11, 1979, 54-28861

Term of patent 14 years

Int. Cl. D14—01

U.S. Cl. D14—1

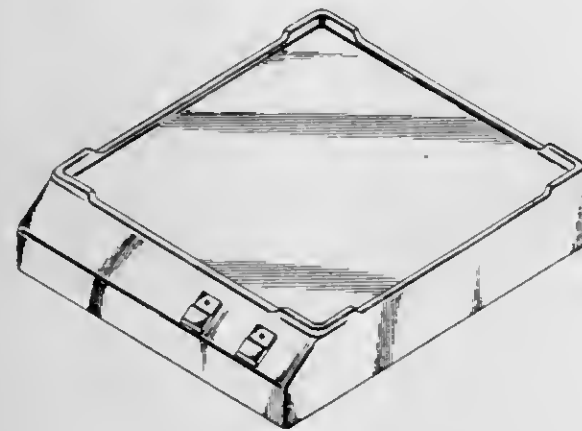


262,964
HOUSING FOR AN AUTOMATIC TELEPHONE ALARM SYSTEM

Richard W. Anderson, Reading, and Alfred I. Bottner, Natick, both of Mass., assignors to GTE Products Corporation, Stamford, Conn.

Filed Mar. 30, 1979, Ser. No. 25,298
Term of patent 14 years
Int. Cl. D14-03

U.S. Cl. D14-59

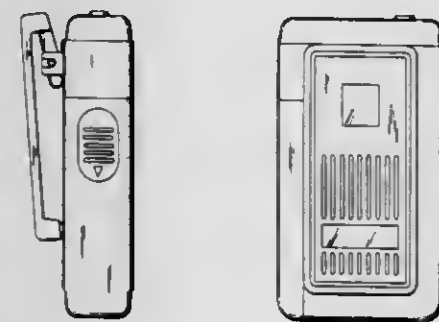


262,965
RADIO RECEIVER

Keisuke Iwata, Mansei Bldg., 1-16, 1-Chome, Soto-Kanda, Chiyoda-Ku, Tokyo, Japan

Filed Nov. 20, 1979, Ser. No. 96,010
Term of patent 14 years
Int. Cl. D14-03

U.S. Cl. D14-70

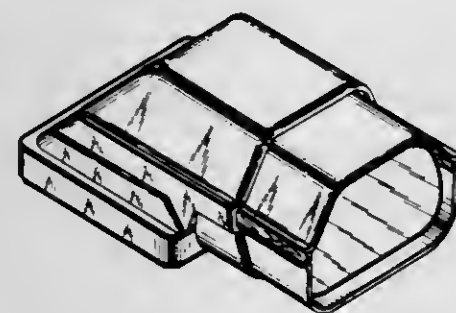


262,966
PROJECTION ADAPTER FOR A CONVENTIONAL TELEVISION RECEIVER

Conrad R. Schudel, 6973 Consolidated Way, San Diego, Calif. 92121

Filed Aug. 17, 1979, Ser. No. 67,400
Term of patent 7 years
Int. Cl. D14-03

U.S. Cl. D14-84

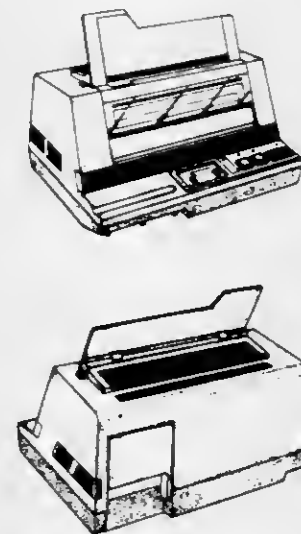


262,967
FACSIMILE TRANSCIVER

Yoshiyuki Fujiyama, Ueda, and Kunihiro Asakura, Nagano, both of Japan, assignors to Matsushita Graphic Communication Systems, Inc., Tokyo, Japan

Filed Oct. 9, 1979, Ser. No. 82,996
Claims priority, application Japan, Apr. 16, 1979, 54-15493
Term of patent 14 years
Int. Cl. D14-01

U.S. Cl. D14-94

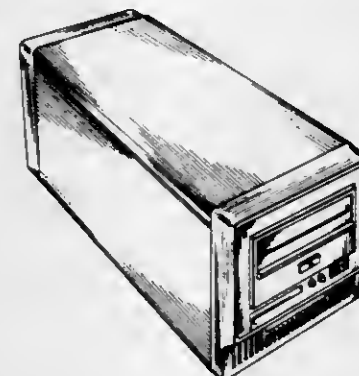


262,968
MEDIA CONVERTER UNIT FOR A FLOPPY DISC FOR DATA PROCESSING DISPLAY SYSTEM

Claude H. Hutcheson, Garland, Tex., assignor to Xerox Corporation, Stamford, Conn.

Filed Oct. 15, 1979, Ser. No. 85,179
Term of patent 14 years
Int. Cl. D14-02

U.S. Cl. D14-107



262,969
FUEL INJECTION NOZZLE

Peter Howes, Gerrards Cross, England, assignor to Lucas Industries Limited, Birmingham, England

Filed Oct. 29, 1979, Ser. No. 88,925
Claims priority, application United Kingdom, Aug. 16, 1979, 991239/79

Term of patent 14 years
Int. Cl. D15-01

U.S. Cl. D15-5

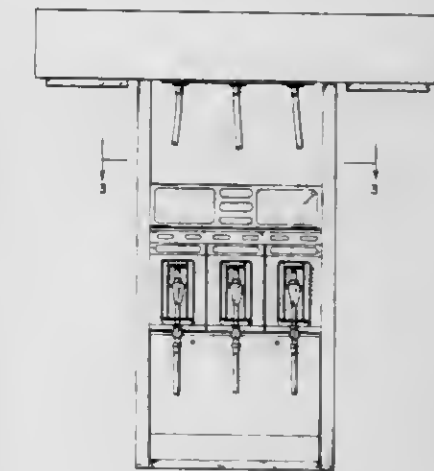


262,971
GASOLINE DISPENSER

George D. Robinson, Jr.; Angelo M. Lacivita; Robert T. Day, Jr., all of Greensboro, N.C., and Charles C. Keane, Weymouth, Mass., assignors to Gilbert & Barker Manufacturing Co., Inc., Greensboro, N.C.

Filed Jun. 6, 1980, Ser. No. 157,084
Term of patent 14 years
Int. Cl. D15-02

U.S. Cl. D15-9.2

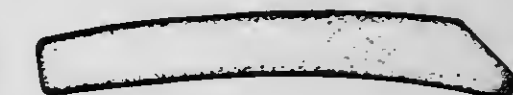


262,972
INSERT FOR AGRICULTURAL APPLICATOR KNIFE

Norvel J. Ronck, Wakita, and Halsey J. Wetmore, II, Guymon, both of Okla., assignors to Adams Hard-Facing Company, Inc., Guymon, Okla.

Filed Jun. 11, 1979, Ser. No. 47,278
Term of patent 14 years
Int. Cl. D15-03

U.S. Cl. D15-11

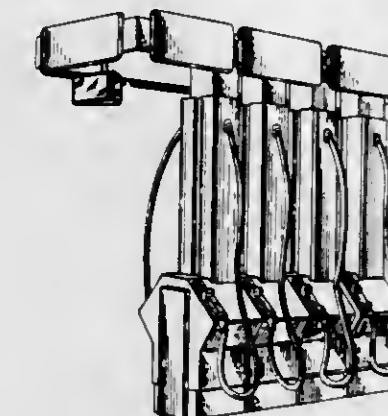


262,970
QUADRUPLE GASOLINE PUMP

David C. Rowan, and Armin E. Mittermaier, both of Fort Wayne, Ind., assignors to Tokheim Corporation, Fort Wayne, Ind.

Filed May 29, 1979, Ser. No. 43,437
Term of patent 14 years
Int. Cl. D15-02

U.S. Cl. D15-9.2

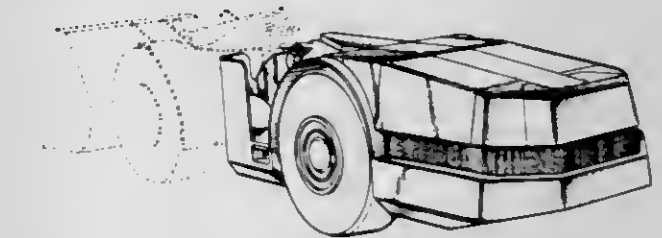


262,973
MINING VEHICLE

John Griffin, and T. Daryl Hatch, both of Salt Lake City, Utah, assignors to Envirotech Corporation, San Mateo, Calif.

Filed Sep. 1, 1978, Ser. No. 938,860
Term of patent 14 years
Int. Cl. D15-04

U.S. Cl. D15-21



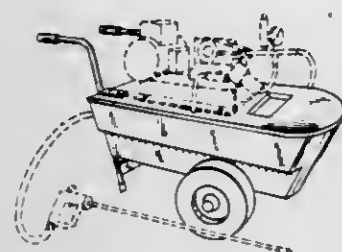
262,974

CART FOR A PORTABLE POWER WASHING UNIT OR SIMILAR ARTICLE

C. John Campbell, and Linsley E. Baldwin, both of Iowa Falls, Iowa, assignors to Campbell Supply Co., Iowa Falls, Iowa
Filed Nov. 29, 1979, Ser. No. 98,497

Term of patent 14 years
Int. Cl. D15—05

U.S. Cl. D34—24



262,976

LETTERING SCRIBER

Harald Koelichen, Jr., Geretsried, Fed. Rep. of Germany, assignor to Standardgraph Filler & Fiebig GmbH, Fed. Rep. of Germany

Filed Apr. 24, 1979, Ser. No. 33,029

Claims priority, application Fed. Rep. of Germany, Oct. 31, 1978, 113943

Term of patent 14 years
Int. Cl. D19—06

U.S. Cl. D19—41



262,975

COFFEE GRINDER

Juan A. G. Garriga, Barcelona, Spain, assignor to Braun Espanola, S.A., Spain

Filed Jun. 21, 1979, Ser. No. 50,610

Claims priority, application Spain, Dec. 29, 1978, 93,654

Term of patent 14 years
Int. Cl. D07—04

U.S. Cl. D15—100



262,977

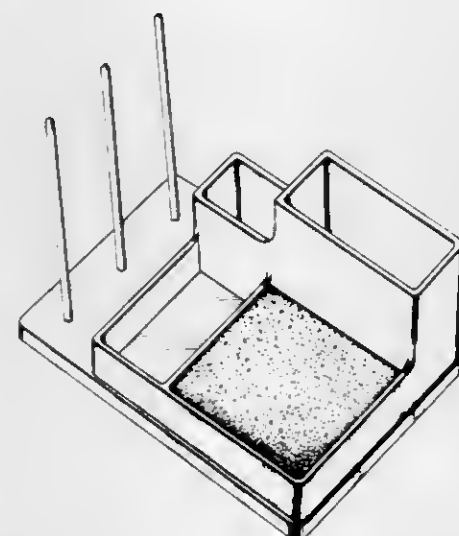
MATERIALS AND TOOLS ORGANIZER FOR ARTS AND CRAFTS

Ethel A. Ferris, 712 Reid St., De Pere, Wis. 54115

Filed Jun. 14, 1979, Ser. No. 48,513

Term of patent 14 years
Int. Cl. D19—02

U.S. Cl. D19—75



262,978

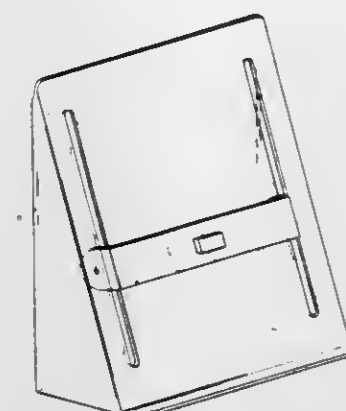
TYPING COPY HOLDER

Bruce K. Nagley, 4765 Kingshill Dr., Apt. A, Columbus, Ohio 43229

Filed Feb. 21, 1980, Ser. No. 123,127

Term of patent 14 years
Int. Cl. D19—02

U.S. Cl. D19—91



262,981

KINETIC SCULPTURE

Hidetoshi Matsui, 6, Imazunaka 3-chome, Tsurumi-ku, Osaka 538, Japan

Filed Jun. 25, 1979, Ser. No. 51,692

Claims priority, application Japan, Apr. 6, 1979, 54-14091

Term of patent 14 years
Int. Cl. D11—02

U.S. Cl. D21—102



262,979

MUSICAL FIGURE TOY

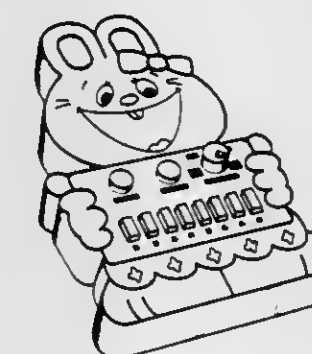
Shigeru Saitoh, 6-4, 2-Chome, Kuramae, Taito-Ku, Tokyo, Japan

Filed Dec. 6, 1979, Ser. No. 101,744

Claims priority, application Japan, Sep. 29, 1979, 54-40917

Term of patent 14 years
Int. Cl. D21—01

U.S. Cl. D21—64



262,982

TOY PENDANT

Yoichi Abe, Tokyo, and Hajime Matsumoto, Chiba, both of Japan, assignors to Toybox Corporation, Tokyo, Japan

Filed Apr. 13, 1979, Ser. No. 29,833

Term of patent 14 years
Int. Cl. D21—01

U.S. Cl. D21—177



262,980

MUSICAL FIGURE TOY

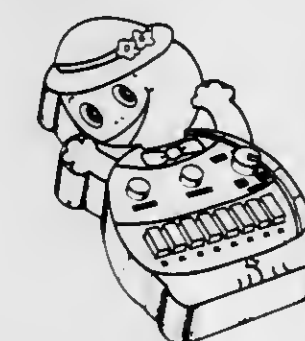
Shigeru Saitoh, 6-4, 2-Chome, Kuramae, Taito-Ku, Tokyo, Japan

Filed Dec. 6, 1979, Ser. No. 101,745

Claims priority, application Japan, Oct. 17, 1979, 54-43374

Term of patent 14 years
Int. Cl. D21—01

U.S. Cl. D21—64



262,983

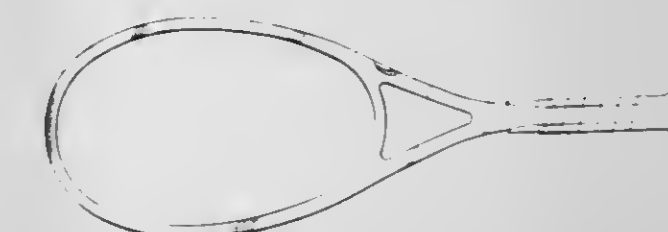
TENNIS RACKET FRAME

John G. Howe, Boulder, Colo., assignor to AMF Incorporated, White Plains, N.Y.

Filed Jul. 25, 1979, Ser. No. 60,301

Term of patent 14 years
Int. Cl. D21—02

U.S. Cl. D21—212



262,984

GOLF CLUB HEAD

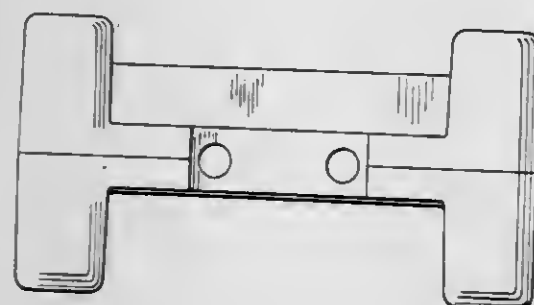
Philippe M. Jeghers, Esneux, Belgium, assignor to FN International, Luxembourg, Luxembourg

Filed Jan. 8, 1979, Ser. No. 1,844

Term of patent 14 years

Int. Cl. D21-02

U.S. Cl. D21-217



262,986

ICE SKATE

Malcolm F. Cox, Jr., Brampton, Canada, assignor to Canada Cycle and Motor Company Limited, Weston, Canada

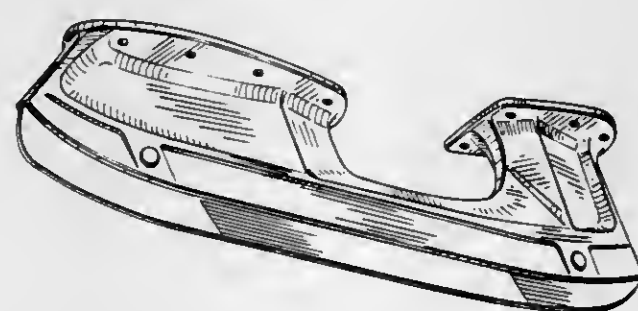
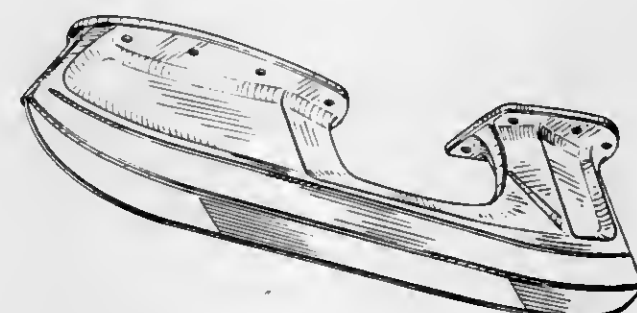
Filed Jul. 19, 1979, Ser. No. 58,660

Claims priority, application Canada, Jan. 23, 1979, 23-01-79-2

Term of patent 14 years

Int. Cl. D21-02

U.S. Cl. D21-225



262,985

GOLF PUTTER HEAD

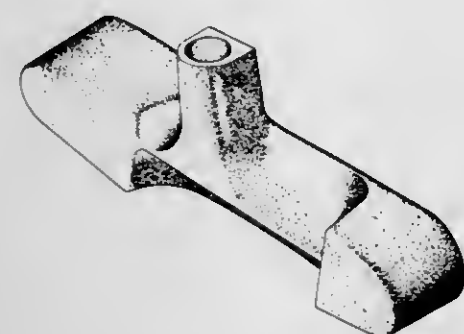
Charles A. Sanna, 909 Farwell Dr., Madison, Wis. 53704

Filed Jul. 25, 1979, Ser. No. 60,806

Term of patent 14 years

Int. Cl. D21-02

U.S. Cl. D21-217



262,987

MAGNETIC WATER CONDITIONER

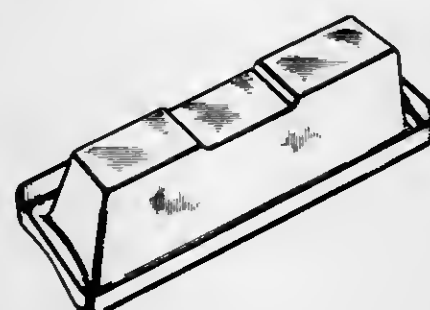
Roland K. Carpenter, Roseville, Minn., assignor to Aqua Magnetics, Inc., Bloomington, Minn.

Filed Feb. 4, 1980, Ser. No. 118,448

Term of patent 14 years

Int. Cl. D23-07

U.S. Cl. D23-3



262,988

LAVATORY

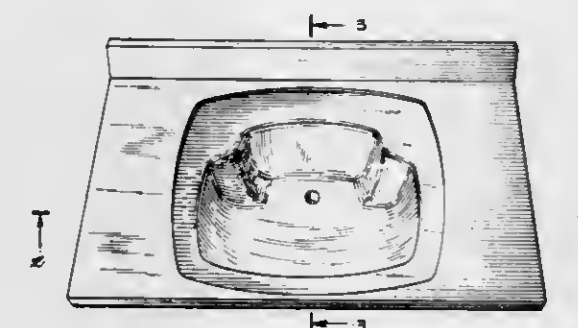
William L. Lippert, Jr., Colgate, and Wayne M. Lippert, Wauwatosa, both of Wis., assignors to Lippert Corporation, Menomonee Falls, Wis.

Filed Apr. 8, 1980, Ser. No. 138,377

Term of patent 14 years

Int. Cl. D23-02

U.S. Cl. D23-58



262,990

ELEVATED TOILET SEAT

Michael D. R. Rodger, Kegworth, England, assignor to Gordon Ellis & Co., England

Filed Jan. 28, 1980, Ser. No. 116,232

Claims priority, application United Kingdom, Jul. 31, 1979, 991002/79

Term of patent 14 years

Int. Cl. D23-02

U.S. Cl. D23-11



262,989

TOILET OR SIMILAR ARTICLE

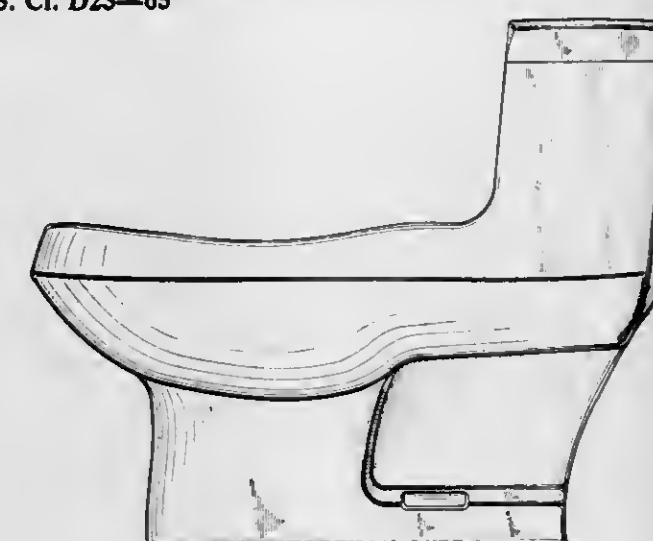
Henry M. Stairs, Jr., Neshanic, N.J., assignor to American Standard Inc., New York, N.Y.

Filed Jul. 31, 1979, Ser. No. 62,860

Term of patent 14 years

Int. Cl. D23-02

U.S. Cl. D23-65



262,991

WATER HEATER

William G. S. Owen, St. Martin, Wales, assignor to IMI Santon Limited, Newport, Wales

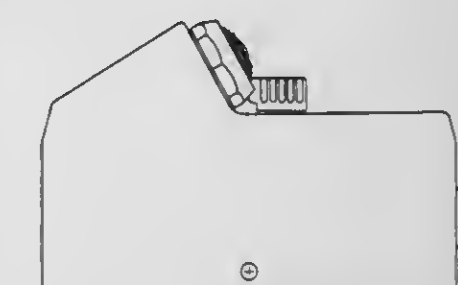
Filed Aug. 30, 1979, Ser. No. 71,104

Claims priority, application United Kingdom, Apr. 24, 1979, 989636/79

Term of patent 14 years

Int. Cl. D23-03

U.S. Cl. D23-86



262,992

WATER HEATER

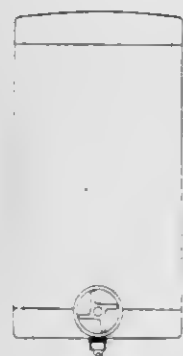
William G. S. Owen, St. Martin, Wales, assignor to IMI Santon Limited, Newport, Wales

Filed Aug. 30, 1979, Ser. No. 71,105

Claims priority, application United Kingdom, Apr. 24, 1979, 989635/79

Term of patent 14 years
Int. Cl. D23—03

U.S. Cl. D23—86



262,994

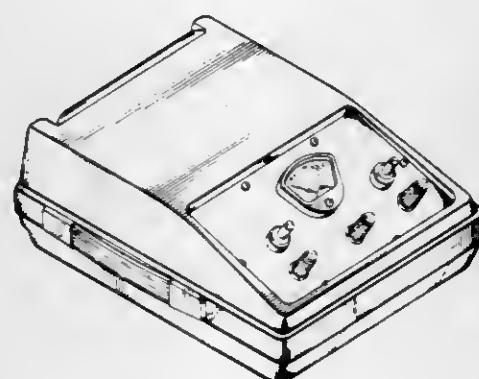
PENILE TUMESCENCE MONITOR

Frederick W. Holler, Jr., and Donald R. Wiedeman, both of Cherry Hill, N.J., assignors to Event Systems, Inc., Moorestown, N.J.

Filed Oct. 13, 1978, Ser. No. 951,279

Term of patent 14 years
Int. Cl. D24—02

U.S. Cl. D24—8



262,993

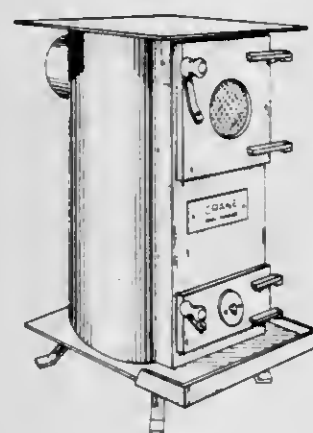
COAL STOVE

Douglas L. Crane, P.O. Box 2016, Duxbury, Mass. 02332

Filed Feb. 11, 1980, Ser. No. 120,388

Term of patent 7 years
Int. Cl. D23—03

U.S. Cl. D23—97



262,995

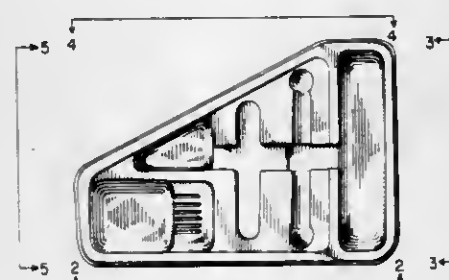
URINARY CATHETERIZATION PREPARATION TRAY

Rodolfo Gaba, Chino; David C. Garland, Claremont, and James L. Pacek, Laguna Hills, all of Calif., assignors to Dart Industries Inc., Los Angeles, Calif.

Filed Dec. 7, 1978, Ser. No. 967,464

Term of patent 14 years
Int. Cl. D24—02

U.S. Cl. D24—31



262,996

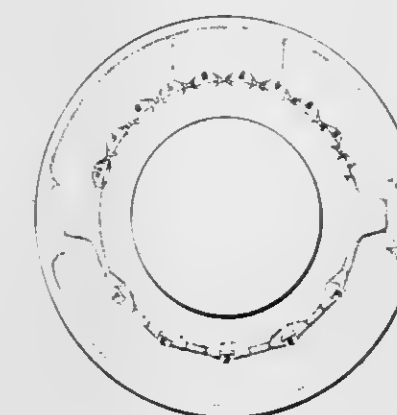
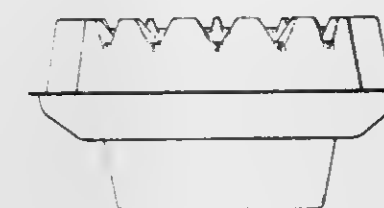
SURGICAL SPONGE COUNT RECEPTACLE OR SIMILAR ARTICLE

Carl H. Rickmeir, Sheboygan Falls, Wis., assignor to Bemis Manufacturing Company, Sheboygan Falls, Wis.

Filed May 29, 1980, Ser. No. 154,561

Term of patent 14 years
Int. Cl. D24—02

U.S. Cl. D24—56



262,998

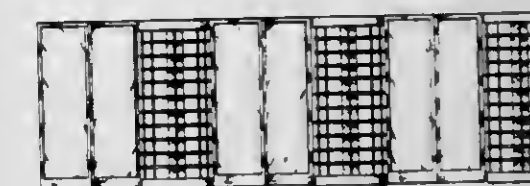
INTERIOR WALL FOR A STORE

Stanley H. Rosenthal, Rte. 2, Box 713, Air Harbor Rd., Greensboro, N.C. 27405

Filed Feb. 12, 1979, Ser. No. 11,222

Term of patent 14 years
Int. Cl. D25—02

U.S. Cl. D25—58



262,999

CANDLE LAMP

Joseph Spencer, 2950 Glen Oak, Lot 251, Clearwater, Fla. 33519

Filed Apr. 20, 1979, Ser. No. 31,771

Term of patent 14 years
Int. Cl. D26—01

U.S. Cl. D26—11



263,000

SPOTLIGHT FITTING

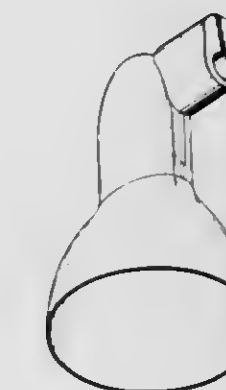
Robert Heritage, and Stephen Hall, both of London, England, assignors to Rotaflex (Great Britain) Limited, London, England

Filed Jun. 14, 1979, Ser. No. 48,676

Claims priority, application United Kingdom, Jan. 25, 1979, 988247/79

Term of patent 14 years
Int. Cl. D26—05

U.S. Cl. D26—63



262,997

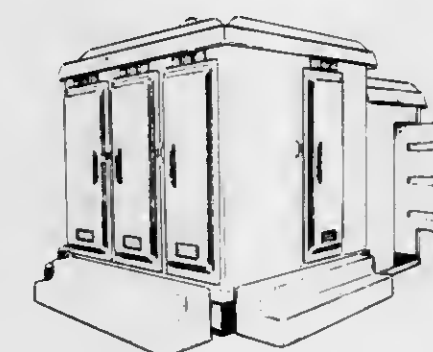
PORTABLE MULTIPLE-TOILET BUILDING

William A. Reynolds, 328 Walnut La., Youngstown, N.Y. 14174

Filed Dec. 3, 1979, Ser. No. 99,314

Term of patent 14 years
Int. Cl. D25—03

U.S. Cl. D25—1



263,001

DRYER AND COMBINED COMB ATTACHMENT

John Wistrand, New Canaan, Conn., assignor to Clairol Incorporated, New York, N.Y.

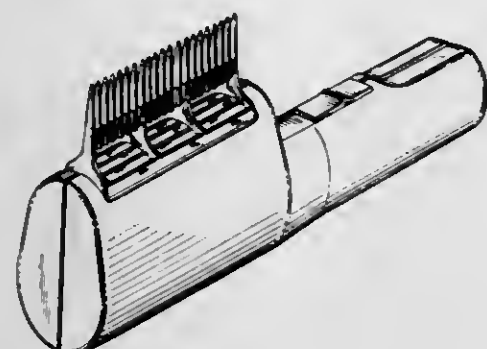
Division of Ser. No. 789,379, Apr. 21, 1977, Pat. No. D. 252,472.

This application Feb. 12, 1979, Ser. No. 11,464

Term of patent 14 years

Int. Cl. D28—03

U.S. Cl. D28—13

263,002
CURLER

Harry Sundin, Karlshamn, Sweden, assignor to AB Karlshamns Plastindustri, Karlshamn, Sweden

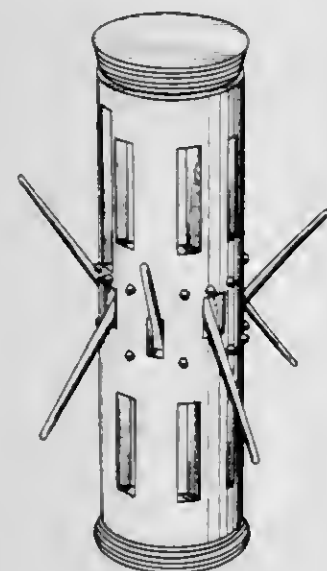
Filed Oct. 12, 1978, Ser. No. 950,869

Claims priority, application Sweden, Apr. 20, 1978, 781103

Term of patent 14 years

Int. Cl. D28—03

U.S. Cl. D28—37



263,003

VANITY MIRROR

King C. Tong, Kowloon, Hong Kong, assignor to Kwok K. Cheung; King S. Tong and Wing K. Tong, all of Kwai Chuog, Hong Kong

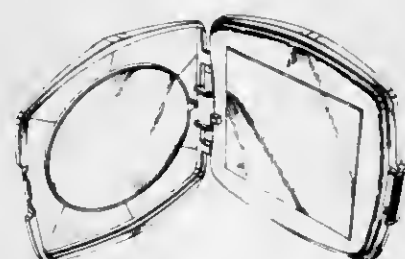
Filed Feb. 11, 1980, Ser. No. 120,645

Claims priority, application United Kingdom, Jan. 2, 1980, 993022/80

Term of patent 14 years

Int. Cl. D28—03

U.S. Cl. D28—78

263,004
COMPACT CASE

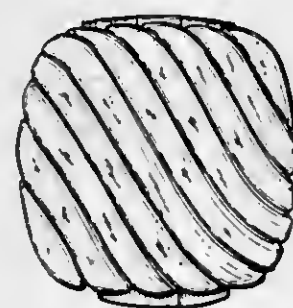
Daniel Gross, 251 W. 20th St., New York, N.Y. 10001

Filed Jun. 4, 1980, Ser. No. 156,297

Term of patent 14 years

Int. Cl. D28—03

U.S. Cl. D28—83

**LIST OF PATENTEES**

TO WHOM

PATENTS WERE ISSUED ON THE 9TH DAY OF FEBRUARY, 1982

NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- A. Sarna & Son Limited: See—
Sarna, Abraham; and Sarna, David, 4,314,625, Cl. 190-16.000.
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- Acme-Cleveland Corporation: See—
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- Tanie, Kazuo; and Tachi, Susumu, 4,314,379, Cl. 3-1.100.
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- Agusto, Robert G.: See—
Basa, Kenneth B.; and Agusto, Robert G., 4,315,035, Cl. 426-250.000.
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Mori, Fumio; Omura, Yoshiaki; Fujita, Yoshiji; Nishida, Takashi; Hosogai, Takeo; Wada, Fumio; Aihara, Sukeji; Tamai, Yoshin; and Itoi, Kazuo, 4,315,029, Cl. 424-304.000.
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- Akita, Yoshio: See—
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Harre, Kurt J. S., 4,314,770, Cl. 400-175.000.
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- Alway, Peter: See—
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- American Standard Inc.: See—
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- Anchor/Darling Industries, Inc.: See—
Sulzer, Harry E., 4,314,473, Cl. 73-11.000.
- Anderson, Blair V.; Feldman, Morris; and Jacoby, Richard. Orthopedic shoe. 4,314,412, Cl. 36-100.000.
- Anderson, Carl C.: See—
Birkmeyer, William J.; Lewarchik, Ronald J.; Klanica, Joseph A.; and Anderson, Carl C., 4,314,918, Cl. 260-20.000.
- Anderson, Don L., Jr.: See—
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- Anorga, Carlos J., to Upjohn Company. The Flame retardant flexible polyurethane foam containing finely divided inorganic salt wherein a mold of said salt contains at least five moles of water. 4,315,078, Cl. 521-103.000.
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- Apstein, Carl S., to Boston University. The Trustees of. Method of treating an arrested heart. 4,314,550, Cl. 128-1.00D.
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- Arcangeli, Aldo. Screwdrivers. 4,314,489, Cl. 81-451.000.
- Archambault, Yves: See—
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- Arimura, Hirofumi: See—
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- Armstrong, Donald E.; Sindlinger, Ronald E.; and Harvey, William J., to GTE Products Corporation. Photoflash lamp construction and method of making same. 4,314,394, Cl. 29-25.160.
- Armstrong, Rolfe D.; and Walsh, Dennis A., to NCR Corporation. Diagnostic circuitry in a data processor. 4,315,313, Cl. 364-200.000.
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- Artwegger, Wolfgang; and Reitz, Otfried, to "Wohn-Art" Freizeitartikel Gesellschaft m.b.H. Cabin structure displaceably mountable on a vehicle. 4,314,726, Cl. 296-164.000.
- Arvan, John. Key ring with positive locking member. 4,314,467, Cl. 70-456.00R.
- Asahi Kogaku Kogyo Kaisha: See—
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- Komoto, Shinsuke, 4,314,749, Cl. 354-139.000.
- Asahi, Taro: See—
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- Ayres, Barry E.; and Weir, Niall G., to Glaxo Group Limited. Cephalosporin antibiotics. 4,315,005, Cl. 424-246.000.
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- Banzai, Keiichi: See—
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- Barata, Jose M. B.; and Valls, Alejandro S. Rotary engine employing double eccentric. 4,314,533, Cl. 123-242.000.
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- Barbini, Richard J.: See—
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- Baril, Jacques; and Gaborieau, Jean-Yves, to Societe de Vente de l'Aluminium Pechiney. Stamping in liquid female tool. 4,314,468, Cl. 72-57.000.
- Barna, Stephen L. Hand held tongs. 4,314,724, Cl. 294-99.00R.
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- Barnes, Gary T., to University of Alabama in Birmingham, The. Multiple beam computed tomography (CT) scanner. 4,315,157, Cl. 250-445.00T.
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- Putnam, Abbott A.; and Locklin, David W., 4,314,444, Cl. 60-39.770.
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- Loving, James A., 4,314,568, Cl. 128-327.000.
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- Monte, Charles S.; and Johnson, Wayne S., 4,314,897, Cl. 204-299.00R.
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- Beecham Group Limited: See—
Gasson, Brian C., 4,314,941, Cl. 260-245.300.
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- Boros, Victor B.; and Thau, Frederick E., 4,315,316, Cl. 364-483.000.
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- Ciesielka, Albert J.; and Hawley, George T., 4,315,107, Cl. 179-16.00F.
- Flamm, Daniel L., 4,314,875, Cl. 156-643.000.
- Fleischer, Paul E.; and Laker, Kenneth R., 4,315,227, Cl. 333-173.000.
- Saleh, Adel A. M., 4,315,222, Cl. 330-124.00D.
- Belokoskov, Valentin I.: See—
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- Bendix Corporation, The: See—
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- Keresztes, Robert J., 4,314,596, Cl. 152-330.00R.
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- Reddy, Junuthula N., 4,314,538, Cl. 123-485.000.
- Berazovsky, Sandra; and Smith, Harry A., to Dow Chemical Company. The Curable compositions. 4,314,925, Cl. 260-33.20R.
- Bergdolt, Henry F. Sanitary glass holder. 4,314,684, Cl. 248-146.000.
- Berger, Fritz; Lauterbach, Udo; and Wetzel, Hermann, to Metzeler Schaum GmbH. Method for the manufacture of molded bodies. 4,314,867, Cl. 156-196.000.
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- Berner, Godwin, to Ciba-Geigy Corporation. Method for light stabilization of two-layer uni-lacquer coatings. 4,314,933, Cl. 260-45.75N.
- Bernett, Frank W.; and Svendsen, Peter R., to Digital Equipment Corporation. Disk housing for disk mass storage unit including integral means for reducing temperature differentials among disks. 4,315,288, Cl. 360-98.000.
- Bert, Alain; Leclerc, Bernard; and Archambault, Yves, to Thomson-CSF. Acoustic storage device intended in particular for the correlation of two high-frequency signals. 4,315,275, Cl. 357-56.000.
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- Bettle, Griscorn, III; Mills, Howard; and Richter, Edward B., to Procter & Gamble Company. The Process for making peroxyacetic acids. 4,314,949, Cl. 260-502.00R.
- Bexford Limited: See—
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- Biblarz, Oscar, to United States of America, Navy. Staircase electrode-wall configuration for MHD generators. 4,315,169, Cl. 310-11.000.
- Bickel, Gary W., to International Telephone and Telegraph Corporation. Optical fiber beam splitter coupler. 4,314,740, Cl. 350-96.150.
- Biegenzein, Gunter, to Novophalt SA. Method and apparatus for preparing a bituminous binder. 4,314,921, Cl. 260-28.5AS.
- Biehl, Reinhard; and Schmalbein, Dieter, to Bruker Analytische Messtechnik GmbH. Test head producing different frequencies for endor-triple experiments. 4,315,230, Cl. 333-227.000.
- Bienville, Frank. Multipower electrical system for supplying electrical energy to a house or the like. 4,315,163, Cl. 307-66.000.
- Bier, Peter; and Binsack, Rudolf, to Bayer Aktiengesellschaft. Polyethylene terephthalates which crystallize rapidly and a process for their preparation. 4,314,928, Cl. 260-40.00R.
- Bifok AB: See—
Hansen, Elo H.; and Ruzicka, Jaromir, 4,314,824, Cl. 23-230.00R.
- Billeck, Frank D.: See—
Narens, Robert L.; and Billeck, Frank D., 4,314,418, Cl. 40-358.000.
- Bilsom AB: See—
Westerdal, Roland, 4,314,553, Cl. 128-152.000.
- Binder, Ira; and Teass, Horace A., Jr., to McNab Incorporated. System for measurement of specific ions, such as sodium. 4,314,896, Cl. 204-195.00R.
- Binder, Johann V. Sugar cane planter. 4,314,514, Cl. 111-3.000.
- Binsack, Rudolf: See—
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Bio Research Center Company Ltd.: See—
Takagi, Motoyoshi, 4,314,854, Cl. 127-37.000.
Bird & Son, Inc.: See—
Cunning, Joseph M., 4,314,683, Cl. 248-48.200.
Birenberg, Isaac E.: See—
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Birkmeyer, William J.; Lewarchik, Ronald J.; Klanica, Joseph A.; and Anderson, Carl C., to PPG Industries, Inc. Coating compositions containing organic alcoholic reactive diluents. 4,314,918, Cl. 260-20.000.
Bitakaramire, Peter K., to Vaccines International Limited. Process for producing fascioliasis vaccine. 4,314,992, Cl. 424-88.000.
Björman, James M., to Multi-Flex Corporation. Resilient sprinkler nipple. 4,314,717, Cl. 285-5.000.
Black & Decker Inc.: See—
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Blackett, Hanno: See—
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Blades, Frederick K., to PureCycle Corporation. Echo ranging pulse discrimination circuit. 4,315,325, Cl. 367-98.000.
Blank, Heinz U.: See—
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Pfister, Theodor; Schenk, Wolfgang; and Blank, Heinz U., 4,314,950, Cl. 260-543.00R.
Blankenship, Michael G., to Corning Glass Works. Reactant delivery system method. 4,314,837, Cl. 65-3.120.
Block, Dieter; Gesell, Reinhard; and Peters, Hans-Werner, to Dr. Ing. Rudolf Hell GmbH. Thermic developing stations. 4,315,136, Cl. 219-216.000.
Blomqvist, Berthold. Stackable pallet collar. 4,314,649, Cl. 220-4.00F.
Bloom, Allen; Seffren, Sidney S.; Bell, Alan E.; and Bartolini, Robert A., to RCA Corporation. Thick protective overcoat layer for optical video disc. 4,315,269, Cl. 346-135.100.
Blough, Herbert A. 2-Deoxy glucose as an antiviral agent against herpes simplex. 4,315,001, Cl. 424-180.000.
Blount, David H. Process for the production of broken down lignin-cellulose silicate copolymers. 4,314,916, Cl. 260-13.000.
Blum, Alvin S. Molecular separation and isoenzyme analyzers. 4,314,971, Cl. 422-82.000.
Boden, Heinrich; and Schneider, Walter, to Bayer Aktiengesellschaft. Method of filling cavities, in particular, mold cavities, with a reactive flowable mixture. 4,314,955, Cl. 264-51.000.
Boden, Heinrich; Rentz, Bernhard; Niggemann, Johann; and Just, Gerhard, to Bayer Aktiengesellschaft. Method and a device for producing shaped articles from a multi-component reaction mixture. 4,314,963, Cl. 264-328.600.
Boeckel, John W.; Rohde, Vernon C.; and Wells, John R., to Du Pont de Nemours & E. I., and Company. Centrifuge rotor apparatus for preparing particle spreads. 4,314,523, Cl. 118-50.000.
Boehmer, Matthew A.: See—
Kremer, Lawrence N.; and Boehmer, Matthew A., 4,314,876, Cl. 156-664.000.
Boeing Company, The: See—
Dadone, Leone U., 4,314,795, Cl. 416-223.00R.
Deminet, Czeslaw; and Kenney, James F., 4,314,741, Cl. 350-96.330.
Boessler, Hanns: See—
Monsheimer, Rolf; Pfeleiderer, Ernst; Siol, Werner; Boessler, Hanns; and Trabitzsch, Hans, 4,314,800, Cl. 8-94.10R.
Bogese, Charles E.; and Bogese, Stephen B., II, to Virginia Patent Development Corp. Cable assembly having shielded conductor and method of making same. 4,314,737, Cl. 339-99.00R.
Bogese, Stephen B., II: See—
Bogese, Charles E.; and Bogese, Stephen B., II, 4,314,737, Cl. 339-99.00R.
Bogren, Leif. Transport device mainly intended for pulling tree trunks and similar loads. 4,314,511, Cl. 104-173.00R.
Bonney, Oren V., to Amstar Corporation. Recovery of magnesium as magnesium hydroxide from sea water. 4,314,985, Cl. 423-636.000.
Bonse, Gerhard; Blank, Heinz U.; and Kratzer, Hans, to Bayer Aktiengesellschaft. Preparation of 4-amino-6-tert-butyl-3-alkylthio-1,2,4-triazin-5(4H)-one. 4,315,094, Cl. 544-182.000.
Boogerd, Ger M.: See—
Konijnendijk, Willem L.; Boogerd, Ger M.; and Tonnaer, Henricus L. M., 4,315,191, Cl. 313-486.000.
Borg-Warner Corporation: See—
Harnish, James R., 4,314,456, Cl. 62-181.000.
Siemon, Edward C., 4,315,305, Cl. 363-88.000.
Boros, Victor B.; and Thau, Frederick E., to Bell Telephone Laboratories, Incorporated. Digital arrangement for determining average current of a circuit by monitoring a voltage. 4,315,316, Cl. 364-483.000.
Bosch-Siemens Hausgeräte GmbH: See—
Schotten, Henno, 4,314,666, Cl. 236-78.00R.
Boston University, The Trustees of: See—
Apstein, Carl S., 4,314,550, Cl. 128-1.00D.
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Bouk, Raymond S., deceased; and Bouk, Barbara, heir, 4,314,902, Cl. 208-254.00R.
Bouk, Raymond S., deceased; and by Bouk, Barbara, heir. Catalytic water wash. 4,314,902, Cl. 208-254.00R.
Bowman, Charles W. Solar hot water generator. 4,314,545, Cl. 126-424.000.

Bowman, Robert J., to University of Utah Research Foundation. Self-compensating optical drop count apparatus for measuring volumetric fluid flow. 4,314,484, Cl. 73-861.410.
Branson Ultrasonics Corporation: See—
Holze, Ernest P., Jr., 4,315,181, Cl. 310-323.000.
Bratko, Rudolph S., to Silyman Manufacturing Corporation. Infra-red domestic furnace. 4,314,542, Cl. 126-110.00R.
Brauer, Gerhard; Adam, Peter; and Seuffert, Werner, to Kuster & Co. GmbH; and Siemens Aktiengesellschaft. Electric motor-driven rope pull hoist for motor vehicle doors. 4,314,692, Cl. 254-362.000.
Bregman, Harry L.: See—
Weinstock, Harry; and Bregman, Harry L., 4,314,871, Cl. 156-258.000.
Brehm, William F.: See—
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Breininger, J. Shannon; and Greenberg, Charles B., to PPG Industries, Inc. Direct electroless deposition of cuprous oxide films. 4,315,055, Cl. 428-434.000.
Bremer, Edgar W. Air operated clock. 4,315,327, Cl. 368-65.000.
Brennan, John J.; and Prewo, Karl M., to United Technologies Corporation. Silicon carbide fiber reinforced glass composites. 4,314,852, Cl. 501-88.000.
Briar, Jack E. Pressure jet spray apparatus. 4,314,671, Cl. 239-311.000.
Bricker, Robert E.; and Humpleby, Paul J., to Litton Industrial Products, Inc. Coolant assembly for a cylindrical grinding machine. 4,314,425, Cl. 51-267.000.
Brickman, Norman F.; and Graziano, Bruno R., to International Business Machines Corporation. Multiple data rate testing of communication equipment. 4,315,330, Cl. 370-104.000.
Brinkel, Edwin P.; and Dellach, Philip J., to ISI Fluid Power, Inc. Safety control system for double-acting cylinder. 4,314,502, Cl. 91-438.000.
Brister, Beryl D. Installation, hydrostatic testing, repair and modification of large diameter fluid transmission lines. 4,314,577, Cl. 137-13.000.
British Aerospace: See—
Stevens, James W., 4,314,892, Cl. 204-38.00B.
Brock Manufacturing, Inc.: See—
Grossman, Rodney, 4,314,675, Cl. 241-95.000.
Brock, William L. Surface roller. 4,314,395, Cl. 29-110.500.
Bromwell, Michael A. J. Overcladding structure for a roof. 4,314,428, Cl. 52-22.000.
Bronisz, Larry F.; and Sahr, Eugene V., to Data General Corporation. Cassette recorder system for loading programs. 4,315,323, Cl. 364-900.000.
Bronne, Henri, to S.A.M. Silvatrim. Rack for flexible shapes. 4,314,641, Cl. 206-443.000.
Brown, Daniel R.: See—
Madsen, James B.; and Brown, Daniel R., 4,314,829, Cl. 55-98.000.
Brown, Karen K.; and Stewart, Richard C., to Cutter Laboratories, Inc. Titration of serum influenza antibody using plaque reduction neutralization test. 4,315,073, Cl. 435-5.000.
Broyles, Harry C.; and Szalvay, Laszlo, to Raychem Corporation. Tensile ring composite pipe coupling. 4,314,718, Cl. 285-114.000.
Bruker Analytische Messtechnik GmbH: See—
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Brumfield, Jesse E.: See—
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Brumfield, Maxine L.; and Brumfield, Jesse E. Physical exercising device. 4,314,697, Cl. 272-136.000.
Bruni, Ludovico, to Associated Engineering Italy S.p.A. Pistons and cylinder liners. 4,314,531, Cl. 123-193.00P.
Brunson, William W.: See—
Stewart, Maxson L.; Odle, Robert R.; and Brunson, William W., 4,314,976, Cl. 423-139.000.
Buchanan, John G.; and MacBean, Donald G., to JWI Ltd. Duplex forming fabric. 4,314,589, Cl. 139-383.00A.
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Budd Company, The: See—
Weinhaus, Harold R., 4,314,384, Cl. 9-310.00A.
Bull, James E., to Texas Woods Instruments, Inc. Exhaust skimming. 4,314,446, Cl. 60-279.000.
Bullington, John G.; and Tate, Lemmie D. Stove safety guard. 4,314,543, Cl. 126-201.000.
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Burk, Raymond D., to Monsanto Company. Process for the continuous mass polymerization of polyblends. 4,315,083, Cl. 525-53.000.
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Demnianiuk, Eugene F., 4,314,736, Cl. 339-74.00R.
McKee, Joseph E.; and Lee, James Y., 4,315,259, Cl. 340-799.000.
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Byk-Mallinckrodt Chemische Produkte GmbH: See—
Haubennestel, Karlheinz; and Mehren, Rainer, 4,314,924, Cl. 260-30.60R.

Cain, James T., to JNPC Investments (Proprietary) Limited. Motor vehicle registration plate holder. 4,314,417, Cl. 40-209.000.
Caibert, Raymond E.; and Morse, Herbert E., to Delta Design, Inc. Feed and storage track for DIP devices. 4,314,628, Cl. 193-2.00R.
Calfo, Raymond M.; Alkire, Gerald R.; Dailey, George F.; and Mulach, Arthur, to Westinghouse Electric Corp. Dynamoelectric machines segmental air gap baffle assembly. 4,315,173, Cl. 310-53.000.
California Institute of Technology: See—
Hsu, George C.; Levin, Harry; Hogle, Richard A.; Praturi, Ananda; and Lutwack, Ralph, 4,314,525, Cl. 118-716.000.
Callahan, Michael J., Jr.: See—
Hoffman, Gordon B.; and Callahan, Michael J., Jr., 4,315,108, Cl. 179-84.0VF.
Calloni, Angelo: See—
Leoni, Roberto; Baldini, Alberto; Calloni, Angelo; and Angelini, Gianfranco, 4,314,959, Cl. 264-187.000.
Calveri, Edmund, administrator: See—
Liddell, Peter R.; Pearl, Antony S., deceased; and Calvert, Edmund, administrator, 4,314,764, Cl. 356-315.000.
Calveri, Willard R., Sr. Unused fuel indicator for automotive engines employing catalytic converters. 4,315,243, Cl. 340-52.00R.
Cam Gears Limited: See—
Adams, Frederick J., 4,314,485, Cl. 74-200.000.
Canada, Her Majesty the Queen in Right of, as represented by the Minister of National Defence: See—
Couture, Joseph E. G.; and Roy, Joseph N. A., 4,315,043, Cl. 427-212.000.
Canadian Patents & Development Limited: See—
Rochelleau, David; and Ayukawa, Karl, 4,315,219, Cl. 328-14.000.
Cannon, Raymond E., to IMED Corporation. Drop controller. 4,314,567, Cl. 128-214.00F.
Canon Kabushiki Kaisha: See—
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Fukuda, Tadayuki; and Misumi, Teruo, 4,315,063, Cl. 430-65.000.
Kawabata, Takashi; Hosoe, Kazuyasu; Shinoda, Nobuhiko; Sakai, Shinji; and Kinoshita, Takao, 4,314,748, Cl. 354-25.000.
Kuwayama, Tetsuro; and Tanaka, Kazuo, 4,315,279, Cl. 358-44.000.
Niwa, Yukichi; Owada, Mitsutoshi; Asano, Noriyuki; Ogawa, Masahiko; and Tamura, Shuichi, 4,315,159, Cl. 250-578.000.
Shimizu, Katsuchi; Sawamura, Osamu; Masuda, Shunichi; Tomosada, Masahiro; and Sakamaki, Hisashi, 4,314,754, Cl. 355-14.00C.
Suzuki, Akiyoshi; Hiraga, Ryozi; Kano, Ichiro; Yoshinari, Hideki; Totsuka, Masao; Kato, Yuzo; and Ogino, Yasuo, 4,315,201, Cl. 318-640.000.
Tazaki, Shigemitsu, 4,315,268, Cl. 346-17.000.
Yamada, Yasuaki; Ozawa, Toshiaki; and Kondo, Hiroatsu, 4,315,200, Cl. 318-603.000.
Cantrel, James F., to Ingersoll-Rand Co. Friction rock stabilizer and method for inserting thereof in an earth structure bore. 4,314,778, Cl. 405-259.000.
Carkhuff, Donald W.: See—
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Carmel, Amos: See—
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Carrier Corporation: See—
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Carson Products Company: See—
de la Guardia, Mario; and Cowsar, Donald R., 4,314,572, Cl. 132-7.000.
Carstap Corporation: See—
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Cartier, Roger J.; and Krolzick, Gordon J., to Whirlpool Corporation. Automatic lint screen cleaner and storage system for dryer. 4,314,409, Cl. 34-82.000.
Casals, Jorge: See—
Skuballa, Werner; Raduechel, Bernd; Vorbrueggen, Helmut; Manesmann, Gerda; Losert, Wolfgang; and Casals, Jorge, 4,315,013, Cl. 424-263.000.
Casteel, Ernest; and Spector, George. Siding holder. 4,314,429, Cl. 52-127.000.
Caterpillar Tractor Co.: See—
Hansen, Robert C., 4,314,621, Cl. 181-233.000.
Westendorf, Gail F., 4,314,711, Cl. 280-154.000.
Causse, Jean-Marie; and Sarre, Andre F. M., to Compagnie Internationale pour l'Informatique CII-Honeywell Bull (Societe Anonyme). Diagnostic system for a data processing system. 4,315,311, Cl. 364-200.000.
Cecil, Joseph L.: See—
Elmore, Jimmy D.; and Cecil, Joseph L., 4,315,044, Cl. 427-386.000.
Celanese Corporation: See—
Elmore, Jimmy D.; and Cecil, Joseph L., 4,315,044, Cl. 427-386.000.
Cerf, Olivier; Grenier, Georges; Hermier, Jean; and Rancurel, Alain, to Laboratoires Pharmascience. Sterilization process using a heat effect additive. 4,314,965, Cl. 422-28.000.
Cerny, Daryl D.; and Lining, Kurt, to Ball Corporation. Wire electrode assembly having arc suppression means and extended fatigue life. 4,315,188, Cl. 313-269.000.
Cerroni, Manlio. Process for separating the paper from the plastic existing in the urban solid waste. 4,314,674, Cl. 241-14.000.
Chandrasekaran, Santosh K., to ALZA Corporation. Dissolution controlled active agent dispenser. 4,314,557, Cl. 128-260.000.

Chang, Chuan C.; and Kumar, Jitendra, to Bell Telephone Laboratories, Incorporated. Method of cleaning test probes. 4,314,855, Cl. 134-3.000.
Chang, Wen-Hsuan; Piccirilli, Robert; and Diehl, David A., to PPG Industries, Inc. Coating compositions formulated from polyols modified by reaction with glycidyl ether. 4,314,923, Cl. 260-29.40R.
Chaplin, Gary F., to United Technologies Corporation. Turbine seal and vane damper. 4,314,792, Cl. 415-116.000.
Chaplin, Gary F.: See—
DeTolla, Francis L.; and Chaplin, Gary F., 4,314,793, Cl. 415-135.000.
Chase, Jay V., Jr., to United States of America, Navy. Inertial measurement underwater tracking system. 4,315,326, Cl. 367-134.000.
Chauvet, Robert. Apparatus for the preparation of the soil. 4,314,609, Cl. 172-54.500.
Chea, Ramon C. W., Jr., to International Telephone and Telegraph Corporation. Apparatus for regulating current supplied to a telephone line signal of the type employed in digital telephone systems. 4,315,106, Cl. 179-16.00F.
Chemineer, Inc.: See—
Libby, Donald R.; and Chen, Sung J., 4,314,974, Cl. 423-8.000.
Chen, James M.: See—
Shen, Ming-Shing; Chen, James M.; and Yang, Ralph T., 4,314,980, Cl. 423-331.000.
Chen, Sung J.: See—
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Cheong, Chan W. Rotary insect trap. 4,314,421, Cl. 43-111.000.
Chevron Research: See—
Danley, Michael M., 4,315,025, Cl. 424-274.000.
Chevron Research Company: See—
Sigworth, Harry W., Jr., 4,314,667, Cl. 236-93.00R.
Chicago Bridge & Iron Company: See—
Engdahl, Gerald E., 4,314,455, Cl. 62-124.000.
Chin, Hsiao-Ling M.; and Pallos, Ferenc M., to Stauffer Chemical Company. N-Haloalkyl thiobenzoylanilides and their use as fungicides. 4,315,030, Cl. 424-304.000.
Chinone, Naoki; Saito, Kazutoshi; Shige, Noriyuki; and Ito, Ryoichi, to Hitachi, Ltd. Semiconductor laser device. 4,315,226, Cl. 372-45.000.
Chloride Group Limited: See—
Schwendener, Derek K.; Ainsworth, Neil L.; and Foss, Richard J., 4,315,058, Cl. 429-84.000.
Chow, Shing C., to Nam Kwong Electric Co. Ltd. Stroboscopic discharge tube for photography. 4,315,187, Cl. 313-217.000.
Christie, George A.: See—
Kluge, Anhur F.; Strosberg, Arthur M.; Whiting, Roger; and Christie, George A., 4,315,021, Cl. 424-273.00R.
Ciba Geigy AG: See—
Scott, John G. V.; and Harvey, Anthony K., 4,315,069, Cl. 430-365.000.
Ciba-Geigy Corporation: See—
Beffa, Fabio, 4,314,937, Cl. 260-145.00A.
Berner, Godwin, 4,314,933, Cl. 260-45.75N.
Model, Ernst, 4,314,938, Cl. 260-165.000.
Mollet, Hans, 4,314,815, Cl. 8-524.000.
Weber, Kurt; and Meyer, Hans R., 4,314,820, Cl. 8-648.000.
Ciesielka, Albert J.; and Hawley, George T., to Bell Telephone Laboratories, Incorporated. Telephone range extender with gain. 4,315,107, Cl. 179-16.00F.
Cillario, Renzo. Package comprising a creamy confectionery product. 4,314,650, Cl. 220-23.830.
Claffey, Kevin: See—
Spitzer, J. George; Marra, Dorothea C.; Osipow, Lloyd I.; and Claffey, Kevin, 4,314,573, Cl. 132-7.000.
Clarizio, Donald M., to Duracell International Inc. Method for the manufacture of a polystyrene separator and cell. 4,315,062, Cl. 429-246.000.
Clark, John D., to Praet, Larry Raymond, a part interest. Security bar for sliding door or window. 4,314,721, Cl. 292-262.000.
Clarke, Robert: See—
Michel, Thomas J.; and Clarke, Robert, 4,315,210, Cl. 324-57.00R.
Clauss, Richard J., to Hooker Chemicals & Plastics Corp. Production of multiple zinc-containing coatings. 4,314,893, Cl. 204-40.000.
Clow, Hugh; and Walters, Peter E., to EMI Limited. Imaging systems. 4,315,216, Cl. 324-309.000.
Coal Industry (Patents) Limited: See—
Plumpton, Norman A.; and Tomlin, Malcolm G., 4,314,730, Cl. 299-75.000.
Cole, Loren F., Jr. Vehicle alarms. 4,315,244, Cl. 340-63.000.
Coleman, Howard G.: See—
Nunlist, Erwin J.; Coleman, Howard G.; and Harrison, Edward S., 4,314,396, Cl. 29-156.80R.
Coli, Robert D. Integrated medical test data storage and retrieval system. 4,315,309, Cl. 364-200.000.
Collins, John J.: See—
Zrostlik, Francis L.; and Collins, John J., 4,314,597, Cl. 157-1.110.
Columbia Marking Tools, Inc.: See—
Krembel, Frank, Jr., 4,314,505, Cl. 101-85.000.
Combeau, Guy, to Machines Dubuit. Pad transfer printing machine. 4,314,504, Cl. 101-41.000.
Combustion Engineering, Inc.: See—
Hackett, Charles D., 4,314,587, Cl. 138-38.000.
Comer, William T.: See—
Kreighbaum, William E.; and Comer, William T., 4,314,943, Cl. 260-326.13B.

Commissariat a L'Energie Atomique: See—
Etienne, Claude; Fardouet, Claude; and Mercier L'Abbe, Guy, 4,314,882, Cl. 376-235.000.
Gerardot, Claude; and Romero, Georges, 4,315,099, Cl. 174-47.000.
Commodities Trading & Development Ltd.: See—
Aspa, Andre J., 4,314,973, Cl. 422-209.000.
Compagnie Internationale pour l'Informatique CII-Honeywell Bull (Societe Anonyme): See—
Causse, Jean-Marie; and Sarre, Andre F. M., 4,315,311, Cl. 364-200.000.
Lazzari, Jean-Pierre, 4,315,291, Cl. 360-113.000.
Concordia Sprecher Schaltergerate GmbH: See—
Globig, Manfred, 4,315,120, Cl. 200-146.00R.
Connolly, Denis J., to United States of America, National Aeronautics and Space Administration. Coupled cavity traveling wave tube with velocity tapering, 4,315,194, Cl. 315-3.600.
Conoco Inc.: See—
Kulik, Metro D., 4,314,977, Cl. 423-235.000.
Theodore, Frank W.; and Wasson, George E., 4,314,900, Cl. 208-126.000.
Conti, Gianni. Knitting machine with latchless needles cooperating with external hook-type elements, 4,314,461, Cl. 66-13.000.
Control Technology, Incorporated: See—
Ferguson, Frank T., 4,315,162, Cl. 307-66.000.
Controlonics Corporation: See—
Mosher, Richard K., 4,315,261, Cl. 343-18.00E.
Cook, P. Dan, to Warner-Lambert Company. β -D-Arabinofuranosylimidazo(4,5-c)pyridine compounds and methods for their production, 4,315,000, Cl. 424-180.000.
Cooper, Douglas E. Multi-component package dispensing method, 4,314,652, Cl. 222-1.000.
Cooper, Glenn D.; Lee, Gim F., Jr.; and Shufelt, Rainey A., to General Electric Company. Polyphenylene ether molding compositions that include an alkenyl aromatic resin and EPDM rubber, 4,315,084, Cl. 525-69.000.
Cooper Laboratories, Inc.: See—
Abelson, Mark B., 4,315,024, Cl. 424-273.00R.
Copeland, Peter. Recorders, 4,315,286, Cl. 360-72.200.
Corbman, Philip; and Faber, Paul V., to Wilputte Corporation. Zone control of lean gas underfiring for coke ovens, 4,314,888, Cl. 202-143.000.
Corda, Giuseppe: See—
Daniele, Vincenzo; Corda, Giuseppe; Ravaglia, Andrea; and Ferla, Giuseppe, 4,315,239, Cl. 338-308.000.
Corning Glass Works: See—
Allen, Richard E., 4,314,559, Cl. 128-303.140.
Beall, George H.; and Rittler, Hermann L., 4,314,909, Cl. 252-629.000.
Blankenship, Michael G., 4,314,837, Cl. 65-3.120.
Courtin, Alfred, to Sandoz Ltd. 1-Amino-7-[3'-(5'-chloro-2',4'-difluoropyrimidinyl-6"-amino)-6'-sulfonylphenylazo]-8-hydroxy-2-sulfamoyl or substituted sulfamoyl-phenylazo naphthalene-3,6-disulfonic acids, 4,314,818, Cl. 6-549.000.
Couture, Joseph E. G.; and Roy, Joseph N. A., to Canada, Her Majesty the Queen in Right of, as represented by the Minister of National Defence. Coating of granulated organic dyes with an epoxy, 4,315,043, Cl. 427-212.000.
Cowsar, Donald R.: See—
de la Guardia, Mario; and Cowsar, Donald R., 4,314,572, Cl. 132-7.000.
Cox, George W.: See—
Bayliss, John A.; Cox, George W.; Forbes, Bert E.; and Kahn, Kevin C., 4,315,310, Cl. 364-200.000.
Coyle, Forrest E.: See—
Davis, Steven B.; Coyle, Forrest E.; and Bedel, Denis E., 4,314,738, Cl. 339-156.00R.
Cramer, Hans-Dieter: See—
Kramer, Manfred; Schmid, Werner; and Cramer, Hans-Dieter, 4,315,118, Cl. 200-80.00R.
Crane Packing Limited: See—
Wichall, Colin A., 4,314,704, Cl. 277-27.000.
Crankshaw, Michael, to Label-Aire. Wine bottle labeler, 4,314,869, Cl. 156-215.000.
Crescenzo, Francis C.: See—
LaFleur, Paul J., Jr.; and Crescenzo, Francis C., 4,314,785, Cl. 414-46.000.
Crockett, Ray K.: See—
Palmer, Harry E.; Stenning, David G. C.; and Crockett, Ray K., 4,314,776, Cl. 405-205.000.
Crown City Plating Co.: See—
Dillard, David A.; Maguire, Eileen; and Donovan, Lawrence P., 4,315,045, Cl. 427-307.000.
Crutchfield, E. Bryant: See—
Gaiser, William R.; Crutchfield, E. Bryant; and Bartley, Harold D., 4,314,651, Cl. 220-326.000.
Crutchfield, Marvin M.; Papanu, Victor D.; and Warren, Craig B., to Monsanto Company. Polyacetal carboxylates, 4,315,092, Cl. 528-230.000.
Cunning, Joseph M., to Bird & Son, Inc. Gutter hanger, 4,314,683, Cl. 248-48.200.
Cushman Industries, Incorporated: See—
Pruden, Samuel H., 4,314,706, Cl. 279-1.00C.
Cutter Laboratories, Inc.: See—
Brown, Karen K.; and Stewart, Richard C., 4,315,073, Cl. 435-5.000.

Cybernet Electronics Corporation: See—
Kakigi, Yasugi; and Kakigi, Takao, 4,315,158, Cl. 250-574.000.
Dadone, Leone U., to Boeing Company. The. Advanced airfoils for helicopter rotor application, 4,314,795, Cl. 416-223.00R.
Dagostine, Leslie J., to Somerville Belkin Industries Limited. Card-board container with reclosable top closure, 4,314,642, Cl. 206-621.000.
Dahms, Harald. Thermostat range controller, 4,315,137, Cl. 219-391.000.
Dai Nippon Insatsu Kabushiki Kaisha: See—
Nishikawa, Seiichi; and Honda, Makoto, 4,315,145, Cl. 235-493.000.
Dailey, George F.: See—
Calfo, Raymond M.; Alkire, Gerald R.; Dailey, George F.; and Mulach, Arthur, 4,315,173, Cl. 310-53.000.
Dainippon Screen Seizo Kabushiki Kaishi: See—
Tsuda, Masanori, 4,315,280, Cl. 358-80.000.
Dalcon Marketing Inc.: See—
Hade, Conrad; and Robinson, Dale D., 4,314,458, Cl. 62-256.000.
Dalel, Francis A., to Societe Nationale des Poudres et Explosifs. Pyrotechnic charge, with a short combustion time, comprising inclined plates of propellant and deflectors, and a propulsion system using a charge of this type, 4,314,509, Cl. 102-288.000.
Dancsi, Lajos: See—
Szantay, Csaba; Szabo, Lajos; Kalaus, Gyorgy; Dancsi, Lajos; Keve, Tibor; and Drexler, Ferenc, 4,314,939, Cl. 260-239.30P.
Szantay, Csaba; Szabo, Lajos; Kalaus, Gyorgy; Dancsi, Lajos; Keve, Tibor; Karpai, Egon; and Szporny, Laszlo, 4,315,011, Cl. 424-262.000.
Daniele, Vincenzo; Corda, Giuseppe; Ravaglia, Andrea; and Ferla, Giuseppe, to SGS Ates, Componenti Elettronici S.P.A. Process for producing a calibrated resistance element and integrated circuitry incorporating same, 4,315,239, Cl. 338-308.000.
Danley, Michael M., to Chevron Research. Roughage animal feed, 4,315,025, Cl. 424-274.000.
Darby, David L.: See—
Darby, James W.; and Darby, David L., 4,314,390, Cl. 27-35.000.
Darby, James W.; and Darby, David L. Composite burial vault and method for making same, 4,314,390, Cl. 27-35.000.
Darringer, Richard E.; Scharf, Wayne L.; and Haggerty, James S., to Telatemp Corporation. Targeted infrared thermometer, 4,315,150, Cl. 250-338.000.
Darrow, John O. G.: See—
McElroy, John M.; and Darrow, John O. G., 4,315,208, Cl. 323-303.000.
Dassler, Adolf. Sports shoe, 4,314,413, Cl. 36-129.000.
Data General Corporation: See—
Bronisz, Larry F.; and Sahr, Eugene V., 4,315,323, Cl. 364-900.000.
D'Attoma, Angelo M.: See—
Wilkinson, Harold C.; D'Attoma, Angelo M.; and Walker, Stephen W., 4,315,129, Cl. 219-99.000.
Davey, Kent R., to Westinghouse Electric Corp. Double layered stator peripheral end windings, 4,315,179, Cl. 310-184.000.
Davis, C. Arthur. Strap cutter and method, 4,314,400, Cl. 29-426.400.
Davis, James M., to International Telephone and Telegraph Corporation. Multiple line telephone instrument, 4,315,110, Cl. 179-99.00M.
Davis, Steven B.; Coyle, Forrest E.; and Bedel, Denis E., to Westinghouse Electric Corp. Auxiliary equipment enclosure unit for watt-hour meter sockets, 4,314,738, Cl. 339-156.00R.
Davy International AG: See—
Knobel, Walter, 4,314,891, Cl. 203-18.000.
Dawson, John; and Buckley, Stephen M., to Associated Electrical Industries Limited. Synchronous motors, 4,315,202, Cl. 318-718.000.
de la Guardia, Mario; and Cowsar, Donald R., to Carson Products Company. Method and composition for hair treatment, 4,314,572, Cl. 132-7.000.
Deabrige, Jean, to PCUK Produits Chimiques Ugine Kuhlmann. Industrial process for continuous production of zeolite A, 4,314,979, Cl. 423-329.000.
De Angelis, Vincenzo: See—
Beggelli, Benito; De Angelis, Vincenzo; and Navone, Mauro, 4,315,048, Cl. 428-78.000.
De Barbieri, Augusto, to Proter S.p.A. N-Acyl derivatives of glucosamine having antitumor chemotherapeutic activity, 4,314,999, Cl. 424-177.000.
DeBenedictis, Henry J.: See—
Perakis, Mike; and DeBenedictis, Henry J., 4,314,657, Cl. 222-162.000.
DeBusscher, Cyriel R. J.; and Strubbe, Gilbert J. I., to Sperry Corporation. Combine harvester, 4,314,571, Cl. 130-27.200.
DeCristofaro, Nicholas J.; and Sexton, Peter, to Allied Corporation. Homogeneous, ductile brazing foils, 4,314,661, Cl. 228-263.00R.
Deere & Company: See—
Riewerts, Paul R.; and Wolak, David J., 4,314,610, Cl. 172-776.000.
Defretin, Francis; Eudeline, Jean-Paul; Schoch, Elisabeth; and Voisin, Alain, to PCUK Produits Chimiques Ugine Kuhlmann. Oil additive compositions for internal combustion engines, 4,314,907, Cl. 252-22.000.
Deguchi, Osamu, to NTN Toyo Bearing Company, Limited. Apparatus for transfer and treatment of apertured articles, 4,314,524, Cl. 118-54.000.
Dellach, Philip J.: See—
Brinkel, Edwin P.; and Dellach, Philip J., 4,314,502, Cl. 91-438.000.
Delta Design, Inc.: See—
Calbert, Raymond E.; and Morse, Herbert E., 4,314,628, Cl. 193-2.00R.

Deluca, Domenico: See—
Giannini, Umberto; Longi, Paolo; Deluca, Domenico; and Pricca, Angelo, 4,314,911, Cl. 252-429.00A.
Demaine, David G. A.: See—
Stillwell, Peter F. T. C.; Moore, William T.; and Demaine, David G. A., 4,315,284, Cl. 358-209.000.
Deminet, Czeslaw; and Kenney, James F., to Boeing Company. The. Intrusion-free optical cable, 4,314,741, Cl. 350-96.330.
Demnaniuk, Eugene F., to Burroughs Corporation. Zero insertion force connector for a package with staggered leads, 4,314,736, Cl. 339-74.00R.
Demoute, Jean-Pierre: See—
Martel, Jacques; Tessier, Jean; and Demoute, Jean-Pierre, 4,315,012, Cl. 424-263.000.
de Neui, Richard P.: See—
Seabold, Thomas W.; Patterson, Richard A.; and de Neui, Richard P., 4,315,047, Cl. 428-64.000.
Dennis, John R. Chimney fire detector, 4,315,256, Cl. 340-590.000.
Denny, William D., Jr.; and Wetzel, Thomas A., to Procter & Gamble Company. The. Toothpaste compositions, 4,314,990, Cl. 424-52.000.
Deppisch, Gerd: See—
Redel, Karl-Georg; and Deppisch, Gerd, 4,315,195, Cl. 315-107.000.
Dermarderosian, Aaron, to United States of America, Navy. Crack detection by vapor condensation, 4,314,474, Cl. 73-15.0FD.
Deroode, Jean R., to Essilor International, Cie Generale d'Optique. Method of and apparatus for decorating substrates, 4,314,814, Cl. 8-471.000.
Derrer, Hans-Rudolf: See—
Wolfer, Peter; Derrer, Hans-Rudolf; Vollenweider, Max; and Sonderegger, Hans-Conrad, 4,314,481, Cl. 73-774.000.
Derrien, Jean-Yves; and Seigneurin, Laurent, to Rhone-Poulenc Industries. Catalyst for removing NO_x from gas streams, 4,314,913, Cl. 252-464.000.
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DesChamps, Nicholas H., 4,314,607, Cl. 165-166.000.
DesChamps, Nicholas H., to DesChamps Laboratories, Inc. Plate type heat exchanger, 4,314,607, Cl. 165-166.000.
DeTolla, Francis L.; and Chaplin, Gary F., to United Technologies Corporation. Temperature actuated turbine seal, 4,314,793, Cl. 415-135.000.
de Vries, Paul. Electric keyboard musical instrument, 4,314,494, Cl. 84-1.060.
De Woskin, Kenneth J., to Beltz Corporation. Identification bands and methods of and apparatus for making them, 4,314,415, Cl. 40-21.00C.
Diagnostic Information, Inc.: See—
Merritt, Elisha B., 4,315,183, Cl. 313-94.000.
Dias, Francisco J.: See—
Luhleisch, Hartmut; and Dias, Francisco J., 4,314,599, Cl. 164-16.000.
Dickinson, Robert J.; and Wagner, James L. Fishing device, 4,314,420, Cl. 43-42.390.
Diebold, Incorporated: See—
Graef, Harry T., 4,314,696, Cl. 271-275.000.
Diehl, David A.: See—
Chang, Wen-Hsuan; Piccirilli, Robert; and Diehl, David A., 4,314,923, Cl. 260-29.40R.
Digital Equipment Corporation: See—
Bernett, Frank W.; and Svendsen, Peter R., 4,315,288, Cl. 360-98.000.
Findeisen, Heinz H., 4,315,220, Cl. 328-150.000.
Dillard, David A.; Maguire, Eileen; and Donovan, Lawrence P., to Crown City Plating Co. Conditioning of polyamides for electroless plating, 4,315,045, Cl. 427-307.000.
Dinkhauser, Guenter: See—
Hohenschutz, Heinz; Gnad, Josef; Dinkhauser, Guenter; and Schaefer, Eberhard, 4,314,947, Cl. 260-410.000.
Dionex Corporation: See—
Rich, William E., Jr.; Smith, Frank C.; and McNeill, Janet L., 4,314,823, Cl. 23-230.00R.
Diversey Corporation, The: See—
Kremer, Lawrence N.; and Boehmer, Matthew A., 4,314,876, Cl. 156-664.000.
Dobbelstein, Arnold: See—
Poth, Ulrich; Moller, Dieter; and Dobbelstein, Arnold, 4,315,053, Cl. 428-423.700.
Dr. C. Otto & Comp. GmbH: See—
Kwasnik, Hans-Jurgen; and Piduch, Hans-Gunter, 4,314,787, Cl. 202-241.000.
Kwasnik, Hans-Jurgen; and Piduch, Hans-Gunter, 4,314,889, Cl. 202-241.000.
Dr. Ing. Rudolf Hell GmbH: See—
Block, Dieter; Gesell, Reinhard; and Peters, Hans-Werner, 4,315,136, Cl. 219-216.000.
Sommer, Ruediger; and Wischer, Hermann, 4,315,285, Cl. 358-280.000.
Doerr, Richard D., to ACF Industries, Inc. Reversible d.c. motor with over-drive prevention switches, 4,315,174, Cl. 310-68.00B.
Doi, Masafumi: See—
Sumitomo, Hiroyuki; Doi, Masafumi; Kobayashi, Kazuyuki; Fukami, Katsutoshi; and Kawanishi, Kenzo, 4,314,605, Cl. 165-110.000.
Dolejsi, Ivan; and Spur, Miloslav, to Polytechna, podnik zahraničního obchodu pro zprostředkování technické spolupráce. Method for checking the intensity of destruction of malignant cells in the human body, 4,314,822, Cl. 23-230.00B.

Dolinar, Kevin O.: See—
Lipsitz, Barry R.; and Dolinar, Kevin O., 4,314,423, Cl. 46-232.000.
Dombrowski, Jerome P.: See—
Mulkins, George F.; Dombrowski, Jerome P.; and Isliker, Gaston R., 4,315,298, Cl. 361-253.000.
Dome Petroleum Limited: See—
Palmer, Harry E.; Stenning, David G. C.; and Crockett, Ray K., 4,314,776, Cl. 405-205.000.
Donaldson Company, Inc.: See—
Fox, Michael E., 4,314,832, Cl. 55-482.000.
Donovan, Lawrence P.: See—
Dillard, David A.; Maguire, Eileen; and Donovan, Lawrence P., 4,315,045, Cl. 427-307.000.
Donovan, William F.: See—
Jeter, Thomas R.; and Donovan, William F., 4,314,510, Cl. 102-523.000.
Dorr-Oliver Incorporated: See—
Kwon, Henry S. C.; and Jukkola, Walfred W., 4,314,967, Cl. 422-49.000.
Doryokuro Kakunenryo Kaihatsu Jigyodan: See—
Nakane, Ryohei; Isomura, Shohei; and Shimizu, Masami, 4,314,972, Cl. 422-191.000.
Doub, Leonard: See—
Mich, Thomas F.; and Doub, Leonard, 4,315,014, Cl. 424-263.000.
Dougherty, John J.; Rabinowitz, Mario; and Bahder, George, to Electric Power Research Institute, Inc. Insulative spacer for a low temperature coaxial cable and coaxial cable including the same, 4,315,098, Cl. 174-15.00S.
Dow Chemical Company, The: See—
Berazosky, Sandra; and Smith, Harry A., 4,314,925, Cl. 260-33.20R.
Lowery, Kirby, Jr.; Knight, George W.; and May, James A., Jr., 4,314,912, Cl. 252-429.00B.
Wang, Samuel S. M., 4,315,010, Cl. 424-260.000.
Dow Corning Corporation: See—
Baney, Ronald H.; and Gaul, John H., Jr., 4,314,956, Cl. 264-65.000.
Downing, James H.; Wells, James E., III; and Ioannou, Tom K., to Union Carbide Corporation. Preparation of reaction mass for the production of methylchlorosilane, 4,314,908, Cl. 252-182.000.
Dragerwerk Aktiengesellschaft: See—
Albarda, Scato, 4,314,564, Cl. 128-719.000.
Dresser Industries, Inc.: See—
McPhee, William A.; and Golian, Timothy G., 4,314,614, Cl. 175-4.560.
Randall, Russel R., 4,315,148, Cl. 250-262.000.
Drexler, Ferenc: See—
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Drori, Mordeki. Combined pressure-regulator and manual shut-off valve, 4,314,582, Cl. 137-495.000.
Duchesne, Claude: See—
Gazard, Maryse; Eranian, Armand; Barre, Francoise; and Duchesne, Claude, 4,315,067, Cl. 430-296.000.
Ducoil, Jean-Paul; Mesny, Jacques; and Warret, Julien, to Institut Textile de France; and Agence Nationale de Valorisation de la Recherche (ANVAR). Method and apparatus for guiding a flexible tube between annular and flattened cross section, 4,314,462, Cl. 66-152.000.
Duguet, Pierre; and Robert, Christian, to Automobiles Peugeot; and Societe Anonyme Automobiles Citroen. Automobile vehicle seat structure provided with a device for hooking safety belts, 4,314,715, Cl. 280-801.000.
DuHamel, Raymond H. Circularly polarized antenna with circular arrays of slanted dipoles mounted around a conductive mast, 4,315,264, Cl. 343-797.000.
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Boeckel, John W.; Rohde, Vernon C.; and Wells, John R., 4,314,523, Cl. 118-50.000.
Mahoney, John J., Jr., 4,314,929, Cl. 260-42.150.
Duracell International Inc.: See—
Clarizio, Donald M., 4,315,062, Cl. 429-246.000.
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Dye, John A.; and Weber, Peter E., to United Technologies Corporation. High performance cooled laser mirror, 4,314,742, Cl. 350-310.000.
Dyall, Kenneth C. Card counting prevention apparatus for blackjack, 4,314,700, Cl. 273-148.00R.
EMI Limited: See—
Clow, Hugh; and Walters, Peter E., 4,315,216, Cl. 324-309.000.
Easthope, Thomas C.; and Martin, Robert R. Method of meat tendenzing, 4,314,386, Cl. 17-51.000.
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Eberspacher, J.: See—
Gerwin, Reinhard, 4,314,797, Cl. 417-491.000.

- Eckert, Konrad: See—
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- Edwards, Gerald T.; and Schluderberg, Donald C., to Babcock & Wilcox Company, The. Industrial technique. 4,314,885, Cl. 376-327.000.
- Een-Holmgren Ortopediska AB: See—
Petterson, Torsten L. E., 4,314,398, Cl. 29-407.000.
- Egami, Kazuhito: See—
Ban, Itsuki; Shiraki, Manabu; and Egami, Kazuhito, 4,315,177, Cl. 310-154.000.
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- Eldorado Nuclear Limited: See—
Zawidzki, Tadeusz W., 4,314,952, Cl. 264-0.500.
- Electric Power Research Institute, Inc.: See—
Dougherty, John J.; Rabinowitz, Mario; and Bahder, George, 4,315,098, Cl. 174-15.00S.
- Electricity Council, The: See—
Townend, Rodney; Wareing, Joseph B.; and Winstanley, Raymond, 4,315,131, Cl. 219-121.0EB.
- Electronic Devices Incorporated: See—
Schumacher, Peter M., 4,315,282, Cl. 358-107.000.
- Ellis, Haynes, Jr.: See—
United States of America, National Aeronautics and Space Administration; and Ellis, Haynes, Jr., 4,315,266, Cl. 343-895.000.
- Elmore, Ernest L.: See—
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- Elmore, Jimmy D.; and Cecil, Joseph L., to Celanese Corporation. Stable aqueous epoxy dispersions. 4,315,044, Cl. 427-386.000.
- Elter, Claus: See—
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- Endou, Nobuhiro: See—
Kokubu, Sadao; and Endou, Nobuhiro, 4,315,117, Cl. 200-61.270.
- Energy Optics, Inc.: See—
Ward, Steven M., 4,315,248, Cl. 340-825.720.
- Engdahl, Gerald E., to Chicago Bridge & Iron Company. Freeze concentration apparatus and process. 4,314,455, Cl. 62-124.000.
- Engelhard Minerals & Chemicals Corporation: See—
Washabough, Frank J.; and Goble, William C., 4,314,919, Cl. 260-22.0CB.
- Epstein, Harry, to Kastar, Inc. Automobile fuse puller and combination circuit tester. 4,314,383, Cl. 7-170.000.
- Eranian, Armand: See—
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- Erbse, Dietmar: See—
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- Errichello, Dominic R. Book binders with tabs. 4,314,716, Cl. 281-29.000.
- Eskew, Walter H.: See—
Harris, Jack W.; and Eskew, Walter H., 4,314,647, Cl. 211-121.000.
- Essilor International, Cie Generale d'Optique: See—
Derode, Jean R., 4,314,814, Cl. 8-471.000.
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Lapeyre, Guy; and Thiebaut, Jean, 4,314,766, Cl. 366-101.000.
- Ethyl Corporation: See—
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- Etienne, Claude; Fardouet, Claude; and Mercier L'Abbe, Guy, to Commissariat a l'Energie Atomique. Device for actuating a nuclear reactor control rod. 4,314,882, Cl. 376-235.000.
- Etzal, James E.; and Wachinski, Anthony M., to Purdue Research Foundation. Columnar fine mesh magnetized ion exchange resin system. 4,314,905, Cl. 210-670.000.
- Eudeline, Jean-Paul: See—
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- Eventoff, Franklin N. Bounceless switch apparatus. 4,315,238, Cl. 338-99.000.
- EVG Entwicklungs- u. Verwertungs-Gesellschaft m.b.H.: See—
Schmidt, Gerhard; Ritter, Klaus; and Ritter, Gerhard, 4,315,125, Cl. 219-56.000.
- Exxon Research & Engineering Co.: See—
Ryan, Douglas G., 4,314,886, Cl. 196-14.500.
- Ezekiel, Shaoul; Leiby, Clare C.; Picard, Richard H.; Willis, Charles R.; and Hackel, Richard P., to United States of America, Air Force. Laser stimulated Raman molecular beam time and frequency standard. 4,315,224, Cl. 331-3.000.
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Frigo, Domenico, 4,314,522, Cl. 116-142.00R.
- Faber, Paul V.: See—
Corbman, Philip; and Faber, Paul V., 4,314,888, Cl. 202-143.000.
- Fabio, James L.: See—
Parnell, Lyle J.; and Fabio, James L., 4,314,783, Cl. 410-34.000.
- Fahmy, Mohamed A. H.; Fukuto, Tetsuo R.; and Jojima, Teruomi, to University of California, The Regents of the. Alkylpolyoxysulfanyl and alkylpolythiosulfanyl derivatives of carbamate esters. 4,315,026, Cl. 424-282.000.
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- Faiks, Frederick S., to Steelcase Inc. Chair control. 4,314,728, Cl. 297-300.000.
- Fajans, Jack. Three-dimensional display device. 4,315,281, Cl. 358-88.000.
- Falconer Security Printers: See—
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- Fanning, Alan W.; Jameson, William G., Jr.; and Hazel, Victor E., to General Electric Company. Nuclear fuel assembly. 4,314,884, Cl. 376-441.000.
- Fansteel Inc.: See—
McCormick, Jon, 4,314,863, Cl. 148-37.000.
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- Farina, Peter R.; and Grattan, James A., to Baker Instruments Corp. Folic acid derivatives and process for preparation. 4,314,988, Cl. 424-1.000.
- Farr, Glyn P. R., to Girling Limited. Control valve assembly. 4,314,731, Cl. 303-24.00A.
- Farrington, Albert J. Core building system. 4,314,430, Cl. 52-206.000.
- Fauchier, Jess F., II: See—
Anderson, Richard D.; Fauchier, Jess F., II; and Laciak, Francis M., 4,314,757, Cl. 355-29.000.
- Fedde, Paul A.; Ghosh, Sambhunath; Henry, Michael P.; and Klass, Donald L., to Transagra Corporation. Anaerobic digestion of waste and biomass by use of lactobacillus culture additives. 4,314,904, Cl. 210-611.000.
- Federal Paper Board Company, Inc.: See—
Manizza, Guelfo A., 4,314,640, Cl. 206-434.000.
- Feenstra, Johannes; Klop, Marius A. F.; Meerman, Wilhelmus C. P. M.; Peelen, Jan G. J.; and Tuin, Hermanus N., to U.S. Philips Corporation. Coating apparatus for manufacturing optical fibers. 4,314,834, Cl. 65-11.100.
- Feess, Erich; and Reinhardt, Friedrich, to Hoechst Aktiengesellschaft. Two-phase printing process for preparing conversion articles and discharge resist prints. 4,314,811, Cl. 8-457.000.
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- Feldman, Morris: See—
Anderson, Blair V.; Feldman, Morris; and Jacoby, Richard, 4,314,412, Cl. 36-100.000.
- Felix, Raymond A., to Stauffer Chemical Company. Biocidal thiadiazolylmercapto-substituted haloacrylonitrile compounds. 4,314,838, Cl. 71-67.000.
- Feller, Otto; Kuhl, Manfred; and Oepen, Heinz. Apparatus for the out-of-round machining of workpieces. 4,314,492, Cl. 82-18.000.
- Fennekels, Peter; and Waltmann, Ernst, to Girmes-Werke AG. Process for washing dyed or printed textile material. 4,314,804, Cl. 8-137.000.
- Ferguson, Frank T., to Control Technology, Incorporated. Reserve power supply for computers. 4,315,162, Cl. 307-66.000.
- Ferla, Giuseppe: See—
Daniele, Vincenzo; Corda, Giuseppe; Ravaglia, Andrea; and Ferla, Giuseppe, 4,315,239, Cl. 338-308.000.
- Ferrary, Jean-Paul. Method for the manufacture of a cycle or motorcycle wheel rim. 4,314,964, Cl. 264-501.000.
- Feuerherd, Karl-Heinz: See—
Koenig, Karl-Heinz; Feuerherd, Karl-Heinz; and Oeser, Heinz-Gunter, 4,314,948, Cl. 260-453.00P.
- Fickers, Gisela, to Asten Group, Incorporated. Stitchless low bulk, pin-type seam for use in paper making equipment fabrics, such as dryer felts. 4,315,049, Cl. 428-104.000.
- Fieldcrest Mills, Inc.: See—
Mills, Edwin R.; and Elmore, Ernest L., 4,315,141, Cl. 219-505.000.
- Findeisen, Heinz H., to Digital Equipment Corporation. Peak detector circuit. 4,315,220, Cl. 328-150.000.
- Fink, Gary: See—
Macleod, Kenneth S.; and Fink, Gary, 4,314,958, Cl. 264-167.000.
- Fink, Leon: See—
Saint Marcoux, Roland; and Fink, Leon, 4,315,299, Cl. 361-274.000.
- Firestone Tire & Rubber Company, The: See—
Loeffler, Earl F.; and Weyand, Harley P., Jr., 4,314,864, Cl. 156-111.000.
- Fish, Aaron M.; Schlessel, Joseph H.; and Minski, Seymour B., to Unican Security Systems Corporation. Tubular key duplicating machine. 4,314,780, Cl. 409-81.000.
- Fisher, Robert J.; and Lefever, Lawrence R., to Harman International Industries, Inc. Actuator switch for remote control rearview mirrors. 4,315,113, Cl. 200-5.00R.
- Fitzgerald, Maurice J., to Polaroid Corporation. Polystyrene amine polymeric binders for photographic emulsions. 4,315,071, Cl. 430-627.000.
- Flamm, Daniel L., to Bell Telephone Laboratories, Incorporated. Device fabrication by plasma etching. 4,314,875, Cl. 156-643.000.
- Fleischer, Paul E.; and Laker, Kenneth R., to Bell Telephone Laboratories, Incorporated. Generalized switched-capacitor active filter. 4,315,227, Cl. 333-173.000.
- Flo-Con Systems, Inc.: See—
Shapland, Earl P., 4,314,659, Cl. 222-590.000.
- FMC Corporation: See—
Beacham, Harry H.; and Norris, Robert D., 4,315,082, Cl. 525-20.000.
- Fogleman, Boyd C. Cattle stanchion having a simplified self-locking mechanism. 4,314,528, Cl. 119-147.00R.

- Folkman, Bern D., to Tronomed International, Inc. Disposable valve. 4,314,586, Cl. 137-625.470.
- Forbes, Bert E.: See—
Bayliss, John A.; Cox, George W.; Forbes, Bert E.; and Kahn, Kevin C., 4,315,310, Cl. 364-200.000.
- Forbes, Hampton E., Jr., to Westvaco Corporation. Flip top carton. 4,314,643, Cl. 206-626.000.
- Ford Aerospace & Communications Corp.: See—
Reisman, Elias; Goodsell, David S.; and Masino, Fred S., 4,314,449, Cl. 62-3.000.
- Ford Motor Company: See—
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- Forestier, Serge: See—
Jacquet, Bernard; Lang, Gerard; and Forestier, Serge, 4,314,808, Cl. 8-405.000.
- Foss, Richard J.: See—
Schwendener, Derek K.; Ainsworth, Neil L.; and Foss, Richard J., 4,315,058, Cl. 429-84.000.
- Foster, Dale: See—
Fullenkamp, Eugene; and Foster, Dale, 4,314,735, Cl. 339-45.00R.
- Fourcadier, Chantal; and Grollier, Jean F., to L'Oreal. Compositions suitable for use in dyeing hair obtained from the reaction of a polyhydroxybenzene and an oxidative dyestuff precursor of the para type. 4,314,810, Cl. 8-410.000.
- Fowler, James E.: See—
Spaziani, Frederick F.; and Fowler, James E., 4,314,895, Cl. 204-195.00M.
- Fox, Michael E., to Donaldson Company, Inc. Air cleaner with cartridge suspension. 4,314,832, Cl. 55-482.000.
- Fox, Sidney W.; and Holden, Arthur I., to Polymicro. Artificial gelatins of high methionine content for photographic film. 4,315,072, Cl. 430-628.000.
- Frambach, Henry R.: See—
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- Frank, Kurt, to Siemens Aktiengesellschaft. X-ray diagnostic generator with a mAs-relay. 4,315,155, Cl. 250-409.000.
- Franklin, John C., to Texasgulf Inc. Increased production of wet process phosphoric acid by gelatin addition. 4,314,978, Cl. 423-320.000.
- Fraser, Robert; Rouse, John; Redic, Robert C.; and Frock, Suzanne, to Falconer Security Printers. Checking account check and check book order-taking portfolio. 4,314,635, Cl. 206-232.000.
- Frederick, Larry D.; and Somers, Richard E., to Solar Unlimited, Inc. Knock-down heat storage tank. 4,314,602, Cl. 165-10.000.
- Freiberg, Gunter, to Agfa-Gevaert AG. Microfilm reading device. 4,314,745, Cl. 353-101.000.
- Friend, Jack W. Smoothing and cleaning of molded ceramics. 4,314,426, Cl. 51-393.000.
- Frigo, Domenico, to F.I.A.M.M. S.p.A. Fabbrica Italiana Accumulatori Motocarri Montecchio. Acoustic electropneumatic-signal generator, particularly for automotive vehicles. 4,314,522, Cl. 116-142.00R.
- Fritz, Rolf; Schoening, Josef; Elter, Claus; and Theymann, Walter, to Hochttemperatur-Reaktorbau GmbH. Graphite block having wear zone and load bearing zone for side reflector of high temperature reactor. 4,314,883, Cl. 376-381.000.
- Frock, Suzanne: See—
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- Frye, Robert B., to General Electric Company. Process for securing primerless adhesion of silicone resin coating composition to cast acrylics. 4,315,046, Cl. 427-322.000.
- Fitalit Prodotti Chimici Speciali S.p.A.: See—
Neri, Amleto; and Sanchioni, Sergio, 4,314,946, Cl. 260-346.760.
- Fuchs, Rudolf, to Sulzer Brothers Limited. Jacquard attachment for warp knitting machines. 4,314,463, Cl. 66-203.000.
- Fuji Photo Film Co., Ltd.: See—
Kato, Hisatoyo; Ishida, Masamitsu; and Matsumoto, Seiji, 4,315,318, Cl. 364-515.000.
- Fujimoto, Ted T.: See—
Switbank, Colin; and Fujimoto, Ted T., 4,314,844, Cl. 71-92.000.
- Fujita, Teizo; and Kimura, Haruo, to Izumi Denki Corporation. Switching apparatus assembly structure. 4,315,123, Cl. 200-307.000.
- Fujita, Yoshiji: See—
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- Fujitsu Ltd.: See—
Tokunaga, Michio; Okada, Ryoichi; Mizutani, Hideo; Hasegawa, Koichi; and Osaki, Takaaki, 4,315,206, Cl. 323-265.000.
- Wakatsuki, Noboru; and Masaaki, Ono, 4,314,393, Cl. 29-25.350.
- Fukami, Katsutoshi: See—
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- Fukuda, Tadaji; and Misumi, Teruo, to Canon Kabushiki Kaisha. Electrophotographic photosensitive member having a halogen containing charge injection layer. 4,315,063, Cl. 430-65.000.
- Fukuda, Tetsuro; Matsuura, Hideo; Koizumi, Yoshihito; and Yamaguchi, Takeshi, to Riken Vitamine Oil Co., Ltd. Emulsifier composition and quality improvement method for starch containing food. 4,315,041, Cl. 426-653.000.
- Fukui, Hiroshi; and Kimura, Shin, to Hitachi, Ltd. Thyristor with switchable capacitor between auxiliary thyristor cathode and main thyristor gate regions. 4,315,274, Cl. 357-38.000.
- Fukushima, Toshihiko: See—
Kamejima, Kohji; Kano, Minoru; Tanaka, Hideki; and Fukushima, Toshihiko, 4,314,454, Cl. 62-98.000.
- Fukuto, Tetsuo R.: See—
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Fahmy, Mohamed A. H.; and Fukuto, Tetsuo R., 4,315,027, Cl. 424-282.000.
- Fullenkamp, Eugene; and Foster, Dale, to Hill-Rom Company, Inc. Bed locator having an integral electric socket and a plug ejector. 4,314,735, Cl. 339-45.00R.
- Fuller Company: See—
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- Funakoshi, Satoshi: See—
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- Furbee, Avery D., to Picker Corporation. Frosted X-ray tube. 4,315,182, Cl. 313-59.000.
- Furuhashi, Shoji: See—
Asano, Masaharu; Tamura, Hideyuki; and Furuhashi, Shoji, 4,314,537, Cl. 123-440.000.
- Furuichi, Junji: See—
Ito, Yoshinori; Ikeda, Masahiko; and Furuichi, Junji, 4,315,127, Cl. 219-73.100.
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- G. M. Sommer Company, Inc.: See—
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- Gaborieau, Jean-Yves: See—
Baril, Jacques; and Gaborieau, Jean-Yves, 4,314,468, Cl. 72-57.000.
- Gabriel, Edwin Z. Educational analog computer laboratory. 4,315,320, Cl. 364-808.000.
- GAF Corporation: See—
Ozari, Yehuda; and Barabas, Eugene S., 4,315,085, Cl. 525-301.000.
- Gagliani, John; and Lee, Raymond, to International Harvester Company. Polyimides. 4,315,076, Cl. 521-77.000.
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- Gaiser, William R.; Crutchfield, E. Bryant; and Bartley, Harold D., to Mead Corporation. The. Flexible plastic closure mechanism and container. 4,314,651, Cl. 220-326.000.
- Gamoh, Ryouji, to Tokyo Shibaura Denki Kabushiki Kaisha. Electronic watt-hour meter. 4,315,212, Cl. 324-142.000.
- Gardner, Esther C., to Toyad Corporation. Methods of reducing smoke evolution from burning neoprene foam and neoprene foam products produced thereby. 4,315,075, Cl. 521-71.000.
- Gardner, Hugh C., to Union Carbide Corporation. Composition containing a half ester of an organic polyol, an unsaturated monomer, an epoxide, and reinforcing fiber. 4,314,930, Cl. 260-42.180.
- Gariglio, Ezio V.: See—
Saurin, Emmanuel E. V. V.; and Gariglio, Ezio V., 4,315,132, Cl. 219-121.0LD.
- Gasson, Brian C., to Beecham Group Limited. Aminocarbonylmethyl ethers of clavulanic acid, a process for their preparation and use. 4,314,941, Cl. 260-245.300.
- Gaubert, Rene J. Bulk liquid container having a pivotable tap. 4,314,654, Cl. 222-83.000.
- Gauer, Richard: See—
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- Gaul, John H., Jr.: See—
Baney, Ronald H.; and Gaul, John H., Jr., 4,314,956, Cl. 264-65.000.
- Gazard, Maryse; Eranian, Armand; Barre, Françoise; and Duchesne, Claude, to Thomson-CSF. Method for making electron sensitive negative resist. 4,315,067, Cl. 430-296.000.
- Gema AG: See—
Moos, Kurt, 4,314,669, Cl. 239-1.000.
- General Atomic Company: See—
Norman, John H.; and Williamson, David G., 4,314,982, Cl. 423-539.000.
- General Dynamics Corporation: See—
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Cooper, Glenn D.; Lee, Giff M., Jr.; and Shufelt, Rainey A., 4,315,084, Cl. 525-69.000.
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- Frye, Robert B., 4,315,046, Cl. 427-322.000.
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- Kirkpatrick, Robert G.; and Snyder, Ronald R., 4,314,501, Cl. 89-12.000.
- Kutney, John T., 4,314,681, Cl. 244-54.000.
- Robinson, Paul B.; Ouellette, Maurice J.; and Schmidt, Larry A., 4,315,251, Cl. 340-310.00A.
- Wolfrey, Austin A., 4,314,917, Cl. 260-18.0EP.
- Wyer, John S., 4,314,483, Cl. 73-861.350.
- General Motors Corporation: See—
Skiven, David A.; Sortor, Charles J.; and Tessier, Raymond J., 4,314,830, Cl. 55-217.000.
- George Koch Sons, Inc.: See—
Dunn, Howard E.; and Koch, Robert L., II, 4,314,906, Cl. 210-754.000.

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Gerasimova, Lidia G.: See—
Motov, David L.; Tjurkina, Ljudmila P.; Gerasimova, Lidia G.; Metelkin, Alexandr I.; Shifrin, Isaak G.; Kolesnikova, Nina I.; Yakusheva, Galina G.; Godneva, Maria M.; Babkin, Artur G.; Mikaelian, Irity I.; Belokoskov, Valentin I.; and Plotnikov, Vladimir P., 4,314,975, Cl. 423-81.000.

Gerhard, Thomas; and Giesen, Ulrich, to Waggonfabrik Uerdingen AG. Damped suspension system for conveyors. 4,314,512, Cl. 105-149.000.

Germanton, Charles E. Security systems employing an electronic lock and key apparatus. 4,315,247, Cl. 235-382.000.

Gertisser, Berthold, to Sandoz Ltd. Monoazo compounds having a substituted thiazolium-5 diazo component radical and a substituted 1,4-phenylene coupling component radical. 4,314,817, Cl. 8-539.000.

Gertsch, Ernst: See—
Gertsch, Ulrich, 4,314,714, Cl. 280-630.000.

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Gerwin, Reinhard, to Eberspacher, J. Metering piston pump. 4,314,797, Cl. 417-491.000.

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Block, Dieter; Gesell, Reinhard; and Peters, Hans-Werner, 4,315,136, Cl. 219-216.000.

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Fedde, Paul A.; Ghosh, Sambhunath; Henry, Michael P.; and Klass, Donald L., 4,314,904, Cl. 210-611.000.

Giacchetti, Anacleto D. Amplified radiation igniter system and method for igniting fuel in an internal combustion engine. 4,314,530, Cl. 123-143.000.

Giannini, Umberto; Longi, Paolo; Deluca, Domenico; and Pricca, Angelo, to Montecatini Edison S.p.A. Polymerization catalyst. 4,314,911, Cl. 252-429.00A.

Gibson, Colin E.: See—
Reynolds, John M.; Gibson, Colin E.; Seamans, John S.; and van der Steen, Anton R. F., 4,314,414, Cl. 37-54.000.

Gibson, Walter G.; and Wagner, Theodor M., to RCA Corporation. Non-linear aperture correction circuit having a signal bypass arrangement. 4,315,277, Cl. 358-8.000.

Giebler, Martin M.: See—
Palmer, William B.; and Giebler, Martin M., 4,315,265, Cl. 343-840.000.

Giesen, Ulrich: See—
Gerhard, Thomas; and Giesen, Ulrich, 4,314,512, Cl. 105-149.000.

Ginsburg, Milton; and Lux, William J., to Ginsburg, Milton. Hinge for toilet seat and lid. 4,314,382, Cl. 4-236.000.

Girling Limited: See—
Farr, Glyn P. R., 4,314,731, Cl. 303-24.00A.

Girmes-Werke AG: See—
Fennekels, Peter; and Waltmann, Ernst, 4,314,804, Cl. 8-137.000.

Giuffre, Anthony A.; and Giuffre, Anthony F. Heat exchange system for recycling waste heat. 4,314,601, Cl. 165-1.000.

Giuffre, Anthony F.: See—
Giuffre, Anthony A.; and Giuffre, Anthony F., 4,314,601, Cl. 165-1.000.

GKN Floform Limited: See—
Waite, John S., 4,314,392, Cl. 29-25.120.

Glaxo Group Limited: See—
Ayres, Barry E.; and Weir, Niall G., 4,315,005, Cl. 424-246.000.

Storer, Richard, 4,315,006, Cl. 424-250.000.

Globig, Manfred, to Concordia Sprecher Schaltgerate GmbH. Load disconnection switch. 4,315,120, Cl. 200-146.00R.

Gloyer, Wolfgang. Folding box carrying container with adhesive seal for carrying standing bottles. 4,314,639, Cl. 206-427.000.

Gnad, Josef: See—
Hohenschutz, Heinz; Gnad, Josef; Dinkhauser, Guenter; and Schaefer, Eberhard, 4,314,947, Cl. 260-410.000.

Goble, William C.: See—
Washabaugh, Frank J.; and Goble, William C., 4,314,919, Cl. 260-22.00B.

Godneva, Maria M.: See—
Motov, David L.; Tjurkina, Ljudmila P.; Gerasimova, Lidia G.; Metelkin, Alexandr I.; Shifrin, Isaak G.; Kolesnikova, Nina I.; Yakusheva, Galina G.; Godneva, Maria M.; Babkin, Artur G.; Mikaelian, Irity I.; Belokoskov, Valentin I.; and Plotnikov, Vladimir P., 4,314,975, Cl. 423-81.000.

Goebel, Franz; and McHugh, William T., to GTE Products Corporation. Metal substrate for an electrochemical cell. 4,315,060, Cl. 429-122.000.

Goglio, Luigi; and Bassetti, Aldo. Syrup feed system for drink distribution apparatus of the after-mixing type. 4,314,768, Cl. 366-156.000.

Golian, Timothy G.: See—
McPhee, William A.; and Golian, Timothy G., 4,314,614, Cl. 175-4.560.

Gollehon Industries, Inc.: See—
Gollehon, John T., 4,314,620, Cl. 181-144.000.

Gollehon, John T., to Gollehon Industries, Inc. Loudspeaker with cone driven horn. 4,314,620, Cl. 181-144.000.

Goodsell, David S.: See—
Reisman, Elias; Goodsell, David S.; and Masino, Fred S., 4,314,449, Cl. 62-3.000.

Goalsby, Patrick F.; and Swenck, George F., to Reynolds Metals Company. Method of making a solar heat exchanger. 4,314,397, Cl. 29-157.30R.

Gordon, Robert L.; and Wolak, Paul Z., to International Paper Company. Shipping container designed to prevent can damage due to chime ride. 4,314,638, Cl. 206-427.000.

Gordon, Stanley J.; and Frambach, Henry R. Thermal window construction. 4,314,424, Cl. 49-400.000.

Gossens, Peter: See—
Heinen, Peter; and Gossens, Peter, 4,314,391, Cl. 28-273.000.

Gotcher, Alan J.: See—
Middleman, Lee M.; and Gotcher, Alan J., 4,315,237, Cl. 338-22.00R.

Goto, Yasumasa; and Ozaki, Junichi, to Toshiba Corporation. Support structure for shadow mask of color cathode ray tube. 4,315,189, Cl. 313-405.000.

Gould Inc.: See—
Smith, Robert K., 4,315,121, Cl. 200-147.00R.

Zocholl, Stanley E., 4,315,295, Cl. 361-96.000.

Graef, Harry T., to Diebold, Incorporated. Paper currency transport construction. 4,314,696, Cl. 271-275.000.

Grafling, Joachim: See—
Kramer, Wilhelm; and Grafling, Joachim, 4,315,122, Cl. 200-248.000.

Gran, Staffan O. Wet treatment of textiles. 4,314,464, Cl. 68-178.000.

Granoff, Richard A.: See—
Stein, Bernard; and Granoff, Richard A., 4,314,970, Cl. 422-72.000.

Granstrom, Staffan; and Karlsson, Gosta, to ASEA Aktiebolag. Heating modules for billets in inductive heating furnaces. 4,315,124, Cl. 219-10.710.

Grattan, James A.: See—
Farina, Peter R.; and Grattan, James A., 4,314,988, Cl. 424-1.000.

Gray, Kenneth P., to Carrier Corporation. Refrigerant motor. 4,314,447, Cl. 60-671.000.

Graziano, Bruno R.: See—
Brickman, Norman F.; and Graziano, Bruno R., 4,315,330, Cl. 370-104.000.

Greatbatch, Wilson. Tissue growth control apparatus and method. 4,314,554, Cl. 128-207.210.

Greaves, Alan J.; Greenaway, Philip E.; and Nightingale, Charles, to Post Office, The. Bandstop filters. 4,315,229, Cl. 333-216.000.

Green Cross Corporation, The: See—
Uemura, Yohiro; Arimura, Hirofumi; Morise, Hiroshi; Funakoshi, Satoshi; and Suyama, Tadakazu, 4,314,935, Cl. 260-112.00R.

Greenaway, Philip E.: See—
Greaves, Alan J.; Greenaway, Philip E.; and Nightingale, Charles, 4,315,229, Cl. 333-216.000.

Greenberg, Charles B.: See—
Breninger, J. Shannon; and Greenberg, Charles B., 4,315,055, Cl. 428-434.000.

Greenwood, Walter, Jr. Accumulating conveyor. 4,314,630, Cl. 198-718.000.

Gregor, Jiri: See—
Mlynarik, Jan; Novak, Josef; and Gregor, Jiri, 4,314,690, Cl. 254-29.00A.

Greif Bros. Corporation: See—
Santoni, Cesar, 4,314,720, Cl. 292-256.690.

Grenier, Georges: See—
Cerf, Olivier; Grenier, Georges; Hermier, Jean; and Rancurel, Alain, 4,314,965, Cl. 422-28.000.

Gresko, Laurence S., to United States of America, Air Force. Focused, single strand, optical fiber rotational alignment image-sensing and comparing system. 4,314,762, Cl. 356-150.000.

Griffin, Patrick O.: See—
Jimenez, Miguel A.; and Saucedo, Manuel M. (said Manuel M. Saucedo assors. to), 4,314,515, Cl. 111-77.000.

Griffith, James R.: See—
Keller, Teddy M.; and Griffith, James R., 4,315,093, Cl. 528-362.000.

Grollier, Jean F.: See—
Fourcadier, Chantal; and Grollier, Jean F., 4,314,810, Cl. 8-410.000.

Grollier, Jean-Francois; Monnais, Christian; and Peritz, Lyonnell, to L'Oreal. Hair dye composition containing a hair dye formulation packaged in two parts. 4,314,807, Cl. 8-406.000.

Grossman, Rodney, to Brock Manufacturing, Inc. Grain bin discharge guard. 4,314,675, Cl. 241-95.000.

Grottola, Oreste P. Dart game and board. 4,314,703, Cl. 273-408.000.

Grunert, Hans C., to Sybron Corporation. Cabinet drawer support. 4,314,734, Cl. 312-322.000.

GTE Automatic Electric Laboratories, Inc.: See—
Morgan, John H.; and Sutton, Larry W., 4,315,133, Cl. 219-121.0FS.

GTE Laboratories Incorporated: See—
Peters, Thomas E.; and McColl, James R., 4,315,190, Cl. 313-467.000.

GTE Products Corporation: See—
Armstrong, Donald E.; Sindlinger, Ronald E.; and Harvey, William J., 4,314,394, Cl. 29-25.160.

Goebel, Franz; and McHugh, William T., 4,315,060, Cl. 429-122.000.

Guigan, Jean. Simultaneous analysis apparatus. 4,314,968, Cl. 422-64.000.

Gulf Oil Corporation: See—
Hoffmann, Otto L.; and Patel, Natu R., 4,314,843, Cl. 71-92.000.

Gustav F. Gerdis KG: See—
Sieglita, Manfred, 4,314,584, Cl. 137-613.000.

Hackel, Richard P.: See—
Ezekiel, Shaoul; Leiby, Clare C.; Picard, Richard H.; Willis, Charles R.; and Hackel, Richard P., 4,315,224, Cl. 331-3.000.

Hackett, Charles D., to Combustion Engineering, Inc. Rib design for boiler tubes. 4,314,587, Cl. 138-38.000.

Hackman, Donald J.: See—
Thomas, David L.; and Hackman, Donald J., 4,314,612, Cl. 173-119.000.

Hade, Conrad; and Robinson, Dale D., to Dalcon Marketing Inc. Refrigerated display case. 4,314,458, Cl. 62-256.000.

Hagerman, Enoch R.; and Walkden, Richard H., to Uniment Systems, Inc. Frictional belt brake. 4,314,631, Cl. 198-856.000.

Haggerty, James S.: See—
Darringer, Richard E.; Scharf, Wayne L.; and Haggerty, James S., 4,315,150, Cl. 250-338.000.

Haley, Jack R.; Smith, Jimmy B.; and Mansfield, Vaughn, to Peabody Coal Company, Inc. Apparatus for producing coke from fine and coarse coal. 4,314,887, Cl. 202-91.000.

Hamilton, Clark A.: See—
Harris, Richard E.; and Hamilton, Clark A., 4,315,255, Cl. 340-347.0AD.

Hamilton, William C.; Moffatt, William G.; and Pagnotta, Gasper, to General Electric Company. Aluminum-to-copper transition member for aluminum wound motors and aluminum wound motor equipped with the same. 4,315,175, Cl. 310-71.000.

Hammann, Ingeborg: See—
Maurer, Fritz; Hammann, Ingeborg; and Homeyer, Bernhard, 4,315,008, Cl. 424-200.000.

Hanashima, Shuichi: See—
Kyomasa, Ryuichi; Hanashima, Shuichi; and Suzumura, Yoshikazu, 4,315,199, Cl. 318-601.000.

Hancock, Geoffrey, to Semco Instruments, Inc. Reliable over-temperature control circuit. 4,315,296, Cl. 361-103.000.

Hanley, William, to Bendix Corporation. The Closure member for automotive oil filters and similar filters. 4,314,903, Cl. 210-440.000.

Hansen, Elo H.; and Ruzicka, Jaromir, to Bifok AB. Programmable, continuous flow analyzer. 4,314,824, Cl. 23-230.00R.

Hansen, Robert C., to Caterpillar Tractor Co. Fluidborne noise attenuator. 4,314,621, Cl. 181-233.000.

Hanson, Chris A., to Hanson Industries Incorporated. Removable, adjustable, foot-supporting and foot-positioning, orthopedic inserts for use in athletic footwear. 4,314,411, Cl. 36-81.000.

Hanson, David J. Solar collector. 4,314,548, Cl. 126-429.000.

Hanson Industries Incorporated: See—
Hanson, Chris A., 4,314,411, Cl. 36-81.000.

Haque, Yusuf A., to American Microsystems, Inc. CMOS Operational amplifier with improved frequency compensation. 4,315,223, Cl. 330-253.000.

Harada, Hiroshi: See—
Abe, Haruhiko; Mashiko, Yoji; Harada, Hiroshi; Asai, Sotoju; Mizoguchi, Kazuo; and Nomoto, Sumio, 4,314,874, Cl. 156-628.000.

Harada, Tsuyoshi; and Oritake, Yoshie. Video signal defect compensation system. 4,315,276, Cl. 358-8.000.

Haraguchi, Keisuke; and Aoki, Harumi, to Asahi Kogaku Kogyo Kabushiki Kaisha. Light shielding device for automatic focus detecting. 4,314,747, Cl. 354-25.000.

Harman International Industries, Inc.: See—
Fisher, Robert J.; and Lefever, Lawrence R., 4,315,113, Cl. 200-5.00R.

Harmer, Alan L., to Battelle Memorial Institute. Photoelectric switch with visible signal. 4,315,147, Cl. 250-227.000.

Harnish, James R., to Borg-Warner Corporation. Refrigerant condensing system. 4,314,456, Cl. 62-181.000.

Harre, Kurt J. S., to Aktiebolaget Electrolux. Detachable connection assembly for a printing element in an electric office machine. 4,314,770, Cl. 400-175.000.

Harris, Jack W.; and Eskew, Walter H., to Harris, Jack W. Storage and display elevator. 4,314,647, Cl. 211-121.000.

Harris, James E., to United States of America, Commerce. Handcuff improvements. 4,314,466, Cl. 70-16.000.

Harris, Richard E.; and Hamilton, Clark A., to United States of America, Navy. Multiple-quantum interference superconducting analog-to-digital converter. 4,315,255, Cl. 340-347.0AD.

Harrison, Edward S.: See—
Nunlist, Erwin J.; Coleman, Howard G.; and Harrison, Edward S., 4,314,396, Cl. 29-156.80R.

Hartman, Charles W.; and Shearer, James W., to United States of America, Energy. Production of field-reversed mirror plasma with a coaxial plasma gun. 4,314,879, Cl. 376-128.000.

Hartmann, Heinrich: See—
Lehner, August; Kud, Alexander; and Hartmann, Heinrich, 4,314,922, Cl. 260-29.2TN.

Hartmann, Willi; and Huth, Klaus, to Veb Gaskombinat Schwarze Pumpe. Portable special lathe for flanges of large dimensions. 4,314,491, Cl. 82-4.00R.

Hartmannsgruber, Max; and Wolf, Horst, to Zinser Textilmaschinen GmbH. Roller drive for draw frame. 4,314,388, Cl. 19-293.000.

Harvey, Anthony K.: See—
Scott, John G. V.; and Harvey, Anthony K., 4,315,069, Cl. 430-365.000.

Harvey, Donald M., to Eastman Kodak Company. Take-up spool advancing mechanism for a photographic camera. 4,314,751, Cl. 354-212.000.

Harvey, William J.: See—
Armstrong, Donald E.; Sindlinger, Ronald E.; and Harvey, William J., 4,314,394, Cl. 29-25.160.

Harwood, Clifford: See—
Parks, William L., III; and Harwood, Clifford, 4,315,321, Cl. 364-900.000.

Hasegawa, Akira: See—
Yamamura, Yuichi; Hasegawa, Akira; Azuma, Ichiro; and Kobayashi, Shigeru, 4,314,998, Cl. 424-177.000.

Hasegawa, Koichi: See—
Tokunaga, Michio; Okada, Ryoichi; Mizutani, Hideo; Hasegawa, Koichi; and Osaki, Takaaki, 4,315,206, Cl. 323-265.000.

Hasegawa, Morihiro: See—
Maruhashi, Shigeaki; Hasegawa, Morihiro; and Yamauchi, Takashi, 4,314,847, Cl. 75-51.000.

Haslbeck, Joseph; and Liggins, Allan, to Highland Manufacturing Company, Ltd. Electrical box. 4,315,100, Cl. 174-51.000.

Hass, Alan R., to Lyall Electric, Inc. Molding resin around electrical connector having leads extending therefrom. 4,314,960, Cl. 264-276.000.

Hass, Robert H.; and Ward, John W., to Union Oil Company of California. Catalyst and process for oxidizing hydrogen sulfide. 4,314,983, Cl. 423-542.000.

Hata, Kosei; Hata, Tadayo; and Maruoka, Toshiyuki, to Seikenkai. Pharmaceutical lactobacillus preparations. 4,314,995, Cl. 424-93.000.

Hata, Tadayo: See—
Hata, Kosei; Hata, Tadayo; and Maruoka, Toshiyuki, 4,314,995, Cl. 424-93.000.

Hatabe, Etsuo: See—
Tokugawa, Fumitake; and Hatabe, Etsuo, 4,315,135, Cl. 219-216.000.

Haubennestel, Karlheinz; and Mehren, Rainer, to Byk-Mallinckrodt Chemische Produkte GmbH. Thixotropic agent for use in coating compositions. 4,314,924, Cl. 260-30.60R.

Hawkins, Donald. Sliding panel latching mechanism. 4,314,719, Cl. 292-252.000.

Hawley, George T.: See—
Ciesielka, Albert J.; and Hawley, George T., 4,315,107, Cl. 179-16.00F.

Hayashi, Saburo: See—
Okabe, Tohru; Mizutani, Shigeaki; and Hayashi, Saburo, 4,314,803, Cl. 8-94.260.

Hazel, Victor E.: See—
Fanning, Alan W.; Jameson, William G., Jr.; and Hazel, Victor E., 4,314,884, Cl. 376-441.000.

Heine, Christian; Ploog, Uwe; and Wust, Reinhold, to Henkel Kommanditgesellschaft auf Aktien (Henkel KGaA). Parting oil component for baked goods and parting oils. 4,315,040, Cl. 426-609.000.

Heinen, Peter; and Gossens, Peter, to Akzona Incorporated. Yarn bulking jet. 4,314,391, Cl. 28-273.000.

Heitmann, Heinrich: See—
Schmelzer, Christoph; Spohr, Reimar; Krumm, Jens-Peter; Witter, Klaus; and Heitmann, Heinrich, 4,314,894, Cl. 204-192.00M.

Helfgott, Gerald N.: See—
Helfgott, Maxwell A.; and Helfgott, Gerald N., 4,314,560, Cl. 128-305.000.

Helfgott, Maxwell A.; and Helfgott, Gerald N. Powered handpiece for endophthalmic surgery. 4,314,560, Cl. 128-305.000.

Hellwig, Lowell L. Vibration dampening ring. 4,314,466, Cl. 74-574.000.

Helwig, William F., Jr., to Avtec Industries, Inc. Energy saving dishwasher. 4,315,140, Cl. 219-486.000.

Henault, Jean-Paul, to Airelec Industries. Temperature regulating device for electric heating apparatus. 4,315,142, Cl. 219-511.000.

Henderson, Don S. Tension pile splice. 4,314,777, Cl. 405-251.000.

Henkel Kommanditgesellschaft auf Aktien: See—
Rose, David; Busch, Peter; Lieske, Edgar; and Konrad, Gunther, 4,314,809, Cl. 8-406.000.

Henkel Kommanditgesellschaft auf Aktien (Henkel KGaA): See—
Heine, Christian; Ploog, Uwe; and Wust, Reinhold, 4,315,040, Cl. 426-609.000.

Henry, Michael P.: See—
Fedde, Paul A.; Ghosh, Sambhunath; Henry, Michael P.; and Klass, Donald L., 4,314,904, Cl. 210-611.000.

Hermanns, Winfried: See—
Lueg, Heinz; Blackert, Hanno; Wimmenauer, Dirk; and Hermanns, Winfried, 4,315,242, Cl. 340-38.00L.

Hermier, Jean: See—
Cerf, Olivier; Grenier, Georges; Hermier, Jean; and Rancurel, Alain, 4,314,965, Cl. 422-28.000.

Hernandez, Charles, to Telediffusion de France & Compagnie Continentale de Signalisation. Method and device for addressing a page memory in a videotex system. 4,315,257, Cl. 340-723.000.

Heussy, William C., deceased: See—
Orchard, Richard D.; Barbee, Kurt L.; Whiting, Bradford S.; Heussy, William C., deceased; and Pavenstedt, Loyal L., executrix, 4,315,317, Cl. 364-510.000.

Hidalgo, Jean L.: See—
Reymond, Jean C.; Hidalgo, Jean L.; and Skenderoff, Claude, 4,314,761, Cl. 356-141.000.

Higashi, Masanori: See—
Sudo, Masatoshi; Higashi, Masanori; Ohki, Tsuguaki; and Kanbe, Shoji, 4,314,862, Cl. 148-12.00F.

Highland Manufacturing Company, Ltd.: See—
Haslbeck, Joseph; and Liggins, Allan, 4,315,100, Cl. 174-51.000.

Hill-Rom Company, Inc.: See—
Fullenkamp, Eugene; and Foster, Dale, 4,314,735, Cl. 339-45.00R.

- Hilti Aktiengesellschaft: See—
Leibhard, Erich; Schiefer, Erwin; and Stirnweiss, Peter, 4,314,655, Cl. 222-146.0HE.
- Hipp, Paul: See—
Muller, Gottfried; and Hipp, Paul, 4,314,544, Cl. 126-417.000.
- Hiraga, Ryoze: See—
Suzuki, Akiyoshi; Hiraga, Ryoze; Kano, Ichiro; Yoshinari, Hideki; Totsuka, Masao; Kato, Yuzo; and Ogino, Yasuo, 4,315,201, Cl. 318-640.000.
- Hirakawa, Tadeshi; Kusubayashi, Tochiaki; and Oku, Yukio, to Mitsubishi Jukogyo Kabushiki Kaisha. Method and apparatus for preventing warp in corrugated cardboard, 4,314,868, Cl. 156-207.000.
- Hirano, Tomiyoshi; Shinada, Hidehiro; and Sawada, Michiyuki, to Tokyo Shibaura Denki Kabushiki Kaisha. Reflective lamp, 4,315,186, Cl. 313-111.000.
- Hirayama, Kazuhiro: See—
Amitani, Joji; Ito, Takashi; and Hirayama, Kazuhiro, 4,314,756, Cl. 355-15.000.
- Hirayama, Yoshihiko: See—
Sakami, Ryoichi; and Hirayama, Yoshihiko, 4,315,332, Cl. 455-181.000.
- Hirohata, Hyogo: See—
Todoroki, Tsunehiko; and Hirohata, Hyogo, 4,314,848, Cl. 75-173.00C.
- Hisaka Works Ltd.: See—
Sumitomo, Hiroyuki; Doi, Masafumi; Kobayashi, Kazuyuki; Fukami, Katsutoshi; and Kawanishi, Kenzo, 4,314,605, Cl. 165-110.000.
- Hitachi, Ltd.: See—
Chinone, Naoki; Saito, Kazutoshi; Shige, Noriyuki; and Ito, Ryoichi, 4,315,226, Cl. 372-45.000.
- Fukui, Hiroshi; and Kimura, Shin, 4,315,274, Cl. 357-38.000.
- Ibamoto, Masahiko; Narita, Hiroshi; Oouchi, Noboru; and Okamatsu, Shigetoshi, 4,315,203, Cl. 318-807.000.
- Inagaki, Masahisa; Jinbou, Ryutarou; Unino, Tomio; and Shida, Tomohiko, 4,315,130, Cl. 219-121.00L.
- Kamejima, Kohji; Kano, Minoru; Tanaka, Hideki; and Fukushima, Toshihiko, 4,314,454, Cl. 62-98.000.
- Kishi, Tuneso; Sasaki, Koji; and Moriya, Michio, 4,315,119, Cl. 200-145.000.
- Kondo, Hisashi; Yamazaki, Shozo; and Yamada, Yukio, 4,315,231, Cl. 335-61.000.
- Kyomasu, Ryuichi; Hanashima, Shuichi; and Suzumura, Yoshikazu, 4,315,199, Cl. 318-601.000.
- Nishimiya, Torazo; Okumura, Masamitsu; and Numakura, Seisaku, 4,314,585, Cl. 137-625.340.
- Ohinata, Ichiro, 4,315,168, Cl. 307-252.00G.
- Saito, Toru; and Takeshima, Masaki, 4,314,828, Cl. 55-26.000.
- Tokunaga, Michio; Okada, Ryoichi; Mizutani, Hideo; Hasegawa, Koichi; and Osaki, Takaaki, 4,315,206, Cl. 323-265.000.
- Hobbs, Edwin L. Device for arborist contractors, 4,314,693, Cl. 254-376.000.
- Hochtemperatur-Reaktorbau GmbH: See—
Fritz, Rolf; Schoening, Josef; Elter, Claus; and Theymann, Walter, 4,314,883, Cl. 376-381.000.
- Hodder, James J.: See—
Beier, William C.; and Hodder, James J., 4,314,802, Cl. 8-94.260.
- Hodge, Malcolm H.; and Tabb, Leroy, Jr., to TRW Inc. Optical sensing device, 4,314,760, Cl. 356-4.000.
- Hoechst Aktiengesellschaft: See—
Feess, Erich; and Reinhardt, Friedrich, 4,314,811, Cl. 8-457.000.
- Feess, Erich, 4,314,812, Cl. 8-457.000.
- Muller, Walter; Gauer, Richard; Walkenhorst, Wilfried; and Wild, Gerhard, 4,314,606, Cl. 165-163.000.
- Hofer, Alan. Speaker, 4,315,112, Cl. 179-115.50R.
- Hoffend, Thomas R.; and Levy, Moshe, to Xerox Corporation. Toner pigment treatment process for reducing the residual styrene monomer concentration to less than 0.5 percent by weight, 4,314,931, Cl. 260-42.530.
- Hoffman, Gordon B.; and Callahan, Michael J., Jr., to Mostek Corporation. Integrated circuit chip telephone communication system, 4,315,108, Cl. 179-84.0VF.
- Hoffmann, Otto L.; and Patel, Natu R., to Gulf Oil Corporation. 1-Benzoyl-3-hydroxy-6(1H)-pyridazinones employed as plant growth regulators, 4,314,843, Cl. 71-92.000.
- Hofstad, David P. Drum having internal double acting control to provide variable pitch, 4,314,498, Cl. 84-411.00A.
- Hogle, Richard A.: See—
Hsu, George C.; Levin, Harry; Hogle, Richard A.; Praturi, Ananda; and Lutwack, Ralph, 4,314,525, Cl. 118-716.000.
- Hohenschutz, Heinz; Gnad, Josef; Dinkhauser, Guenter; and Schaefer, Eberhard, to BASF Aktiengesellschaft. Process for completing the esterification of carboxylic acids with alcohols, 4,314,947, Cl. 260-410.000.
- Holden, Abe N., deceased; and by Holden, Joyce A. Holden, executrix, to Westinghouse Electric Corp. Transpiration cooled blade for a gas turbine engine, 4,314,794, Cl. 416-97.00A.
- Holden, Arthur I.: See—
Fox, Sidney W.; and Holden, Arthur I., 4,315,072, Cl. 430-628.000.
- Holden, Joyce A. Holden, executrix: See—
Holden, Abe N., deceased; and Holden, Joyce A. Holden, executrix, 4,314,794, Cl. 416-97.00A.
- Holecsek, Joseph J.; and Zell, Michael N., to International Business Machines Corporation. Magnetic disk drive machine, 4,315,289, Cl. 360-99.000.
- Hollingsworth GmbH: See—
Loffler, Walter, 4,314,387, Cl. 19-98.000.
- Holzbaun, Siegfried; and Eckert, Konrad, to Robert Bosch GmbH. Mixture preparation apparatus, 4,314,951, Cl. 261-44.00D.
- Holze, Ernest P., Jr., to Branson Ultrasonics Corporation. Ultrasonic resonator (horn) with skewed slots, 4,315,181, Cl. 310-323.000.
- Homeyer, Bernhard: See—
Maurer, Fritz; Hammann, Ingeborg; and Homeyer, Bernhard, 4,315,008, Cl. 424-200.000.
- Honda, Makoto: See—
Nishikawa, Seiichi; and Honda, Makoto, 4,315,145, Cl. 235-493.000.
- Honda, Michiyasu: See—
Ueda, Yuziro; Yoshida, Toru; and Honda, Michiyasu, 4,314,694, Cl. 266-44.000.
- Honjyo, Jun; and Watanabe, Yukimitsu, to Takeda Riken Kogyo Kabushiki Kaisha. Self-compensating A-D converter, 4,315,254, Cl. 340-347.00C.
- Hooker Chemicals & Plastics Corp.: See—
Claus, Richard J., 4,314,893, Cl. 204-40.000.
- Hoppe, James C., to United States of America, Air Force. Instantaneous opening positive lock mechanism, 4,314,500, Cl. 89-1.00B.
- Horigome, Eiji; Azegami, Hitoshi; and Ohta, Hiroshi, to TDK Electronics Co., Ltd. Magnetic recording medium, 4,315,057, Cl. 428-694.000.
- Horrocks, Donald L., to Beckman Instruments, Inc. Detecting phase separation in liquid scintillation samples, 4,315,151, Cl. 250-362.000.
- Hosoe, Kazuyas: See—
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- Hosogai, Takeo: See—
Mori, Fumio; Omura, Yoshiaki; Fujita, Yoshiji; Nishida, Takashi; Hosogai, Takeo; Wada, Fumio; Aihara, Sukeji; Tamai, Yoshin; and Itoi, Kazuo, 4,315,029, Cl. 424-304.000.
- Hotz, Alfons, to Tetstal-Maschinen AG. Degasser on a worm-type melting and conveying device for a plastic injection molding machine, 4,314,765, Cl. 366-75.000.
- Hozumi, Toshiaki: See—
Ishizaka, Sunao; and Hozumi, Toshiaki, 4,314,752, Cl. 354-286.000.
- Hsu, George C.; Levin, Harry; Hogle, Richard A.; Praturi, Ananda; and Lutwack, Ralph, to California Institute of Technology. Fluidized bed silicon deposition from silane, 4,314,525, Cl. 118-716.000.
- Hudyma, Thomas W.: See—
Partyka, Richard A.; and Hudyma, Thomas W., 4,315,023, Cl. 424-273.00R.
- Huffman, William F.; and Wilson, James W., to SmithKline Corporation. 4-Aminoalkyl-7-hydroxy-2(3H)-indolones, 4,314,944, Cl. 260-326.150.
- Huggins, Robert A.: See—
Raistrick, Ian D.; Poris, Jaime; and Huggins, Robert A., 4,315,059, Cl. 429-112.000.
- Hughes Aircraft Company: See—
Vahrenkamp, Richard P., 4,315,153, Cl. 250-396.00R.
- Hughes, John B., to U.S. Philips Corporation. Frequency divider arrangement, 4,315,166, Cl. 307-225.00R.
- Hulcombe, Barry J., to Monier Coloutrile Pty. Ltd. Roof tile fixing clip, 4,314,433, Cl. 52-521.000.
- Humbleby, Paul J.: See—
Bricker, Robert E.; and Humbleby, Paul J., 4,314,425, Cl. 51-267.000.
- Husaini, Saeed A.; and Liu, Richard T., to Societe d'Assistance Technique pour Produits Nestle S.A. Process for decaffeinating tea, 4,315,036, Cl. 426-387.000.
- Hutchinson, Richard T. Insert for tills, 4,314,632, Cl. 206-0.810.
- Huth, Klaus: See—
Hartmann, Willi; and Huth, Klaus, 4,314,491, Cl. 82-4.00R.
- Hybrid Technology Corporation: See—
Spigarelli, Donald J., 4,315,042, Cl. 427-96.000.
- Hyosu, Yoshihiko: See—
Wakimoto, Saburo; Miyahara, Sadayasu; and Hyosu, Yoshihiko, 4,314,932, Cl. 260-42.530.
- Ibamoto, Masahiko; Narita, Hiroshi; Oouchi, Noboru; and Okamatsu, Shigetoshi, to Hitachi, Ltd. Control system for induction motor-driven car, 4,315,203, Cl. 318-807.000.
- Ibrahim, Fayed F., to Tyler Refrigeration Corporation. Island refrigerated display case with air defrost, 4,314,457, Cl. 62-256.000.
- ICI Australia Limited: See—
Love, Thomas L., 4,314,508, Cl. 102-275.700.
- IHC Holland N.V.: See—
Visser, Teunis, 4,314,660, Cl. 228-140.000.
- Ihrman, Kryn G.: See—
Wollensak, John C.; and Ihrman, Kryn G., 4,314,962, Cl. 264-328.600.
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Ito, Kanji; Ikawa, Kenji; Yukinaga, Hisajiro; and Sugita, Jitsuo, 4,314,845, Cl. 71-103.000.
- Ikeda, Hironosuke; Narukawa, Satoshi; and Nakaido, Shigeiro, to Sanyo Electric Co., Ltd. Battery with internal electrical connectors, 4,315,061, Cl. 429-161.000.
- Ikeda, Masahiko: See—
Ito, Yoshinori; Ikeda, Masahiko; and Furuichi, Junji, 4,315,127, Cl. 219-73.100.
- Ikeda, Tamaki: See—
Tsuiji, Yoshiomi; Matsuda, Akio; Ikeda, Tamaki; and Mori, Kenji, 4,314,774, Cl. 405-115.000.

- Ikeura, Kenji, to Nissan Motor Co., Ltd. Method and apparatus for ignition system spark timing control where exhaust gas recirculation is used, 4,314,540, Cl. 123-571.000.
- Ikushima, Takeshi: See—
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- IMED Corporation: See—
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- Imperial Chemical Industries Limited: See—
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- Jones, Derrick F.; and Oldham, Keith, 4,315,009, Cl. 424-248.400.
- Inagaki, Masahisa; Jinbou, Ryutarou; Unino, Tomio; and Shida, Tomohiko, to Hitachi, Ltd. Method of treating object by laser beam and apparatus therefor, 4,315,130, Cl. 219-121.00L.
- Inerte, Maria. Tooth-pick having one folded end and associated pocket container box, 4,314,574, Cl. 132-89.000.
- Ingersoll-Rand Co.: See—
Cantrel, James F., 4,314,778, Cl. 405-259.000.
- Inomata, Shigeo: See—
Watanabe, Takashi; Yamano, Katsushi; Yamamoto, Kunio; and Inomata, Shigeo, 4,314,850, Cl. 106-15.050.
- Institut Textile de France: See—
Ducol, Jean-Paul; Mesny, Jacques; and Warret, Julien, 4,314,462, Cl. 66-152.000.
- Instrumentation Laboratory Inc.: See—
Stein, Bernard; and Granoff, Richard A., 4,314,970, Cl. 422-72.000.
- Intel Corporation: See—
Bayliss, John A.; Cox, George W.; Forbes, Bert E.; and Kahn, Kevin C., 4,315,310, Cl. 364-200.000.
- Jackson, Daniel K., 4,315,308, Cl. 364-200.000.
- International Business Machines Corporation: See—
Brickman, Norman F.; and Graziano, Bruno R., 4,315,330, Cl. 370-104.000.
- Holecsek, Joseph J.; and Zell, Michael N., 4,315,289, Cl. 360-99.000.
- Jacquart, Christian, 4,315,307, Cl. 363-134.000.
- James, Edmund H., III, 4,314,769, Cl. 400-144.200.
- Pelc, Rafael, 4,315,167, Cl. 307-241.000.
- International Flavors & Fragrances Inc.: See—
Wiegels, Wilhelmus J.; Sprecker, Mark A.; Watkins, Hugh; Vock, Manfred H.; and Schmitt, Frederick L., 4,314,915, Cl. 252-522.00R.
- International Harvester Company: See—
Gagliani, John; and Lee, Raymond, 4,315,076, Cl. 521-77.000.
- Gagliani, John; and Lee, Raymond, 4,315,077, Cl. 521-77.000.
- Gagliani, John; and Lee, Raymond, 4,315,080, Cl. 521-189.000.
- International Minerals & Chemical Corporation: See—
Madsen, James B.; and Brown, Daniel R., 4,314,829, Cl. 55-98.000.
- International Paper Company: See—
Gordon, Robert L.; and Wolak, Paul Z., 4,314,638, Cl. 206-427.000.
- International Telephone and Telegraph Corporation: See—
Bickel, Gary W., 4,314,740, Cl. 350-96.150.
- Chea, Ramon C. W., Jr., 4,315,106, Cl. 179-16.00F.
- Davis, James M., 4,315,110, Cl. 179-99.00M.
- Monti, James H., Jr., 4,315,114, Cl. 200-5.00A.
- Intichar, Lutz; and Weghaupt, Erich, to Kraftwerk Union Aktiengesellschaft. Cooling system for rotors of electric machines, especially for turbo-generator rotors with a superconductive field winding, 4,315,172, Cl. 310-53.000.
- Ioannou, Tom K.: See—
Downing, James H.; Wells, James E., III; and Ioannou, Tom K., 4,314,908, Cl. 252-182.000.
- Iowa Mold Tooling Co., Inc.: See—
Zrostlik, Francis L.; and Collins, John J., 4,314,597, Cl. 157-1.110.
- Ishida, Kohji: See—
Numata, Tatsuo; and Ishida, Kohji, 4,315,221, Cl. 330-51.000.
- Ishida, Masamitsu: See—
Kato, Hisatoyo; Ishida, Masamitsu; and Matsumoto, Seiji, 4,315,318, Cl. 364-515.000.
- Ishida, Toshimichi; Takayanagi, Takeo; and Taki, Yasuo, to Matsushita Electric Industrial Co., Ltd. Method of mounting electronic components, 4,314,870, Cl. 156-272.000.
- Ishikawajima-Harima Jukogyo Kabushiki Kaisha: See—
Shimizu, Masami, 4,314,705, Cl. 277-67.000.
- Tagami, Ichizo, 4,315,252, Cl. 340-347.00P.
- Ishizaka, Sunao; and Hozumi, Toshiaki, to Nippon Kogaku K.K. Mount device of a focal length changing auxiliary lens, 4,314,752, Cl. 354-286.000.
- ISI Fluid Power, Inc.: See—
Brinkel, Edwin P.; and Dellach, Philip J., 4,314,502, Cl. 91-438.000.
- Isliker, Gaston R.: See—
Mulkins, George F.; Dombrowski, Jerome P.; and Isliker, Gaston R., 4,315,298, Cl. 361-253.000.
- Isomura, Shohei: See—
Nakane, Ryohei; Isomura, Shohei; and Shimizu, Masami, 4,314,972, Cl. 422-191.000.
- Isono, Hiromasa: See—
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- Isshiki, Isao: See—
Nakahara, Tsuneo; Yoshida, Kenichi; Tsuno, Koichi; and Isshiki, Isao, 4,315,245, Cl. 340-146.3AG.
- Itakura, Tsuyoshi: See—
Willinger, Allan H.; and Itakura, Tsuyoshi, 4,315,143, Cl. 219-523.000.
- Ito, Kanji; Ikawa, Kenji; Yukinaga, Hisajiro; and Sugita, Jitsuo, to Shionogi & Co., Ltd. N⁴-Phenoxyalkanoysulfanilamides and herbicidal composition containing the same, 4,314,845, Cl. 71-103.000.
- Ito, Ryoichi: See—
Chinone, Naoki; Saito, Kazutoshi; Shige, Noriyuki; and Ito, Ryoichi, 4,315,226, Cl. 372-45.000.
- Ito, Takashi: See—
Amitani, Joji; Ito, Takashi; and Hirayama, Kazuhiro, 4,314,756, Cl. 355-15.000.
- Ito, Yoshinori; Ikeda, Masahiko; and Furuichi, Junji, to Sumitomo Metal Industries Limited. Electro-slag welding method, 4,315,127, Cl. 219-73.100.
- Itoh, Katsumi: See—
Mori, Kazumasa; Asahi, Taro; Banzai, Keiichi; Iwaki, Katsutaro; Muto, Katsuya; Mase, Akira; Nimura, Takayasu; Itoh, Katsumi; and Akita, Yoshio, 4,315,205, Cl. 322-99.000.
- Itoi, Kazuo: See—
Mori, Fumio; Omura, Yoshiaki; Fujita, Yoshiji; Nishida, Takashi; Hosogai, Takeo; Wada, Fumio; Aihara, Sukeji; Tamai, Yoshin; and Itoi, Kazuo, 4,315,029, Cl. 424-304.000.
- Iwaki, Katsutaro: See—
Mori, Kazumasa; Asahi, Taro; Banzai, Keiichi; Iwaki, Katsutaro; Muto, Katsuya; Mase, Akira; Nimura, Takayasu; Itoh, Katsumi; and Akita, Yoshio, 4,315,205, Cl. 322-99.000.
- Iwano, Yoshimi: See—
Suzuki, Hajime; Umemura, Yoshifumi; Kimbara, Masahiko; and Iwano, Yoshimi, 4,314,590, Cl. 139-435.000.
- Izum Denki Corporation: See—
Fujita, Teizo; and Kimura, Haruo, 4,315,123, Cl. 200-307.000.
- Jackson, Daniel K., to Intel Corporation. Interface between a microprocessor chip and peripheral subsystems, 4,315,308, Cl. 364-200.000.
- Jacob, Keith D.: See—
Apple, William C.; and Jacob, Keith D., 4,315,249, Cl. 340-825.520.
- Jacobs, Philip C., Jr. Composite fusible element for electric current-limiting fuses, 4,315,235, Cl. 337-296.000.
- Jacobson, Sava. Automatically reset control mechanism for remote payout telephone answering device, 4,315,104, Cl. 179-6.070.
- Jacobson, Sava. Electronic ring sounder for a speaker telephone, 4,315,109, Cl. 179-84.00T.
- Jacoby, Richard: See—
Anderson, Blair V.; Feldman, Morris; and Jacoby, Richard, 4,314,412, Cl. 36-100.000.
- Jacquart, Christian, to International Business Machines Corp. Switching device and switched-type power supply using the same, 4,315,307, Cl. 363-134.000.
- Jacquet, Bernard; Lang, Gerard; and Forestier, Serge, to L'Oreal. Dye polymers, their preparation and their use in dye compositions, 4,314,808, Cl. 8-405.000.
- James Brown & Sons: See—
Widmer, Colin F., 4,314,695, Cl. 266-194.000.
- James, Edmund H., III, to International Business Machines Corporation. Acoustical tone generator, 4,314,769, Cl. 400-144.200.
- Jameson, William G., Jr.: See—
Fanning, Alan W.; Jameson, William G., Jr.; and Hazel, Victor E., 4,314,884, Cl. 376-441.000.
- Jansen, Harald; Oelert, Gerhard; and Kohnke, Hans-Jurgen, to Stiebel Eltron GmbH & Co., KG. Method of heating with an absorption heat pump, 4,314,668, Cl. 237-2.00B.
- Jenaer Glaswerk Schott & Gen.: See—
Sack, Werner; and Lindig, Otto, 4,315,054, Cl. 428-433.000.
- Jeter, Thomas R.; and Donovan, William F., to United States of America, Army. Kinetic sabot system, 4,314,510, Cl. 102-523.000.
- Jezeck, Ben F., Jr.: See—
Madewell, Tommy J.; and Jezeck, Ben F., Jr., 4,314,672, Cl. 239-424.000.
- Jimena, Carlos L. Generator flashlight, 4,315,301, Cl. 362-193.000.
- Jimenez, Miguel A.; and Saucedo, Manuel M., to Griffin, Patrick O., by said Manuel M. Saucedo. Seed singulator, 4,314,515, Cl. 111-77.000.
- Jinbou, Ryutarou: See—
Inagaki, Masahisa; Jinbou, Ryutarou; Unino, Tomio; and Shida, Tomohiko, 4,315,130, Cl. 219-121.00L.
- JNPC Investments (Proprietary) Limited: See—
Cain, James T., 4,314,417, Cl. 40-209.000.
- Johns Hopkins University. The: See—
Kossiakoff, Alexander, 4,315,315, Cl. 364-300.000.
- Johnson Controls, Inc.: See—
Lederman, Warren A., 4,314,578, Cl. 137-84.000.
- Johnson, Delp W. Method of site casting tunnels, culverts, pressure pipes with minimum forming, 4,314,775, Cl. 405-155.000.
- Johnson, Irvin D., to Marathon Oil Company. Well fluid velocity measurement method and system, 4,314,476, Cl. 73-155.000.
- Johnson & Johnson: See—
Krainski, Theodore J., Jr., 4,314,482, Cl. 73-805.000.
- Johnson & Johnson Products Inc.: See—
Sipos, Tibor, 4,314,991, Cl. 424-56.000.
- Johnson, Marvin M.: See—
Nowack, Gerhard P.; and Johnson, Marvin M., 4,314,901, Cl. 208-216.00R.
- Johnson, Wayne S.: See—
Monte, Charles S.; and Johnson, Wayne S., 4,314,897, Cl. 204-299.00R.

Jojima, Teruomi; See—
Fahmy, Mohamed A. H.; Fukuto, Tetsuo R.; and Jojima, Teruomi, 4,315,026, Cl. 424-282.000.

Jones, Derrick F.; and Oldham, Keith, to Imperial Chemical Industries Limited. Antisecretory guanidine derivatives and pharmaceutical compositions containing them. 4,315,009, Cl. 424-248.400.

Josef Martin Feuerungsbaue GmbH, Firma; See—
Martin, Johannes J.; and Martin, Walter J., 4,314,541, Cl. 126-163.00R.

Jukkola, Walfred W.; See—
Kwon, Henry S. C.; and Jukkola, Walfred W., 4,314,967, Cl. 422-49.000.

Jung, Michel; See—
Bey, Philippe; and Jung, Michel, 4,315,095, Cl. 548-344.000.

Junod, Michael T.; and Bates, Albert M., to United States of America, Navy. Directly modulated sonobuoy transmitter using surface acoustic wave sensor. 4,315,324, Cl. 367-3.000.

Jureha Kagaku Kogyo Kabushiki Kaisha; See—
Miyamori, Tamotsu; Kaji, Hisatsugu; Kameyama, Iwao; and Takahashi, Michio, 4,314,981, Cl. 423-447.700.

Just, Gerhard; See—
Boden, Heinrich; Rentz, Bernhard; Niggemann, Johann; and Just, Gerhard, 4,314,963, Cl. 264-328.600.

JWI Ltd.; See—
Buchanan, John G.; and MacBean, Donald G., 4,314,589, Cl. 139-383.00A.

Kabushiki Kaisha Daini Seikosha; See—
Sakami, Ryoichiro; and Hirayama, Yoshihiko, 4,315,332, Cl. 455-181.000.

Torisawa, Akira; Ueda, Makoto; and Shida, Masaharu, 4,315,329, Cl. 368-76.000.

Kabushiki Kaisha Kawai Gakki Seisakusho; See—
Kondo, Yoh-ichi, 4,314,493, Cl. 84-1.030.

Kabushiki Kaisha Komatsu Seisakusho; See—
Sakamoto, Masaaki, 4,314,617, Cl. 180-6.480.

Kabushiki Kaisha Kubota Seisakusho; See—
Ouchi, Yoshiichi, 4,314,663, Cl. 233-26.000.

Uchida, Tadashi, 4,314,662, Cl. 233-26.000.

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Kokubu, Sadao; and Endou, Nobuhiro, 4,315,117, Cl. 200-61.270.

Kabushiki Kaisha Toyoda Jidoshokki Seisakusho; See—
Miyamoto, Noriaki; Shiraki, Masao; and Mitsuya, Kinpei, 4,314,438, Cl. 57-58.890.

Onoue, Keiji; Katoh, Takashi; Yoshida, Yoshiaki; and Seiki, Kazuo, 4,314,440, Cl. 57-301.000.

Suzuki, Hajime; Umemura, Yoshifumi; Kimbara, Masahiko; and Iwano, Yoshimi, 4,314,590, Cl. 139-435.000.

Kadell, Roger J. Laryngoscope. 4,314,551, Cl. 128-11.000.

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Bayliss, John A.; Cox, George W.; Forbes, Bert E.; and Kahn, Kevin C., 4,315,310, Cl. 364-200.000.

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Miyamori, Tamotsu; Kaji, Hisatsugu; Kameyama, Iwao; and Takahashi, Michio, 4,314,981, Cl. 423-447.700.

Kakigi, Takao; See—
Kakigi, Yasugi; and Kakigi, Takao, 4,315,158, Cl. 250-574.000.

Kakigi, Yasugi; and Kakigi, Takao, to Cybernet Electronics Corporation. Photoelectric smoke sensing chamber and smoke sensor box. 4,315,158, Cl. 250-574.000.

Kakimoto, Kohichi; See—
Osaki, Mikio; Kamada, Hiroshi; Kakimoto, Kohichi; and Tabuchi, Toshiaki, 4,315,322, Cl. 364-900.000.

Kalaus, Gyorgy; See—
Szantay, Csaba; Szabo, Lajos; Kalaus, Gyorgy; Dancsi, Lajos; Keve, Tibor; Karpati, Egon; and Szporny, Laszlo, 4,315,011, Cl. 424-262.000.

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Szantay, Csaba; Szabo, Lajos; Kalaus, Gyorgy; Dancsi, Lajos; Keve, Tibor; and Drexler, Ferenc, 4,314,939, Cl. 260-239.30P.

Kamada, Hiroshi; See—
Osaki, Mikio; Kamada, Hiroshi; Kakimoto, Kohichi; and Tabuchi, Toshiaki, 4,315,322, Cl. 364-900.000.

Kamejima, Kohji; Kano, Minoru; Tanaka, Hideki; and Fukushima, Toshihiko, to Hitachi, Ltd. Method of operating refrigerating machine. 4,314,454, Cl. 62-98.000.

Kameyama, Iwao; See—
Miyamori, Tamotsu; Kaji, Hisatsugu; Kameyama, Iwao; and Takahashi, Michio, 4,314,981, Cl. 423-447.700.

Kamoshita, Akio; Matsumoto, Akihiko; and Kurihara, Takashi, to Nissan Motor Co., Ltd. Rack and pinion steering gear housing mounting structure. 4,314,710, Cl. 280-96.000.

Kamp, Heinz; Becker, Rolf; and Stops, Manfred, to W. Schlafhorst & Co. Device for charging a textile machine with coil tubes. 4,314,439, Cl. 57-270.000.

Kanamaru, Koichi; and Takeuchi, Misao, to Nissan Motor Company, Limited. Switch assembly with leakage current detecting means. 4,315,116, Cl. 200-61.090.

Kanamori, Masaru; See—
Yamamoto, Kazuhiko; Matsushita, Yoshiaki; Kanamori, Masaru; Nagasawa, Kazutoshi; Yoshihiro, Naotsugu; and Kishino, Seigo, 4,314,595, Cl. 148-1.500.

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Sudo, Masatoshi; Higashi, Masanori; Ohki, Tsuguaki; and Kanbe, Shoji, 4,314,862, Cl. 148-12.00F.

Kano, Ichiro; See—
Suzuki, Akiyoshi; Hiraga, Ryozo; Kano, Ichiro; Yoshinari, Hideki; Totsuka, Masao; Kato, Yuzo; and Ogino, Yasuo, 4,315,201, Cl. 318-640.000.

Kano, Minoru; See—
Kamejima, Kohji; Kano, Minoru; Tanaka, Hideki; and Fukushima, Toshihiko, 4,314,454, Cl. 62-98.000.

Kansai Paint Co., Ltd.; See—
Watanabe, Takashi; Yamano, Katsushi; Yamamoto, Kunio; and Inomata, Shigeo, 4,314,850, Cl. 106-15.050.

Kaplan, Donald S., to American Cyanamid Company. Surgical suture derived from segmented polyether-ester block copolymers. 4,314,561, Cl. 128-335.500.

Kardios Systems Corporation, The; See—
Parks, William L., III; and Harwood, Clifford, 4,315,321, Cl. 364-900.000.

Karlsson, Gosta; See—
Granstrom, Staffan; and Karlsson, Gosta, 4,315,124, Cl. 219-10.710.

Karpati, Egon; See—
Szantay, Csaba; Szabo, Lajos; Kalaus, Gyorgy; Dancsi, Lajos; Keve, Tibor; Karpati, Egon; and Szporny, Laszlo, 4,315,011, Cl. 424-262.000.

Karpov, Evgeny F.; Birenberg, Isaak E.; Basovsky, Boris I.; and Popov, Vladimir V. Method for checking thermocatalytic sensors of mine safety systems. 4,314,475, Cl. 73-27.00R.

Kashara, Nobuyoshi; and Nonomura, Koutarou, to Mitsui Mining & Smelting Co., Ltd. Process for dyeing zinc and zinc alloys. 4,314,859, Cl. 148-6.100.

Kashara, Takahiko; Yamaguchi, Tuka; Shichi, Shigeharu; Kato, Masayuki; and Suito, Senji, to Aisin Seiki Kabushiki Kaisha. Sewing machine with supplemental work supporting surface. 4,314,517, Cl. 112-260.000.

Kastar, Inc.; See—
Epstein, Harry, 4,314,383, Cl. 7-170.000.

Kataoka, Shoji, to Agency of Industrial Science & Technology Ministry of International Trade & Industry. Displacement sensor using a galvanomagnetic element positioned in a periodically inverted magnetic field. 4,315,214, Cl. 324-208.000.

Kato, Hisatoyo; Ishida, Masamitsu; and Matsumoto, Seiji, to Fuji Photo Film Co., Ltd. Method and apparatus for processing a radiation image. 4,315,318, Cl. 364-515.000.

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Kashara, Takahiko; Yamaguchi, Tuka; Shichi, Shigeharu; Kato, Masayuki; and Suito, Senji, 4,314,517, Cl. 112-260.000.

Kato, Yuzo; See—
Suzuki, Akiyoshi; Hiraga, Ryozo; Kano, Ichiro; Yoshinari, Hideki; Totsuka, Masao; Kato, Yuzo; and Ogino, Yasuo, 4,315,201, Cl. 318-640.000.

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Onoue, Keiji; Katoh, Takashi; Yoshida, Yoshiaki; and Seiki, Kazuo, 4,314,440, Cl. 57-301.000.

Katto, Takayuki; See—
Kobayashi, Akio; and Katto, Takayuki, 4,315,081, Cl. 525-2.000.

Kaufmann, Kenneth M., to Pako Corporation. Automatic inverse fix replenisher control. 4,314,753, Cl. 354-321.000.

Kawabata, Takashi; Hosoe, Kazuyas; Shinoda, Nobuhiko; Sakai, Shinji; and Kinoshita, Takao, to Canon Kabushiki Kaisha. Camera having a semi-automatic focus adjusting device. 4,314,748, Cl. 354-25.000.

Kawahara, James B. Drafting board storage tray. 4,314,407, Cl. 33-444.000.

Kawanishi, Kenzo; See—
Sumitomo, Hiroyuki; Doi, Masafumi; Kobayashi, Kazuyuki; Fukami, Katsutoshi; and Kawanishi, Kenzo, 4,314,605, Cl. 165-110.000.

Kazierod, William E. Special effects photographic printing easel arrangement. 4,314,758, Cl. 355-40.000.

Keene Corporation; See—
Petralia, Salvatore C., 4,315,302, Cl. 362-226.000.

Keiper Automobiltechnik GmbH & Co. KG; See—
Klueting, Bernd, 4,314,729, Cl. 297-366.000.

Keller, Teddy M.; and Griffith, James R., to United States of America, Navy. Fluorinated polyphthalocyanines. 4,315,093, Cl. 528-362.000.

Kelly, Thomas R., to Thomas J. Lipton, Inc. Process for forming a molded ice confection. 4,315,037, Cl. 426-421.000.

Kenney, James F.; See—
Deminet, Czeslaw; and Kenney, James F., 4,314,741, Cl. 350-96.330.

Keresztes, Robert J., to Bendix Corporation, The. Retention device for capturing a spent thermal fuse. 4,314,596, Cl. 152-330.00R.

Kernforschungsanlage Julich, Gesellschaft mit beschränkter Haftung; See—
Luhleisch, Hartmut; and Dias, Francisco J., 4,314,599, Cl. 164-16.000.

Kessler, Milton. Childproof push-pull container closure. 4,314,656, Cl. 222-153.000.

Keve, Tibor; See—
Szantay, Csaba; Szabo, Lajos; Kalaus, Gyorgy; Dancsi, Lajos; Keve, Tibor; and Drexler, Ferenc, 4,314,939, Cl. 260-239.30P.

Szantay, Csaba; Szabo, Lajos; Kalaus, Gyorgy; Dancsi, Lajos; Keve, Tibor; Karpati, Egon; and Szporny, Laszlo, 4,315,011, Cl. 424-262.000.

Kimbara, Masahiko; See—
Suzuki, Hajime; Umemura, Yoshifumi; Kimbara, Masahiko; and Iwano, Yoshimi, 4,314,590, Cl. 139-435.000.

Kimura, Haruo; See—
Fujita, Teizo; and Kimura, Haruo, 4,315,123, Cl. 200-307.000.

Kimura, Shin; See—
Fukui, Hiroshi; and Kimura, Shin, 4,315,274, Cl. 357-38.000.

Kinashi, Hiroshi, to Sharp Kabushiki Kaisha. Bias voltage controlled developing system in an electrophotographic copying machine. 4,314,755, Cl. 355-14.00D.

Kinjo, Hisao; and Ozawa, Keiji, to Victor Company of Japan, Ltd. High density recording system using side-by-side information and servo tracks. 4,315,283, Cl. 358-128.600.

Kinoshita, Takao; See—
Kawabata, Takashi; Hosoe, Kazuyas; Shinoda, Nobuhiko; Sakai, Shinji; and Kinoshita, Takao, 4,314,748, Cl. 354-25.000.

Kinsler, Martin R.; See—
Barnett, Burton; Kinsler, Martin R.; and Nelson, Lyle A., 4,314,682, Cl. 244-158.00R.

Kirkpatrick, Robert G.; and Snyder, Ronald R., to General Electric Company. High rate of fire revolving battery gun. 4,314,501, Cl. 89-12.000.

Kishi, Tuneso; Sakai, Koji; and Moriya, Michio, to Hitachi, Ltd. Tank type gas circuit breaker. 4,315,119, Cl. 200-145.000.

Kishimoto, Yoshio; See—
Sonoda, Nobuo; Shimotsuna, Wataru; Kishimoto, Yoshio; and Sekine, Yoichi, 4,315,267, Cl. 346-1.100.

Kishino, Seigo; See—
Yamamoto, Kazuhiko; Matsushita, Yoshiaki; Kanamori, Masaru; Nagasawa, Kazutoshi; Yoshihiro, Naotsugu; and Kishino, Seigo, 4,314,595, Cl. 148-1.500.

Kiss, Gyorgy; See—
Shilander, Frank R.; and Kiss, Gyorgy, 4,314,629, Cl. 198-500.000.

Kistler Instruments AG; See—
Wolfer, Peter; Derrer, Hans-Rudolf; Vollenweider, Max; and Sonderegger, Hans-Conrad, 4,314,481, Cl. 73-774.000.

Kitagawa, Sadao; Okada, Isao; and Saito, Teruo, to Mitsubishi Petrochemical Co., Ltd. Process for producing α -olefin polymer. 4,315,088, Cl. 526-125.000.

Kitamura, Takashi; Sumi, Yoshiro; and Matsufuji, Akira, to Nippon Steel Corporation. Rolling mill. 4,314,469, Cl. 72-221.000.

Kitayama, Fujio, to Niles Parts Company, Ltd. Disconnection detecting circuit of double-filament spherical lamp. 4,315,196, Cl. 315-132.000.

Kiwak, Robert S., to Bendix Corporation, The. Air cooler for self-contained breathing system. 4,314,566, Cl. 128-204.150.

Klanica, Joseph A.; See—
Birkmeyer, William J.; Lewarchik, Ronald J.; Klanica, Joseph A.; and Anderson, Carl C., 4,314,918, Cl. 260-20.000.

Klar, Erhard; See—
Ro, David H.; Klar, Erhard; and Whitman, C. I., 4,314,849, Cl. 75-228.000.

Klass, Donald L.; See—
Fedde, Paul A.; Ghosh, Sambhunath; Henry, Michael P.; and Klass, Donald L., 4,314,904, Cl. 210-611.000.

Kleinmann, Robert. Method of control of acid drainage from exposed pyritic materials. 4,314,966, Cl. 422-28.000.

Klop, Marius A. F.; See—
Feenstra, Johannes; Klop, Marius A. F.; Meerman, Wilhelmus C. P. M.; Peelen, Jan G. J.; and Tuin, Hermanus N., 4,314,834, Cl. 65-11.100.

Klueting, Bernd, to Keiper Automobiltechnik GmbH & Co. KG. Hinge mount for seats having reclineable back rests, particularly for motor vehicle seats. 4,314,729, Cl. 297-366.000.

Kluge, Arthur F.; Strosberg, Arthur M.; Whiting, Roger; and Christie, George A., to Syntex (U.S.A.) Inc. 2-(1,4-Benzodioxan-2-ylalkyl)-imidazoles. 4,315,021, Cl. 424-273.00R.

Knight, George W.; See—
Lowery, Kirby, Jr.; Knight, George W.; and May, James A., Jr., 4,314,912, Cl. 252-429.00B.

Knight, Peter C., to Lever Brothers Company. Process for reducing friability of detergent powders. 4,314,953, Cl. 264-13.000.

Knobel, Walter, to Davy International AG. Process for reconcentrating moist glycol. 4,314,891, Cl. 203-18.000.

Knop, Karl; See—
Steigmeier, Edgar F.; and Knop, Karl, 4,314,763, Cl. 356-237.000.

Kobayashi, Akio; and Katto, Takayuki, to Kureha Kagaku Kogyo Kabushiki Kaisha. Antistatic resin composition. 4,315,081, Cl. 525-2.000.

Kobayashi, Kazuyuki; See—
Sumitomo, Hiroyuki; Doi, Masafumi; Kobayashi, Kazuyuki; Fukami, Katsutoshi; and Kawanishi, Kenzo, 4,314,605, Cl. 165-110.000.

Kobayashi, Shigeru; See—
Yamamura, Yuichi; Hasegawa, Akira; Azuma, Ichiro; and Kobayashi, Shigeru, 4,314,998, Cl. 424-177.000.

Kobayashi, Tsuneki; and Nakano, Hiroshige. Hammer drive safety device for printer. 4,315,297, Cl. 361-191.000.

Kobe Steel, Ltd.; See—
Nakako, Yukio; Ohzawa, Toshio; Yokota, Shizuo; and Tamura, Masaaki, 4,314,898, Cl. 208-8.0LE.

Sudo, Masatoshi; Higashi, Masanori; Ohki, Tsuguaki; and Kanbe, Shoji, 4,314,862, Cl. 148-12.00F.

Koch, Carl. Rear wall construction of a photographic cassette camera. 4,314,746, Cl. 354-23.00R.

Koch, Robert L., II; See—
Dunn, Howard E.; and Koch, Robert L., II, 4,314,906, Cl. 210-754.000.

Koehring GmbH; See—
Kuhn, Hans, 4,314,613, Cl. 173-131.000.

Koei Chemical Co., Ltd.; See—
Uede, Kazuo; Sumizaki, Tuguo; and Nakamura, Masatoshi, 4,314,914, Cl. 252-472.000.

Koeman, James B., to Lord Corporation. Hip joint prosthesis. 4,314,381, Cl. 3-1.912.

Koenig, Herbert G., Jr.; See—
Allen, Louis B., Jr.; Koenig, Herbert G., Jr.; and Meyer, Danny D., 4,315,225, Cl. 372-35.000.

Koenig, Karl-Heinz; Feuerherd, Karl-Heinz; and Oeser, Heinz-Gunter, to BASF Aktiengesellschaft. Preparation of mixtures of 1-monohalogenated isocyanates and 1,2-unsaturated isocyanates. 4,314,948, Cl. 260-453.00P.

Kohnke, Hans-Jürgen; See—
Jansen, Harald; Oelert, Gerhard; and Kohnke, Hans-Jürgen, 4,314,668, Cl. 237-2.00B.

Koizumi, Yoshihito; See—
Fukuda, Tetsuro; Matsura, Hideo; Koizumi, Yoshihito; and Yamaguchi, Takeshi, 4,315,041, Cl. 426-653.000.

Koken Co., Ltd.; See—
Miyata, Teruo; Akiyama, Taichiro; and Furuse, Masayasu, 4,314,380, Cl. 3-1.900.

Kokka Kogyo Kabushiki Kaisha; See—
Kurokawa, Masahito, 4,314,623, Cl. 188-267.000.

Kokubu, Sadao; and Endou, Nobuhiro, to Kabushiki Kaisha Tokai Rika Denki Seisakusho. Electrical switch device. 4,315,117, Cl. 200-61.270.

Kolesnikova, Nina I.; See—
Motov, David L.; Tjurkina, Ljudmila P.; Gerasimova, Lidia G.; Metelkin, Alexandr I.; Shifrin, Isaak G.; Kolesnikova, Nina I.; Yakusheva, Galina G.; Godneva, Maria M.; Babkin, Artur G.; Mikaelian, Irity I.; Belokoskov, Valentin I.; and Plotnikov, Vladimir P., 4,314,975, Cl. 423-81.000.

Koller, Josef. Apparatus for the segregation of worn-out cleaning bodies. 4,314,604, Cl. 165-95.000.

Komoto, Shinsuke, to Asahi Kogaku Kogyo Kabushiki Kaisha. Lens mount barrel for photographing with flash lamp. 4,314,749, Cl. 354-139.000.

Kondo, Hiroatsu; See—
Yamada, Yasuaki; Ozawa, Toshiaki; and Kondo, Hiroatsu, 4,315,200, Cl. 318-603.000.

Kondo, Hisashi; Yamazaki, Shozo; and Yamada, Yukio, to Hitachi, Limited. High-speed circuit breaker. 4,315,231, Cl. 335-61.000.

Kondo, Kaneichi; and Shingu, Yuji, to Matsushita Electric Industrial Co., Ltd. High voltage piezoelectric generating device with lengthened spark time. 4,315,180, Cl. 310-319.000.

Kondo, Yoh-ichi, to Kabushiki Kaisha Kawai Gakki Seisakusho. Automatic rhythm pattern accompaniment equipment. 4,314,493, Cl. 84-1.030.

Konijnendijk, Willem L.; Boogerd, Gert M.; and Tonnaer, Henricus L. M., to U.S. Philips Corporation. Luminescent material with alkaline earth metal silicate aluminate host lattice and low-pressure mercury vapor discharge lamp containing the same. 4,315,191, Cl. 313-486.000.

Konno, Toshio; See—
Yamamoto, Kaneko; Nakamura, Hiroshi; and Konno, Toshio, 4,315,273, Cl. 357-27.000.

Konomi, Toshiaki; See—
Motosugi, Katsuhiko; Takahashi, Hiroshi; Toyoda, Shuhei; Konomi, Toshiaki; and Matsui, Hideaki, 4,314,529, Cl. 123-52.00MB.

Konrad, Gunther; See—
Rose, David; Busch, Peter; Lieske, Edgar; and Konrad, Gunther, 4,314,809, Cl. 8-406.000.

Koon, Homer E., Jr., to Alpha Arms, Inc. Rifle magazine device. 4,314,419, Cl. 42-50.000.

Korpmann, Ralf, to Permacel. Surgical drainage bags. 4,314,558, Cl. 128-283.000.

Kosic, Stjepan. Steering mechanism for boats. 4,314,520, Cl. 114-144.00R.

Kossiakoff, Alexander, to Johns Hopkins University, The. Graphical automatic programming. 4,315,315, Cl. 364-300.000.

Kosuzume, Hiroshi; See—
Mochida, Ei; Suzuki, Yasuo; Onishi, Haruo; and Kosuzume, Hiroshi, 4,315,003, Cl. 424-226.000.

Kraftwerk Union Aktiengesellschaft; See—
Intichar, Lutz; and Weghaupt, Erich, 4,315,172, Cl. 310-53.000.

Queiser, Horst; Meichsner, Othmar; and Erbe, Dietmar, 4,314,877, Cl. 159-47.0WL.

Krainski, Theodore J., Jr., to Johnson & Johnson. Analog-digital control device. 4,314,482, Cl. 73-805.000.

Kramer, Manfred; Schmid, Werner; and Cramer, Hans-Dieter, to Robert Bosch GmbH. Electric centrifugal switch. 4,315,118, Cl. 200-80.00R.

Kramer, Wilhelm; and Grafling, Joachim, to BBC Brown, Boveri & Company, Ltd. Contact arrangement. 4,315,122, Cl. 200-248.000.

Kratzer, Hans; See—
Bonse, Gerhard; Blank, Heinz U.; and Kratzer, Hans, 4,315,094, Cl. 544-182.000.

Kreighbaum, William E.; and Comer, William T., to Mead Johnson & Company. Heterocyclic substituted aryloxy 3-indolyl-tertiary butylaminopropanols. 4,314,943, Cl. 260-326.13B.

Krembel, Frank, Jr., to Columbia Marking Tools, Inc. Rotary wheel type marking head. 4,314,505, Cl. 101-85.000.

Kremer, Lawrence N.; and Boehmer, Matthew A., to Diversey Corporation, The. Titanium etching solution. 4,314,876, Cl. 156-664.000.

Kreyenbuhl, Armand, to Adidas Fabrique De Chaussures De Sport. Binding for fastening a boot to a ski. 4,314,713, Cl. 280-615.000.

- Krolzick, Gordon J.: See—
Cartier, Roger J.; and Krolzick, Gordon J., 4,314,409, Cl. 34-82.000.
- Kronfeld, Leonard E., to Nortronics Company, Inc. Beveled magnetic heads for floppy disk. 4,315,292, Cl. 360-122.000.
- Kruger, Hans-Rudolf; Arndt, Friedrich; Baumer, Dietrich; and Rusch, Reinhart, to Schering Aktiengesellschaft. 1,2,3-Thiadiazole-5-carboxylic acid amide derivatives, process for making the same and herbicidal growth regulating defoliating and fungicidal compositions containing same. 4,314,839, Cl. 71-73.000.
- Krumme, Jens-Peter: See—
Schmelzer, Christoph; Spohr, Reimar; Krumme, Jens-Peter; Witter, Klaus; and Heitmann, Heinrich, 4,314,894, Cl. 204-192.00M.
- Kub, Francis J.; White, Marvin H.; Mack, Ingham A. G.; and Lampe, Donald R., to Westinghouse Electric Corp. Bidirectional charge control circuit. 4,315,164, Cl. 307-221.00D.
- Kubota Ltd.: See—
Murakami, Shinichi; Nishihara, Hisakatsu; Yoshimitsu, Arata; and Noji, Sueyoshi, 4,314,861, Cl. 148-12.00E.
- Tsuji, Keiro, 4,314,619, Cl. 180-327.000.
- Kud, Alexander: See—
Lehner, August; Kud, Alexander; and Hartmann, Heinrich, 4,314,922, Cl. 260-29.2TN.
- Kuhl, Manfred: See—
Feller, Otto; Kuhl, Manfred; and Oepen, Heinz, 4,314,492, Cl. 82-18.000.
- Kuhn, Hans, to Koehring GmbH. Pile-driving recoil damping device. 4,314,613, Cl. 173-131.000.
- Kukreja, Jagmohan S., to Siemens Corporation. Apparatus for shifting the magnetic read/write head carriage in a floppy disk drive unit. 4,315,290, Cl. 360-106.000.
- Kulicke and Soffa Industries Inc.: See—
Marcovich, Thomas J.; and Valenski, Dan, 4,315,128, Cl. 219-85.00D.
- Kulik, Metro D., to Conoco Inc. Method for removing hydrogen sulfide and nitric oxide from gaseous mixtures. 4,314,977, Cl. 423-235.000.
- Kumar, Jitendra: See—
Chang, Chuan C.; and Kumar, Jitendra, 4,314,855, Cl. 134-3.000.
- Kunikane, Makoto; Umehara, Masaakira; Uji-Ie, Koji; and Taniguchi, Kiyoshi, to Ricoh Co., Ltd. Photo-sensitive and heat-sensitive composition and recording element using same. 4,315,068, Cl. 430-341.000.
- Kuo, Chin-Tui. Multi-purpose sticks or canes. 4,314,575, Cl. 135-66.000.
- Kupfer, Hanspeter, to Siemens-Albis Aktiengesellschaft. Method and apparatus for measuring the distance between a primary station and a secondary station. 4,315,260, Cl. 343-7.500.
- Kuppers, Dieter, to U.S. Phillips Corporation. Method of producing optical fibers. 4,314,833, Cl. 65-3.120.
- Kuraray Co., Ltd.: See—
Mori, Fumio; Omura, Yoshiaki; Fujita, Yoshiji; Nishida, Takashi; Hosogai, Takeo; Wada, Fumio; Aihara, Sukeji; Tamai, Yoshin; and Itoi, Kazuo, 4,315,029, Cl. 424-304.000.
- Kureha Kagaku Kogyo Kabushiki Kaisha: See—
Kobayashi, Akio; and Katto, Takayuki, 4,315,081, Cl. 525-2.000.
- Kurihara, Takashi: See—
Kamoshita, Akio; Matsumoto, Akihiko; and Kurihara, Takashi, 4,314,710, Cl. 280-96.000.
- Kurokawa, Masahito, to Kokka Kogyo Kabushiki Kaisha. Vibration isolator. 4,314,623, Cl. 188-267.000.
- Kurozumi, Seizi: See—
Noyori, Ryoji; Suzuki, Masaaki; and Kurozumi, Seizi, 4,315,032, Cl. 424-317.000.
- Kuster & Co. GmbH: See—
Brauer, Gerhard; Adam, Peter; and Seuffert, Werner, 4,314,692, Cl. 254-362.000.
- Kusubayashi, Tochiaki: See—
Hirakawa, Tadashi; Kusubayashi, Tochiaki; and Oku, Yukio, 4,314,868, Cl. 156-207.000.
- Kutney, John T., to General Electric Company. Drag-reducing component. 4,314,681, Cl. 244-54.000.
- Kuwayama, Tetsuro; and Tanaka, Kazuo, to Canon Kabushiki Kaisha. Color image detecting device. 4,315,279, Cl. 358-44.000.
- Kwasnik, Hans-Jürgen; and Piduch, Hans-Gunter, to Dr. C. Otto & Comp. GmbH. Charging car for coke ovens. 4,314,787, Cl. 414-163.000.
- Kwasnik, Hans-Jürgen; and Piduch, Hans-Gunter, to Dr. C. Otto & Comp. G.m.b.H. Apparatus to extract charging gases from a coke oven chamber. 4,314,889, Cl. 202-241.000.
- Kwon, Henry S. C.; and Jukkola, Walfred W., to Dorr-Oliver Incorporated. Fluidized bed reactor with vertical cooling coils. 4,314,967, Cl. 422-49.000.
- Kyber Engineering, Inc.: See—
Marez, Alejandro; and Spykerman, Jon J., 4,315,304, Cl. 363-49.000.
- Kyomasu, Ryuichi; Hanashima, Shuichi; and Suzumura, Yoshikazu, to Hitachi, Ltd. Control circuit for a positioning device using a d-c motor. 4,315,199, Cl. 318-601.000.
- kyzy Mamedova, Svetlana G.: See—
ogly Shakhhtakhtinsky, Togrul N.; ogly Rzaev, Zakir M.; kyzy Mamedova, Svetlana G.; ogly Duniyaliyev, Akhmed D.; ogly Salakhov, Mustafa S.; and ogly Guseinov, Mustafa M., 4,314,851, Cl. 106-16.000.
- L.C.C.-C.I.C.E. Compagnie Européenne de Composants Electroniques: See—
Saint Marcoux, Roland; and Fink, Leon, 4,315,299, Cl. 361-274.000.
- La Salle Machine Tool, Inc.: See—
Shilander, Frank R.; and Kiss, Gyorgy, 4,314,629, Cl. 198-500.000.
- Laauwe, Robert H. Viscous product dispensing squeeze bottle having a self-venting automatic shut-off valve. 4,314,658, Cl. 222-213.000.
- Label-Aire: See—
Crankshaw, Michael, 4,314,869, Cl. 156-215.000.
- Laboratoires Pharmascience: See—
Cerf, Olivier; Grenier, Georges; Hermier, Jean; and Rancurel, Alain, 4,314,965, Cl. 422-28.000.
- Laciak, Francis M.: See—
Anderson, Richard D.; Fauchier, Jess F., II; and Laciak, Francis M., 4,314,757, Cl. 355-29.000.
- LaFleur, Paul J., Jr.; and Crescenzo, Francis C., to Package Machinery Company. Stacking and packaging apparatus. 4,314,785, Cl. 414-46.000.
- L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procédes Georges Claude: See—
Pelloux-Gervais, Pierre, 4,314,450, Cl. 62-45.000.
- Laker, Kenneth R.: See—
Fleischer, Paul E.; and Laker, Kenneth R., 4,315,227, Cl. 333-173.000.
- Lambert, Hubert L. Extension connector. 4,314,771, Cl. 403-305.000.
- Lambert, Stuart G., to Bexford Limited. Substrates suitable for the production of photopolymerizable elements. 4,315,066, Cl. 430-271.000.
- Lampe, Donald R.: See—
Kub, Francis J.; White, Marvin H.; Mack, Ingham A. G.; and Lampe, Donald R., 4,315,164, Cl. 307-221.00D.
- Land and Marine Engineering Limited: See—
Reynolds, John M.; Gibson, Colin E.; Seamans, John S.; and van der Steen, Anton R. F., 4,314,414, Cl. 37-54.000.
- Lang, Gerard: See—
Jacquet, Bernard; Lang, Gerard; and Forestier, Serge, 4,314,808, Cl. 8-405.000.
- Lapeyre, Guy; and Thiebaut, Jean, to Essilor International (Compagnie Generale d'Optique). Spectacle cleaning device for domestic use. 4,314,766, Cl. 366-101.000.
- Laubie, Michel: See—
Malen, Charles; Roger, Pierre; and Laubie, Michel, 4,315,019, Cl. 424-272.000.
- Malen, Charles E.; Roger, Pierre; and Laubie, Michel, 4,315,020, Cl. 424-272.000.
- Lauterbach, Udo: See—
Berger, Fritz; Lauterbach, Udo; and Wetzell, Hermann, 4,314,867, Cl. 156-196.000.
- Lauven, Walter, to Ford Motor Company. Hydraulic control valve system with a pressure regulator for a planetary gear transmission. 4,314,488, Cl. 74-869.000.
- Lavanish, Jerome M., to PPG Industries, Inc. Herbicidal substituted 1,3,4-thiadiazol-2-yl-4-hydroxy-1-methyl-2-imidazolidinones. 4,314,842, Cl. 71-90.000.
- Law, H. David: See—
Tomasetta, Louis R.; and Law, H. David, 4,314,858, Cl. 148-1.500.
- Lawson, F. Douglas. Method of treating menopausal symptoms. 4,315,033, Cl. 424-319.000.
- Lawson, Daniel D.: See—
United States of America, National Aeronautics and Space Administration; Lawson, Daniel D.; and Petersen, Gene R., 4,314,984, Cl. 423-579.000.
- Lazzari, Jean-Pierre, to Compagnie Internationale pour l'Informatique CII-Honeywell Bull (Societe Anonyme). Magnetic transduction device with magnetoresistances. 4,315,291, Cl. 360-113.000.
- Leach Industries: See—
Bayer, Raymond M.; and Rodgers, Robert E., 4,314,699, Cl. 273-73.00D.
- Leclerc, Bernard: See—
Bert, Alain; Leclerc, Bernard; and Archambault, Yves, 4,315,275, Cl. 357-56.000.
- Lederman, Warren A., to Johnson Controls, Inc. Fluid signal transmitting apparatus. 4,314,578, Cl. 137-84.000.
- Ledford, Edward B., Jr., to University of Nebraska. The Board of Regents of the Mass spectrometer. 4,315,149, Cl. 250-282.000.
- Lee, Gim F., Jr.: See—
Cooper, Glenn D.; Lee, Gim F., Jr.; and Shufelt, Rainey A., 4,315,084, Cl. 525-69.000.
- Lee, Hong H., to Westvaco Corporation. Method of operating a paper-machine drying line. 4,314,878, Cl. 162-198.000.
- Lee, James Y.: See—
McKee, Joseph E.; and Lee, James Y., 4,315,259, Cl. 340-799.000.
- Lee, Peter F. Biopsy and aspiration needle unit. 4,314,565, Cl. 128-753.000.
- Lee, Raymond: See—
Gagliani, John; and Lee, Raymond, 4,315,076, Cl. 521-77.000.
- Gagliani, John; and Lee, Raymond, 4,315,077, Cl. 521-77.000.
- Gagliani, John; and Lee, Raymond, 4,315,080, Cl. 521-189.000.
- Leeds & Northrup Company: See—
Walsh, Thomas J., 4,315,211, Cl. 324-123.00R.
- Leeds, Richard L.; Montross, Jeffrey A.; and Barbini, Richard J., to Airco, Inc. Controlling temperature of a cryogenically refrigerated product. 4,314,451, Cl. 62-68.000.
- Lefever, Lawrence R.: See—
Fisher, Robert J.; and Lefever, Lawrence R., 4,315,113, Cl. 200-5.00R.
- Lehner, August; Kud, Alexander; and Hartmann, Heinrich, to BASF Aktiengesellschaft. Process for the preparation of aqueous polyurethane dispersions. 4,314,922, Cl. 260-29.2TN.

- Leibhard, Erich; Schiefer, Erwin; and Stirnweiss, Peter, to Hilti Aktiengesellschaft. Sealing member for a device for melting solid adhesive material. 4,314,655, Cl. 222-146.0HE.
- Leiby, Clare C.: See—
Ezekiel, Shaoul; Leiby, Clare C.; Picard, Richard H.; Willis, Charles R.; and Hackel, Richard P., 4,315,224, Cl. 331-3.000.
- Leitheiser, Melvin A.; and Sowman, Harold G., to Minnesota Mining and Manufacturing Company. Non-fused aluminum oxide-based abrasive mineral. 4,314,827, Cl. 51-298.000.
- Leman, A. Louis, Jr., to Southwest Oilfield Products, Inc. Gate valve. 4,314,688, Cl. 251-191.000.
- Lemmer, Alfred. Device for assembling printed circuit boards. 4,314,402, Cl. 29-721.000.
- Lemoine, Maurice G.; and Pasdera, Leonard A., to Ampex Corporation. Apparatus for providing drop-out compensation in recording and reproducing systems. 4,315,331, Cl. 371-31.000.
- Leo Pharmaceutical products Ltd. A/S: See—
von Daehne, Welf; and Rasmussen, Poul R., 4,315,004, Cl. 424-238.000.
- Leoni, Roberto; Baldini, Alberto; Calloni, Angelo; and Angelini, Gianfranco, to SNIA Viscosa Societa' Nazionale Industria Applicazioni Viscosa S.p.A. Process for the preparation of regenerated cellulose formed bodies from solutions of cellulose derivatives in organic solvents. 4,314,959, Cl. 264-187.000.
- Lestrade, Jakobus W. Ground heating system. 4,314,772, Cl. 404-207.000.
- Levati, Renzo, to R. Levati S.p.A. Process for peeling tomatoes under vacuum. 4,315,039, Cl. 426-482.000.
- Lever Brothers Company: See—
Knight, Peter C., 4,314,953, Cl. 264-13.000.
- Levin, Harry: See—
Hsu, George C.; Levin, Harry; Hogle, Richard A.; Praturi, Ananda; and Lutwack, Ralph, 4,314,525, Cl. 118-716.000.
- Levine, Marc A. Anti-theft control and method. 4,315,160, Cl. 307-10.0AT.
- Levine, Michael R. Electronic thermostat. 4,314,665, Cl. 236-46.00R.
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- Lord Corporation: See—
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- Jacquet, Bernard; Lang, Gerard; and Forestier, Serge, 4,314,808, Cl. 8-405.000.
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- Loving, James A., to Baxter Travenol Laboratories, Inc. Vascular stabilizer. 4,314,568, Cl. 128-327.000.
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- Luigi, Accossato. Equipment for lateral excavation. 4,314,789, Cl. 414-694.000.
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- MacLean, Torrey F. Crushing and pulverizing apparatus. 4,314,676, Cl. 241-169.000.
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- Madewell, Tommy J.; and Jezek, Ben F., Jr., to Victor Equipment Co. Beveling tip. 4,314,672, Cl. 239-424.000.
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- Markem Corporation: See—
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- Marra, Dorothea C.: See—
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- Marsden, Barbara B.: See—
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- Martin, Robert R.: See—
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- Martin, Walter J.: See—
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- Maruhashi, Shigeaki; Hasegawa, Morihiro; and Yamauchi, Takashi, to Nisshin Steel Company, Ltd. Process for dephosphorization and denitrification of chromium-containing iron. 4,314,847, Cl. 75-51.000.
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- Maruyama, Takashi: See—
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- Marz, Helmut. Fold-flat. 4,314,686, Cl. 248-346.000.
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- Masaki, Yasuzi. Flock transfer sheet and flock transfer printing process. 4,314,813, Cl. 8-468.000.
- Mase, Akira: See—
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- Masuda, Shunichi: See—
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- Matsufuji, Akira: See—
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- Matsumoto, Seiji: See—
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- Matsushita Electric Industrial Co., Ltd.: See—
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- Kondo, Kaneichi; and Shingu, Yuji, 4,315,180, Cl. 310-319.000.
- Sekido, Satoshi; and Ariga, Kozo, 4,314,996, Cl. 422-98.000.
- Sonoda, Nobuo; Shimotsuna, Wataru; Kishimoto, Yoshio; and Sekine, Yoichi, 4,315,267, Cl. 346-1.100.
- Todoroki, Tsunehiko; and Hirohata, Hyogo, 4,314,848, Cl. 75-173.00C.
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- Matsushita, Yoshiaki: See—
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- Matsuura, Hideo: See—
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- Matsuzaki, Kiyoto; Seki, Shojiro; and Aya, Norimoto, to Nissan Motor Company, Limited. Heating filament arrangement for uniformly electrically heating a vehicular wrap-around type rear window-screen. 4,315,134, Cl. 219-203.000.
- Maurer, Fritz; Hammann, Ingeborg; and Homeyer, Bernhard, to Bayer Aktiengesellschaft. Combating pests with O-ethyl-S-n-propyl-O-(1-substituted-pyrazol-4-yl)-(thiono)-thiophosphoric acid esters. 4,315,008, Cl. 424-200.000.
- Maurer, Robert, to BASF Aktiengesellschaft. Solid pharmaceutical or diagnostic agent containing dextran and its preparation. 4,315,002, Cl. 424-181.000.
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- Mayfield, Alfred B. Linked torsional misalignment coupling. 4,314,460, Cl. 64-19.000.
- McColl, James R.: See—
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- McCombie, Stuart W., to Schering Corporation. Deprotection of allylic esters, carbonates and carbamates catalyzed by palladium compounds. 4,314,942, Cl. 260-245.20R.
- McCormick, Jon, to Fansteel Inc. Stainless steel castings. 4,314,863, Cl. 148-37.000.
- McDonnell Douglas Corporation: See—
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- Solomon, Allen L., 4,315,097, Cl. 136-255.000.
- McElroy, John M.; and Darrow, John O. G., to American Standard Inc. Regulated power supply having its d.c. voltage source selectively supplemented by a d.c. to d.c. converter. 4,315,208, Cl. 323-303.000.
- McGee, Charles W. Universal self help aid apparatus for invalids. 4,314,576, Cl. 135-67.000.
- McGuire, Joseph C.; and Brehm, William F., to United States of America, Energy. Hydrogen permeation resistant barrier. 4,314,880, Cl. 376-146.000.
- McHugh, William T.: See—
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- McKee, Joseph E.; and Lee, James Y., to Burroughs Corporation. System for operating a display panel having memory. 4,315,259, Cl. 340-799.000.
- McKnight, Eugene A. Laundry process and method for treating textiles. 4,314,805, Cl. 8-137.000.
- McKnight, William H.; Stotts, Larry B.; and Monahan, Michael A., to United States of America, Navy. Transmissive and reflective liquid crystal display. 4,315,258, Cl. 340-784.000.
- McMullen, Charles H.; Nelson, James R.; Ream, Bernard C.; and Sims, Joseph A., Jr., to Union Carbide Corporation. Alkylene carbonate process. 4,314,945, Cl. 260-340.200.
- McNab Incorporated: See—
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- McNeill, Janet L.: See—
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- McPhee, William A.; and Golan, Timothy G., to Dresser Industries, Inc. Method and apparatus for disarming and arming explosive oil well perforators. 4,314,614, Cl. 175-4.560.
- McStravick, Terence C.; and Sipkes, Peter, to N.V. Optische Industrie "De Oude Delft". Vacuum-tight, electrical connection for the photocathode in an image intensifier tube. 4,315,185, Cl. 313-102.000.
- Mead Corporation, The: See—
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- Oliff, James R., 4,314,633, Cl. 206-148.000.
- Spamer, William S., 4,314,648, Cl. 211-49.00D.
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- Mede, John J., to Titanium Metals Corporation of America. Ring damped composite transit wheel. 4,314,725, Cl. 295-11.000.
- Medtronic, Inc.: See—
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- Meerman, Wilhelmus C. P. M.: See—
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- Merrill Torade et Compagnie: See—
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- Merritt, Elisha B., to Diagnostic Information, Inc. Support structure for high voltage substrate. 4,315,183, Cl. 313-94.000.
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- Metz, Paul, to Arbed S.A. Method of and device for shipping hot metal goods. 4,314,790, Cl. 414-786.000.
- Metzeler Schaum GmbH: See—
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- Metzger, Allan L.: See—
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- Michel, Thomas J.; and Clarke, Robert, to Santeek, Inc. Bridge-balancing system for measuring extremely low currents. 4,315,210, Cl. 324-57.00R.
- Middleman, Lee M.; and Gotcher, Alan J., to Raychem Corporation. PTC Devices comprising oxygen barrier layers. 4,315,237, Cl. 238-22.00R.
- Mihara, Teruyoshi: See—
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- Milani, Luigi. Dispenser of hot beverages prepared from water soluble extracts. 4,314,767, Cl. 366-148.000.
- Milford, Richard E., to Magnetic Peripherals, Inc. Document character recognition system for identifying magnetic ink characters on bank checks and the like. 4,315,246, Cl. 340-146.30D.
- Millen, Edward G., to Thiokol Corporation. Polysulfide rubbers suitable for hot application. 4,314,920, Cl. 260-24.000.
- Miller, Arthur, to RCA Corporation. Array positioning system. 4,314,546, Cl. 126-425.000.
- Miller, Herman P., III. Narrow band transmission system and method. 4,315,105, Cl. 179-15.55R.
- Mills, Edwin R.; and Elmore, Ernest L., to Fieldcrest Mills, Inc. Electrical heating apparatus with overheating protection. 4,315,141, Cl. 219-505.000.
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- Seabold, Thomas W.; Patterson, Richard A.; and de Neui, Richard P., 4,315,047, Cl. 428-64.000.
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- Mita Industrial Company Limited: See—
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- Mitel Corporation: See—
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- Mitsubishi Denki Kabushiki Kaisha: See—
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- Sendo, Masaaki; and Suzuki, Kinzo, 4,315,176, Cl. 310-83.000.
- Tokugawa, Fumitake; and Hatabe, Etsuo, 4,315,135, Cl. 219-216.000.
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- Mitsuya, Kinpei: See—
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- Miwa, Yoshiyuki, to Tokyo Shibaura Denki Kabushiki Kaisha. Electric rice cooker. 4,315,138, Cl. 219-441.000.
- Miwa, Yoshiyuki: See—
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- Miyata, Tetsuo; Akiyama, Taichiro; and Furuse, Masayasu, to Koken Co., Ltd. Artificial bone. 4,314,380, Cl. 3-1.900.
- Mizuguchi, Kazuo: See—
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- Moffatt, William G.: See—
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- Monahan, Michael A.: See—
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- Monte, Charles S.; and Johnson, Wayne S., to Beckman Instruments, Inc. Electrophoretic gel container. 4,314,897, Cl. 204-299.00R.
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- Moore, Robert A., to Westinghouse Electric Corp. Multiple co-surface acoustic wave filters. 4,315,228, Cl. 333-193.000.
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- Morris, Robert L.; Metzger, Allan L.; and Weiss, Arnold S., to Rheumatology Diagnostics Laboratory. Method for diagnosing rheumatological diseases. 4,314,987, Cl. 424-1.000.
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- Mosher, Richard K., to Controlonics Corporation. Radar signal detector. 4,315,261, Cl. 343-18.00E.
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- Motov, David L.; Tjurkina, Ljudmila P.; Gerasimova, Lidia G.; Metelkin, Alexandr I.; Shifrin, Isaak G.; Kolesnikova, Nina I.; Yakusheva, Galina G.; Godneva, Maria M.; Babkin, Artur G.; Mikaelian, Irity I.; Belokoskov, Valentin I.; and Plotnikov, Vladimir P. Method for preparing titanium tanning agent. 4,314,975, Cl. 423-81.000.
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- Muller, Walter; Gauer, Richard; Walkenhorst, Wilfried; and Wild, Gerhard, to Hoechst Aktiengesellschaft. Apparatus for a treatment of flowing media which causes heat exchange and mixing. 4,314,606, Cl. 165-163.000.
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- Multi-Flex Corporation: See—
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- Muto, Katsuya: See—
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- Nagasawa, Kazutoshi: See—
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- Nam Kwong Electric Co. Ltd.: See—
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- Kanamaru, Koichi; and Takeuchi, Misao, 4,315,116, Cl. 200-61.090.
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- Noyori, Ryoji; Suzuki, Masaaki; and Kurozumi, Seizi, to Teitin Limited. Process for preparation of adjacently disubstituted ketones. 4,315,032, Cl. 424-317.000.
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- Ohinata, Ichiro, to Hitachi, Ltd. Semiconductor switch. 4,315,168, Cl. 307-252.00G.
- Ohki, Tsuguaki: See—
Sudo, Masatoshi; Higashi, Masanori; Ohki, Tsuguaki; and Kanbe, Shoji, 4,314,862, Cl. 148-12.00F.
- Ohta, Hiroshi: See—
Horigome, Eiji; Azegami, Hitoshi; and Ohta, Hiroshi, 4,315,057, Cl. 428-694.000.
- Ohzawa, Toshio: See—
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- Okada, Ryoichi: See—
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- Okamatsu, Shigetoshi: See—
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- Oki Electric Industry Co., Ltd.: See—
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- Oku, Yukio: See—
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- Okumura, Masamitsu: See—
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- Oldham, Keith: See—
Jones, Derrick F.; and Oldham, Keith, 4,315,009, Cl. 424-248.400.
- Oliff, James R., to Mead Corporation. The Stacking device for tiers of articles. 4,314,633, Cl. 206-148.000.
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- Omark Industries, Inc.: See—
Wilkinson, Harold C.; D'Attoma, Angelo M.; and Walker, Stephen W., 4,315,129, Cl. 219-99,000.
- Omura, Yoshiaki: See—
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- Onishi, Haruo: See—
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- Onoue, Keiji; Katoh, Takashi; Yoshida, Yoshiaki; and Seiki, Kazuo, to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho. Dust removing mechanism in open-end spinning frame, 4,314,440, Cl. 57-301,000.
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Ibamoto, Masahiko; Narita, Hiroshi; Oouchi, Noboru; and Okamatsu, Shigetoshi, 4,315,203, Cl. 318-807,000.
- Orban, John M., to Vivitar Corporation. Tactile indication and control system, 4,314,750, Cl. 354-198,000.
- Orehard, Richard D.; Barbee, Kurt L.; Whiting, Bradford S.; Heussy, William C., deceased; and by Pavenstedt, Loyal L., executrix, to United States of America, Agriculture. Pesticide spray monitoring system for spray vehicles, 4,315,317, Cl. 364-510,000.
- Oritake, Yoshie: See—
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- Osaki, Takaaki: See—
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- Oschatz, Christian, to Sandoz Ltd. Fixation of reactive dyes on cellulosic fibers, 4,314,819, Cl. 8-630,000.
- Ospow, Lloyd I.: See—
Spitzer, J. George; Marra, Dorothea C.; Ospow, Lloyd I.; and Claffey, Kevin, 4,314,573, Cl. 132-7,000.
- Ottaviano, Gary W., to Ranpak Corp. Method of making cushioning dunnage, 4,314,865, Cl. 156-145,000.
- Ouchi, Yoshiiehi, to Kabushiki Kaisha Kubota Seisakusho. Swinging type rotors of centrifugal machines, 4,314,663, Cl. 233-26,000.
- Ouellette, Maurice J.: See—
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- Outlaw, Benjamin T.: See—
Redmore, Derek; and Outlaw, Benjamin T., 4,315,087, Cl. 525-421,000.
- Outokumpo Oy: See—
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- Owada, Mitsutoshi: See—
Niwa, Yukiehi; Owada, Mitsutoshi; Asano, Noriyuki; Ogawa, Masahiko; and Tamura, Shuichi, 4,315,159, Cl. 250-578,000.
- Owen, Edward E.; and Loveless, James F. Pole trailer, 4,314,712, Cl. 280-404,000.
- Owens-Illinois, Inc.: See—
Amberg, Stephen W.; and Amberg, Ralph G., 4,314,799, Cl. 425-296,000.
- Ozaki, Junichi: See—
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- Ozaki, Sadao: See—
Takahashi, Noboru; Ozaki, Sadao; Isono, Hiromasa; Nishihara, Toshikazu; Ikushima, Takeshi; and Naruse, Tanehide, 4,315,052, Cl. 428-328,000.
- Ozari, Yehuda; and Barabas, Eugene S., to GAF Corporation. Core-shell composite polymers having high amounts of carboxylic acid units in the shell, 4,315,085, Cl. 525-301,000.
- Ozawa Concrete Industry Co., Ltd.: See—
Ozawa, Seiichi, 4,314,957, Cl. 264-102,000.
- Ozawa, Keiji: See—
Kinjo, Hisao; and Ozawa, Keiji, 4,315,283, Cl. 358-128,600.
- Ozawa, Seiichi, to Ozawa Concrete Industry Co., Ltd. Method for manufacture of polymer-impregnated hollow concrete product, 4,314,957, Cl. 264-102,000.
- Ozawa, Toshiaki: See—
Yamada, Yasuaki; Ozawa, Toshiaki; and Kondo, Hiroatsu, 4,315,200, Cl. 318-603,000.
- Pack Image, Inc.: See—
Stone, Orison W., 4,314,634, Cl. 206-167,000.
- Package Machinery Company: See—
LaFleur, Paul J., Jr.; and Crescenzo, Francis C., 4,314,785, Cl. 414-46,000.
- Pagnotta, Gaspar: See—
Hamilton, William C.; Moffatt, William G.; and Pagnotta, Gaspar, 4,315,175, Cl. 310-71,000.
- Pai, Panemangalore S.: See—
Petersen, Harro; Pai, Panemangalore S.; and Reichert, Manfred, 4,314,806, Cl. 8-187,000.
- Pako Corporation: See—
Anderson, Richard D.; Fauchier, Jess F., II; and Laciak, Francis M., 4,314,757, Cl. 355-29,000.
- Kaufmann, Kenneth M., 4,314,753, Cl. 354-321,000.
- Pallos, Ferenc M.: See—
Chin, Hsiao-Ling M.; and Pallos, Ferenc M., 4,315,030, Cl. 424-304,000.
- Palmer, Harry E.; Stenning, David G. C.; and Crockett, Ray K., to Dome Petroleum Limited. Offshore drilling and production structure, 4,314,776, Cl. 405-205,000.
- Palmer, Oliver E.: See—
Sodder, George, Jr.; and Palmer, Oliver E., 4,314,615, Cl. 175-94,000.
- Palmer, William B.; and Giebler, Martin M., to TRW Inc. Rigid collapsible dish structure, 4,315,265, Cl. 343-840,000.
- Papanu, Victor D.: See—
Crutchfield, Marvin M.; Papanu, Victor D.; and Warren, Craig B., 4,315,092, Cl. 528-230,000.
- Paquette, Gerald J. Process of preparing combustible solid fuel, 4,314,825, Cl. 44-10,00A.
- Park, Du P. Hair cutting device, 4,314,405, Cl. 30-133,000.
- Parkerson, Charles R.: See—
Wieder, Herman H.; and Parkerson, Charles R., 4,314,873, Cl. 156-610,000.
- Parks, William L., III; and Harwood, Clifford, to Kardios Systems Corporation. The Method and apparatus for enhancing the capabilities of a computing system, 4,315,321, Cl. 364-900,000.
- Parmerlee, James K.; and Tague, B. Dale, to United States of America, Navy. Cooling arrangement for plug-in module assembly, 4,315,300, Cl. 361-382,000.
- Parnell, Lyle J.; and Fabio, James L., to MacLean-Fogg Company. Quick release load securement device, 4,314,783, Cl. 410-34,000.
- Partyka, Richard A.; and Hudyma, Thomas W., to Westwood Pharmaceuticals, Inc. 1-Phenethylimidazole derivatives, 4,315,023, Cl. 424-273,000.
- Pasdera, Leonard A., to Ampex Corporation. Apparatus for providing error compensation in a digital video recording and reproducing system, 4,315,278, Cl. 358-16,000.
- Pasdera, Leonard A.: See—
Lemoine, Maurice G.; and Pasdera, Leonard A., 4,315,331, Cl. 371-31,000.
- Patel, Natu R.: See—
Hoffmann, Otto L.; and Patel, Natu R., 4,314,843, Cl. 71-92,000.
- Patterson, Richard A.: See—
Seabold, Thomas W.; Patterson, Richard A.; and de Neui, Richard P., 4,315,047, Cl. 428-64,000.
- Paul, Dennis J.; and Speedy, Lloyd J. Roll holder and dispenser, 4,314,679, Cl. 242-55,300.
- Pavenstedt, Loyal L., executrix: See—
Orchard, Richard D.; Barbee, Kurt L.; Whiting, Bradford S.; Heussy, William C., deceased; and Pavenstedt, Loyal L., executrix, 4,315,317, Cl. 364-510,000.
- Payne, Frank, to Robertshaw Controls Company. Method and apparatus for translating frequency of mechanical movement into a pneumatic signal, 4,314,532, Cl. 123-198,00A.
- PCUK Produits Chimiques Ugine Kuhlmann: See—
Deabriges, Jean, 4,314,979, Cl. 423-329,000.
- Defretin, Francis; Eudeline, Jean-Paul; Schoch, Elisabeth; and Voisin, Alain, 4,314,907, Cl. 252-22,000.
- Peabody Coal Company, Inc.: See—
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- Pearl, Antony S., deceased: See—
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- Peelen, Jan G. J.: See—
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- Pelc, Rafael, to International Business Machines Corporation. Self-switching bidirectional digital line driver, 4,315,167, Cl. 307-241,000.
- Pelloux-Gervais, Pierre, to L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procédés Georges Claude. Cryogenic storage devices, 4,314,450, Cl. 62-45,000.
- Pelton, Robert S. Method of producing foamed construction materials, 4,314,835, Cl. 65-22,000.
- Penn, Silas. Reversible electric motor, 4,315,170, Cl. 310-39,000.
- Perakis, Mike; and DeBenedictis, Henry J., to Perakis, Mike. Measuring dispenser, 4,314,657, Cl. 222-162,000.
- Perez-Albuerno, Evelio A.: See—
Tyan, Yuan-Sheng; and Perez-Albuerno, Evelio A., 4,315,096, Cl. 136-244,000.
- Perie, Chantal: See—
Pigeon, Marcel; Szretter, Marta; and Perie, Chantal, 4,315,065, Cl. 430-175,000.
- Peritz, Lyonnell: See—
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- Perkins, Joseph R., III; and Woodland, Sylvester L., to Sortex North America, Inc. Mechanical rejection system for automatic sorting machines, 4,314,645, Cl. 209-638,000.
- Permacel: See—
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- Perra, Andrew G., Jr.; and Sparhawk, George H., Jr., to Markem Corporation. Stencil printing, 4,314,503, Cl. 101-41,000.

- Peters, Hans-Werner: See—
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- Peters, Thomas E.; and McColl, James R., to GTE Laboratories Incorporated. Zinc silicate phosphor with extended fluorescence decay and cathode ray tube containing the same, 4,315,190, Cl. 313-467,000.
- Petersen, Gene R.: See—
United States of America, National Aeronautics and Space Administration; Lawson, Daniel D.; and Petersen, Gene R., 4,314,984, Cl. 423-579,000.
- Petersen, Harro; Pai, Panemangalore S.; and Reichert, Manfred, to BASF Aktiengesellschaft. Textile finish and processes for its preparation and use, 4,314,806, Cl. 8-187,000.
- Peterson, Harold A. Backwater valve, 4,314,583, Cl. 137-533,110.
- Petralia, Salvatore C., to Keene Corporation. Quartz light fixture, 4,315,302, Cl. 362-226,000.
- Petrolite Corporation: See—
Redmore, Derek; and Outlaw, Benjamin T., 4,315,087, Cl. 525-421,000.
- Pettersson, John P. Apparatus for arrangement of combined stationary and slip form casting of concrete, 4,314,798, Cl. 425-63,000.
- Pettersson, Torsten L. E., to Een-Holmgren Ortopediska AB. Method of making a lower leg prosthesis, 4,314,398, Cl. 29-407,000.
- Pfeifer, Friedrich; and Behnke, Wernfried, to Vakuumschmelze GmbH. Reducing magnetic hysteresis losses in cores of thin tapes of soft magnetic amorphous metal alloys, 4,314,594, Cl. 148-108,000.
- Pfister, Theodor; Schenk, Wolfgang; and Blank, Heinz U., to Bayer Aktiengesellschaft. Process for the preparation of sulphonic acid chlorides, 4,314,950, Cl. 260-543,00R.
- Pfleiderer, Ernst: See—
Monsheimer, Rolf; Pfeiderer, Ernst; Siol, Werner; Boessler, Hanns; and Traubtsch, Hans, 4,314,800, Cl. 8-94,10R.
- Monsheimer, Rolf; and Pfeiderer, Ernst, 4,314,801, Cl. 8-94,140.
- PFZ Enterprises Inc.: See—
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- Phillips Petroleum Company: See—
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- MacLeod, Kenneth S.; and Fink, Gary, 4,314,958, Cl. 264-167,000.
- Nowack, Gerhard P.; and Johnson, Marvin M., 4,314,901, Cl. 208-216,00R.
- Picard, Richard H.: See—
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- Piccirilli, Robert: See—
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- Picker Corporation: See—
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- Sell, Leslie J., 4,315,156, Cl. 250-445,00T.
- Piduch, Hans-Gunter: See—
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- Kwasnik, Hans-Jurgen; and Piduch, Hans-Gunter, 4,314,889, Cl. 202-241,000.
- Pierce Chemical Company: See—
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- Pierrat, Michel A. Log splitter with improved clamp, 4,314,591, Cl. 144-193,00A.
- Pierre Fabre S.A.: See—
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- Pierson, Marvin B.; and Dunbar, Frank C., to Armeo Inc. Low tin terne coated steel article, 4,315,056, Cl. 428-645,000.
- Pigeon, Marcel; Szretter, Marta; and Perie, Chantal, to Rhone-Poulenc Systemes. Oleophilic, film-forming photopolymerizable diazo and epoxy resin compositions and lithographic plates prepared therefrom, 4,315,065, Cl. 430-175,000.
- Pioneer Electronic Corporation: See—
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- Ploog, Uwe: See—
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- Plotnikov, Vladimir P.: See—
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- Plumpton, Norman A.; and Tomlin, Malcolm G., to Coal Industry (Patents) Limited. Mineral mining machine with high pressure fluid nozzle and intensifier, 4,314,730, Cl. 299-75,000.
- Polaroid Corporation: See—
Fitzgerald, Maurice J., 4,315,071, Cl. 430-627,000.
- Moodie, Donald E., 4,314,744, Cl. 352-130,000.
- Polymicro: See—
Fox, Sidney W.; and Holden, Arthur I., 4,315,072, Cl. 430-628,000.
- Polytechna, podnik zahraničniho obchodu pro zprostredkovani technické spoluprace: See—
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- Popov, Vladimir V.: See—
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- Poris, Jaime: See—
Raistrick, Ian D.; Poris, Jaime; and Huggins, Robert A., 4,315,059, Cl. 429-112,000.
- Posso, Patrick. Case for packing a tape cassette or the like, 4,314,637, Cl. 206-387,000.
- Post Office, The: See—
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- Poth, Ulrich; Moller, Dieter; and Döbelstein, Arnold, to BASF Farben & Fasern AG. Base coats covered by a clear lacquer coating and process for coating, 4,315,053, Cl. 428-423,700.
- Potts, James H. All-purpose weather guard, 4,314,727, Cl. 297-184,000.
- PPG Industries, Inc.: See—
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- Breninger, J. Shannon; and Greenberg, Charles B., 4,315,055, Cl. 428-434,000.
- Chang, Wen-Hsuan; Piccirilli, Robert; and Diehl, David A., 4,314,923, Cl. 260-29,40R.
- Lavanish, Jerome M., 4,314,842, Cl. 71-90,000.
- Seymour, Samuel L., 4,314,836, Cl. 65-114,000.
- Praet, Larry Raymond: See—
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- Praturi, Ananda: See—
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- Prewo, Karl M.: See—
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- Price, Angelo: See—
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- Procter & Gamble Company, The: See—
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- Denny, William D., Jr.; and Wetzel, Thomas A., 4,314,990, Cl. 424-52,000.
- Proter S.p.A.: See—
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- Pruden, Samuel H., to Cushman Industries, Incorporated. Chucks of constant jaw force, 4,314,706, Cl. 279-1,00C.
- Purdue Research Foundation: See—
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- PureCycle Corporation: See—
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- Purnell, Robert C. Devices for supporting hanging plants, 4,314,646, Cl. 211-113,000.
- Putnam, Abbott A.; and Locklin, David W., to Battelle Memorial Institute. Heating apparatus, 4,314,444, Cl. 60-39,770.
- Quarz-Zeit AG: See—
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- Queiser, Horst; Meichsner, Othmar; and Erbe, Dietmar, to Kraftwerk Union Aktiengesellschaft. Method and apparatus for drying radioactive waste water concentrates from evaporators, 4,314,877, Cl. 159-47,0WL.
- Quinn, Donald R.: See—
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- Qume Corporation: See—
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- R. Levati S.p.A.: See—
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- Rabassa, Ernest A., to S & M Block System of U.S. Corporation. Mortar-less interlocking building block system, 4,314,431, Cl. 52-259,000.
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- Racor Industries, Inc.: See—
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- Radiochemical Centre Limited, The: See—
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- Raduechel, Bernd: See—
Skuballa, Werner; Raduechel, Bernd; Vorbrueggen, Helmut; Manesmann, Gerda; Losert, Wolfgang; and Casals, Jorge, 4,315,013, Cl. 424-263,000.
- Raistrick, Ian D.; Poris, Jaime; and Huggins, Robert A., to United States of America, Energy. Molten salt lithium cells, 4,315,059, Cl. 429-112,000.
- Rancurel, Alain: See—
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- Randall, Russel R., to Dresser Industries, Inc. Method and apparatus for measuring neutron characteristics of material surrounding a borehole, 4,315,148, Cl. 250-262,000.
- Rank Organisation Limited, The: See—
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- Rankin, John C. Gaseous tube control circuit, 4,315,218, Cl. 328-8,000.
- Ranpak Corp.: See—
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- Ranz, Erwin; Lohmann, Joachim W.; and Schutz, Heinz-Dieter, to Agfa-Gevaert Aktiengesellschaft. Color-photographic recording material containing a highly reactive dir-coupler, 4,315,070, Cl. 430-505,000.
- Rasmussen, Poul R.: See—
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- Rast, Howard E., to United States of America, Navy. Optical gain control device. 4,314,743, Cl. 350-354.000.
- Rauchhorst, James E.; and Skingle, Thomas J., to Acme-Cleveland Corporation. Die-cast masonry drill with leading hard insert. 4,314,616, Cl. 175-394.000.
- Ravaglia, Andrea: See—
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- Raychem Corporation: See—
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- Raytheon Company: See—
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- RCA Corporation: See—
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- Real Gas & Electric Company, Inc.: See—
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- Ream, Bernard C.: See—
McMullen, Charles H.; Nelson, James R.; Ream, Bernard C.; and Sims, Joseph A., Jr., 4,314,945, Cl. 260-340.200.
- Reddy, Junuthula N., to Bendix Corporation. The Electronic fuel control system including electronic means for providing a continuous variable correction factor. 4,314,538, Cl. 123-485.000.
- Redel, Karl-Georg; and Deppisch, Gerd, to Leybold Heraeus GmbH. High-voltage supply for power electron-beam guns. 4,315,195, Cl. 315-107.000.
- Redic, Robert C.: See—
Fraser, Robert; Rouse, John; Redic, Robert C.; and Frock, Suzanne, 4,314,635, Cl. 206-232.000.
- Redifon Simulation Ltd.: See—
Spooners, Archer M., 4,315,240, Cl. 340-27.00R.
Spooners, Archer M., 4,315,241, Cl. 340-27.00R.
- Redmore, Derek; and Outlaw, Benjamin T., to Petrolite Corporation. Quaternary polyaminoamides. 4,315,087, Cl. 525-421.000.
- Rees, Werner, to M.A.N.-Roland Druckmaschinen Aktiengesellschaft. Printing machine doctor blade adjustment apparatus. 4,314,506, Cl. 101-365.000.
- Reichert, Manfred: See—
Petersen, Harro; Pai, Panemangalore S.; and Reichert, Manfred, 4,314,806, Cl. 8-187.000.
- Reid, Melville R. Pelt fat removal apparatus. 4,314,465, Cl. 69-40.000.
- Reimann, Horst: See—
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- Reinhardt, Friedrich: See—
Feess, Erich; and Reinhardt, Friedrich, 4,314,811, Cl. 8-457.000.
- Reisman, Elias; Goodsell, David S.; and Masino, Fred S., to Ford Aerospace & Communications Corp. Non-contacting thermal energy transfer assembly. 4,314,449, Cl. 62-3.000.
- Reitz, Otfried: See—
Artweger, Wolfgang; and Reitz, Otfried, 4,314,726, Cl. 296-164.000.
- Reliable Security Systems, Inc.: See—
Logan, Emanuel L., Jr., 4,314,722, Cl. 292-263.000.
- Remond, Georges: See—
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- Rentz, Bernhard: See—
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- Research Foundation of State University of New York, The: See—
Rudin, Stephen, 4,315,146, Cl. 250-515.000.
- Reudink, Douglas O.: See—
Acampora, Anthony; and Reudink, Douglas O., 4,315,262, Cl. 343-100.05T.
- Rexroad, James O., to Westinghouse Electric Corp. Drawout circuit interrupter. 4,315,115, Cl. 200-50.0AA.
- Reymond, Jean C.; Hidaigo, Jean L.; and Skenderoff, Claude, to Thomson-CSF. Arrangement for locating radiating sources. 4,314,761, Cl. 356-141.000.
- Reymont, Bertrand, to Alfred Werli Inc. Apparatus for guiding and supporting a continuously cast slab. 4,314,600, Cl. 164-448.000.
- Reynolds, John M.; Gibson, Colin E.; Seamans, John S.; and van der Steen, Anton R. F., to Land and Marine Engineering Limited. Trench digging apparatus and bearing therefor. 4,314,414, Cl. 37-54.000.
- Reynolds Metals Company: See—
Goolsby, Patrick F.; and Swenck, George F., 4,314,397, Cl. 29-157.30R.
- Rheumatology Diagnostics Laboratory: See—
Morris, Robert I.; Metzger, Allan L.; and Weiss, Arnold S., 4,314,987, Cl. 424-1.000.
- Rhone-Poulenc Industries: See—
Derrien, Jean-Yves; and Seigneurin, Laurent, 4,314,913, Cl. 252-464.000.
- Rhone-Poulenc Systemes: See—
Pigeon, Marcel; Szreiter, Marta; and Perie, Chantal, 4,315,065, Cl. 430-175.000.
- Rice, Ivan G. Steam-cooled blading with steam thermal barrier for reheat gas turbine combined with steam turbine. 4,314,442, Cl. 60-39.050.
- Rice, Thomas K., to Minnesota Mining and Manufacturing Company. Sandwich immunoassay using piezoelectric oscillator. 4,314,821, Cl. 23-230.00B.
- Rich, William E., Jr.; Smith, Frank C.; and McNeill, Janet L., to Dionex Corporation. Combination apparatus and method for chromatographic separation and quantitative analysis of multiple ionic species. 4,314,823, Cl. 23-230.00R.
- Richardson, Charles N., to Tri-State Oil Tool Industries, Inc. Method and apparatus for well treating. 4,314,608, Cl. 166-250.000.
- Richter, Edward B.: See—
Bettle, Griscom, III; Mills, Howard; and Richter, Edward B., 4,314,949, Cl. 260-502.00R.
- Richter Gedeon Vegyeszeti Gyar Rt.: See—
Szantay, Csaba; Szabo, Lajos; Kalas, Gyorgy; Dancsi, Lajos; Keve, Tibor; and Drexler, Ferenc, 4,314,939, Cl. 260-239.30P.
Szantay, Csaba; Szabo, Lajos; Kalas, Gyorgy; Dancsi, Lajos; Keve, Tibor; Karpati, Egon; and Szpomy, Laszlo, 4,315,011, Cl. 424-262.000.
- Ricoh Co., Ltd.: See—
Kunikane, Makoto; Umehara, Masaakira; Uji-Ie, Koji; and Taniguchi, Kiyoshi, 4,315,068, Cl. 430-341.000.
- Riewerts, Paul R.; and Wolak, David J., to Deere & Company. Foldable implement and pivotal brace therefor. 4,314,610, Cl. 172-776.000.
- Rikagaku Kenkyusho: See—
Nakane, Ryohei; Isomura, Shohei; and Shimizu, Masami, 4,314,972, Cl. 422-191.000.
- Riken Vitamine Oil Co., Ltd.: See—
Fukuda, Tetsuro; Matsuura, Hideo; Koizumi, Yoshihito; and Yamaguchi, Takeshi, 4,315,041, Cl. 426-653.000.
- Ringdal, Lars, to Bakelitfabrikken A/S. Method of producing molded bodies of expanded plastic. 4,314,954, Cl. 264-45.500.
- Ritter, Gerhard: See—
Schmidt, Gerhard; Ritter, Klaus; and Ritter, Gerhard, 4,315,125, Cl. 219-56.000.
- Ritter, Klaus: See—
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- Rittler, Hermann L.: See—
Beall, George H.; and Rittler, Hermann L., 4,314,909, Cl. 252-629.000.
- Rivoire, Jacques. Stable and precise cryogenic device. 4,314,459, Cl. 62-514.00R.
- Ro, David H.; Klar, Erhard; and Whitman, C. I., to SCM Corporation. Maximizing the corrosion resistance of tin containing stainless steel powder compacts. 4,314,849, Cl. 75-228.000.
- Robert Bosch GmbH: See—
Holzbaur, Siegfried; and Eckert, Konrad, 4,314,951, Cl. 261-44.00D.
Kramer, Manfred; Schmid, Werner; and Cramer, Hans-Dieter, 4,315,118, Cl. 200-80.00R.
Wolff, Manfred, 4,315,213, Cl. 324-162.000.
- Robert, Christian: See—
Duguet, Pierre; and Robert, Christian, 4,314,715, Cl. 280-801.000.
- Robertshaw Controls Company: See—
Beaman, Norman V., 4,314,478, Cl. 73-304.00C.
Payne, Frank, 4,314,532, Cl. 123-198.00A.
- Robinson, Dale D.: See—
Hade, Conrad; and Robinson, Dale D., 4,314,458, Cl. 62-256.000.
- Robinson, Paul B.; Ouellette, Maurice J.; and Schmidt, Larry A., to General Electric Company. Automatic meter reading and control system. 4,315,251, Cl. 340-310.00A.
- Rocheleau, David; and Ayukawa, Karl, to Canadian Patents & Development Limited. Amplitude controlled digital oscillator. 4,315,219, Cl. 328-14.000.
- Rockwell International Corporation: See—
Barnett, Burton; Kinsler, Martin R.; and Nelson, Lyle A., 4,314,682, Cl. 244-158.00R.
Tomasetta, Louis R.; and Law, H. David, 4,314,858, Cl. 148-1.500.
White, Stanley A., 4,315,319, Cl. 364-571.000.
- Rockwell-Rimoldi, S.p.A.: See—
Touret, Jean P., 4,314,516, Cl. 112-152.000.
- Rodgers, Robert E.: See—
Bayer, Raymond M.; and Rodgers, Robert E., 4,314,699, Cl. 273-73.00D.
- Roesch, Edgar B., to Roesch Trust, The. Integral window units. 4,314,598, Cl. 160-90.000.
- Roesch Trust, The: See—
Roesch, Edgar B., 4,314,598, Cl. 160-90.000.
- Roger, Bernard, to U.S. Philips Corporation. Power transistor and method of manufacturing same. 4,315,271, Cl. 357-20.000.
- Roger, Pierre: See—
Malen, Charles; Roger, Pierre; and Laubie, Michel, 4,315,019, Cl. 424-272.000.
Malen, Charles E.; Roger, Pierre; and Laubie, Michel, 4,315,020, Cl. 424-272.000.
- Rohde, Vernon C.: See—
Boeckel, John W.; Rohde, Vernon C.; and Wells, John R., 4,314,523, Cl. 118-50.000.
- Rohm GmbH: See—
Monsheimer, Rolf; Pfeleiderer, Ernst; Siol, Werner; Boessler, Hanns; and Trabitzsch, Hans, 4,314,800, Cl. 8-94.10R.
Monsheimer, Rolf; and Pfeleiderer, Ernst, 4,314,801, Cl. 8-94.140.

- Rohm and Haas Company: See—
Beier, William C.; and Hodder, James J., 4,314,802, Cl. 8-94.260.
Swithenbank, Colin; and Fujimoto, Ted T., 4,314,844, Cl. 71-92.000.
- Rohrer, Joachim; and Zumfeld, Heinz, to W. Schlafhorst & Co. Splicing device. 4,314,437, Cl. 57-22.000.
- Romero, Georges: See—
Gerardot, Claude; and Romero, Georges, 4,315,099, Cl. 174-47.000.
- Roper Corporation: See—
Rosenbaum, Per, 4,314,432, Cl. 52-484.000.
- Rose, David; Busch, Peter; Lieske, Edgar; and Konrad, Gunther, to Henkel Kommanditgesellschaft auf Aktien. Novel coupler components for oxidation hair dyes, the manufacture thereof, and hair colorants. 4,314,809, Cl. 8-406.000.
- Rosen, Gerald M. Methionine sulfoxide amification of acetaminophen toxicity. 4,314,989, Cl. 424-10.000.
- Rosenbaum, Per, to Roper Corporation. Splice for beam in suspended ceiling system. 4,314,432, Cl. 52-484.000.
- Rosignol, Jean F. Specific parasiticidal use of 2-benzamido-5-nitrothiazole derivatives. 4,315,018, Cl. 424-270.000.
- Rourke, Rosemary, to Norfield Corporation. Laminates structure of an expanded core panel and a flat sheet of material which does not easily bond and a process for making the same. 4,315,050, Cl. 428-116.000.
- Rourke, Rosemary. Process for expanding thermoformable materials having clear surfaces and the resultant products. 4,315,051, Cl. 428-119.000.
- Rouse, John: See—
Fraser, Robert; Rouse, John; Redic, Robert C.; and Frock, Suzanne, 4,314,635, Cl. 206-232.000.
- Roussel Uclaf: See—
Martel, Jacques; Tessier, Jean; and Demoute, Jean-Pierre, 4,315,012, Cl. 424-263.000.
- Roy, Joseph N. A.: See—
Couture, Joseph E. G.; and Roy, Joseph N. A., 4,315,043, Cl. 427-212.000.
- Royer, Garfield P., to Pierce Chemical Company. Molecular transformation procedure. 4,315,074, Cl. 435-70.000.
- Royet, Paul F. Wheel-mounted luggage. 4,314,624, Cl. 190-18.00A.
- Ruddock, Clinton F., to Radiochemical Centre Limited, The. Method and container for reducing pertechnetate. 4,314,986, Cl. 424-1.000.
- Rudelick, John, to Universal-Rundle Corporation. Mixing faucet valve with diverter and stop check system. 4,314,673, Cl. 239-443.000.
- Rudin, Stephen, to Research Foundation of State University of New York, The. Process and apparatus for scatter reduction in radiography. 4,315,146, Cl. 250-515.000.
- Ruiz, Rene A.; and Spector, George. Razor with pre-wetting or capillarizer system. 4,314,404, Cl. 30-41.000.
- Rusch, Reinhart: See—
Kruger, Hans-Rudolf; Arndt, Friedrich; Baumert, Dietrich; and Rusch, Reinhart, 4,314,839, Cl. 71-73.000.
- Russo, Paul M., to RCA Corporation. Priority vectored interrupt having means to supply branch address directly. 4,315,314, Cl. 364-200.000.
- Ruzicka, Jaromir: See—
Hansen, Elo H.; and Ruzicka, Jaromir, 4,314,824, Cl. 23-230.00R.
- Ryan, Douglas G., to Exxon Research & Engineering Co. Mechanically agitated liquid-vapor contacting apparatus. 4,314,886, Cl. 196-14.500.
- S.A.M. Silvatrim: See—
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- S & M Block System of U.S. Corporation: See—
Rabassa, Ernest A., 4,314,431, Cl. 52-259.000.
- S.R.M. Hydromeknik Aktiebolag: See—
Ahlen, Karl G., 4,314,487, Cl. 74-865.000.
- Sack, Werner; and Lindig, Otto, to Jenaer Glaswerk Schott & Gen. Crack-resistant, heat-absorbing fusion glasses enabling low processing temperatures for the hermetic encapsulation of electronic components. 4,315,054, Cl. 428-433.000.
- Saegusa, Nobuaki; Sakaki, Masakatsu; and Yanai, Genzo, to Sankyo Electric Company Limited; and Yanai Seiko Company Limited. Method for producing a magnetic rotatable member for an electromagnetic clutch. 4,314,472, Cl. 72-341.000.
- Sagae, Kyuta, to Terumo Corporation. Intravascular catheter assembly. 4,314,555, Cl. 128-214.400.
- Sagawa, Morikazu: See—
Yamashita, Sadahiko; Onishi, Hiroshi; Saito, Mitsuo; and Sagawa, Morikazu, 4,315,333, Cl. 455-189.000.
- Sahr, Eugene V.: See—
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- Saint Marcoux, Roland; and Fink, Leon, to L.C.C.-C.I.C.E. Compagnie Européenne de Composants Electroniques; and Thomson-CSF. Power capacitor with high heat dissipation. 4,315,299, Cl. 361-274.000.
- Saito, Kazutoshi: See—
Chinone, Naoki; Saito, Kazutoshi; Shige, Noriyuki; and Ito, Ryoichi, 4,315,226, Cl. 372-45.000.
- Saito, Mitsuo: See—
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- Saito, Teruo: See—
Kitagawa, Sadao; Okada, Isao; and Saito, Teruo, 4,315,088, Cl. 526-125.000.
- Saito, Toru; and Takeshima, Masaki, to Hitachi, Ltd. Method and system for regenerating dehumidifier for use in charcoal adsorber. 4,314,828, Cl. 55-26.000.
- Sakai, Shinji: See—
Kawabata, Takashi; Hosoe, Kazuyasu; Shinoda, Nobuhiko; Sakai, Shinji; and Kinoshita, Takao, 4,314,748, Cl. 354-25.000.
- Sakaki, Masakatsu: See—
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- Sakamaki, Hisashi: See—
Shimizu, Katsuichi; Sawamura, Osamu; Masuda, Shunichi; Tomosada, Masahiro; and Sakamaki, Hisashi, 4,314,754, Cl. 355-14.00C.
- Sakami, Ryoichiro; and Hirayama, Yoshihiko, to Kabushiki Kaisha Daini Seikosha. Electronic timepiece radio. 4,315,332, Cl. 455-181.000.
- Sakamoto, Masaaki, to Kabushiki Kaisha Komatsu Seisakusho. Steering apparatus for a hydraulically driven vehicle. 4,314,617, Cl. 180-6.480.
- Saku, Isamu. Sheathed heating element and sealing of sheathed electric heating element. 4,314,401, Cl. 29-611.000.
- Saleh, Adel A. M., to Bell Telephone Laboratories, Incorporated. Power combiner arrangement for microwave amplifiers. 4,315,222, Cl. 330-124.00D.
- Salzer, Erwin. Composite fusible element and electric fuse comprising the element. 4,315,234, Cl. 337-159.000.
- Sanchioni, Sergio: See—
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- Sandoz Ltd.: See—
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Gertisser, Berthold, 4,314,817, Cl. 8-539.000.
Oschatz, Christian, 4,314,819, Cl. 8-630.000.
- Sanekata, Nobuo, to Yuasa Battery Company Limited. Machine for automatically stacking plate groups for storage batteries. 4,314,403, Cl. 29-730.000.
- Sankyo Electric Company Limited: See—
Saegusa, Nobuaki; Sakaki, Masakatsu; and Yanai, Genzo, 4,314,472, Cl. 72-341.000.
- Terauchi, Kiyoshi, 4,314,796, Cl. 417-294.000.
- Santek, Inc.: See—
Michel, Thomas J.; and Clarke, Robert, 4,315,210, Cl. 324-57.00R.
- Santilli, Vincent J.; and Quinn, Donald R., to Westinghouse Electric Corp. Image tube. 4,315,184, Cl. 313-94.000.
- Santoni, Cesar, to Greif Bros. Corporation. Split ring locking assembly. 4,314,720, Cl. 292-256.690.
- Sanyo Electric Co., Ltd.: See—
Ikeda, Hironosuke; Narukawa, Satoshi; and Nakaido, Shigehiro, 4,315,061, Cl. 429-161.000.
- Sareen, Bal K., to Fuller Company. Journal and end closure for tubular vessels. 4,314,677, Cl. 241-176.000.
- Sarna, Abraham; and Sarna, David, to A. Sarna & Son Limited. Artist's portfolio. 4,314,625, Cl. 190-16.000.
- Sarna, David: See—
Sarna, Abraham; and Sarna, David, 4,314,625, Cl. 190-16.000.
- Sarre, Andre F. M.: See—
Causse, Jean-Marie; and Sarre, Andre F. M., 4,315,311, Cl. 364-200.000.
- Sarstedt, Walter. Capillary receptacle. 4,314,570, Cl. 128-763.000.
- Sasaki, Koji: See—
Kishi, Tuneso; Sasaki, Koji; and Moriya, Michio, 4,315,119, Cl. 200-145.000.
- Sato, Shichiro. Jack. 4,314,691, Cl. 254-126.000.
- Saucedo, Manuel M.: See—
Jimenez, Miguel A.; and Saucedo, Manuel M., 4,314,515, Cl. 111-77.000.
- Sauer, Alfred E.; and Tassoni, Bruno, to B. A. Ballou & Co., Incorporated. Double fold over jewelry clasp. 4,314,389, Cl. 24-376.000.
- Saurin, Emmanuel E. V.; and Gariglio, Ezio V. Process and apparatus for welding tubular bodies. 4,315,132, Cl. 219-121.00LD.
- Sawada, Michiyuki: See—
Hirano, Tomiyoshi; Shinoda, Hidehiro; and Sawada, Michiyuki, 4,315,186, Cl. 313-111.000.
- Sawamura, Osamu: See—
Shimizu, Katsuichi; Sawamura, Osamu; Masuda, Shunichi; Tomosada, Masahiro; and Sakamaki, Hisashi, 4,314,754, Cl. 355-14.00C.
- Schade, Maynard W. Fuel line pressure equalizer for internal combustion engine. 4,314,539, Cl. 123-514.000.
- Schaefer, Eberhard: See—
Hohenschutz, Heinz; Gnad, Josef; Dinkhauser, Guenter; and Schaefer, Eberhard, 4,314,947, Cl. 260-410.000.
- Schaefer, Peter R.; and Carkhuff, Donald W., to Union Carbide Corporation. Method of air cutting and gouging and a combined torch and nozzle assembly. 4,315,126, Cl. 219-70.000.
- Schaeffer, Ernest. Step motors. 4,315,171, Cl. 310-49.00R.
- Schako-Metallwarenfabrik Ferdinand Schad GmbH: See—
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- Scharf, Wayne L.: See—
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- Scheinberg, Israel H. Method of treatment of rheumatoid arthritis. 4,315,028, Cl. 424-290.000.
- Schenk, Wolfgang: See—
Pfister, Theodor; Schenk, Wolfgang; and Blank, Heinz U., 4,314,950, Cl. 260-543.00R.
- Scher, Herbert B., to Stauffer Chemical Company. Benzyl thiocarbamate sulfoxides stabilized with calcium carbonate carrier. 4,314,841, Cl. 71-88.000.

- Schering Aktiengesellschaft: See—
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Skuballa, Werner; Raduechel, Bernd; Vorbrueggen, Helmut; Mannesmann, Gerda; Losert, Wolfgang; and Casals, Jorge, 4,315,013, Cl. 424-263.000.
- Schering Corporation: See—
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- Schiefer, Erwin: See—
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- Schieser AG: See—
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- Schieser, Walter H., to Schieser AG. Apparatus for equipping profiles formed of elastic masses with velour bands, 4,314,872, Cl. 156-500.000.
- Schlessel, Joseph H.: See—
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- Schluderberg, Donald C.: See—
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- Schmalbein, Dieter: See—
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- Schmelzer, Christoph; Spohr, Reimar; Krumme, Jens-Peter; Witter, Klaus; and Heitmann, Heinrich, to U.S. Philips Corporation. Method of making a magnetic memory layer, 4,314,894, Cl. 204-192.00M.
- Schmid, Werner: See—
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- Schmidt, Alfred, to Alfred Schmidt GmbH. Foliage trimmer, 4,314,435, Cl. 56-13.300.
- Schmidt, Carson T., to NCR Corporation. Cache memory having a variable data block size, 4,315,112, Cl. 364-200.000.
- Schmidt, Gerhard; Ritter, Klaus; and Ritter, Gerhard, to EVG Entwicklungs- u. Verwertungs-Gesellschaft m.b.H. Lattice welding machine with disc electrode, 4,315,125, Cl. 219-56.000.
- Schmidt, Larry A.: See—
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- Schmitt, Frederick L.: See—
Wiegiers, Wilhelmus J.; Sprecker, Mark A.; Watkins, Hugh; Vock, Manfred H.; and Schmitt, Frederick L., 4,314,915, Cl. 252-522.00R.
- Schmoock, James C., to Raytheon Company. Temperature compensated voltage reference circuit, 4,315,209, Cl. 323-313.000.
- Schneider, Walter: See—
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- Schnitger, Herbert: See—
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- Schoch, Elisabeth: See—
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- Schoening, Josef: See—
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- Schonfelder, Manfred: See—
Steinberger, Helmut; Schonfelder, Manfred; Moretto, Hans-Heinrich; and Wegner, Christian, 4,315,091, Cl. 528-28.000.
- Schotten, Henno, to Bosch-Siemens Hausgerate GmbH. Adjustable electronic temperature control, especially for refrigerators or the like, 4,314,666, Cl. 236-78.00R.
- Schrock, Donald C., to Streamway Corporation. Rotary valve washerless cartridge, 4,314,581, Cl. 137-454.500.
- Schulze, Heinz; Zimmerman, Robert L.; and Waddill, Harold G., to Texaco Development Corporation. Process of making an isocyanurate foam, 4,315,079, Cl. 521-115.000.
- Schumacher, Peter M., to Electronic Devices Incorporated. Write and edit circuitry for electronic marking of displayed TV signal images, 4,315,282, Cl. 358-107.000.
- Schutz, Heinz-Dieter: See—
Ranz, Erwin; Lohmann, Joachim W.; and Schutz, Heinz-Dieter, 4,315,070, Cl. 430-505.000.
- Schwab, Jean-Francois, to Quarz-Zeit AG. Battery-driven clock with indicator of the end of life of the battery, 4,315,328, Cl. 368-66.000.
- Schwan, Erich. Device for mounting a shelf on a column, 4,314,685, Cl. 248-242.000.
- Schwartz, Boris. Hammer with selectively actuated auxiliary head, 4,314,593, Cl. 145-29.00R.
- Schwendener, Derek K.; Ainsworth, Neil L.; and Foss, Richard J., to Chloride Group Limited. Vent plugs for electric storage batteries, 4,315,058, Cl. 429-84.000.
- Science Union et Cie: See—
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- Malen, Charles E.; Roger, Pierre; and Laubie, Michel, 4,315,020, Cl. 424-272.000.
- Vincent, Michel; Remond, Georges; and Bure, Jacques, 4,315,031, Cl. 424-309.000.
- SCM Corporation: See—
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- Scott, John G. V.; and Harvey, Anthony K., to Ciba Geigy AG. Color coupler combination, 4,315,069, Cl. 430-365.000.
- Seabold, Thomas W.; Patterson, Richard A.; and de Neui, Richard P., to Minnesota Mining and Manufacturing Company. Curled tape, roll, and container end, 4,315,047, Cl. 428-64.000.
- Seamans, John S.: See—
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- Seffren, Sidney S.: See—
Bloom, Allen; Seffren, Sidney S.; Bell, Alan E.; and Bartolini, Robert A., 4,315,269, Cl. 346-135.100.
- Seigneurin, Laurent: See—
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- Seikenkai: See—
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- Seiki, Kazuo: See—
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- Seitetsu Kagaku Co., Ltd.: See—
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- Seki, Shojiro: See—
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- Sekido, Satoshi; and Ariga, Kozo, to Matsushita Electric Industrial Company, Limited. Oxygen sensor, 4,314,996, Cl. 422-98.000.
- Sekine, Yoichi: See—
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- Seligmann, Peter C., to AECI Limited. Sequential initiation of explosives, 4,314,507, Cl. 102-217.000.
- Sell, Leslie J., to Picker Corporation. X-ray apparatus, 4,315,156, Cl. 250-445.00T.
- Semco Instruments, Inc.: See—
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- Sendo, Masaaki; and Suzuki, Kinzo, to Mitsubishi Denki Kabushiki Kaisha. Electric motor, 4,315,176, Cl. 310-83.000.
- Senni, Paolo; and Toderi, Nando, to SNIA Viscosa Societa' Nazionale Industria Applicazioni Viscosa S.p.A. Method for the purification of raw caprolactam, 4,314,940, Cl. 260-239.30A.
- Sentralinstitut for industriell forskning: See—
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- Seuffert, Werner: See—
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- Severinsson, Lars M. Method of producing moulds, 4,314,399, Cl. 29-420.000.
- Sexton, Peter: See—
DeCristofaro, Nicholas J.; and Sexton, Peter, 4,314,661, Cl. 228-263.00R.
- Seymour, Samuel L., to PPG Industries, Inc. Glass sheet tempering apparatus with nozzle arrangement providing fluid escape paths and method of tempering glass sheets, 4,314,836, Cl. 65-114.000.
- SGS Ates, Componenti Elettronici S.p.A.: See—
Daniele, Vincenzo; Corda, Giuseppe; Ravaglia, Andrea; and Ferla, Giuseppe, 4,315,239, Cl. 338-308.000.
- Shanbrom, Edward. Purification of plasma protein products, 4,314,997, Cl. 424-101.000.
- Shapland, Earl P., to Flo-Con Systems, Inc. Rotary valve, 4,314,659, Cl. 222-590.000.
- Sharber, John M. Battery analyzer for electric golf carts, 4,315,217, Cl. 324-434.000.
- Sharp Kabushiki Kaisha: See—
Kinashi, Hiroshi, 4,314,755, Cl. 355-14.00D.
- Osaki, Mikio; Kamada, Hiroshi; Kakimoto, Kohichi; and Tabuchi, Toshiaki, 4,315,322, Cl. 364-900.000.
- Shaw, John C. M., to Spotmanor Limited. Rearing unit, 4,314,527, Cl. 119-16.000.
- Shearer, James W.: See—
Hartman, Charles W.; and Shearer, James W., 4,314,879, Cl. 376-128.000.
- Shen, Ming-Shing; Chen, James M.; and Yang, Ralph T., to United States of America, Energy. Preparation of reactive beta-dicalcium silicate, 4,314,980, Cl. 423-331.000.
- Shepherd, Margaret C.: See—
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- Shichi, Shigeharu: See—
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- Shida, Masaharu: See—
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- Shida, Tomohiko: See—
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- Shields, James J.: See—
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- Shifrin, Isaac G.: See—
Motov, David L.; Tjurkina, Ljudmila P.; Gerasimova, Lidia G.; Metelkin, Alexandr I.; Shifrin, Isaac G.; Kolesnikova, Nina I.; Yakusheva, Galina G.; Godneva, Maria M.; Babkin, Artur G.; Mikaelian, Irity I.; Belokoskov, Valentin I.; and Plotnikov, Vladimir P., 4,314,975, Cl. 423-81.000.

- Shige, Noriyuki: See—
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- Shilander, Frank R.; and Kiss, Gyorgy, to La Salle Machine Tool, Inc. Power roller accumulating conveyor, 4,314,629, Cl. 198-500.000.
- Shimizu, Katsuchi; Sawamura, Osamu; Masuda, Shunichi; Tomosada, Masahiro; and Sakamaki, Hisashi, to Canon Kabushiki Kaisha. Image forming apparatus, 4,314,754, Cl. 355-14.00C.
- Shimizu, Masami, to Ishikawajima-Harima Jukogyo Kabushiki Kaisha. Oil seal device, 4,314,705, Cl. 277-67.000.
- Shimizu, Masami: See—
Nakane, Ryohei; Isomura, Shohei; and Shimizu, Masami, 4,314,972, Cl. 422-191.000.
- Shimizu, Shoyoichi; and Torii, Ken-Ichi, to Tokyo Shibaura Denki Kabushiki Kaisha. Frequency divider, 4,315,165, Cl. 307-225.00R.
- Shimotsuma, Wataru: See—
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- Shinada, Hidehiro: See—
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- Shingu, Yuji: See—
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- Shinoda, Nobuhiko: See—
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- Shionogi & Co., Ltd.: See—
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- Shiraki, Manabu: See—
Ban, Itsuki; Shiraki, Manabu; and Egami, Kazuhito, 4,315,177, Cl. 310-154.000.
- Ban, Itsuki; Shiraki, Manabu; and Egami, Kazuhito, 4,315,178, Cl. 310-154.000.
- Shiraki, Masao: See—
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- Shoemaker, Dwight E. Combination drafting instrument including rotatable scales, compass assembly and straight edge magnifier, 4,314,408, Cl. 33-494.000.
- Shufelt, Rainey A.: See—
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- Sieglita, Manfred, to Gustav F. Gerdts KG. Angle valve, 4,314,584, Cl. 137-613.000.
- Siemens Aktiengesellschaft: See—
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- Franka, Kurt, 4,315,155, Cl. 250-409.000.
- Walla, Klaus, 4,315,103, Cl. 179-1.0VC.
- Warnest, Albert, 4,315,233, Cl. 337-66.000.
- Siemens-Albis Aktiengesellschaft: See—
Kupfer, Hanspeter, 4,315,260, Cl. 343-7.500.
- Siemens Corporation: See—
Kukreja, Jagmohan S., 4,315,290, Cl. 360-106.000.
- Weigl, Walter; Bergman, Ulf; Baum, Lennart; and Schnitger, Herbert, 4,315,154, Cl. 250-402.000.
- Siemon, Edward C., to Borg-Warner Corporation. Controlled D-C power supply, 4,315,305, Cl. 363-88.000.
- Sievers, Kirk A.; and Mortonson, Robert W., to Motorola, Inc. Ripple detector for automotive alternator battery charging systems, 4,315,204, Cl. 322-28.000.
- Sigworth, Harry W., Jr., to Chevron Research Company. Thermal expansion check valve, 4,314,667, Cl. 236-93.00R.
- Silbernagel, Frederick J. Load transfer trailer for transit mixer, 4,314,709, Cl. 280-81.00A.
- Silvey, Elmer R. Tree felling system with cam-operated hydraulic check valve, 4,314,592, Cl. 144-34.00A.
- Sims, Joseph A., Jr.: See—
McMullen, Charles H.; Nelson, James R.; Ream, Bernard C.; and Sims, Joseph A., Jr., 4,314,945, Cl. 260-340.200.
- Sindlinger, Ronald E.: See—
Armstrong, Donald E.; Sindlinger, Ronald E.; and Harvey, William J., 4,314,394, Cl. 29-25.160.
- Sindoni, Giuseppe. Multiple automatic metering device, 4,314,653, Cl. 222-41.000.
- Singer Company, The: See—
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- Sinlohi Company Limited: See—
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- Siol, Werner: See—
Monsheimer, Rolf; Pfeleiderer, Ernst; Siol, Werner; Boessler, Hanns; and Traubitzsch, Hans, 4,314,800, Cl. 8-94.10R.
- Sipkes, Peter: See—
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- Sipos, Tibor, to Johnson & Johnson Products Inc. Sulfonated poly-amino acids as dental plaque barriers, 4,314,991, Cl. 424-56.000.
- Skenderoff, Claude: See—
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- Skingle, Thomas J.: See—
Rauchhorst, James E.; and Skingle, Thomas J., 4,314,616, Cl. 175-394.000.
- Skiven, David A.; Sortor, Charles J.; and Tessier, Raymond J., to General Motors Corporation. Side stream separator for boiler particulate emission control, 4,314,830, Cl. 55-217.000.
- Skoda, oborovny podnik, Plzen: See—
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- Skuballa, Werner; Raduechel, Bernd; Vorbrueggen, Helmut; Mannesmann, Gerda; Losert, Wolfgang; and Casals, Jorge, to Schering Aktiengesellschaft. Certain pyrrole analogs of prostacyclin derivatives, 4,315,013, Cl. 424-263.000.
- Skwirut, Henry; and Young, Robert G., to Westinghouse Electric Corp. Fluorescent lamp using high performance phosphor blend which is protected from color shifts by a very thin overcoat of stable phosphor of similar chromaticity, 4,315,192, Cl. 313-487.000.
- Slyman Manufacturing Corporation: See—
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- Slysh, Paul, to General Dynamics Corporation. Device and method for assembling large space structures, 4,314,636, Cl. 206-321.000.
- Smarzak, Richard: See—
Nichols, Margaret W., 4,314,410, Cl. 34-202.000.
- Smith, Clark K. Specialized filing cabinet, 4,314,733, Cl. 312-183.000.
- Smith, Frank C.: See—
Rich, William E., Jr.; Smith, Frank C.; and McNeill, Janet L., 4,314,823, Cl. 23-230.00R.
- Smith, Harry A.: See—
Berazosky, Sandra; and Smith, Harry A., 4,314,925, Cl. 260-33.20R.
- Smith, Jimmy B.: See—
Haley, Jack R.; Smith, Jimmy B.; and Mansfield, Vaughn, 4,314,887, Cl. 202-91.000.
- Smith, Kenneth C. A., to National Research Development Corporation. Electron beam apparatus, 4,315,152, Cl. 250-396.0ML.
- Smith, Kenneth V.; and Taylor, Jack D., to Carstab Corporation. Organohalide polymers stabilized with an organotin compound and an ortho mercapto phenol compound, 4,314,934, Cl. 260-45.75S.
- Smith, Robert K., to Gould Inc. Saturable magnetic steel encased coil for arc spinner interrupter, 4,315,121, Cl. 200-147.00R.
- Smith, Stephen A.: See—
Wootton, Gordon; and Smith, Stephen A., 4,315,022, Cl. 424-273.00R.
- SmithKline Corporation: See—
Huffman, William F.; and Wilson, James W., 4,314,944, Cl. 260-326.150.
- SmithKline-RIT: See—
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- SNIA Viscosa Societa' Nazionale Industria Applicazioni Viscosa S.p.A.: See—
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- Senni, Paolo; and Toderi, Nando, 4,314,940, Cl. 260-239.30A.
- Snyder, Donald W., to Real Gas & Electric Company, Inc. DC Converter, 4,315,303, Cl. 363-21.000.
- Snyder, Ronald R.: See—
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- Societe Anonyme Automobiles Citroen: See—
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- Societe d'Assistance Technique pour Produits Nestle S.A.: See—
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- Societe de Vente de l'Aluminium Pechiney: See—
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- Societe Nationale des Poudres et Explosifs: See—
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- Sodder, George, Jr.; and Palmer, Oliver E., to Sodder, George, Jr. Self-propelled drilling head, 4,314,615, Cl. 175-94.000.
- Solar Unlimited, Inc.: See—
Frederick, Larry D.; and Somers, Richard E., 4,314,602, Cl. 165-10.000.
- Solomon, Allen L., to McDonnell Douglas Corporation. Back contacted MIS photovoltaic cell, 4,315,097, Cl. 136-255.000.
- Somers, Richard E.: See—
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- Somerville Belkin Industries Limited: See—
Dagostine, Leslie J., 4,314,642, Cl. 206-621.000.
- Sommer, Gordon M., to G. M. Sommer Company, Inc. Drive system, 4,314,626, Cl. 192-0.02R.
- Sommer, Ruediger; and Wischer, Hermann, to Dr.-Ing. Rudolf Hell GmbH. Methods for converting a video signal into a black/white signal, 4,315,285, Cl. 358-280.000.
- Sonderegger, Hans-Conrad: See—
Wolfer, Peter; Derrer, Hans-Rudolf; Vollenweider, Max; and Sonderegger, Hans-Conrad, 4,314,481, Cl. 73-774.000.
- Sonoda, Nobuo; Shimotsuma, Wataru; Kishimoto, Yoshio; and Sekine, Yoichi, to Matsushita Electric Industrial Co., Ltd. Method of magnetofluidic recording, 4,315,267, Cl. 346-1.100.
- Sortex North America, Inc.: See—
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- Sortor, Charles J.: See—
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- Southwest Oilfield Products, Inc.: See—
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- Southwire Company: See—
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- Sowman, Harold G.: See—
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- Spamer, William S., to Mead Corporation, The. Gravity feed shelf. 4,314,648, Cl. 211-49.00D.
- Sparhawk, George H., Jr.: See—
Perra, Andrew G., Jr.; and Sparhawk, George H., Jr., 4,314,503, Cl. 101-41.000.
- Spaziani, Frederick F.; and Fowler, James E., to Nova Biomedical Corporation. Method of making liquid membrane electrode. 4,314,895, Cl. 204-195.00M.
- Spector, George: See—
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- Speedy, Lloyd J.: See—
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- Speich, Francisco, to Textilma AG. Loom. 4,314,588, Cl. 139-79.000.
- Speno, Joanne E. Bra for athletic activities. 4,314,569, Cl. 128-425.000.
- Sperry Corporation: See—
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- Spigarelli, Donald J., to Hybrid Technology Corporation. Solder removal technique. 4,315,042, Cl. 427-96.000.
- Spijkerman, Johan, to Studsvik Energiteknik AB. Method and apparatus for transmitting and receiving electromagnetically generated and received ultrasonic pulses. 4,314,479, Cl. 73-643.000.
- Spitzer, J. George; Marra, Dorothea C.; Osipow, Lloyd I.; and Claffey, Kevin. Process for conditioning hair. 4,314,573, Cl. 132-7.000.
- Spohr, Reimar: See—
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- Spoldi, Henry; and Sweeney, Joseph N. Subminiature audio transformer. 4,315,232, Cl. 336-90.000.
- Spooner, Archer M., to Redifon Simulation Ltd. Visual display apparatus. 4,315,240, Cl. 340-27.00R.
- Spooner, Archer M., to Redifon Simulation Limited. Visual display apparatus. 4,315,241, Cl. 340-27.00R.
- Spotmanor Limited: See—
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- Sprecker, Mark A.: See—
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- Spur, Miloslav: See—
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- Spykerman, Jon J.: See—
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- Stach, Leonard J., to Velsicol Chemical Corporation. Cyclic acetal-methyl-carbamoyl-methyl esters of phosphonic and phosphoric acids, as herbicides. 4,314,840, Cl. 71-87.000.
- Stauffer Chemical Company: See—
Chin, Hsiao-Ling M.; and Pallos, Ferenc M., 4,315,030, Cl. 424-304.000.
- Felix, Raymond A., 4,314,838, Cl. 71-67.000.
- Scher, Herbert B., 4,314,841, Cl. 71-88.000.
- Steelcase Inc.: See—
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- Steigmeier, Edgar F.; and Knop, Karl, to RCA Corporation. Defect detection system. 4,314,763, Cl. 356-237.000.
- Steimel, Richard. Process for sequentially degreasing, tumbling, washing and drying objects. 4,314,856, Cl. 134-25.400.
- Stein, Bernard; and Granoff, Richard A., to Instrumentation Laboratory Inc. Analysis system. 4,314,970, Cl. 422-72.000.
- Steinberger, Helmut; Schonfelder, Manfred; Moretto, Hans-Heinrich; and Wegner, Christian, to Bayer Aktiengesellschaft. Coatings for thermoplastics. 4,315,091, Cl. 528-28.000.
- Steinkamp, William E.; and Ballard, Ambrose H., to United States of America, Energy. Method for hot pressing irregularly shaped refractory articles. 4,314,961, Cl. 264-325.000.
- Steinwand, Dennis D. Faucet structure. 4,314,580, Cl. 137-360.000.
- Stenning, David G. C.: See—
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- Stevens, James W., to British Aerospace. Mechanical damage resistant members and electro-plating rubber or rubber-like material. 4,314,892, Cl. 204-38.00B.
- Stewart, Lamar H.: See—
Beck, Boyd R.; Stewart, Lamar H.; Tapp, Steven; Anderson, Don L., Jr.; and Nuffer, Daniel E., 4,314,890, Cl. 203-1.000.
- Stewart, Maxson L.; Odle, Robert R.; and Brunson, William W., to Southwire Company. Purification of nickel sulfate. 4,314,976, Cl. 423-139.000.
- Stewart, Richard C.: See—
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- Stiebel Eltron GmbH & Co., KG: See—
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- Stillwell, Peter F. T. C.; Moore, William T.; and Demaine, David G. A., to Rank Organisation Limited, The. Thermal scanning devices. 4,315,284, Cl. 358-209.000.
- Stirnweiss, Peter: See—
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- Stocker, Lester H., to Bell & Howell Company. Zip sort registration system. 4,314,644, Cl. 209-569.000.
- Stoltz, Woodrow W. Internal pipe cleaning apparatus utilizing fluent abrasive. 4,314,427, Cl. 51-411.000.
- Stone, Gregory M. Torque wrench with alarm indicator. 4,314,490, Cl. 81-479.000.
- Stone, Orison W., to Pack Image, Inc. Returnable container having a central partition forming a return handle. 4,314,634, Cl. 206-167.000.
- Stops, Manfred: See—
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- Storer, Richard, to Glaxo Group Limited. Benzoxocin derivatives having anxiolytic and anti-convulsant activities. 4,315,006, Cl. 424-250.000.
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- Streamway Corporation: See—
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- Strosberg, Arthur M.: See—
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- Strubbe, Gilbert J. I.: See—
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- Studer, Philip A., to United States of America, National Aeronautics and Space Administration. Linear magnetic motor/generator. 4,315,197, Cl. 318-135.000.
- Studsvik Energiteknik AB: See—
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- Styring, Ralph E., Jr., to Atlantic Richfield Company. Separating spent mineral matter from heat carriers. 4,314,899, Cl. 208-11.00R.
- Sudo, Masatoshi; Higashi, Masanori; Ohki, Tsuguaki; and Kanbe, Shoji, to Kobe Steel, Ltd. Dual phase high strength cold-rolled steel plate. 4,314,862, Cl. 148-12.00F.
- Sugita, Jitsuo: See—
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- Suito, Senji: See—
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- Sulzer Brothers Limited: See—
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- Sulzer, Harry E., to Anchor/Darling Industries, Inc. Method and apparatus for testing snubbers in situ. 4,314,473, Cl. 73-11.000.
- Sumi, Yoshiro: See—
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- Sumitomo Chemical Company, Limited: See—
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- Sumitomo Electric Industries, Ltd.: See—
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- Tsuji, Yoshiomi; Matsuda, Akio; Ikeda, Tamaki; and Mori, Kenji, 4,314,774, Cl. 405-115.000.
- Sumitomo, Hiroyuki; Doi, Masafumi; Kobayashi, Kazuyuki; Fukami, Katsutoshi; and Kawanishi, Kenzo, to Hisaka Works Ltd. Condenser. 4,314,605, Cl. 165-110.000.
- Sumitomo Metal Industries Limited: See—
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- Sumizaki, Tuguo: See—
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- Sunada, Yoichi: See—
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- Suodar, Parameswaran S.; and Tiepel, Erich W., to Wyoming Mineral Corp. Method of aquifer restoration. 4,314,779, Cl. 405-263.000.
- Sutton, Larry W.: See—
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- Suyama, Tadakazu: See—
Uemura, Yahiyo; Arimura, Hirofumi; Morise, Hiroshi; Funakoshi, Satoshi; and Suyama, Tadakazu, 4,314,935, Cl. 260-112.00R.
- Suzuki, Akiyoshi; Hiraga, Ryojo; Kano, Ichiro; Yoshinari, Hideki; Totsuka, Masao; Kato, Yuzo; and Ogino, Yasuo, to Canon Kabushiki Kaisha. Alignment apparatus for mask and wafer used in manufacturing semiconductor circuit elements. 4,315,201, Cl. 318-640.000.
- Suzuki, Hajime; Uemura, Yoshifumi; Kimbara, Masahiko; and Iwano, Yoshimi, to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho. Weft guiding comb for a jet loom. 4,314,590, Cl. 139-435.000.
- Suzuki, Kinzo: See—
Sendo, Masaaki; and Suzuki, Kinzo, 4,315,176, Cl. 310-83.000.
- Suzuki, Masaaki: See—
Noyori, Ryoji; Suzuki, Masaaki; and Kurozumi, Seizi, 4,315,032, Cl. 424-317.000.
- Suzuki, Yasuo: See—
Mochida, Ei; Suzuki, Yasuo; Onishi, Haruo; and Kosuzume, Hiroshi, 4,315,003, Cl. 424-226.000.
- Suzumura, Yoshikazu: See—
Kyomasu, Ryuichi; Hanashima, Shuichi; and Suzumura, Yoshikazu, 4,315,199, Cl. 318-601.000.
- Svendsen, Peter R.: See—
Bernett, Frank W.; and Svendsen, Peter R., 4,315,288, Cl. 360-98.000.

- Swanson, Arthur P. Putter club. 4,314,701, Cl. 273-164.000.
- Swanson, William A. Omnidirectional solar collector. 4,314,549, Cl. 126-449.000.
- Sweeney, Joseph N.: See—
Spoldi, Henry; and Sweeney, Joseph N., 4,315,232, Cl. 336-90.000.
- Swenck, George F.: See—
Goolsby, Patrick F.; and Swenck, George F., 4,314,397, Cl. 29-157.30R.
- Swithenbank, Colin; and Fujimoto, Ted T., to Rohm and Haas Company. Herbicidal substituted imidazoles. 4,314,844, Cl. 71-92.000.
- Sybron Corporation: See—
Grunert, Hans C., 4,314,734, Cl. 312-322.000.
- Nunlist, Erwin J.; Coleman, Howard G.; and Harrison, Edward S., 4,314,396, Cl. 29-156.80R.
- Syntex (U.S.A.) Inc.: See—
Kluge, Arthur F.; Strosberg, Arthur M.; Whiting, Roger; and Christie, George A., 4,315,021, Cl. 424-273.00R.
- Synthelabo: See—
Manoury, Philippe M., 4,315,007, Cl. 424-251.000.
- Szabo, Lajos: See—
Szantay, Csaba; Szabo, Lajos; Kalas, Gyorgy; Dancsi, Lajos; Keve, Tibor; and Drexler, Ferenc, 4,314,939, Cl. 260-239.30P.
- Szantay, Csaba; Szabo, Lajos; Kalas, Gyorgy; Dancsi, Lajos; Keve, Tibor; Karpai, Egon; and Szporny, Laszlo, 4,315,011, Cl. 424-262.000.
- Szalvay, Laszlo: See—
Broyles, Harry C.; and Szalvay, Laszlo, 4,314,718, Cl. 285-114.000.
- Szantay, Csaba; Szabo, Lajos; Kalas, Gyorgy; Dancsi, Lajos; Keve, Tibor; and Drexler, Ferenc, to Richter Gedeon Vegyeszeti Gyar Rt. Process for the preparation of 15-hydroxyimino-E-homoeburnane and intermediates therefor. 4,314,939, Cl. 260-239.30P.
- Szantay, Csaba; Szabo, Lajos; Kalas, Gyorgy; Dancsi, Lajos; Keve, Tibor; Karpai, Egon; and Szporny, Laszlo, to Richter Gedeon Vegyeszeti Gyar Rt. 1-Alkyl-9-bromobexahydroindolo quinolinium salts and use thereof to increase blood flow. 4,315,011, Cl. 424-262.000.
- Sze, Mei S.: See—
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- Szporny, Laszlo: See—
Szantay, Csaba; Szabo, Lajos; Kalas, Gyorgy; Dancsi, Lajos; Keve, Tibor; Karpai, Egon; and Szporny, Laszlo, 4,315,011, Cl. 424-262.000.
- Szretter, Maria: See—
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- Tabb, Leroy, Jr.: See—
Hodge, Malcolm H.; and Tabb, Leroy, Jr., 4,314,760, Cl. 356-4.000.
- Tabuchi, Toshiaki: See—
Osaki, Mikio; Kamada, Hiroshi; Kakimoto, Kohichi; and Tabuchi, Toshiaki, 4,315,322, Cl. 364-900.000.
- Tachi, Susumu: See—
Tanie, Kazuo; and Tachi, Susumu, 4,314,379, Cl. 3-1.100.
- Tagami, Ichizo, to Ishikawajima-Harima Jukogyo Kabushiki Kaisha. Apparatus for detecting the relative position of two movable bodies. 4,315,252, Cl. 340-347.00P.
- Tague, B. Dale: See—
Parmerlee, James K.; and Tague, B. Dale, 4,315,300, Cl. 361-382.000.
- Takada, Juichiro. Inertia responsive actuating device for safety belt retractors. 4,314,680, Cl. 242-107.40A.
- Takada, Shigetaka: See—
Takeuchi, Yuzo; Takada, Shigetaka; and Morino, Toshiharu, 4,314,535, Cl. 123-439.000.
- Takagi, Motoyoshi, to Bio Research Center Company Ltd. Method for the treatment of cellulosic substances with hydrogen peroxide. 4,314,854, Cl. 127-37.000.
- Takahashi, Hiroshi: See—
Motosugi, Katsuhiko; Takahashi, Hiroshi; Toyoda, Shuhei; Konoishi, Toshiaki; and Matsui, Hideaki, 4,314,529, Cl. 123-52.0MB.
- Takahashi, Michio: See—
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- Takahashi, Noboru; Ozaki, Sadao; Isono, Hiromasa; Nishihara, Toshiakazu; Ikushima, Takeshi; and Naruse, Tanehide, to Victor Company of Japan, Limited. Magnetic recording medium. 4,315,052, Cl. 428-328.000.
- Takahashi, Yoshikazu; Sunada, Yoichi; and Takitani, Masaru, to Toyo Stauffer Chemical Co., Ltd. Titanium trichloride catalytic component and method for homo- or co-polymerization of α -olefin. 4,315,090, Cl. 526-119.000.
- Takayanagi, Takeo: See—
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- Takeda Chemical Industries, Ltd.: See—
Yamamura, Yuichi; Hasegawa, Akira; Azuma, Ichiro; and Kobayashi, Shigeru, 4,314,998, Cl. 424-177.000.
- Takeda Riken Kogyo Kabushiki Kaisha: See—
Honjyo, Jun; and Watanabe, Yukimitsu, 4,315,254, Cl. 340-347.0CC.
- Takeshima, Masaki: See—
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- Takeuchi, Masami: See—
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- Takeuchi, Misao: See—
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- Takeuchi, Yuzo; Takada, Shigetaka; and Morino, Toshiharu, to Aisan Industry Co., Ltd. Feedback type variable venturi carburetor. 4,314,535, Cl. 123-439.000.
- Taki, Yasuo: See—
Ishida, Toshimichi; Takayanagi, Takeo; and Taki, Yasuo, 4,314,870, Cl. 156-272.000.
- Takitani, Masaru: See—
Takahashi, Yoshikazu; Sunada, Yoichi; and Takitani, Masaru, 4,315,090, Cl. 526-119.000.
- Tamai, Yoshin: See—
Mori, Fumio; Omura, Yoshiaki; Fujita, Yoshiji; Nishida, Takashi; Hosogai, Takeo; Wada, Fumio; Aihara, Sukeji; Tamai, Yoshin; and Itoi, Kazuo, 4,315,029, Cl. 424-304.000.
- Tamura, Hideyuki: See—
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- Tamura, Joji, to Yamaha Hatsudoki Kabushiki Kaisha. Suspension mechanism for tracked vehicles. 4,314,618, Cl. 180-193.000.
- Tamura, Masaaki: See—
Nakako, Yukio; Ohzawa, Toshio; Yokota, Shizuo; and Tamura, Masaaki, 4,314,898, Cl. 208-8.0LE.
- Tamura, Shuichi: See—
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- Tanaka, Hideki: See—
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- Tanaka, Kazuo: See—
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- Tanie, Kazuo; and Tachi, Susumu, to Agency of Industrial Science & Technology, Ministry of International Trade & Industry. Apparatus for discrimination of myoelectric potential patterns. 4,314,379, Cl. 3-1.100.
- Taniguchi, Kiyoshi: See—
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- Tapp, Steven: See—
Beck, Boyd R.; Stewart, Lamar H.; Tapp, Steven; Anderson, Don L., Jr.; and Nuffer, Daniel E., 4,314,890, Cl. 203-1.000.
- Tassoni, Bruno: See—
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- Tate, Lemmie D.: See—
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- Tausig, Wayne R., to United States of America, Navy. Seafloor attachment bolts. 4,314,784, Cl. 411-57.000.
- Tavel, Donald L.: See—
Beigel, Michael L., 4,314,496, Cl. 84-1.260.
- Taylor, Jack D.: See—
Smith, Kenneth V.; and Taylor, Jack D., 4,314,934, Cl. 260-45.75S.
- Taylor, Jerry A.: See—
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- Tazaki, Shigemitsu, to Canon Kabushiki Kaisha. Recording apparatus. 4,315,268, Cl. 346-17.000.
- TDK Electronics Co., Ltd.: See—
Horigome, Eiji; Azegami, Hitoshi; and Ohta, Hiroshi, 4,315,057, Cl. 428-694.000.
- Teass, Horace A., Jr.: See—
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- Teitin Limited: See—
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- Telatemp Corporation: See—
Darringer, Richard E.; Scharf, Wayne L.; and Haggerty, James S., 4,315,150, Cl. 250-338.000.
- Telediffusion de France & Compagnie Continentale de Signalisation: See—
Hernandez, Charles, 4,315,257, Cl. 340-723.000.
- Teledyne Industries, Inc.: See—
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- Terauchi, Kiyoshi, to Sankyo Electric Company Limited. Scroll-type compressor with thrust bearing lubricating and bypass means. 4,314,796, Cl. 417-294.000.
- Terumo Corporation: See—
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- Teshima, Takashi: See—
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- Tessier, Jean: See—
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- Tessier, Raymond J.: See—
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- Texaco Development Corporation: See—
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- Texas Woods Instruments, Inc.: See—
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- Texasgulf Inc.: See—
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- Textilma AG: See—
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- Thau, Frederick E.: See—
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- Theiler, Richard F., to Armour and Company. Process for preparing cooked bacon having reduced levels of N-nitrosamines. 4,315,015, Cl. 426-266.000.
- Theodore, Frank W.; and Wasson, George E., to Conoco Inc. Method for producing distillable hydrocarbonaceous fuels and carbonaceous agglomerates from a heavy crude oil. 4,314,900, Cl. 208-126.000.
- Theymann, Walter: See—
Fritz, Rolf; Schoening, Josef; Elter, Claus; and Theymann, Walter, 4,314,883, Cl. 376-381.000.
- Theysohn, Rainer; and Reimann, Horst, to BASF Aktiengesellschaft. Flameproofed filled nylon molding materials. 4,314,927, Cl. 260-37.00N.
- Thiebaut, Jean: See—
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- Thiokol Corporation: See—
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- Thomas, Charles A. Hearing aid with remote momentary shut off switch. 4,315,111, Cl. 179-107.00R.
- Thomas, David L.; and Hackman, Donald J., to Battelle Development Corporation. Hydraulic linear impact tool. 4,314,612, Cl. 173-119.000.
- Thomas J. Lipton, Inc.: See—
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- Gazard, Maryse; Eranian, Armand; Barre, Francoise; and Duchesne, Claude, 4,315,067, Cl. 430-296.000.
- Reymond, Jean C.; Hidalgo, Jean L.; and Skenderoff, Claude, 4,314,761, Cl. 356-141.000.
- Saint Marcoux, Roland; and Fink, Leon, 4,315,299, Cl. 361-274.000.
- Thornburg, David D.: See—
Lloyd, William A.; and Thornburg, David D., 4,315,270, Cl. 346-155.000.
- Thornton, William A., to Westinghouse Electric Corp. High-pressure mercury-vapor lamp which has both improved color rendition and light output. 4,315,193, Cl. 313-487.000.
- Tiepel, Erich W.: See—
Sundar, Parameswaran S.; and Tiepel, Erich W., 4,314,779, Cl. 405-263.000.
- Tipton, Larry J., to ACF Industries, Inc. Pulsing solenoid improvement. 4,314,536, Cl. 123-440.000.
- Titanium Metals Corporation of America: See—
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- Tjurkina, Ljudmila P.: See—
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- Toderi, Nando: See—
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- Todoroki, Tsunehiko; and Hirohata, Hyogo, to Matsushita Electric Industrial Co., Ltd. Silver alloy for a sliding contact. 4,314,848, Cl. 75-173.00C.
- Tokoku University, The President of: See—
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- Tokugawa, Fumitake; and Hatabe, Etsuo, to Mitsubishi Denki Kabushiki Kaisha. Thermal recording head. 4,315,135, Cl. 219-216.000.
- Tokunaga, Michio; Okada, Ryoichi; Mizutani, Hideo; Hasegawa, Koichi; and Osaki, Takaaki, to Nippon Telegraph and Telephone Public Corporation; Oki Electric Industry Co., Ltd.; Nippon Electric Co., Ltd.; Fujitsu Ltd.; and Hitachi, Ltd. Current supply circuit for telephone exchange. 4,315,206, Cl. 323-265.000.
- Tokyo Shibaura Denki Kabushiki Kaisha: See—
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- Hirano, Tomiyoshi; Shinada, Hidehiro; and Sawada, Michiyuki, 4,315,186, Cl. 313-111.000.
- Miwa, Yoshiyuki, 4,315,138, Cl. 219-441.000.
- Onishi, Masayuki; and Miwa, Yoshiyuki, 4,315,139, Cl. 219-441.000.
- Shimizu, Shyoichi; and Torii, Ken-Ichi, 4,315,165, Cl. 307-225.00R.
- Tol, Franciscus; and Baggemans, Albertus B. A., to U.S. Philips Corporation. High-voltage generating device. 4,315,306, Cl. 363-126.000.
- Tomasetta, Louis R.; and Law, R. David, to Rockwell International Corporation. Method of making a fully integrated monolithic optical receiver. 4,314,858, Cl. 148-1.500.
- Tominaga, Jiro, to Nippon Steel Corporation. Method for direct heat treating hot rolled steel wire rod. 4,314,860, Cl. 148-12.00B.
- Tominaga, Tamotsu; Mihara, Teruyoshi; Oguro, Takeshi; and Takeuchi, Masami, to Nissan Motor Company, Limited. Pressure sensor. 4,315,236, Cl. 338-4.000.
- Tomlin, Malcolm G.: See—
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- Tomosada, Masahiro: See—
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- Tonnaer, Henricus L. M.: See—
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- Torii, Ken-Ichi: See—
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- Torisawa, Akira; Ueda, Makoto; and Shida, Masaharu, to Kabushiki Kaisha Daini Seikosha. Load measuring device for the gear train of a timepiece. 4,315,329, Cl. 368-76.000.
- Torrington Company, The: See—
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- Toshiba Corporation: See—
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- Totsuka, Masao: See—
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- Touret, Jean P., to Rockwell-Rimoldi, S.p.A. Workpiece guide for sewing machines. 4,314,516, Cl. 112-152.000.
- Townend, Rodney; Wareing, Joseph B.; and Winstanley, Raymond, to Electricity Council, The. Electron discharge heating devices. 4,315,131, Cl. 219-121.0EB.
- Townsend, Phillip M.; and Weaver, Robert L., to Molson Companies Limited, The. Process for preparing protein flour from brewery waste. 4,315,038, Cl. 426-430.000.
- Toyad Corporation: See—
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- Toyo Stauffer Chemical Co., Ltd.: See—
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- Toyota Jidosha Kogyo Kabushiki Kaisha: See—
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- Trabitzsch, Hans: See—
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- Transagra Corporation: See—
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- Trelleborg Marin Aktiebolag: See—
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- Tri-State Oil Tool Industries, Inc.: See—
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- Triatik, Jerome J.: See—
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- Tromed International, Inc.: See—
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- TRW Inc.: See—
Hodge, Malcolm H.; and Tabb, Leroy, Jr., 4,314,760, Cl. 356-4.000.
- Palmer, William B.; and Giebler, Martin M., 4,315,265, Cl. 343-840.000.
- Tsuda, Masanori, to Dainippon Screen Seizo Kabushiki Kaishi. Method for reproducing color separation pictures on a recording material from original pictures. 4,315,280, Cl. 358-80.000.
- Tsuji, Keiro, to Kubota, Ltd. Operating device for swivel working vehicle. 4,314,619, Cl. 180-327.000.
- Tsuji, Yoshiomi; Matsuda, Akio; Ikeda, Tamaki; and Mori, Kenji, to Sumitomo Electric Industries, Ltd. Pneumatically inflatable flexible envelope type dam. 4,314,774, Cl. 405-115.000.
- Tsuno, Koichi: See—
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- Tuin, Hermanus N.: See—
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- Tullio, Victor, to Mobay Chemical Corporation. Direct blue dyes from the condensation of diaminostilbenedisulfonic acid with N-alkyl or N-hydroxyalkyl-8-amino-1-naphthol-3,6-disulfonic acid. 4,314,816, Cl. 8-527.000.
- Tuominen, Pertti: See—
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- Tyan, Yuan-Sheng; and Perez-Albuera, Evelio A., to Eastman Kodak Company. Integrated array of photovoltaic cells having minimized shoring losses. 4,315,096, Cl. 136-244.000.
- Tyler Refrigeration Corporation: See—
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- Ibrahim, Faye F., 4,314,457, Cl. 62-256.000.
- Tytus, Hulbert T. Error correction in recirculating remainder analog-to-digital converters. 4,315,253, Cl. 340-347.00C.
- Uchida, Tadashi, to Kabushiki Kaisha Kubota Seisakusho. Swinging type rotors of centrifugal machines. 4,314,662, Cl. 233-26.000.
- Ueda, Makoto: See—
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- Ueda, Yuzo; Yoshida, Toru; and Honda, Michiyasu, to Nippon Steel Corporation. Method for controlling exhaust gases in oxygen blown converter. 4,314,694, Cl. 266-44.000.
- Uede, Kazuo; Sumizaki, Tuguo; and Nakamura, Masatoshi, to Koei Chemical Co., Ltd. Catalyst supporting bed. 4,314,914, Cl. 252-472.000.
- Uemura, Yahiyo; Arimura, Hirofumi; Morise, Hiroshi; Funakoshi, Satoshi; and Suyama, Takakazu, to Green Cross Corporation, The. Process for recovering interferon. 4,314,935, Cl. 260-112.00R.
- Ueno, Katsuji; and Maruyama, Takashi, to Sumitomo Chemical Company, Limited. Resin compositions. 4,315,086, Cl. 525-391.000.

- Uji-Ie, Koji: See—
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- Umehara, Masaakira: See—
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- Umemura, Yoshifumi: See—
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- Unican Security Systems Corporation: See—
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- Uniment Systems, Inc.: See—
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- Unino, Tomio: See—
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- Union Carbide Corporation: See—
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- Gardner, Hugh C., 4,314,930, Cl. 260-42.180.
- McMullen, Charles H.; Nelson, James R.; Ream, Bernard C.; and Sims, Joseph A., Jr., 4,314,945, Cl. 260-340.200.
- Schaefer, Peter R.; and Carkhuff, Donald W., 4,315,126, Cl. 219-70.000.
- Union Oil Company of California: See—
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- Wolfer, Peter; Derrer, Hans-Rudolf; Vollenweider, Max; and Sonderegger, Hans-Conrad, to Kistler Instruments AG. Piezoelectric strain transducer. 4,314,481, Cl. 73-774.000.
- Wolff, Manfred, to Robert Bosch GmbH. Method for obtaining an acceleration or deceleration signal from a signal proportional to speed and apparatus therefor. 4,315,213, Cl. 324-162.000.
- Wolffrey, Austin A., to General Electric Company. High-solids epoxy prepolymer coating composition. 4,314,917, Cl. 260-18.0EP.
- Wollensak, John C.; and Ihman, Kryn G., to Ethyl Corporation. Phenol extended polyurethanes prepared by RIM process. 4,314,962, Cl. 264-328.600.
- Woodland, Sylvester L.: See—
Perkins, Joseph R., III; and Woodland, Sylvester L., 4,314,645, Cl. 209-638.000.
- Wootton, Gordon; and Smith, Stephen A., to Beecham Group Limited. Terminal amino prostaglandin analogues. 4,315,022, Cl. 424-273.00R.
- Wu, Peter T. K., to United States of America, Energy. Reactor control rod timing system. 4,314,881, Cl. 376-245.000.
- Wulff, Guenter: See—
Naarmann, Herbert; Wulff, Guenter; and Akelah, Ahmed, 4,315,089, Cl. 526-89.000.
- Wurst, John W.; and Beckerman, Howard L., to Singer Company, The. Connection arrangement for selection and display system. 4,315,250, Cl. 340-286.00R.
- Wust, Reinhold: See—
Heine, Christian; Ploog, Uwe; and Wust, Reinhold, 4,315,040, Cl. 426-609.000.
- Wyler, John S., to General Electric Company. Mass rate of flow meter with improved temperature characteristics. 4,314,483, Cl. 73-861.350.
- Wyoming Mineral Corp.: See—
Sundar, Parameswaran S.; and Tiepel, Erich W., 4,314,779, Cl. 405-263.000.
- Xerox Corporation: See—
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- Lloyd, William A.; and Thornburg, David D., 4,315,270, Cl. 346-155.000.
- Yakusheva, Galina G.: See—
Motov, David L.; Tjurkina, Ljudmila P.; Gerasimova, Lidia G.; Metelkin, Alexander I.; Shifrin, Isaac G.; Kolesnikova, Nina I.; Yakusheva, Galina G.; Godneva, Maria M.; Babkin, Arur G.; Mikaelian, Iridy I.; Belokoskov, Valentin I.; and Plotnikov, Vladimir P., 4,314,975, Cl. 423-81.000.
- Yamada, Yasuaki; Ozawa, Toshiaki; and Kondo, Hiroatsu, to Canon Kabushiki Kaisha. Servo control apparatus. 4,315,200, Cl. 318-603.000.
- Yamada, Yukio: See—
Kondo, Hisashi; Yamazaki, Shozo; and Yamada, Yukio, 4,315,231, Cl. 335-61.000.
- Yamaguchi, Takeshi: See—
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- Yamaguchi, Takasa: See—
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- Yamaha Hatsudoki Kabushiki Kaisha: See—
Tamura, Joji, 4,314,618, Cl. 180-193.000.
- Yamamoto, Kaneo; Nakamura, Hiroshi; and Konno, Toshio, to Victor Company of Japan, Limited. Compound semiconductor Hall effect element. 4,315,273, Cl. 357-27.000.
- Yamamoto, Kazuhiko; Matsushita, Yoshiaki; Kanamori, Masaru; Nagasawa, Kazutoshi; Yoshihiro, Naotsugu; and Kishino, Seigo, to VLSI Technology Research Association. Method of forming nondefective zone in silicon single crystal wafer by two stage-heat treatment. 4,314,595, Cl. 148-1.500.
- Yamamoto, Kunio: See—
Watanabe, Takashi; Yamano, Katsushi; Yamamoto, Kunio; and Inomata, Shigeo, 4,314,850, Cl. 106-15.050.
- Yamamura, Yuichi; Hasegawa, Akira; Azuma, Ichiro; and Kobayashi, Shigeru, to Takeda Chemical Industries, Ltd. 6-Deoxyglucosamine-peptide derivatives, their production and use. 4,314,998, Cl. 424-177.000.
- Yamano, Katsushi: See—
Watanabe, Takashi; Yamano, Katsushi; Yamamoto, Kunio; and Inomata, Shigeo, 4,314,850, Cl. 106-15.050.
- Yamashita, Hideo, to Nippon Gakki Seizo Kabushiki Kaisha. Piano construction for enriched stereophonic tonal radiation. 4,314,497, Cl. 84-177.000.
- Yamashita, Sadahiko; Onishi, Hiroshi; Saito, Mitsuo; and Sagawa, Morikazu, to Matsushita Electric Industrial Company, Limited. Circuit arrangement for a wide-band VHF-UHF television double superheterodyne receiver. 4,315,333, Cl. 455-189.000.
- Yamashita-Shinnihon Steamship Co., Ltd.: See—
Yunoki, Shigeto; and Makizono, Masataka, 4,314,519, Cl. 114-125.000.
- Yamashita, Tsutomu: See—
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- Yamauchi, Takashi: *See—*
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- Yamazaki, Shozo: *See—*
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- Yanai, Genzo: *See—*
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- Yanai Seiko Company Limited: *See—*
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- Yancy, Mark E. Sailboat wind direction indicator, 4,314,477, Cl. 73-188.000.
- Yang, Ralph T.: *See—*
Shen, Ming-Shing; Chen, James M.; and Yang, Ralph T., 4,314,980, Cl. 423-331.000.
- Yannone, Robert A.; and Shields, James J., to Westinghouse Electric Corp. Gas turbine power plant control apparatus including an ambient temperature responsive control system, 4,314,441, Cl. 60-39.28R.
- Yaron, Arieh; and Carmel, Amos, to Yeda Research and Development Co., Ltd. Substrates for the quantitative assay of enzymes and such assay, 4,314,936, Cl. 260-112.50R.
- Yeda Research and Development Co., Ltd.: *See—*
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- Yokota, Shizuo: *See—*
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- Yoneda, Kenji: *See—*
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- Yoshida, Keiichi: *See—*
Roller die wire drawing device having a plurality of roller die units, 4,314,470, Cl. 72-234.000.
- Yoshida, Kenichi: *See—*
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- Yoshida, Toru: *See—*
Ueda, Yuziyo; Yoshida, Toru; and Honda, Michiyasu, 4,314,694, Cl. 266-44.000.
- Yoshida, Yoshiaki: *See—*
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- Yoshihiro, Naotsugu: *See—*
Yamamoto, Kazuhiko; Matsushita, Yoshiaki; Kanamori, Masaru; Nagasawa, Kazutoshi; Yoshihiro, Naotsugu; and Kishino, Seigo, 4,314,595, Cl. 148-1.500.
- Yoshimitsu, Arata: *See—*
Murakami, Shinichi; Nishihara, Hisakatsu; Yoshimitsu, Arata; and Noji, Sueyoshi, 4,314,861, Cl. 148-12.00E.
- Yoshinari, Hideki: *See—*
Suzuki, Akiyoshi; Hiraga, Ryozo; Kano, Ichiro; Yoshinari, Hideki; Totsuka, Masao; Kaio, Yuzo; and Ogino, Yasuo, 4,315,201, Cl. 318-640.000.
- Young, Robert G.: *See—*
Skwirut, Henry; and Young, Robert G., 4,315,192, Cl. 313-487.000.
- Yuasa Battery Company Limited: *See—*
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- Yukinaga, Hisajiro: *See—*
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- Yunoki, Shigeto; and Makizono, Masataka, to Yamashita-Shinnihon Steamship Co., Ltd. Ballast pumping system, 4,314,519, Cl. 114-125.000.
- Zawidzki, Tadeusz W., to Eldorado Nuclear Limited. Process of preparing sintered uranium dioxide pellets, 4,314,952, Cl. 264-0.500.
- Zeeh, Bernd: *See—*
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- Zell, Michael N.: *See—*
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- Zimmerman, Robert L.: *See—*
Schulze, Heinz; Zimmerman, Robert L.; and Waddill, Harold G., 4,315,079, Cl. 521-115.000.
- Zinser Textilmaschinen GmbH: *See—*
Hartmannsgruber, Max; and Wolf, Horst, 4,314,388, Cl. 19-293.000.
- Zocholl, Stanley E., to Gould Inc. Timing circuit for an overcurrent relay, 4,315,295, Cl. 361-96.000.
- Zrostlik, Francis L.; and Collins, John J., to Iowa Mold Tooling Co., Inc. Tire mounting and demounting apparatus and method, 4,314,597, Cl. 157-1.110.
- Zumfeld, Heinz: *See—*
Rohner, Joachim; and Zumfeld, Heinz, 4,314,437, Cl. 57-22.000.
- Zuuring, Peter F., to PFZ Enterprises Inc. Ice skate blade, 4,314,708, Cl. 280-11.180.

LIST OF REISSUE PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 9TH DAY OF FEBRUARY, 1982

NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- Ahn, Byung K.: *See—*
Justice, David D.; Ahn, Byung K.; and Dotson, Ronald L., Re. 30,864, Cl. 204-98.000.
- Dotson, Ronald L.: *See—*
Justice, David D.; Ahn, Byung K.; and Dotson, Ronald L., Re. 30,864, Cl. 204-98.000.
- Justice, David D.; Ahn, Byung K.; and Dotson, Ronald L., to Olin Corporation. Process for electrolysis in a membrane cell employing pressure actuated uniform spacing, Re. 30,864, Cl. 204-98.000.
- Keller, Wolfgang, to Siemens Aktiengesellschaft. Method for crucible-free zone meeting of semiconductor crystal rods, Re. 30,863, Cl. 156-620.000.
- Krawagna, Alois A., to Westhem Corporation Limited. Biased hinges, Re. 30,861, Cl. 16-293.000.
- Kruzic, Zelko J.: *See—*
Mrenna, Stephen A.; and Kruzic, Zelko J., Re. 30,862, Cl. 339-258.00R.
- Mrenna, Stephen A.; and Kruzic, Zelko J., to Westinghouse Electric Corp. Rejection-type fuse clip, Re. 30,862, Cl. 339-258.00R.
- Olin Corporation: *See—*
Justice, David D.; Ahn, Byung K.; and Dotson, Ronald L., Re. 30,864, Cl. 204-98.000.
- Siemens Aktiengesellschaft: *See—*
Keller, Wolfgang, Re. 30,863, Cl. 156-620.000.
- Westhem Corporation Limited: *See—*
Krawagna, Alois A., Re. 30,861, Cl. 16-293.000.
- Westinghouse Electric Corp.: *See—*
Mrenna, Stephen A.; and Kruzic, Zelko J., Re. 30,862, Cl. 339-258.00R.

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- Aavid Engineering, Inc.: *See—*
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- McCarthy, Alfred F., 262,961, Cl. D13-23.000.
- AB Karlshamns Plastindustri: *See—*
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- Abe, Yoichi; and Matsumoto, Hajime, to Toybox Corporation. Toy pendant, 262,982, 2-9-82, Cl. D21-177.000.
- Adams Hard-Facing Company, Inc.: *See—*
Ronck, Norvel J.; and Wetmore, Halsey J., II, 262,972, Cl. D15-11.000.
- Ajax Industries, Inc.: *See—*
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- American Standard Inc.: *See—*
Stairs, Henry M., Jr., 262,989, Cl. D23-65.000.
- AMF Incorporated: *See—*
Howe, John G., 262,983, Cl. D21-212.000.
- Anderson, Richard W.; and Bottner, Alfred I., to GTE Products Corporation. Housing for an automatic telephone alarm system, 262,964, 2-9-82, Cl. D14-59.000.
- Aqua Magnetics, Inc.: *See—*
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- Asakura, Kunihiro: *See—*
Fujiyama, Yoshiyuki; and Asakura, Kunihiro, 262,967, Cl. D14-94.000.
- Baldwin, Linsley E.: *See—*
Campbell, C. John; and Baldwin, Linsley E., 262,974, Cl. D34-24.000.
- Barsanti, Stephen. Clock, 262,947, 2-9-82, Cl. D10-6.000.
- Bemis Manufacturing Company: *See—*
Rickmeir, Carl H., 262,996, Cl. D24-56.000.
- Bendix Corporation, The: *See—*
Orr, Russell E., II, 262,950, Cl. D10-46.000.
- Birtell, Fred R. Latch hook, 262,920, 2-9-82, Cl. D3-18.000.
- Bogner, Max; and Grun, Larry. Finger ring or similar article, 262,953, 2-9-82, Cl. D11-38.000.
- Bottner, Alfred I.: *See—*
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- Braun Espanola, S.A.: *See—*
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- Broiliard, Bernard. Refill container for pasty substance dispenser or similar article, 262,923, 2-9-82, Cl. D6-95.000.
- Broyhill Furniture Industries, Inc.: *See—*
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- Campbell, C. John; and Baldwin, Linsley E., to Campbell Supply Co. Cart for a portable power washing unit or similar article, 262,974, 2-9-82, Cl. D34-24.000.
- Campbell Supply Co.: *See—*
Campbell, C. John; and Baldwin, Linsley E., 262,974, Cl. D34-24.000.
- Canada Cycle and Motor Company Limited: *See—*
Cox, Malcolm F., Jr., 262,986, Cl. D21-225.000.
- Carpenter, Roland K., to Aqua Magnetics, Inc. Magnetic water conditioner, 262,987, 2-9-82, Cl. D23-3.000.
- Cheung, Kwok K.: *See—*
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- Clairol Incorporated: *See—*
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- Commisso, Nicholas D., to Mobil Oil Corporation. Packaging container for food or the like, 262,944, 2-9-82, Cl. D9-347.000.
- Corning Glass Works: *See—*
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- Cowan, Arnold A., to Interpart Corporation. Shock absorber, 262,959, 2-9-82, Cl. D12-159.000.
- Cox, Malcolm F., Jr., to Canada Cycle and Motor Company Limited. Ice skate, 262,986, 2-9-82, Cl. D21-225.000.
- Crane, Douglas L. Coal stove, 262,993, 2-9-82, Cl. D23-97.000.
- Daenen, Robert H. C. M., to Dart Industries Inc. Closure for a bowl or the like, 262,932, 2-9-82, Cl. D7-40.000.
- Dart Industries Inc.: *See—*
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- Gaba, Rodolfo; Garland, David C.; and Pacek, James L., 262,995, Cl. D24-31.000.
- Day, Robert T., Jr.: *See—*
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- DiPisa, Joseph A., Sr., to Puritan Industries. Collapsible dispensing tube, 262,942, 2-9-82, Cl. D9-302.000.
- Duskin Franchise Kabushiki: *See—*
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- Enduro Corporation: *See—*
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- Envirotech Corporation: *See—*
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- Event Systems, Inc.: *See—*
Holler, Frederick W., Jr.; and Wiedeman, Donald R., 262,994, Cl. D24-8.000.
- Ferris, Ethel A. Materials and tools organizer for arts and crafts, 262,977, 2-9-82, Cl. D19-75.000.
- Fleischmann, Gary A.; and Peabody, Lawrence C., to Kohler Co. Combined toothbrush and tumbler holder, 262,922, 2-9-82, Cl. D6-92.000.
- FN International: *See—*
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- Fujiyama, Yoshiyuki; and Asakura, Kunihiro, to Matsushita Graphic Communication Systems, Inc. Facsimile transceiver, 262,967, 2-9-82, Cl. D14-94.000.
- Gaba, Rodolfo; Garland, David C.; and Pacek, James L., to Dart Industries Inc. Urinary catheterization preparation tray, 262,995, 2-9-82, Cl. D24-31.000.
- Garland, David C.: *See—*
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- Garriga, Juan A. G., to Braun Espanola, S.A. Coffee grinder, 262,975, 2-9-82, Cl. D15-100.000.
- Gestetner Limited: *See—*
Lytra, Eric K., 262,945, Cl. D9-415.000.
- Gilbert & Barker Manufacturing Co., Inc.: *See—*
Robinson, George D., Jr.; Lacivita, Angelo M.; Day, Robert T., Jr.; and Keane, Charles C., 262,971, Cl. D15-9.200.
- Gordon Ellis & Co.: *See—*
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- Griffin, John; and Hatch, T. Daryl, to Envirotech Corporation. Mining vehicle. 262,973, 2-9-82, Cl. D15-21.000.
- Gross, Clare. Grapefruit knife. 262,934, 2-9-82, Cl. D7-147.000.
- Gross, Daniel. Compact case. 263,004, 2-9-82, Cl. D28-83.000.
- Grun, Larry: See—
- Bogner, Max; and Grun, Larry, 262,953, Cl. D11-38.000.
- GTE Products Corporation: See—
- Anderson, Richard W.; and Bottner, Alfred I., 262,964, Cl. D14-59.000.
- Gurevitz, Bernard H. Frame for pictures and the like. 262,930, 2-9-82, Cl. D6-242.000.
- Hall, Stephen: See—
- Heritage, Robert; and Hall, Stephen, 263,000, Cl. D26-63.000.
- Hanig, Harvey, to Pittway Corporation. Housing for a fire and smoke detector. 262,952, 2-9-82, Cl. D10-106.000.
- Harmer, Royal J. Motorcycle enclosure. 262,957, 2-9-82, Cl. D12-156.000.
- Hatch, T. Daryl: See—
- Griffin, John; and Hatch, T. Daryl, 262,973, Cl. D15-21.000.
- Heritage, Robert; and Hall, Stephen, to Rotaflex (Great Britain) Limited. Spotlight fitting. 263,000, 2-9-82, Cl. D26-63.000.
- Hiraki, Takayuki, to Pioneer Kabushiki Kaisha. Video disc player. 262,963, 2-9-82, Cl. D14-1.000.
- Holler, Frederick W., Jr.; and Wiedeman, Donald R., to Event Systems, Inc. Penile tumescence monitor. 262,994, 2-9-82, Cl. D24-8.000.
- Howe, John G., to AMF Incorporated. Tennis racket frame. 262,983, 2-9-82, Cl. D21-212.000.
- Howes, Peter, to Lucas Industries Limited. Fuel injection nozzle. 262,969, 2-9-82, Cl. D15-5.000.
- Hutcheson, Claude H., to Xerox Corporation. Media converter unit for a floppy disc for data processing display system. 262,968, 2-9-82, Cl. D14-107.000.
- Huthmann, Heinz-Max, to J. A. Henckels-Zwillingswerk Aktiengesellschaft. Scissors. 262,937, 2-9-82, Cl. D8-57.000.
- IMI Santon Limited: See—
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- Owen, William G. S., 262,992, Cl. D23-86.000.
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- Interpart Corporation: See—
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- Jeghers, Philippe M., to FN International. Golf club head. 262,984, 2-9-82, Cl. D21-217.000.
- Johnson, Philip A.; and McCarthy, Alfred F., to Aavid Engineering, Inc. Flanged-collar heat sink for electronic devices. 262,960, 2-9-82, Cl. D13-23.000.
- Keane, Charles C.: See—
- Robinson, George D., Jr.; Lacivita, Angelo M.; Day, Robert T., Jr.; and Keane, Charles C., 262,971, Cl. D15-9.200.
- Klingler, Lawrence R.: See—
- Shook, Daniel E.; and Klingler, Lawrence R., 262,939, Cl. D8-336.000.
- Koelichen, Harald, Jr., to Standardgraph Filler & Fiebig GmbH. Lettering scribe. 262,976, 2-9-82, Cl. D19-41.000.
- Kohler Co.: See—
- Fleischmann, Gary A.; and Peabody, Lawrence C., 262,922, Cl. D6-92.000.
- Lacivita, Angelo M.: See—
- Robinson, George D., Jr.; Lacivita, Angelo M.; Day, Robert T., Jr.; and Keane, Charles C., 262,971, Cl. D15-9.200.
- Le Van, Kenneth R., to Corning Glass Works. Combined cutting board, serving dishes and support stand. 262,931, 2-9-82, Cl. D7-3.000.
- Lippert Corporation: See—
- Lippert, William L., Jr.; and Lippert, Wayne M., 262,988, Cl. D23-58.000.
- Lippert, Wayne M.: See—
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- Lippert, William L., Jr.; and Lippert, Wayne M., to Lippert Corporation. Lavatory. 262,988, 2-9-82, Cl. D23-58.000.
- Lorber, Kurt. Packaging unit of caps for marking pins. 262,941, 2-9-82, Cl. D8-499.000.
- Lucas Industries Limited: See—
- Howes, Peter, 262,969, Cl. D15-5.000.
- Lytra, Eric K., to Gestetner Limited. Container for ejected used stencils. 262,945, 2-9-82, Cl. D9-415.000.
- M & M Plastic Manufacturing Company: See—
- Medders, Milford L., 262,928, Cl. D6-157.000.
- Martin, William J., Jr., to Nodor Scores Limited. Darts scoring machine. 262,951, 2-9-82, Cl. D10-46.100.
- Matsui, Hideroshi. Kinetic sculpture. 262,981, 2-9-82, Cl. D21-102.000.
- Matsumoto, Hajime: See—
- Abe, Yoichi; and Matsumoto, Hajime, 262,982, Cl. D21-177.000.
- Matsushita Graphic Communication Systems, Inc.: See—
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- Mattel, Inc.: See—
- Mills, Janet L.; and Wiedmann, Conrad D., 262,946, Cl. D9-433.000.
- Mayenschein, Joseph M.: See—
- Mayenschein, Patricia D.; and Mayenschein, Joseph M., 262,948, Cl. D10-15.000.
- Mayenschein, Patricia D.; and Mayenschein, Joseph M. Boat clock. 262,948, 2-9-82, Cl. D10-15.000.
- McCarthy, Alfred F., to Aavid Engineering, Inc. Clip-on heat sink for electronic devices. 262,961, 2-9-82, Cl. D13-23.000.
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- Johnson, Philip A.; and McCarthy, Alfred F., 262,960, Cl. D13-23.000.
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- Medders, Milford L., to M & M Plastic Manufacturing Company. Combined tray and compartment for packaged seasonings or the like. 262,928, 2-9-82, Cl. D6-157.000.
- Mills, Janet L.; and Wiedmann, Conrad D., to Mattel, Inc. Blank for a packaging tray. 262,946, 2-9-82, Cl. D9-433.000.
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- Rowan, David C.; and Mittermaier, Armin E., 262,970, Cl. D15-9.200.
- Mobil Oil Corporation: See—
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- Murakami, Toshikazu: See—
- Nishiyama, Masanobu; Yamamoto, Yosuke; Murakami, Toshikazu; and Tanaka, Hisaji, 262,936, Cl. D32-40.000.
- Nagley, Bruce K. Typing copy holder. 262,978, 2-9-82, Cl. D19-91.000.
- Nishiyama, Masanobu; Yamamoto, Yosuke; Murakami, Toshikazu; and Tanaka, Hisaji, to Duskon Franchise Kabushiki. Mop. 262,936, 2-9-82, Cl. D32-40.000.
- Nodor Scores Limited: See—
- Martin, William J., Jr., 262,951, Cl. D10-46.100.
- Orr, Russell E., II, to Bendix Corporation. The. Coordinate measurement machine for use in measuring sizes, shapes, dimensions and the like. 262,950, 2-9-82, Cl. D10-46.000.
- Owen, William G. S., to IMI Santon Limited. Water heater. 262,991, 2-9-82, Cl. D23-86.000.
- Owen, William G. S., to IMI Santon Limited. Water heater. 262,992, 2-9-82, Cl. D23-86.000.
- Pacek, James L.: See—
- Gaba, Rodolfo; Garland, David C.; and Pacek, James L., 262,995, Cl. D24-31.000.
- Parrish, Arlie G. Storage rack for attachment to the cab of a semi-trailer for holding a pair of safety struts. 262,958, 2-9-82, Cl. D12-157.000.
- Peabody, Lawrence C.: See—
- Fleischmann, Gary A.; and Peabody, Lawrence C., 262,922, Cl. D6-92.000.
- Perrin, Alain D., to Interdica S.A. Bracelet watch. 262,949, 2-9-82, Cl. D10-32.000.
- Phillips, Maurice L. Storage rack for two holstered handguns. 262,925, 2-9-82, Cl. D6-114.000.
- Pioneer Kabushiki Kaisha: See—
- Hiraki, Takayuki, 262,963, Cl. D14-1.000.
- Pittway Corporation: See—
- Hanig, Harvey, 262,952, Cl. D10-106.000.
- Poole, Benjamin C., to Ajax Industries, Inc. Combined table and ottoman. 262,921, 2-9-82, Cl. D6-4.000.
- Puritan Industries: See—
- DiPisa, Joseph A., Sr., 262,942, Cl. D9-302.000.
- Reynolds, William A. Portable multiple-toilet building. 262,997, 2-9-82, Cl. D25-1.000.
- Rickmeir, Carl H., to Bemis Manufacturing Company. Surgical sponge count receptacle or similar article. 262,996, 2-9-82, Cl. D24-56.000.
- Robinson, George D., Jr.; Lacivita, Angelo M.; Day, Robert T., Jr.; and Keane, Charles C., to Gilbert & Barker Manufacturing Co., Inc. Gasoline dispenser. 262,971, 2-9-82, Cl. D15-9.200.
- Rodger, Michael D. R., to Gordon Ellis & Co. Elevated toilet seat. 262,990, 2-9-82, Cl. D23-11.000.
- Ronck, Norvel J.; and Wetmore, Halsey J., II, to Adams Hard-Facing Company, Inc. Insert for agricultural applicator knife. 262,972, 2-9-82, Cl. D15-11.000.
- Rorbeck, Else S.; and Samora, Opal D. Spare toilet paper roll holder. 262,924, 2-9-82, Cl. D6-97.000.
- Rosenthal, Stanley H. Interior wall for a store. 262,998, 2-9-82, Cl. D25-58.000.
- Rotaflex (Great Britain) Limited: See—
- Heritage, Robert; and Hall, Stephen, 263,000, Cl. D26-63.000.
- Rowan, David C.; and Mittermaier, Armin E., to Tokheim Corporation. Quadruple gasoline pump. 262,970, 2-9-82, Cl. D15-9.200.
- Saitoh, Shigeru. Musical figure toy. 262,979, 2-9-82, Cl. D21-64.000.
- Saitoh, Shigeru. Musical figure toy. 262,980, 2-9-82, Cl. D21-64.000.
- Samora, Opal D.: See—
- Rorbeck, Else S.; and Samora, Opal D., 262,924, Cl. D6-97.000.
- Sanna, Charles A. Golf putter head. 262,985, 2-9-82, Cl. D21-217.000.
- Schadler, Wendelin. Combined scoop and container for animal waste. 262,943, 2-9-82, Cl. D9-337.000.
- Schudel, Conrad R. Projection adapter for a conventional television receiver. 262,966, 2-9-82, Cl. D14-84.000.
- Schulze, Herbert C. Drilling alignment tool. 262,938, 2-9-82, Cl. D8-70.000.
- Shook, Daniel E.; and Klingler, Lawrence R. Safety locking device for garage doors. 262,939, 2-9-82, Cl. D8-336.000.
- Shores, Edward H. Astrology chart display. 262,954, 2-9-82, Cl. D11-132.000.
- Skate Car, Inc.: See—
- Strickland, John T., Jr., 262,955, Cl. D12-83.000.
- Smith, Melbourne F., Jr., to Broyhill Furniture Industries, Inc. Hutch. 262,927, 2-9-82, Cl. D6-153.000.

- Spencer, Joseph. Candle lamp. 262,999, 2-9-82, Cl. D26-11.000.
- Spinner, Georg. Coupling nut. 262,940, 2-9-82, Cl. D8-397.000.
- Stairs, Henry M., Jr., to American Standard Inc. Toilet or similar article. 262,989, 2-9-82, Cl. D23-65.000.
- Standardgraph Filler & Fiebig GmbH: See—
- Koelichen, Harald, Jr., 262,976, Cl. D19-41.000.
- Stoll, Roger L., to Enduro Corporation. Food grater. 262,933, 2-9-82, Cl. D7-47.000.
- Strickland, John T., Jr., to Skate Car, Inc. Vehicle. 262,955, 2-9-82, Cl. D12-83.000.
- Strumpell, Winton C. Silicon wafer emitter electrode configuration. 262,962, 2-9-82, Cl. D13-99.000.
- Sundin, Harry, to AB Karlshamns Plastindustri. Curler. 263,002, 2-9-82, Cl. D28-37.000.
- Tanaka, Hisaji: See—
- Nishiyama, Masanobu; Yamamoto, Yosuke; Murakami, Toshikazu; and Tanaka, Hisaji, 262,936, Cl. D32-40.000.
- Tokheim Corporation: See—
- Rowan, David C.; and Mittermaier, Armin E., 262,970, Cl. D15-9.200.
- Tong, King C., to Cheung, Kwok K.; Tong, King S.; and Tong, Wing K. Vanity mirror. 263,003, 2-9-82, Cl. D28-78.000.
- Tong, King S.: See—
- Tong, King C., 263,003, Cl. D28-78.000.
- Tong, Wing K.: See—
- Tong, King C., 263,003, Cl. D28-78.000.
- Toybox Corporation: See—
- Abe, Yoichi; and Matsumoto, Hajime, 262,982, Cl. D21-177.000.
- vonElm, Gunter A. H. Rotatable beverage mixer. 262,935, 2-9-82, Cl. D7-157.000.
- Wetmore, Halsey J., II: See—
- Ronck, Norvel J.; and Wetmore, Halsey J., II, 262,972, Cl. D15-11.000.
- Wiedeman, Donald R.: See—
- Holler, Frederick W., Jr.; and Wiedeman, Donald R., 262,994, Cl. D24-8.000.
- Wiedmann, Conrad D.: See—
- Mills, Janet L.; and Wiedmann, Conrad D., 262,946, Cl. D9-433.000.
- Wistrand, John, to Clairol Incorporated. Dryer and combined comb attachment. 263,001, 2-9-82, Cl. D28-13.000.
- Wolfe, James A.: See—
- McNab, Robert B.; and Wolfe, James A., 262,956, Cl. D12-155.000.
- Woolford, Anthony Y. Merchandising kiosk. 262,926, 2-9-82, Cl. D6-144.000.
- Woudstra, Hilco. Furniture door. 262,929, 2-9-82, Cl. D6-193.000.
- Xerox Corporation: See—
- Hutcheson, Claude H., 262,968, Cl. D14-107.000.
- Yamamoto, Yosuke: See—
- Nishiyama, Masanobu; Yamamoto, Yosuke; Murakami, Toshikazu; and Tanaka, Hisaji, 262,936, Cl. D32-40.000.

LIST OF PLANT PATENTEES

- Bailey, Dorothy J. S., to San Joaquin Rose Co. Rose plant. 4,822, 2-9-82, Cl. 22.000.
- San Joaquin Rose Co.: See—
- Bailey, Dorothy J. S., 4,822, Cl. 22.000.
- Anderson, Frederic W. Plum tree. 4,823, 2-9-82, Cl. 38.000.

CLASSIFICATION OF PATENTS

ISSUED FEBRUARY 9, 1982

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 3	129	4,314,413	CLASS 66	13	4,314,461	CLASS 104	173 R	4,314,511	CLASS 132	110	4,314,605
1.1	4,314,379	CLASS 37	54	4,314,414	152	4,314,462	CLASS 105	149	4,314,512	163	4,314,606
1.9	4,314,380	CLASS 40	21 C	4,314,415	203	4,314,463	CLASS 106	15.05	4,314,850	166	4,314,607
1.912	4,314,381	CLASS 4	152	4,314,416	178	4,314,464	CLASS 107	16	4,314,851	250	4,314,608
236	4,314,382	CLASS 7	209	4,314,417	40	4,314,465	CLASS 108	99	4,314,853	3	4,314,855
170	4,314,383	CLASS 8	358	4,314,418	16	4,314,466	CLASS 109	224	4,314,513	25.4	4,314,856
94.1 R	4,314,800	CLASS 42	50	4,314,419	456 R	4,314,467	CLASS 110	3	4,314,514	66	4,314,575
94.14	4,314,801	CLASS 43	42.39	4,314,420	67	4,314,838	CLASS 111	77	4,314,515	67	4,314,576
94.26	4,314,802	CLASS 44	111	4,314,421	73	4,314,839	CLASS 112	13	4,314,516	244	4,315,096
137	4,314,803	CLASS 45	10 A	4,314,825	87	4,314,840	CLASS 113	84	4,314,517	255	4,315,097
187	4,314,804	CLASS 46	134	4,314,422	88	4,314,841	CLASS 114	312	4,314,518	13	4,314,577
405	4,314,805	CLASS 47	232	4,314,423	90	4,314,842	CLASS 115	360	4,314,519	84	4,314,578
406	4,314,806	CLASS 48	77	4,314,826	92	4,314,843	CLASS 116	454.5	4,314,581	312	4,314,579
410	4,314,810	CLASS 49	400	4,314,424	103	4,314,844	CLASS 117	495	4,314,582	360	4,314,580
457	4,314,811	CLASS 50	267	4,314,425	57	4,314,468	CLASS 118	533.11	4,314,583	454.5	4,314,581
468	4,314,812	CLASS 51	298	4,314,827	221	4,314,469	CLASS 119	613	4,314,584	495	4,314,582
471	4,314,814	CLASS 52	393	4,314,426	234	4,314,470	CLASS 120	625.34	4,314,585	533.11	4,314,583
524	4,314,815	CLASS 53	411	4,314,427	270	4,314,471	CLASS 121	625.47	4,314,586	613	4,314,584
527	4,314,816	CLASS 54	310 A	4,314,384	341	4,314,472	CLASS 122	142 R	4,314,522	625.34	4,314,585
539	4,314,817	CLASS 55	321	4,314,385	11	4,314,473	CLASS 123	50	4,314,523	625.47	4,314,586
549	4,314,818	CLASS 56	293	4,314,386	15 FD	4,314,474	CLASS 124	54	4,314,524	38	4,314,587
630	4,314,819	CLASS 57	51	4,314,387	27 R	4,314,475	CLASS 125	716	4,314,525	38	4,314,587
648	4,314,820	CLASS 58	98	4,314,388	155	4,314,476	CLASS 126	14.55	4,314,526	38	4,314,587
310 A	4,314,384	CLASS 59	293	4,314,388	188	4,314,477	CLASS 127	16	4,314,527	38	4,314,587
321	4,314,385	CLASS 60	230 B	4,314,821	304 C	4,314,478	CLASS 128	147 R	4,314,528	38	4,314,587
293	4,314,386	CLASS 61	230 R	4,314,822	643	4,314,479	CLASS 129	52 MB	4,314,529	38	4,314,587
51	4,314,386	CLASS 62	13.3	4,314,435	706	4,314,480	CLASS 130	143 R	4,314,530	38	4,314,587
98	4,314,387	CLASS 63	13.6	4,314,436	774	4,314,481	CLASS 131	193 CP	4,314,531	38	4,314,587
293	4,314,388	CLASS 64	13.6	4,314,436	805	4,314,482	CLASS 132	198 A	4,314,532	38	4,314,587
230 B	4,314,821	CLASS 65	13.6	4,314,436	861.35	4,314,483	CLASS 133	242	4,314,533	38	4,314,587
230 R	4,314,823	CLASS 66	13.6	4,314,436	861.41	4,314,484	CLASS 134	438	4,314,534	38	4,314,587
376	4,314,389	CLASS 67	13.6	4,314,436	200	4,314,485	CLASS 135	439	4,314,535	38	4,314,587
35	4,314,390	CLASS 68	13.6	4,314,436	574	4,314,486	CLASS 136	440	4,314,536	38	4,314,587
273	4,314,391	CLASS 69	13.6	4,314,436	865	4,314,487	CLASS 137	485	4,314,537	38	4,314,587
25.12	4,314,392	CLASS 70	13.6	4,314,436	869	4,314,488	CLASS 138	514	4,314,538	38	4,314,587
25.16	4,314,394	CLASS 71	13.6	4,314,436	10 R	4,314,846	CLASS 139	571	4,314,540	38	4,314,587
25.35	4,314,393	CLASS 72	13.6	4,314,436	51	4,314,847	CLASS 140	110 R	4,314,542	38	4,314,587
110.5	4,314,395	CLASS 73	13.6	4,314,436	173 C	4,314,848	CLASS 141	163 R	4,314,543	38	4,314,587
156.8 R	4,314,396	CLASS 74	13.6	4,314,436	228	4,314,849	CLASS 142	201	4,314,544	38	4,314,587
157.3 R	4,314,397	CLASS 75	13.6	4,314,436	451	4,314,489	CLASS 143	417	4,314,545	38	4,314,587
407	4,314,398	CLASS 76	13.6	4,314,436	479	4,314,490	CLASS 144	424	4,314,546	38	4,314,587
420	4,314,399	CLASS 77	13.6	4,314,436	4 R	4,314,491	CLASS 145	428	4,314,547	38	4,314,587
426.4	4,314,400	CLASS 78	13.6	4,314,436	18	4,314,492	CLASS 146	429	4,314,548	38	4,314,587
611	4,314,401	CLASS 79	13.6	4,314,436	1.03	4,314,493	CLASS 147	449	4,314,549	38	4,314,587
721	4,314,402	CLASS 80	13.6	4,314,436	1.06	4,314,494	CLASS 148	37	4,314,854	38	4,314,587
730	4,314,403	CLASS 81	13.6	4,314,436	1.16	4,314,495	CLASS 149	1 D	4,314,550	38	4,314,587
41	4,314,404	CLASS 82	13.6	4,314,436	1.26	4,314,496	CLASS 150	11	4,314,551	38	4,314,587
133	4,314,405	CLASS 83	13.6	4,314,436	177	4,314,497	CLASS 151	70	4,314,552	38	4,314,587
169 B	4,314,406	CLASS 84	13.6	4,314,436	411 A	4,314,498	CLASS 152	152	4,314,553	38	4,314,587
444	4,314,407	CLASS 85	13.6	4,314,436	485 R	4,314,499	CLASS 153	204.15	4,314,554	38	4,314,587
494	4,314,408	CLASS 86	13.6	4,314,436	1 B	4,314,500	CLASS 154	207.21	4,314,555	38	4,314,587
82	4,314,409	CLASS 87	13.6	4,314,436	12	4,314,501	CLASS 155	214 F	4,314,556	38	4,314,587
202	4,314,410	CLASS 88	13.6	4,314,436	438	4,314,502	CLASS 156	218 DA	4,314,557	38	4,314,587
81	4,314,411	CLASS 89	13.6	4,314,436	41	4,314,503	CLASS 157	260	4,314,558	38	4,314,587
100	4,314,412	CLASS 90	13.6	4,314,436	85	4,314,504	CLASS 158	283	4,314,559	38	4,314,587
		CLASS 91	13.6	4,314,436	365	4,314,506	CLASS 159	303.14	4,314,560	38	4,314,587
		CLASS 92	13.6	4,314,436	217	4,314,507	CLASS 160	327	4,314,561	38	4,314,587
		CLASS 93	13.6	4,314,436	275.7	4,314,508	CLASS 161	335.5	4,314,562	38	4,314,587
		CLASS 94	13.6	4,314,436	288	4,314,509	CLASS 162	419 P	4,314,563	38	4,314,587
		CLASS 95	13.6	4,314,436	523	4,314,510	CLASS 163	693	4,314,564	38	4,314,587
		CLASS 96	13.6	4,314,436			CLASS 164	719	4,314,565	38	4,314,587
		CLASS 97	13.6	4,314,436			CLASS 165	763	4,314,570	38	4,314,587
		CLASS 98	13.6	4,314,436			CLASS 166	27.2	4,314,571	38	4,314,587
		CLASS 99	13.6	4,314,436			CLASS 167			38	4,314,587
		CLASS 100	13.6	4,314,436			CLASS 168			38	4,314,587
		CLASS 101	13.6	4,314,436			CLASS 169			38	4,314,587
		CLASS 102	13.6	4,314,436			CLASS 170			38	4,314,587
		CLASS 103	13.6	4,314,436			CLASS 171			38	4,314,587
		CLASS 104	13.6	4,314,436			CLASS 172			38	4,314,587
		CLASS 105	13.6	4,314,436			CLASS 173			38	4,314,587
		CLASS 106	13.6	4,314,436			CLASS 174			38	4,314,587
		CLASS 107	13.6	4,314,436			CLASS 175			38	4,314,587
		CLASS 108	13.6	4,314,436			CLASS 176			38	4,314,587
		CLASS 109	13.6	4,314,436			CLASS 177			38	4,314,587
		CLASS 110	13.6	4,314,436			CLASS 178			38	4,314,587
		CLASS 111	13.6	4,314,436			CLASS 179			38	4,314,587
		CLASS 112	13.6	4,314,436			CLASS 180			38	4,314,587
		CLASS 113	13.6	4,314,436			CLASS 181			38	4,314,587
		CLASS 114	13.6	4,314,436			CLASS 182			38	4,314,587
		CLASS 115	13.6	4,314,436			CLASS 183			38	4,314,587
		CLASS 116	13.6	4,314,436			CLASS 184			38	4,314,587
		CLASS 117	13.6	4,314,436			CLASS 185			38	4,314,587
		CLASS 118	13.6	4,314,436			CLASS 186			38	4,314,587
		CLASS 119	13.6	4,314,436			CLASS 187			38	4,314,587
		CLASS 120	13.6	4,314,436			CLASS 188			38	4,314,587
		CLASS 121	13.6	4,314,436			CLASS 189			38	4,314,587
		CLASS 122	13.6	4,314,436			CLASS 190			38	4,314,587
		CLASS 123	13.6	4,314,436			CLASS 191			38	4,314,587
		CLASS 124	13.6	4,314,436			CLASS 192			38	4,314,587
		CLASS 125	13.6	4,314,436			CLASS 193			38	4,314,587
		CLASS 126	13.6	4,314,436			CLASS 194			38	4,314,587
		CLASS 127	13.6	4,314,436			CLASS 195			38	4,314,587
		CLASS 128	13.6	4,314,436			CLASS 196			38	4,314,587
		CLASS 129	13.6	4,314,436			CLASS 197			38	4,314,587
		CLASS 130	13.6	4,314,436			CLASS 198			38	4,314,587
		CLASS 131	13.6	4,314,436			CLASS 199			38	4,314,587
		CLASS 132	13.6	4,314,436			CLASS 200			38	4,314,587
		CLASS 133	13.6	4,314,436			CLASS 201			38	4,314,587
		CLASS 134	13.6	4,314,436			CLASS 202			38	4,314,587
		CLASS 135	13.6	4,314,436			CLASS 203			38	4,314,587
		CLASS 136	13.6	4,314,436			CLASS 204			38	4,314,587
		CLASS 137	13.6	4,314,436			CLASS 205			38	4,314,587
		CLASS 138	13.6	4,314,436			CLASS 206			38	4,314,587
		CLASS 139	13.6	4,314,436			CLASS				

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CLASS 203	13	4,314,953	319	4,315,180	347 AD	4,315,255	88	4,315,305	
1	4,314,890	45.5	4,314,954	323	4,315,181	347 CC	4,315,256	126	4,315,306
18	4,314,891	51	4,314,955				4,315,257	134	4,315,307
CLASS 204	311	4,314,671	183	4,314,733	347 P	4,315,258	200	4,315,308	
38 B	4,314,892	65	4,314,956	322	4,314,734	590	4,315,259		4,315,309
40	4,314,893	102	4,314,957			723	4,315,260		4,315,310
98	Re.30,864	167	4,314,958			784	4,315,261		4,315,311
192 M	4,314,894	187	4,314,959			799	4,315,262		4,315,312
195 M	4,314,895	276	4,314,960	59	4,315,182	825.52	4,315,263		4,315,313
195 R	4,314,896	325	4,314,961	94	4,315,183	825.72	4,315,264		4,315,314
299 R	4,314,897	328.6	4,314,962				4,315,265		4,315,315
		501	4,314,963				4,315,266		4,315,316
			4,314,964						4,315,317
CLASS 206	35.2	4,314,678	CLASS 266	217	4,315,186	7.5	4,315,260	300	4,315,315
0.81	4,314,632	55.3	4,314,679	194	4,314,695	18 E	4,315,261	483	4,315,316
148	4,314,633	107.4 A	4,314,680			100 ST	4,315,262	510	4,315,317
167	4,314,634					112 C	4,315,263	515	4,315,318
232	4,314,635					797	4,315,264	571	4,315,319
321	4,314,636					840	4,315,265	808	4,315,320
387	4,314,637					895	4,315,266	900	4,315,321
427	4,314,638								4,315,322
									4,315,323
434	4,314,639								
443	4,314,640								
621	4,314,641								
626	4,314,642								
	4,314,643								
CLASS 208	8 LE	4,314,898	CLASS 272	136	4,314,697	CLASS 346	1.1	4,315,267	
11 R	4,314,899						17	4,315,268	
126	4,314,900						135.1	4,315,269	
216 R	4,314,901						155	4,315,270	
254 R	4,314,902								
CLASS 209	396 ML	4,315,152	CLASS 273	3.6	4,315,194	CLASS 350	3.66	4,314,739	
569	4,314,644						96.15	4,314,740	
638	4,314,645						96.33	4,314,741	
							310	4,314,742	
CLASS 210	445 T	4,315,153	CLASS 277	27	4,314,704	CLASS 352	130	4,314,744	
440	4,314,903								
611	4,314,904								
670	4,314,905								
754	4,314,906								
CLASS 211	49 D	4,314,648	CLASS 279	1 C	4,314,706	CLASS 353	101	4,314,745	
113	4,314,646								
121	4,314,647								
CLASS 219	10.71	4,315,124	CLASS 280	11.18	4,314,708	CLASS 354	23 R	4,314,746	
56	4,315,125						25	4,314,747	
70	4,315,126						139	4,314,748	
73.1	4,315,127						198	4,314,749	
85 D	4,315,128						212	4,314,750	
99	4,315,129						286	4,314,751	
121 EB	4,315,131						321	4,314,752	
121 FS	4,315,133							4,314,753	
121 L	4,315,130								
121 LD	4,315,132								
203	4,315,134								
216	4,315,135								
391	4,315,136								
441	4,315,137								
	4,315,138								
486	4,315,139								
505	4,315,140								
511	4,315,141								
523	4,315,142								
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23.83	4,314,650						14 D	4,314,755	
326	4,314,651						15	4,314,756	
							29	4,314,757	
							40	4,314,758	
							73	4,314,759	
CLASS 222	1	4,314,652	CLASS 285	252	4,314,719	CLASS 356	4	4,314,760	
41	4,314,653						141	4,314,761	
83	4,314,654						150	4,314,762	
146 HE	4,314,655						237	4,314,763	
153	4,314,656						315	4,314,764	
162	4,314,657								
213	4,314,658								
590	4,314,659								
CLASS 228	140	4,314,660	CLASS 289	184	4,314,727	CLASS 357	20	4,315,271	
263 R	4,314,661						22	4,315,272	
							27	4,315,273	
							38	4,315,274	
							56	4,315,275	
CLASS 233	26	4,314,662	CLASS 290	300	4,314,728	CLASS 358	8	4,315,276	
							16	4,315,277	
							44	4,315,278	
							80	4,315,279	
							107	4,315,280	
							128.6	4,315,282	
							209	4,315,283	
							280	4,315,284	
								4,315,285	
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382	4,315,145						95	4,315,287	
493	4,315,146						98	4,315,288	
							99	4,315,289	
							106	4,315,290	
							113	4,315,291	
							122	4,315,292	
							130.2	4,315,293	
							137	4,315,294	
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46 R	4,314,665						103	4,315,296	
78 R	4,314,666						191	4,315,297	
93 R	4,314,667						253	4,315,298	
							274	4,315,299	
							382	4,315,300	
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								4,315,302	
								4,315,303	
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							103	4,315,296	
							191	4,315,297	
							253	4,315,298	
							274	4,315,299	
							382	4,315,300	
								4,315,301	
								4,315,302	
								4,315,303	
								4,315,304	

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28	4,314,965		4,315,020				4,315,063	189	4,315,080
49	4,314,966		4,315,021				4,315,064		
64	4,314,967		4,315,022				4,315,065		
68	4,314,968		4,315,023				4,315,066		
72	4,314,969		4,315,024				4,315,067		
82	4,314,970		4,315,025				4,315,068		
98	4,314,971		4,315,026				4,315,069		
191	4,314,972		4,315,027				4,315,070		
209	4,314,973		4,315,028				4,315,071		
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			4,315,031						
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(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

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6 : 4,314,873	4,314,884	4,314,476	4,314,530	4,314,563	4,314,821
9 : 4,314,706	4,314,897	4,314,707	4,314,551	4,314,591	4,314,825
01 : 4,314,602	4,314,978	4,314,978	4,314,610	4,314,683	4,314,827
02 : 4,315,157	4,314,916	4,315,255	4,314,621	4,314,744	4,314,832
04 : 4,315,317	4,314,982	4,315,288	4,314,700	4,314,785	4,315,047
04 : 4,314,515	4,314,983	4,315,325	4,314,701	4,314,895	4,315,167
04 : 4,314,698	4,314,984	4,314,423	4,314,711	4,314,917	4,315,289
04 : 4,314,773	4,314,987	4,314,523	4,314,716	4,314,970	4,315,292
06 : 4,315,015	4,314,997	4,314,664	4,314,758	4,314,974	4,315,293
06 : 4,314,406	4,315,021	4,314,732	4,314,783	4,315,024	4,314,712
06 : 4,314,407	4,315,027	4,314,792	4,314,840	4,315,042	4,315,110
06 : 4,314,445	4,315,030	4,314,793	4,315,034	4,315,060	4,315,114
06 : 4,314,449	4,315,045	4,314,852	4,315,035	4,315,071	4,314,415
06 : 4,314,477	4,315,059	4,314,967	4,315,140	4,315,083	4,314,429
06 : 4,314,478	4,315,076	4,315,050	4,315,182	4,315,190	4,314,486
06 : 4,314,495	4,315,077	4,315,051	4,315,204	4,315,220	4,314,536
06 : 4,314,500	4,315,078	4,315,106	4,314,596	4,315,224	4,315,073
06 : 4,314,525	4,315,080	4,314,613	4,314,631	4,315,234	4,315,087
06 : 4,314,556	4,315,097	4,314,643	4,314,675	4,315,235	4,315,092
06 : 4,314,557	4,315,098	4,314,760	4,314,735	4,315,261	4,315,111
06 : 4,314,561	4,315,101	4,314,816	4,314,905	4,315,272	4,315,174
06 : 4,314,567	4,315,104	4,314,843	4,314,906	4,315,323	4,315,225
06 : 4,314,569	4,315,105	4,314,929	4,314,943	4,314,384	4,315,282
06 : 4,314,586	4,315,109	4,314,431	4,314,960	4,314,409	4,314,702
06 : 4,314,628	4,315,150	4,314,573	4,315,010	4,314,453	4,315,149
06 : 4,314,636	4,315,151	4,314,626	4,315,300	4,314,457	4,315,294
06 : 4,314,645	4,315,153	4,314,657	4,314,597	4,314,502	4,314,385
06 : 4,314,652	4,315,163	4,314,659	4,315,025	4,314,505	4,314,412
06 : 4,314,654	4,315,169	4,314,678	4,314,671	4,314,538	4,314,576
06 : 4,314,667	4,315,171	4,314,742	4,314,723	4,314,566	4,314,503
06 : 4,314,676	4,315,183	4,314,777	4,314,769	4,314,620	4,314,670
06 : 4,314,682	4,315,198	4,314,878	4,314,904	4,314,630	4,315,251
06 : 4,314,687	4,315,207	4,314,971	4,315,044	4,314,665	4,314,451
06 : 4,314,689	4,315,209	4,315,072	4,315,085	4,314,721	4,314,482
06 : 4,314,693	4,315,218	4,315,210	4,314,548	4,314,724	4,314,546
06 : 4,314,699	4,315,223	4,315,240	4,314,432	4,314,728	4,314,558
06 : 4,314,703	4,315,237	4,315,241	4,314,466	4,314,830	4,314,593
06 : 4,314,718	4,315,238	4,314,518	4,314,510	4,314,876	4,314,598
06 : 4,314,719	4,315,258	4,314,572	4,314,560	4,314,893	4,314,607
06 : 4,314,736	4,315,264	4,314,587	4,314,635	4,314,925	4,314,644
06 : 4,314,743	4,315,265	4,314,633	4,314,722	4,314,956	4,314,658
06 : 4,314,750	4,315,266	4,314,647	4,314,733	4,314,962	4,314,661
06 : 4,314,762	4,315,270	4,314,648	4,315,164	4,315,000	4,314,802
06 : 4,314,775	4,315,278	4,314,829	4,315,197	4,315,014	4,314,855
06 : 4,314,784	4,315,290	4,314,866	4,315,228	4,315,102	4,314,875
06 : 4,314,788	4,315,296	4,314,976	4,315,243	4,315,113	4,314,886
06 : 4,314,823	4,315,303	4,314,490	4,315,315	4,315,170	4,314,915
06 : 4,314,838	4,315,312	4,314,390	4,315,321	4,315,249	4,314,919
06 : 4,314,841	4,315,313	4,314,405	4,315,330	4,314,460	4,314,920
06 : 4,314,858	4,315,319	4,314,418	4,314,474	4,314,562	4,314,930
06 : 4,314,863	4,315,331	4,314,452	4,314,483	4,314,565	4,314,942
06 : 4,314,869	4,314,395	4,314,455	4,314,547	4,314,753	4,314,985
06 : 4,314,879	4,314,411	4,314,480	4,314,550	4,314,757	4,314,991

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4,315,033	4,314,751	4,314,542	4,314,592	4,315,208	4,315,148
4,315,107	4,314,837	4,314,581	4,315,308	4,315,211	4,315,179
4,315,129	4,314,881	4,314,612	4,315,310	4,315,256	4,315,217
4,315,154	4,314,888	4,314,616	Re.30,862	4,315,295	4,315,248
4,315,192	4,314,896	4,314,622	4,314,381	4,315,324	4,315,263
4,315,193	4,314,908	4,314,629	4,314,382	4,314,389	4,315,304
4,315,222	4,314,909	4,314,651	4,314,394	4,314,903	4,314,484
4,315,227	4,314,931	4,314,656	4,314,425	4,314,309	4,314,717
4,315,247	4,314,945	4,314,681	4,314,434	4,315,126	4,314,890
4,315,250	4,314,988	4,314,697	4,314,441	4,314,420	4,315,301
4,315,259	4,315,023	4,314,697	4,314,456	4,314,498	4,314,501
4,315,262	4,315,028	4,314,799	4,314,473	4,314,709	4,314,634
4,315,269	4,315,046	4,314,842	4,314,545	Re.30,864	4,314,397
4,315,277	4,315,062	4,314,849	4,314,532	4,314,532	4,314,543
4,315,281	4,315,084	4,314,864	4,314,677	4,314,632	4,314,553
4,315,302	4,315,096	4,314,864	4,314,725	4,314,887	4,314,737
4,315,314	4,315,112	4,314,865	4,314,778	4,314,961	4,314,740
4,315,320	4,315,137	4,314,934	4,314,779	4,314,794	4,314,771
35 : 4,315,133	4,315,143	4,314,949	4,314,990	4,314,404	4,314,835
36 : 4,314,383	4,315,146	4,314,990	4,314,795	4,314,408	4,314,835
4,314,396	4,315,175	4,315,036	4,314,836	4,314,410	4,314,885
4,314,422	4,315,181	4,315,056	4,314,844	4,314,419	4,315,093
4,314,424	4,315,184	4,315,074	4,314,900	4,314,442	4,314,727
4,314,430	4,315,232	4,315,160	4,314,918	4,314,446	4,314,741
4,314,447	4,315,298	4,315,188	4,314,923	4,314,568	4,314,880
4,314,458	4,315,305	4,315,194	4,314,944	4,314,577	4,315,244
4,314,467	4,315,316	4,315,253	4,314,966	4,314,608	4,315,326
4,314,471	4,315,327	4,314,528	4,314,977	4,314,611	4,314,615
4,314,494	4,314,684	4,314,400	4,315,001	4,314,614	4,314,426
4,314,496	4,314,738	4,315,055	4,314,672	4,315,055	4,314,539
4,314,499	4,314,989	4,314,579	4,315,075	4,314,688	4,314,578
4,314,554	4,315,141	4,314,901	4,315,082	4,314,805	4,314,601
4,314,559	4,314,552	4,314,926	4,315,115	4,314,899	4,314,673
4,314,638	4,314,580	4,315,162	4,315,121	4,314,912	4,314,969
4,314,640	4,314,443	4,315,246	4,315,128	4,315,079	4,314,980

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01 : 262,921	262,966	20 : 262,958	262,989	262,929	49 : 262,973
06 : 262,920	262,995	25 : 262,964	262,994	262,971	51 : 262,925
262,924	262,983	26 : 262,993	262,930	262,998	53 : 262,934
262,939	263,001	27 : 262,987	262,931	262,978	55 : 262,922
262,946	262,955	32 : 262,938	262,944	262,972	262,948
262,947	262,999	33 : 262,926	262,953	262,956	262,977
262,950	262,952	34 : 262,960	262,961	262,997	262,985
262,957	262,970	262,961	262,997	262,954	262,988
262,959	262,933	262,935	263,004	262,968	262,996
262,962	262,974	262,942	262,927		

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06 : 4,822	4,823				
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OFFICIAL GAZETTE of the UNITED STATES PATENT and TRADEMARK OFFICE

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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT member countries and the most recent PCT rule changes see the notices appearing in the Official Gazette at 1001 O.G. 14 on Dec. 9, 1980 and at 1012 O.G. 20 on Nov. 17, 1981.

Note that the international fees have been increased as of Jan. 1, 1982. The current schedule of fees is as follows:

Transmittal fee	\$ 35.00
Search fee	300.00
International Fees	
Basic Fee (first 30 pages)	270.00
Basic Supplemental Fee (for each sheet over 30)	6.00
Designation Fees	65.00

GERALD J. MOSSINGHOFF,
Commissioner of Patents
and Trademarks.

Jan. 19, 1982.

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

3,819,261, Re. S.N. 304,593, Filed Sept. 22, 1981, Cl. 355/14, TRANSFER TYPE ELECTROPHOTOGRAPHIC DUPLICATING APPARATUS, Masaya Ogawa, Owner of Record: *Minolta Camera Kabushiki Kaisha, Osaka, Japan*, Attorney or Agent: Robert J. Lasker, Ex. Gp.: 217

3,819,314, Re. S.N. 285,785, Filed July 22, 1981, Cl. 425/526, LINEAR TRANSFER INJECTION BLOW MOLDING, Paul Marcus, Owner of Record: *Inventor*, Attorney or Agent: John Kurucz, Ex. Gp.: 147

4,115,575, Re. S.N. 295,153, Filed Aug. 21, 1981, Cl. 424/250, 2-(3-AMINO-2-HYDROXY-PROPOXY)-PYRAZINES, Jorg Frei, et al., Owner of Record: *Ciba-Geigy Corp., Ardsley, N.Y.*, Attorney or Agent: Karl F. Jorda, et al., Ex. Gp.: 125

4,173,973, Re. S.N. 320,835, Filed Nov. 12, 1981, Cl. 128/78, HYPEREXTENSION BACK BRACE, David J. Hendricks, Owner of Record: *Inventor*, Attorney or Agent: James van Santen, et al., Ex. Gp.: 335

4,206,578, Re. S.N. 320,618, Filed Nov. 12, 1981, Cl. 52/730, GRID TEE FOR SUSPENSION CEILINGS OR THE LIKE, David F. Mieyal, Owner of Record: *Donn Products, Inc., Westlake, Ohio*, Attorney or Agent: Charles B. Gordon, et al., Ex. Gp.: 354

4,236,682, Re. S.N. 320,852, Filed Nov. 13, 1981, Cl. 242/198, SLOT LOADED, LOW PROFILE MAGNETIC TAPE DRIVE, William M. Barton, Jr., Owner of Record: *Cipher Data Products, Inc., San Diego, Calif.*, Attorney or Agent: Michael H. Jester, et al., Ex. Gp.: 242

4,265,533, Re. S.N. 320,697, Filed Nov. 12, 1981, Cl. 355/110, APPARATUS FOR THE PRODUCTION OF DUPLICATE, AND OTHER FILMS FROM ORIGINAL FILMS, Robert W. Gasse, Owner of Record: *Inventor*, Attorney or Agent: James E. Nolan, et al., Ex. Gp.: 211

1015 OG 16

REQUESTS FOR REEXAMINATION FILED

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

3,344,023, Reexam. No. 90/000,127, Requested: Dec. 21, 1981, Cl. 424/319, TREATMENT OF HYPERTENSION WITH L-ALPHA-METHYL-3,4-DIHYDROXYPHENYLALANINE, Donald F. Reinhold, et al., Owner of Record: *Merck & Co., Inc., Rahway, N.J.*, Attorney or Agent: Harry E. Westlake, Jr., Ex. Gp.: 125, Requester: Koro, Inc., c/o Kirschstein, Kirschstein, Ottinger & Cobrin, New York, N.Y.

4,054,937, Reexam. No. 90/000,138, Requested: Jan. 18, 1982, Cl. 361/319, CAPACITOR, Lyon Mandelcorn, et al., Owner of Record: *Westinghouse Electric Corp., Pittsburgh, Pa.*, Attorney or Agent: C. L. McHale, Ex. Gp.: 220, Requester: Mobay Chemical Corp., Pittsburgh, Pa.

Public Access to Computerized Patent Search Data Bases.

The PTO, in cooperation with Intellectual Property Owners, Inc. (IPO), has arranged for the placement of computer terminals in the Public Search Room which access the Pergamon Video Patsearch System. This patent searching tool enables the computerized searching of front page and abstract data contained in all patents issued during the past eleven years. In addition, video searching of selected drawings in these patents is also available by computer search for display on viewing screens. The computer searching service is available to the general public in the Public Search Room for a fee related to the cost of each search. The new service was initiated on Dec. 4, 1981 in a ceremony attended by Senator Charles McC. Mathias, Jr., Commissioner Gerald Mossinghoff, and former Commissioner Donald Banner who is now president of IPO.

RICHARD J. SHAKMAN,

Dec. 8, 1981. Assistant Commissioner
for Administration.

Errata

3,999,386.—Stanley W. Crull and Donald J. MacIntosh. OVERSPEED PROTECTION CONTROL FOR AN ENGINE. In the notice of Disclaimers appearing on page 40 in the Official Gazette of Sept. 29, 1981, all references to Patent No. 3,999,386, should be deleted as the disclaimer notice appeared in the Official Gazette of Sept. 15, 1981.

4,076,809.—W. David Weir, and Edward E. Kilbourn. PHOSPHONOUREIDE AND PHOSPHONOTHIOUREIDE ANTHELMINTICS. In the notice of Disclaimers appearing on page 48 in the Official Gazette of Dec. 29, 1981, all references to Patent No. 4,076,809, should be deleted as the disclaimer notice appeared in the Official Gazette of Nov. 24, 1981.

Patent Copy Subscription Orders

Subscribers to the Subscription Service for copies of patents issuing on a weekly basis are requested to review the list of patent numbers appearing on the form (PTO-473) accompanying each of the following orders:

For the issue weeks of approximately December 15, 1981, through February 16, 1982, patents with decimal sub-classes may have been omitted from the listings for those issues.

Verification for missing patents can be made by referring to the Official Gazette's Classification of Patents Index for each weekly issue. The missing copies can be ordered through the Customer Services facility. Send your order and remittance to:

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Washington, D.C. 20231

Feb. 5, 1982.

RICHARD J. SHAKMAN,
Assistant Commissioner
for Administration.

PATENT NOTICES

Certificates of Correction for the Week of Feb. 16, 1982

Re. 30,495	4,261,652	4,287,462	4,298,477
D. 261,755	4,262,110	4,288,532	4,298,491
4,025,456	4,263,191	4,289,377	4,298,879
4,044,993	4,263,409	4,289,417	4,299,039
4,131,946	4,264,262	4,289,812	4,299,140
4,168,339	4,264,920	4,290,462	4,299,446
4,168,533	4,265,660	4,290,711	4,299,597
4,197,954	4,268,420	4,290,984	4,299,621
4,206,137	4,268,658	4,291,388	4,299,719
4,211,197	4,269,180	4,291,420	4,299,728
4,214,375	4,270,857	4,291,869	4,300,253
4,217,487	4,271,374	4,292,067	4,300,255
4,219,098	4,271,876	4,293,006	4,300,923
4,221,253	4,272,503	4,293,928	4,301,513
4,227,253	4,274,420	4,294,058	4,301,690
4,233,721	4,276,788	4,294,613	4,302,042
4,236,203	4,277,459	4,295,044	4,302,104
4,237,874	4,277,826	4,295,333	4,302,141
4,237,990	4,278,288	4,295,915	4,302,914
4,245,618	4,280,658	4,296,009	4,303,076
4,245,621	4,280,683	4,296,729	4,303,392
4,246,195	4,281,204	4,296,968	4,303,726
4,247,476	4,281,329	4,297,003	4,303,956
4,250,098	4,281,574	4,297,521	4,304,059
4,250,295	4,283,764	4,297,644	4,304,076
4,256,187	4,284,451	4,298,171	4,304,977
4,256,304	4,284,945	4,298,194	4,305,107
4,257,728	4,286,384	4,298,333	4,305,461
4,260,693	4,287,251	4,298,457	4,305,475

Dedication

3,411,222.—*Kathryn I. Williams*, La Grange Park, Ill. METHOD AND APPARATUS FOR INSTRUCTION OF CROSS PATTERN CRAWLING AND CROSS PATTERN WALKING. Patent dated Nov. 19, 1968. Dedication filed Dec. 22, 1981, by the assignee, *Beverly E. William*.

Hereby dedicates this patent to the People of the United States of America.

Disclaimer

4,184,500.—*Leroy J. Herbst*, Louisville, Ky. DISHWASHER VENT CLOSING ARRANGEMENT. Patent dated Jan. 22, 1980. Disclaimer filed Nov. 18, 1981, by the assignee, *General Electric Co.*

Hereby enters this disclaimer to claims 1, 2, 3, 4 and 5 of said patent.

Disclaimer and Dedication

4,222,207.—*Robert Clayton Latimer*, Irvine and Gary Warren Pomeroy, Corona Del Mar, Calif. APPARATUS AND METHOD FOR ERECTING A MOBILE HOME ON A PREEXISTING LOT. Patent dated Sept. 16, 1980. Disclaimer and Dedication filed Dec. 3, 1981, by the assignee, *Golden West Homes*.

Hereby disclaims and dedicates to the Public the remaining term of said patent.

Patent Suits

Notices under 35 U.S.C 290; Patent Act of 1952

3,031,450, *Boehringer Ingelheim G.m.b.H.*, SUBSTITUTED PYRIMIDO- (5-4-D)-PYRIMIDINES, filed Aug. 24, 1981, D.C.N.J. (Newark), Doc. 81-2704, *Boehringer Ingelheim International v. Barr Laboratories, Inc.*

3,121,159, *Edward Rogal*, CENTRAL OFFICE MASSIVE MEMORY RECORDING SYSTEM, filed Aug. 24, 1981, D.C., S.D. Ohio (Dayton), Doc. C-3-81-444, *Valutron, N.V. v. NCR Corp.*

3,151,051 *Braid and Lawlor*, SYNTHESIS OF FLUORINE COMPOUNDS; 3,883,407, *Albert L. Dittman*, PRODUCTION OF 2,2,2-TRIFLUOROACETYL CHLORIDE, filed Aug. 14, 1981, D.C.N.J. (Newark), Doc. 81-2618, *Airco, Inc. v. Halocarbon Products Corp.* Notice of voluntary dismissal of action filed Aug. 20, 1981.

3,182,952, *Mark Controls Corp.*, BALL VALVES, filed Aug. 12, 1981, D.C., W.D. Mich. (Grand Rapids), Doc. G81-629CA1, *Mark Controls Corp. v. Contraco Industries, Inc.*

3,237,319, *University Patents, Inc.*, SKI BOOTS HAVING A THIXOTROPIC MATERIAL ENCIRCLING THE ANKLE PORTION THEREOF; 3,402,411, same, PROCESS FOR MAKING BOOTS, SPORTS EQUIPMENT AND HATS, filed May 22, 1980, D.C. Colo. (Denver), Doc. 80-K-675, *University Patents, Inc. v. Sport-Obermeyer, Ltd.* Order of dismissal with prejudice filed May 19, 1981.

3,241,520, *Wisconsin Alumni Research Foundation*, PARTICLE COATING APPARATUS, filed Aug. 24, 1981, D.C., S.D. Fla. (Miami), Doc. 81-1861-CIV-ALH, *Wisconsin Alumni Research Foundation v. Key Pharmaceuticals, Inc.*

3,250,702, *Ecodyne Corp.*, PROCESS FOR PURIFYING LIQUIDS AND PARTICULATE ION EXCHANGE MATERIAL USED THEREFOR; 3,250,703, same, PROCESS AND APPARATUS FOR REMOVING IMPURITIES FROM LIQUIDS, filed Aug. 13, 1981, D.C. Conn. (Bridgeport), Doc. B-81-370, *Ecodyne Corp. v. Croll-Reynolds Engineering Co., Inc.*

3,250,703. (See 3,250,702.)

3,276,784, *Henry M. Anderson, Jr.*, LAMINATED SKI HAVING A FOAM FILLED HONEYCOMB CORE, filed Oct. 2, 1978, D.C., N.D. Ohio (Toledo), Doc. C78-456, *Henry M. Anderson, Jr. v. Sears, Roebuck and Co.* Action dismissed on Aug. 18, 1981.

3,281,824, *Naxon Telesign Corp.*, ROTATING SWITCH APPARATUS FOR CONTROLLING TRAVELING MESSAGE SIGNS, filed Sept. 21, 1979, D.C., N.D. Ill. (Chicago), Doc. 79 C 3949, *Naxon Telesign Corp. v. GTE Information Systems Inc.* Action dismissed with prejudice on Sept. 15, 1981.

3,316,744, *ETC, Inc.*, IMPACT CRIMPING TOOL, filed Mar. 6, 1981, D.C., N.D. Ohio (Cleveland), Doc. C81-381, *ETC, Inc. v. Bilfro Corp., et al.* Stipulation and Order dismissing case without prejudice filed Aug. 26, 1981.

3,324,723, *Rutherford and Holland*, INDICATING DEVICES FOR HEAT TREATMENT, filed Aug. 14, 1981, D.C.N.J. (Newark), Doc. 81-2608, *Propper Mfg. Co., Inc. v. Organon, Inc.*

3,383,487, *Chomerics, Inc.*, THIN FLEXIBLE MAGNETIC SWITCH; 3,860,771, same, KEYBOARD SWITCH ASSEMBLY WITH DOME SHAPED ACTUATOR HAVING ASSOCIATED UNDERLYING CONTACTOR MEANS; 4,066,851, same, KEYBOARD SWITCH ASSEMBLY HAVING FOLDABLE PRINTED CIRCUIT BOARD, INTEGRAL SPACER AND PREFORMED DEPRESSION-TYPE ALIGNMENT FOLD, filed Nov. 12, 1980, D.C. Minn. (Minneapolis), Doc. 4-80 Civil 565, *Chomerics, Inc. v. Sheldahl, Inc.* Pat. Nos. 3,383,487, 3,860,771 and 4,066,851 are valid and enforceable. Defendants are permanently restrained and enjoined from infringing said patents. Filed Aug. 26, 1981.

3,396,500 *Polynesian Pools, Inc.*, SWIMMING POOL CONSTRUCTION, filed Sept. 7, 1979, D.C., W.D. Mich. (Grand Rapids), Doc. G79-533 CA6, *Polynesian Pools, Inc. v. GPM Industries, Inc., et al.* Upon approval of this Judgment, actions against Defendants are dismissed with prejudice and without costs. Filed Sept. 9, 1981.

3,396,792, *Magna Corp.*, PROCESS FOR RECOVERY OF PETROLEUM BY STEAM STIMULATION, filed Sept. 4, 1981, D.C., S.D. Tex. (Houston), Doc. H-81-2270, *Magna Corp. v. Petrolite Corp.*

3,402,407, *Edythe D. Andrews*, DRAIN COVER, filed Aug. 18, 1981, D.C., N.D. Ill. (Chicago), Doc. 81 C 4703, *Edward O'Malley Valve Co. v. Mid-West Housewares, Inc., et al.* Same, filed Aug. 18, 1981, D.C., N.D. Ill. (Chicago), Doc. 81 C 4704, *Edward O'Malley Valve Co. v. Ace Hardware Corp., et al.* Same, filed Aug. 18, 1981, D.C., N.D. Ill. (Chicago), Doc. 81 C 4705, *Edward O'Malley Valve Co. v. Sears, Roebuck & Co., et al.*

3,402,411. (See 3,237,319.)

3,409,039, *Claude L. Griffin*, VALVE MEMBER HAVING CONICALLY TAPERED SEATING SURFACE, filed Aug. 10, 1981, D.C., S.D. Tex. (Houston), Doc. H-81-2001, *Reed-American Products Co. v. Gardner-Deaver Co.*

3,439,461, *Wilbert, Inc.*, BURIAL VAULTS; 3,464,171, same; 3,787,545, same, filed Oct. 5, 1981, D.C., N.D. Ohio (Akron), Doc. C81-1989A, *Wilbert, Inc. v. Akron Wilbert Vault Co. also known as Mack Wilbert Vault Co., Inc.*

3,464,171. (See 3,439,461.)

3,477,745, *Allied Insulation Co.*, QUICK CONNECTION OF PIPE TO DUCTING, filed Sept. 4, 1981, D.C., C.D. Calif. (Los Angeles), Doc. 81 4615, *Allied Insulation Co., doing business as Permanent Pipe Products Co. v. General Environment Corp., et al.*

3,515,307, *Sunbeam Plastics Corp., Inc.*, REPLACEABLE CAP, filed Sept. 18, 1981, D.C., S.D. Ind. (Evansville), Doc. EV 81-184-C, *Sunbeam Plastics Corp., Inc. v. Imperial Plastics, Inc.*

3,522,754, *L. E. Sauer Machine Co., Inc.*, REINFORCED FREEWHEELING RESILIENT COVER FOR ROTARY DIE-CUTTING ANVIL, filed Sept. 21, 1981, D.C., N.D. Ill. (Chicago), Doc. 81C5301, *L. E. Sauer Machine Co., Inc. v. Triangle Die and Supply Co.* Plaintiff, pursuant to Rule 41(a) (1) F.R.C.P. dismissed the above cause of action without prejudice. Filed Sept. 22, 1981. Same, filed Sept. 24, 1981, D.C.N.J. (Newark), Doc. 81-3029, *Dicar, Inc. v. L. E. Sauer Machine Co.*

3,529,879, *Information Design, Inc.*, MODULAR CONSTRUCTION FOR STORAGE CABINET, filed July 24, 1981, D.C. Conn. (Bridgeport), Doc. B 81-337, *National Microsales Corp., et al. v. Information Design, Inc., et al.*

3,568,706, *Anderson, Greenwood & Co.*, PRESSURE RELIEVING SYSTEM, filed Sept. 8, 1981, D.C., S.D. Tex. (Houston), Doc. H-81-2280, *Anderson, Greenwood & Co. v. Brunswick Corp.*

3,616,114, *Hamaguchi and Tanaka*, REUSABLE COMPOSITE ADHESIVE SEALING TAPES, filed Sept. 2, 1981, D.C.N.J. (Trenton), Doc. 81-2811, *Johnson & Johnson v. The Procter & Gamble Co.*

3,620,858, *Energy Sciences & Consultants, Inc.*, AMMONIUM NITRATE EXPLOSIVE COMPOSITION; 3,630,250, same; 3,947,301, same, filed Mar. 7, 1979, D.C. Colo. (Denver), Doc. 79-F-230, *Energy Sciences & Consultants, Inc. v. Ireco Chemicals*. This action, including the Complaint and Counterclaim, are dismissed with prejudice and without costs. Filed Mar. 23, 1981.

3,630,250. (See 3,620,858.)

3,652,248, *Loxley, Webb and Barber*, PROCESS FOR REDRAWING SILICA GLASS RODS, filed Sept. 17, 1981, D.C., N.D. Ohio (Cleveland), Doc. C81-1885, *Pyromatics, Inc. v. Michael J. Petruziella, et al.*

3,773,309, *E. I. duPont de Nemours & Co.*, BIAXIALLY ORIENTED POLY(ETHYLENE TEREPHTHALATE) BOTTLE, filed Jan. 24, 1977, D.C., N.D. Ohio (Toledo), Doc. C 77-39, *Owens-Illinois, Inc., et al. v. E. I. duPont de Nemours & Co.* Case dismissed with prejudice at plaintiff's request under Rule 41(a) (2). Filed May 29, 1981.

3,787,545. (See 3,439,461.)

3,806,852, *The Stanley Works*, SWITCH ACTIVATING HINGE, filed Dec. 4, 1979, D.C. Del. (Wilmington), Doc. 79-567, *The Stanley Works v. McKinney Mfg. Co.* Final Order that Claims 1, 2, 6, 7, 8, 9 and 11 are invalid filed Aug. 27, 1981.

3,819,170, *Howard R. Longbrake*, PORTABLE SHARPENER, filed Sept. 21, 1981, D.C., N.D. Ohio (Cleveland), Doc. C 81-1902, *Howard R. Longbrake v. E-Z Products Mfg., Inc.*

3,860,771. (See 3,383,487.)

3,863,691, *Maschinenfabrik Zuckerman Komm-Ges.*, CONTOUR COPYING LATHE, filed Sept. 9, 1981, D.C. Dist. of Columbia (Wash. D.C.), Doc. 81-2160, *A. C. Compacting Presses, Inc. v. Maschinenfabrik Zuckerman Komm-Ges.*

3,883,407. (See 3,151,051.)

3,947,301. (See 3,620,858.)

3,951,352, *Western Broadcasting Co., Ltd.*, MAGNETIC TAPE GUIDANCE DEVICE, filed Nov. 2, 1979, D.C., N.D. Calif. (San Francisco), Doc. C79-3088 MHP, *Western Broadcasting Co. Ltd. v. Capital Records, Inc., et al.* Plaintiff is the owner of Pat. No. 3,951,352 which is valid and enforceable in law. Defendants are permanently enjoined and restrained from further infringing Plaintiff's patent. Filed Oct. 1, 1981.

3,973,282, *Marvin I. May*, WATER BED LINER HOLDER, filed June 19, 1981, D.C., C.D. Calif. (Los Angeles), Doc. 81-3044 KN, *Marvin I. May v. California Waterbed Consolidator, Inc.*

3,987,854, *Callihan, Meyer, Wainwright and Taylor*, GRAVEL PACKING APPARATUS AND METHOD, filed Sept. 4, 1981, D.C., S.D. Tex. (Houston), Doc. H-81-2271, *Baker International Corp. v. Completion Services, Inc.*

3,989,110, *Medlock and Ragsdale*, GREEN ONION HARVESTER, filed Sept. 25, 1981, D.C., N.D. Calif. (San Francisco), Doc. C81-3855 SAW, *H. Gene Medlock and Herman Ragsdale v. Oshita, Inc., et al.*

3,991,268, *William M. Goodall*, PCM COMMUNICATION SYSTEM WITH PULSE DELETION, filed Sept. 29, 1981, U.S. Ct. of Claims (Wash. D.C.), Doc. 587-81, *American Telephone and Telegraph Co., et al. v. The United States*.

4,004,768, *Nickson Industries, Inc.*, UNIVERSAL JOINT HANGER FOR TAILPIPPES AND THE LIKE, filed Sept. 22, 1981, D.C. Conn. (Hartford), Doc. H81-709, *Nickson Industries, Inc. v. Rol Manufacturing Co.*

4,016,253, Switzer and Farrington, VACCINE FOR IMMUNIZATION OF SWINE AGAINST BORDETELLA BRONCHISEPTICA INFECTION AND METHOD OF USE, filed Sept. 9, 1981, D.C.N.J. (Newark), Doc. 81-2858, *Burns-Biotech Laboratories, Inc. v. Beecham, Inc.*

4,017,002, Sterling Drug, Inc., DISPENSING MOIST TREATED TOWELS OR TISSUES, filed Aug. 27, 1981, D.C., E.D. Pa. (Philadelphia), Doc. 81-3518, *Sterling Drug, Inc. v. Scott Paper Co.*

4,021,257, Tile Council of America, Inc., CEMENTIOUS COMPOSITION FOR USE IN PREPARING POINTING COMPOUNDS OR MORTAR COMPOUNDS; **4,043,827**, same, SAG-RESISTANT DRY-SET MORTAR COMPOSITION, filed June 29, 1981, D.C.N.J. (Trenton), Doc. 81-2021, *Tile Council of America, Inc. v. American Hoechst Corp.* Plaintiff filed Notice of Discontinuance and Dismissal on Sept. 21, 1981.

4,026,555, Alpex Computer Corp., TELEVISION DISPLAY CONTROL APPARATUS, filed Sept. 1, 1981, D.C., S.D.N.Y., Doc., 81-Civ-5439, *Alpex Computer Corp. v. The Magnavox Co.*

4,043,827. (See **4,021,257**.)

4,066,851. (See **3,383,487**.)

4,070,733, A. J. Gerrard & Co., PRE-NOTCHED TIEING WIRES, filed Aug. 26, 1981, D.C., N.D. Tex. (Dallas), Doc. CA3-81-1539 R, *A. J. Gerrard & Co. v. Davis Walker Corp., et al.*

4,072,230, L. K. Van Keuren Co., Inc., ASSEMBLY FOR SUPPORTING DELICATE EQUIPMENT DURING SHIPPING, filed Sept. 14, 1981, D.C., N.D.N.Y. (Utica), Doc. 81-Civ-977, *L. K. Van Keuren Co., Inc. v. Central Packaging Supply, Inc.*

4,105,862, Slater Electric, Inc., OUTLET BOX HAVING SCREW MOUNTING MEANS; **4,188,854**, same, SCREW MOUNTING MEANS, filed Oct. 2, 1981, D.C., S.D.N.Y., Doc. 81-Civ-6101, *Slater Electric, Inc. v. Indian Head, Inc.*

4,142,855, Isolab, Inc., METHOD TO DETERMINE A DIAGNOSTIC INDICATOR OF BLOOD SUGAR CONDITION, AND, A LIQUID CHROMATOGRAPHIC MICROCOLUMN THEREFOR; **4,142,856**, same; **4,142,857**, same; **4,142,858**, same; **4,168,147**, same, filed Sept. 8, 1981, D.C., N.D. Calif. (San Francisco), Doc. C81-3545 SAW, *Isolab, Inc. v. Adron General Medical Center, et al.*

4,142,856. (See **4,142,855**.)

4,142,857. (See **4,142,855**.)

4,142,858. (See **4,142,855**.)

4,145,818, Hanspeter Kulling, METHOD AND APPARATUS FOR REMOVING A VAPORIZED LIQUID FROM A GAS, FOR USE IN E.G. A PROCESS BASED ON THE FLUIDIZED BED PRINCIPLE, filed Aug. 26, 1981, D.C.N.J. (Newark), Doc. 81-2726, *Glatt Air Techniques, Inc. v. Aeromatic AG, et al.*

4,146,096, Galen J. Rocker, LAWN RAKE AND CULTIVATOR, filed Sept. 4, 1981, D.C. Minn. (Minneapolis), Doc. 4-81 Civil 585, *Galen J. Rocker v. Robert Oldenburg, doing business as Oldenburg Sales and Service.*

4,168,147. (See **4,142,855**.)

4,171,013, Robert C. Clark, RETRACTABLE AWNING ASSEMBLY, filed Sept. 30, 1981, D.C. Colo. (Denver), Doc. 81-C1721, *Scott & Fetzer Corp., doing*

business as Carefree of Colorado Division v. A & E Systems, Inc., et al.

4,182,494, Anthony Manufacturing Corp., ANTI SIDE SPLASH DRIVE ARM FOR AN IMPACT DRIVE SPRINKLER, filed Aug. 10, 1981, D.C., C.D. Calif. (Los Angeles), Doc. 81 4045 AAH, *Anthony Manufacturing Corp. v. Space Vector Corp., doing business as International Irrigation.*

4,185,816, Morton Bernstein, SIT-UP EXERCISE APPARATUS, filed Sept. 9, 1981, D.C., S.D.N.Y., Doc. 81-Civ-5595, *Morton Bernstein v. Paragon Sporting Goods Co., Inc.*

4,188,854. (See **4,105,862**.)

4,193,189, Sergio Marin, SCISSORS OR SIMILAR CUTTING TOOLS WITH PLASTIC HANDLES, filed July 20, 1981, D.C., N.D. Ill. (Chicago), Doc. 81 C 4105, *Italy Produces, Snc v. A. K. Das & Co., Ltd.*

4,211,442, John D. Hansen, LOCK STRIKE, filed Sept. 8, 1981, D. C., N.D. Calif. (San Francisco), Doc. 81-3548 WHO, *John D. Hansen v. Schlage Lock Co.*

4,212,781, SCM Corp., MODIFIED EPOXY RESINS, PROCESSES FOR MAKING AND USING SAME AND SUBSTRATES COATED THEREWITH, filed Sept. 18, 1981, D.C., W.D. Pa. (Pittsburgh), Doc. 81-1580, *SCM Corp. v. Mobil Oil Corp.*

4,235,442, Fidelity Electronics, Ltd., ELECTRONIC BOARD GAME SYSTEM, filed May 22, 1981, D.C., N.D. Ohio (Cleveland), Doc. C81-1083, *Fidelity Electronics v. Tryom, Inc. Same, filed May 26, 1981, D.C., N.D. Tex. (Dallas), Doc. CA-3-81-0844G, Fidelity Electronics, Ltd. v. Applied Concepts, Inc.*

4,243,239, Russell A. Whitney, CATAMARAN DOLLY, filed Sept. 21, 1981, D.C., S.D. Fla. (Ft. Lauderdale), Doc. 81-6517-Civ-JAG, *Russell A. Whitney v. James Van Roo.*

4,266,578, Swain, Thomerson & Waldrop, DRILL PIPE PROTECTOR, filed Aug. 25, 1981, D.C., N.D. Tex. (Ft. Worth), Doc. CA4-81-460K, *Regal International, Inc. v. Bell Petroleum Services, Inc.*

4,270,911, Thomas A. McNew, METHOD AND SYSTEM FOR PROVIDING ELONGATED Z-FOLD COPY PAPER, filed Sept. 4, 1981, D.C., W.D. Okla. (Oklahoma City), Doc. CIV-81-1190-T, *Digital Magnetic Systems, Inc. v. Benjamin T. Ansley, Jr., doing business as ABM/Ansley Business Materials, et al.*

4,272,649, Williams Electronics, Inc., PROCESSOR CONTROLLED SOUND SYNTHESIZER, filed Oct. 2, 1981, D.C., S.D.N.Y., Doc. 81-6097, *Williams Electronics, Inc. v. Egawa International Co., Ltd.*

Re. 28,369, Merck & Co., Inc., RING A UNSATURATED-20-OXO-11, 17-BIS-OXYGENATED 16-METHYL STEROIDS OF THE PREGNANE SERIES, filed June 5, 1981, D.C.N.J. (Newark), Doc. 81-1738, *Merck & Co., Inc. v. Dell Laboratories, Inc.*

D. 257,663, Scott & Fetzer Corp., BRACKET DESIGN FOR RETRACTABLE AWNINGS, filed Sept. 30, 1981, D.C. Colo. (Denver), Doc. 81-C-1722, *Scott & Fetzer Corp., doing business as Carefree of Colorado Division v. A & E Systems, Inc.*

D. 259,184, Microtime, Inc., DIGITAL CLOCK, filed Sept. 16, 1981, D.C., N.D. Ill. (Chicago), Doc. 81 C 5226, *Microtime, Inc. v. On Tyme Products, Inc. Same, filed Sept. 29, 1981, D.C. Conn. (Bridgeport), Doc. B-81-445, Microtime, Inc. v. Sun Hill Industries, Inc.*

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

These patent collections are open to public use and each of the patent depository libraries, in addition, offers the publications of the patent classification system (e.g. The Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions, etc.) and provides technical staff assistance in their use to aid the public in gaining effective access to information contained in patents. With one exception, as noted in the

table following, the collections are organized in patent number sequence.

Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

State	Name of Library	Telephone Contact
Alabama	Birmingham Public Library	(205) 254-2555
Arizona	Tempe: Science Library, Arizona State University	(602) 965-7607
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	Sacramento: California State Library	(916) 322-4572
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	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 930-0850
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	Toledo/Lucas County Public Library	(419) 255-7055 Ext. 212
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	Milwaukee Public Library	(414) 278-3043

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PATENT EXAMINING CORPS
RENE D. TEGMEYER, Assistant Commissioner
WILLIAM FELDMAN, Deputy Assistant Commissioner
CONDITION OF PATENT APPLICATIONS AS OF January 9, 1982

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal- lurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	6-23-80
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	12-18-79
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthetics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	3-02-81
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director Coating; Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	11-14-80
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170— R. F. WHITE, Director Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufact- ure; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	10-06-80
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	5-20-80
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics; Communications, Op- tics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Composi- tions; Thermal and Photoelectric Batteries.	6-26-80
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—VACANT Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	3-24-80
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240— A. L. SMITH, Director Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling.	12-07-79
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	10-02-79
DESIGN, GROUP 290—KENNETH L. CAGE, Director Industrial Arts; Household, Personal and Fine Arts.	4-18-80
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprin- kling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	5-07-80
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	6-17-80
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330— R. E. AEGERTER, Director Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Infor- mation Dissemination.	3-17-80
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Gener- ation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	10-22-79
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350— G. M. FORLENZA, Director Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscel- laneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	3-17-80

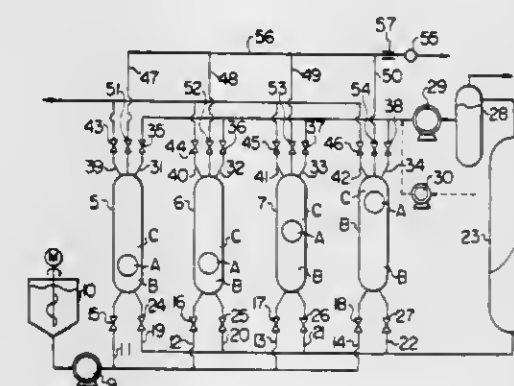
Expiration of patents: The patents within the range of numbers indicated below expire during January 1982, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents Numbers 3,163,865 to 3,167,777, inclusive
Plant Patents Numbers 2,465 to 2,467 inclusive

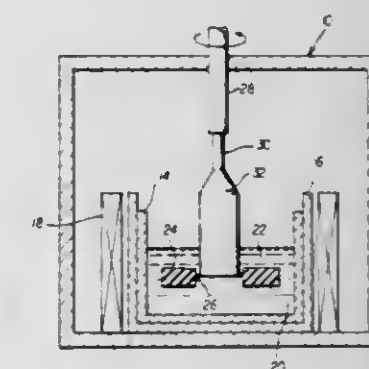
ERRATA

In the OFFICIAL GAZETTE, Vol. 1014, No. 2, January 12, 1982, page 631, "4,310,491", and page 632, "4,310,492" should be as follows:

<p style="text-align: center;">4,310,491</p> <p style="text-align: center;">APPARATUS FOR SUPPLYING RAW LIQUID AND RELIEVING PRESSURE OF HIGH-PRESSURE PRODUCT LIQUID</p> <p>Masakatsu Sakamoto, Matsudo; Kenji Uchida, Kashiwa; Yukishige Kamino, Shimoinayoshi, and Makoto Saito, Minorimachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan</p> <p>Filed Mar. 2, 1981, Ser. No. 239,511 Claims priority, application Japan, Mar 5, 1980, 55/26560 Int. Cl.³ B01J 8/00</p> <p>U.S. Cl. 422—234</p> <p style="text-align: right;">3 Claims</p>	<p style="text-align: center;">4,310,492</p> <p style="text-align: center;">APPARATUS FOR MAKING A SINGLE CRYSTAL</p> <p>Masae Nakanishi, Kiyoshi Nakamura, Syoza Kawasaki, all of Yokohama, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan</p> <p>Filed May 21, 1980, Ser. No. 151,877 Claims priority, application Japan, Nov. 14, 1979, 54/146496 Int. Cl.³ C30B 15/24, 15/34, 35/00 U.S. Cl. 422—246</p> <p style="text-align: right;">5 Claims</p>
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1. An apparatus for supplying raw liquid and relieving pressure of high-pressure product liquid, comprising: at least one cylinder provided with a float dividing the space in said cylinder into two working chambers, one of said working chambers being charged with a material slurry at a low pressure, said material slurry being pressurized by the pressure of a high-pressure product slurry formed by a reaction as said high-pressure product slurry is charged into the other working chamber, the pressurized material slurry being forced into a reaction vessel and then said product slurry in the other working chamber is discharged to the outside of the apparatus, a gas discharge pipe having a valve and connected to the side of said cylinder to which said high-pressure product slurry is charged, whereby, when the product slurry charged into said cylinder is to be discharged to the outside of said apparatus, the pressure of said product slurry is relieved and the gases separated from said product slurry are discharged through said valve disposed in said gas discharging pipe.



1. An apparatus for making a single crystal comprising: a sealed vessel:
a crucible received in the sealed vessel to hold a molten liquid from which a single crystal is to be grown; and
a floating member floating on said molten liquid, said floating member including an opening defining the cross sectional out line of said single crystal during growth of said single crystal being formed of said floating member comprising a sintered body consisting essentially of 0.5 to 5% by weight of at least one metal oxide member selected from the group consisting of oxide of yttrium and the lanthanum series elements; 0.5 to 5% by weight of aluminum oxide; 0.1 to 2.0% by weight of aluminum nitride and the balance of silicon nitride.

REISSUES

FEBRUARY 16, 1982

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 30,865

MANUFACTURE OF FILTER-TIPPED CIGARETTES

Clifford R. Marritt, Richmond, Va., and Robert E. Williams, Orpington, England, assignors to Molins Limited, London, England

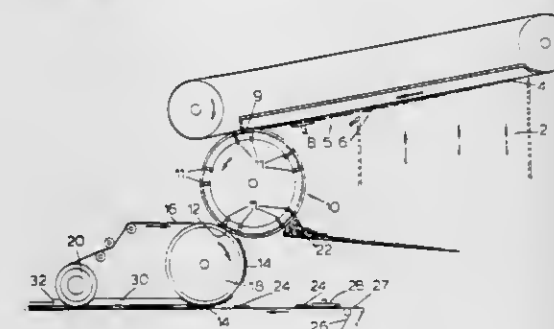
Original No. 3,999,559, dated Dec. 28, 1976, Ser. No. 472,922, May 23, 1974. Application for reissue Nov. 16, 1978, Ser. No. 961,331

Claims priority, application United Kingdom, May 30, 1973, 25738/73

Int. Cl.³ A24C 5/14, 5/18

U.S. Cl. 131—60

48 Claims



42. A rod-making machine comprising a conveyor arranged to move along a first path for feeding a wrapper web and a filler stream supported by the web, an air-pervious endless band arranged to feed at least part of said filler stream onto said wrapper web, a suction wheel having a concave peripheral cross-section and around which said band passes where it feeds said part of said filler stream onto said wrapper web, said endless band having a run arranged to move along a second path extending from said suction wheel and spaced from said conveyor, the paths of said conveyor and said run of said endless band converging in the direction of travel of said wrapper web to compress slightly said filler stream on said web between said run of said band and said conveyor, and means for wrapping the compressed filler stream in said wrapper web.

Re. 30,866

HAIR CURLING IMPLEMENT

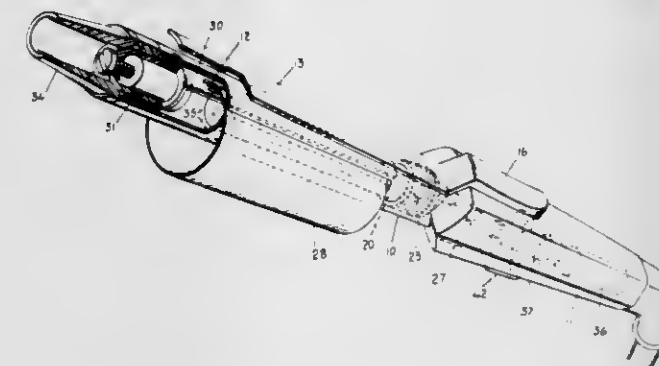
George Barradas, Glenville, Conn., assignor to Sunbeam Corporation (Canada) Limited, Toronto, Canada

Original No. 3,921,648, dated Nov. 25, 1975, Ser. No. 538,083, Jan. 2, 1975. Application for reissue Jul. 19, 1976, Ser. No. 706,522

Int. Cl.³ A45D 2/24

U.S. Cl. 132—37 R

16 Claims



1. A hair curling implement comprising an elongated curling arm, the curling arm having an elongated tubular barrel with a longitudinally extending slot therein; steam generating means mounted within said barrel; a clamping arm pivotally mounted on the curling arm and

adapted in the clamped position to cooperate with a longitudinally extending upper region of the barrel; an expansible mandrel constituted by a resilient perforate screen anchored along one longitudinal edge to the barrel and extending through said slot, the perforate screen being looped into a generally cylindrical configuration encircling a longitudinally extending lower region of the barrel, said lower region of the barrel having perforations for the passage of steam from the steam generating means to the interior of the mandrel; a rotary anchoring member mounted within the barrel for rotation about a longitudinal axis, the anchoring member providing a longitudinally extending arm offset from said axis, the screen being anchored along a second longitudinal edge to said arm of the anchoring member; and manually rotatable means mounted on said curling arm and coupled to the anchoring member for rotating the anchoring member whereby to expand or contract the mandrel.

Re. 30,867

TRAVEL CHAIR

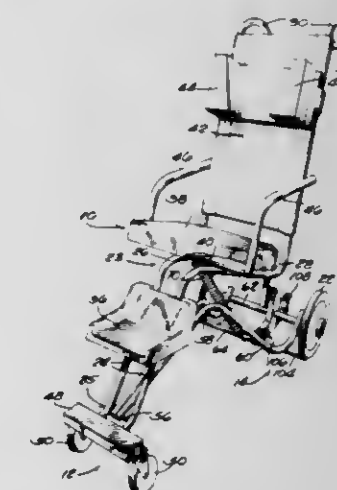
Edward J. Gaffney, Pewaukee, Wis., assignor to Orthokinetics, Incorporated, Waukesha, Wis.

Original No. 3,891,229, dated Jun. 24, 1975, Ser. No. 451,251, Mar. 14, 1974. Application for reissue Mar. 31, 1980, Ser. No. 135,602

Int. Cl.³ B62B 11/00

U.S. Cl. 280—642

11 Claims



1. In a wheel chair having a seat portion, a front leg portion, and a rear wheel assembly, the improvement wherein said front leg portion is so dimensioned as to be insertable through the space between the doorframe of an automobile and one of the seats thereof whereby said front leg portion is placed in support relation to the automobile and will support the seat portion from the automobile in the course of subsequent movement of the wheel chair into the automobile, and *retractor* means for assisting the attendant in retracting said rear wheel assembly upwardly independently of any change in the position of the front leg portion with respect to the seat portion while the front leg portion is supported on the automobile and to a position which clears the space beneath the rear end of the chair and permits the chair seat portion and retracted rear wheel assembly to be swung over and set upon said automobile seat.

Re. 30,868

PAPER ROLL DIAMETER SENSING DEVICE FOR USE WITH PAPER SPLICING APPARATUS

Yasuharu Mori, Amagasaki, Japan, assignor to Rengo Co., Ltd., Osaka, Japan

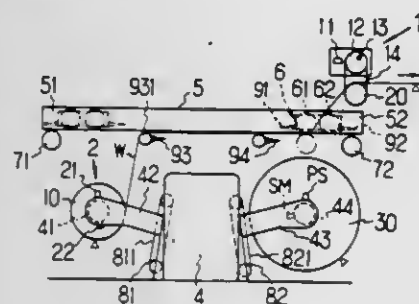
Original No. 3,974,490, dated Aug. 10, 1976, Ser. No. 492,172, Jul. 26, 1974. Application for reissue Aug. 9, 1978, Ser. No. 933,132

Claims priority, application Japan, Jun. 1, 1974, 49/62267

Int. Cl.³ G08B 21/00

U.S. Cl. 340—675

8 Claims



1. A paper roll diameter sensing device for use with paper splicing apparatus of the type splicing the running paper sheet or web unrolled from one paper roll supported by a paper roll supporting stand to the leading end of another paper roll which is also supported by said paper roll supporting stand and which has not yet unrolled, said paper roll diameter sensing device comprising,

a guide roll adapted to rotate in contact with the running paper sheet or web unrolled from said one paper roll;

first pulse generator means responsive to the rotation of said

guide roll to generate one pulse for each rotation of said guide roll [in the provision of] so as to provide a first pulse train having a pulse repetition rate indicative of a predetermined roll diameter at a given velocity of said web;

second pulse generator means responsive to the rotation of said one paper roll to generate one pulse for each rotation of said one paper roll [in the provision of] so as to provide a second pulse train having a pulse repetition rate indicative of the varying diameter of said one paper roll at said given velocity of said web; and

electrical means responsive to said first and second pulse trains to generate an output signal when the pulse repetition rates of said first and second pulse trains are coincident to indicate the reduction of the varying diameter of said one paper roll to said predetermined diameter, said electrical means comprising a selector circuit means responsive to at least one of said pulse trains to divide the said one of said pulse trains from one of said first and second pulse generator means into an odd-numbered pulse train and an even-numbered pulse train, the pulses of which occur in regular sequential alternation one with the other; and

a discriminator circuit means responsive to said pulse trains as modified by said selector circuit means generating said output signal when the pulses in said respective pulse trains occur in a predetermined alternating sequence with one another over a predetermined consecutive number of pulses in said respective pulse trains, said predetermined alternating sequence occurring when the pulse repetition rate of the pulses generated by said first pulse generator means coincides that of the pulses generated by the second pulse generator means.

PLANT PATENTS

GRANTED FEBRUARY 16, 1982

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

4,824

EARLY RIPENING HARALSON APPLE—LAUTZ CULTIVAR

Louis R. Lautz, La Crosse, Wis., assignor to Bailey Nurseries, Inc., St. Paul, Minn.

Filed Mar. 6, 1980, Ser. No. 127,963

Int. Cl.³ A01H 5/03

U.S. Cl. Plt.—34

1 Claim

1. A new and distinct variety of apple tree which originated as a whole tree mutation of the Haralson apple variety, substantially as illustrated and described, characterized by its general similarity to the Haralson apple tree, but being distinct therefrom by the ability to form apples which (1) ripen earlier, (2) are more uniformly red in color with the absence of striping, (3) are resistant to russetting, and (4) are slightly sweeter in taste.

4,825

YELLOW KALANCHOE PLANT

William L. Dilworth, Amarillo, Tex., assignor to J & L Plants Inc., Amarillo, Tex.

Filed Jul. 22, 1980, Ser. No. 171,022

Int. Cl.³ A01H 5/00

U.S. Cl. Plt.—68

1 Claim

1. A new and distinct variety of kalanchoe plant, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of the lemon fragrance with a yellow color, a tall habit of growth, its later flowering period, its response to photo period manipulation to produce flowers on a year around basis, good keeping, long lastingness in relatively dark environment, profusion of blooms on sturdy stems.

PATENTS

GRANTED FEB. 16, 1982

ERRATA

For	See
CLASS	PATENT NO.
340-693	4,315,594
376-246	4,315,800
260-373	4,315,965
372-050	4,316,156
372-059	4,316,157

PATENTS

GRANTED FEBRUARY 16, 1982

GENERAL AND MECHANICAL

4,315,334

DUAL PURPOSE COAT

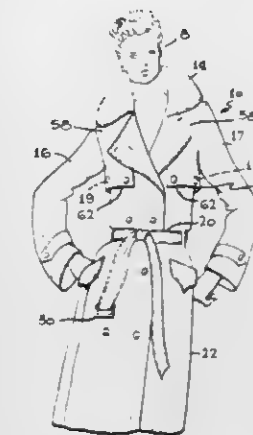
Wally Pearsall, 110 E. 9th St., Los Angeles, Calif. 90015

Filed Nov. 13, 1979, Ser. No. 93,377

Int. Cl.³ A41B 3/02

U.S. Cl. 2—85

5 Claims



1. A foldable coat comprising:
 - (a) a conventional coat including an upper back portion; and
 - (b) a capelette extending over said upper back portion having its upper and side edges attached to said upper back portion by reinforcing means so as to form with said upper back portion, while attached to said upper back portion and folded back upon itself, a pouch into which the remainder of the coat can be inserted.

4,315,335

DUAL SAFE HELMET

Alvin B. Kennedy, Jr., P.O. Box 282, Angleton, Tex. 77515, and

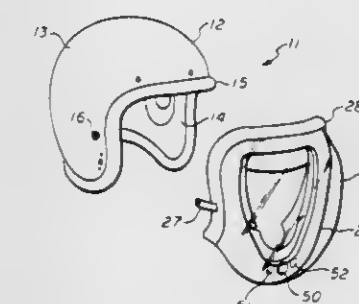
Steven W. Wright, 2917 Ocean Way, League City, Tex. 77573

Filed Oct. 16, 1980, Ser. No. 197,632

Int. Cl.³ A61F 9/04; A62B 18/02

U.S. Cl. 2—424

4 Claims



1. A personnel protective apparatus, which comprises:
 - a helmet for covering the head of a person, said helmet including a facial opening having a resilient edge roll thereabout;
 - a full face shield attachable to said helmet to cover said facial opening, said face shield having a one piece nonporous resilient seal bonded thereto about the periphery thereof, said seal including a face sealing portion to form a seal about the face of the person and a helmet sealing portion adapted to engage said edge roll and form a seal about said facial opening;
 - said face sealing portion including a first seal supported to contact and encircle the face to form an inwardly directed pressure energized seal with the face, and a second seal supported to encircle and contact the face outboard of said first seal to form an outwardly directed pressure energized seal with the face;
 - and said helmet sealing portion including a channel formed in said resilient seal to encircle said full face shield out-

4,315,336

INTRAOCULAR LENS

Stanley Poler, 78 E. Second St., New York, N.Y. 10003

Filed Jan. 21, 1980, Ser. No. 113,967

Int. Cl.³ A61F 1/16, 1/24

U.S. Cl. 3—13

17 Claims



1. As an article of manufacture, an optically finished plano-convex glass intraocular lens element, and a mounting adapter for said lens element, said adapter comprising a single piece of plane-parallel glass, the flat surface of said lens element being in secured intimate adjacency to one of the surfaces of said adapter piece, said adapter piece extending radially outward of said lens element at locations angularly spaced about the optical axis of said lens element.

4,315,337

AUTOCLAVABLE ANTERIOR CHAMBER IMPLANT

David P. Choyce, 9 Drake Rd., Westcliffe-on-Sea, Essex SSO

8LR, England

Filed Jul. 24, 1980, Ser. No. 171,889

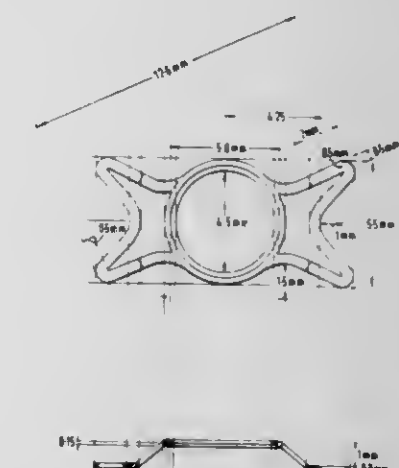
Claims priority, application United Kingdom, Jul. 26, 1979,

26094/79; Mar. 25, 1980, 10045/80

Int. Cl.³ A61F 1/16, 1/24

U.S. Cl. 3—13

1 Claim



1. In an anterior chamber implant comprising an optic to act as an artificial lens and a haptic to support the optic within the anterior chamber at a distance from the iris to avoid blockage of the pupil, the haptic including feet lying in a plane parallel to and spaced from the optic to rest on the anterior surface of the iris in use and being so shaped as to minimize obstruction to circulation of fluids within the anterior chamber of the eye, the improvement wherein the optic is made of glass and the haptic is separately formed from a high temperature thermoplastic material comprising a polyethersulphone capable of being autoclaved and clinically inert to the fluids in the anterior chamber of the eye, the haptic being formed with a lens mount portion for receiving and supporting the lens and inclined intermediate portion extending between the lens mount portion and the feet, and wherein the optic is secured to the haptic by the use of a solvent adhesive.

4,315,338

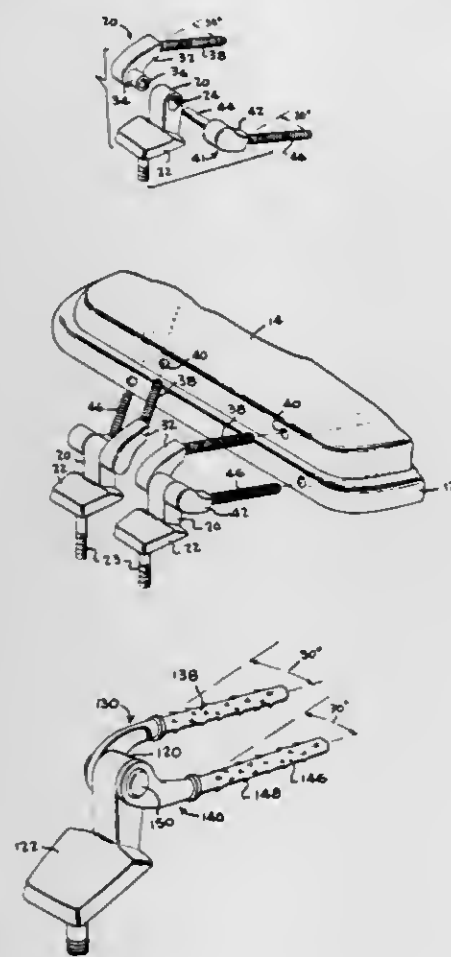
TOILET HINGE ARRANGEMENT

David E. Harrison, Columbus, Miss., assignor to Beatrice Foods Co., Chicago, Ill.

Filed Jul. 25, 1980, Ser. No. 173,265
Int. Cl.³ A47K 13/12

U.S. Cl. 4—236

21 Claims



1. A toilet hinge comprising a hinge post fixedly connectable to a toilet to extend upwardly therefrom, a pivot hole defined by an axially horizontal cylindrical surface extending transversely through an upper portion of said hinge post to define a pivot axis, a cover hinge component including a body member with a pivot sleeve extending transversely outwardly from said body member and having an outer end matingly received in said pivot hole with a pivot opening extending axially inward from the outer end of said pivot sleeve and a cover mounting spike extending downwardly from said body member at an acute angle with respect to said pivot axis and further including a seat hinge component including a swing arm, a pivot shaft extending transversely outwardly of said swing arm and matingly received in said pivot opening of said pivot sleeve and a seat mounting spike extending outwardly from said swing arm at an acute angle with respect to said pivot axis.

4,315,339

COMBINATION LAWN MOWER TOOL

Theodore P. Lightner, Box 712, Smithville, Tex. 78957
Filed Jan. 14, 1980, Ser. No. 82,046Int. Cl.³ B25F 3/00; B23P 19/04; B25B 13/48

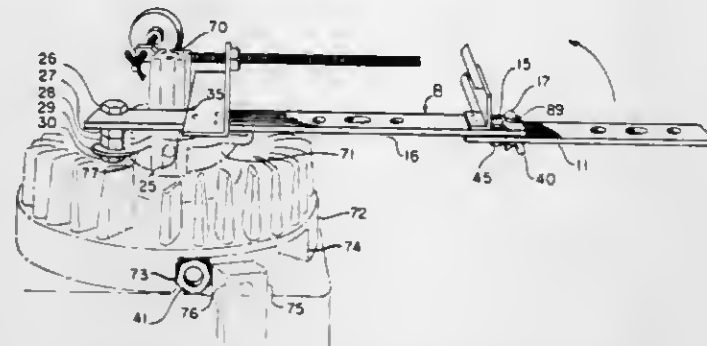
U.S. Cl. 7—138

3 Claims

1. A combination tool designed for use as a wrench, flywheel puller, valve remover and valve grinder for use on small gasoline combustion engines comprising:

a long rectangular bar of steel stock having a post like projection at one end projecting from one side thereof; a predetermined distance from said post, a short section of angle iron is welded across said long bar forming right angles on each side thereof;
said post in cooperation with said right angle formations provides a wrench-like coupling with a starter clutch housing when placed on top thereof for removing or tightening the same; A second rectangular bar, being parallel with and disposed in one position flat against

said first rectangular bar; said bars being secured together on one end by a pivot bolt and nut; said second bar being pivoted end to end of said long bar to a second position and secured in said position by a self-threading bolt and wing-nut to provide an extension handle when said tool is used for wrench use;
said bars in said first parallel position provide a double strength for flywheel pulling and further include three aligned holes through each of said parallel bars;
the two outside holes each contain a self-threading bolt which carries a force applying threaded nut and a



threaded wing nut for temporarily securing each bolt in its respective hole;
one bolt additionally temporarily carries a 1/2" nut which may be removed and screwed onto the top of the crankshaft to provide a base at said middle hole for said bars to rest on when using the tool to remove a flywheel; said middle hole when in position on top of the 1/2" nut allows the outside holes to line up with factory provided holes in the flywheel whereby said self-threading bolts may be threaded into said factory holes and said force applying nuts may be threaded clockwise against said parallel bars to elevate the flywheel for removal.

4,315,340

METHOD AND APPARATUS FOR MAKING A SELF-THREAD CREATING FASTENER

Donald R. Veldman, 9517 S. Ridgeland Ave., Oak Lawn, Ill. 60453

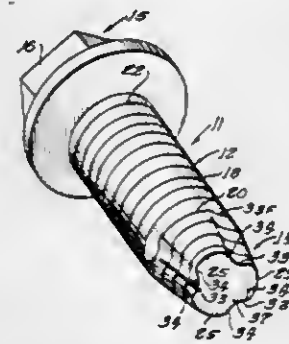
Division of Ser. No. 934,365, Aug. 17, 1978, Pat. No. 4,235,149.

This application Oct. 9, 1980, Ser. No. 195,603

Int. Cl.³ B21H 3/02, 3/08

U.S. Cl. 10—10 R

13 Claims



1. A method of manufacturing a thread forming screw having a frusto-conical lead-in section having a tapered surface with lobes thereon and with a polygonal cross section and having a helical thread on a straight shank section comprising the steps of: forming the polygonal cross section on said tapered lead-in section by rolling the tapered surface between a pair of thread rolling dies to force metal outwardly from the tapered surface to leave concavities therein and to force the displaced metal from the concavities radially outwardly and circumferentially into upwardly projecting thread forming lobes to provide alternating thread forming lobes projecting above the formerly tapered surface and inwardly extending cavities extending radially inwardly of said formerly tapered surface, and rolling a screw thread on said straight shank

during the same rolling operation that rolls said polygonal cross section on said frusto-conical lead-in section.

4,315,341

SHOE LASTING MACHINE

Gerhard Giebel, Bad Soden, and Rolf Klein, Pirmasens, both of Fed. Rep. of Germany, assignors to USM Corporation, Farmington, Conn.

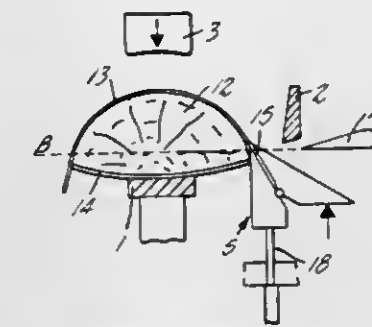
Filed Apr. 28, 1980, Ser. No. 144,332

Claims priority, application Fed. Rep. of Germany, May 7, 1979, 2918301

Int. Cl.³ A43D 21/00

U.S. Cl. 12—10.5

9 Claims



1. Machine for pulling over and toe lasting shoes comprising a support for supporting, bottom down, a last carrying a shoe upper and an insole, a plurality of pincers arranged about the last support for gripping marginal portions of an upper carried on its last supported by the last support, variable gripping force pincers, and a toe lasting wiper assembly comprising wiper plates mounted in a wiping plane for in-wiping movement, wherein the last support may be moved from an initial, lowered position into a position in which the bottom of a last supported thereby is in the wiping plane and for lowering the pincers relative to the last support whereby, with a firm gripping force applied to the upper by the pincers, the upper is tensioned over its last, and further wherein the pincers can be arranged above the wiping plane at the start of the machine cycle, auxiliary means being provided whereby any pincer remaining in the wiping plane after the upper has been tensioned as aforesaid can be moved downwardly out of said plane so as not to impede the in-wiping movement of the wipers, the gripping force applied by the pincers to the upper being reducible thus to allow slippage of the upper therein, said means for lowering the pincers comprises a plurality of fluid pressure operated piston-and-cylinder arrangements, one connected with each pincer, and wherein the auxiliary means is arranged to act through the connection between any pincer remaining in the wiping plane as aforesaid and its piston-and-cylinder arrangement, said connection between each pincer and its piston-and-cylinder arrangement comprises a movable connecting member, and wherein the auxiliary means comprises cam means arranged to act on said connecting member thus to cause it to move and to cause its associated pincer to be moved out of the wiping plane as aforesaid.

4,315,342

CAR WASHING IMPLEMENT

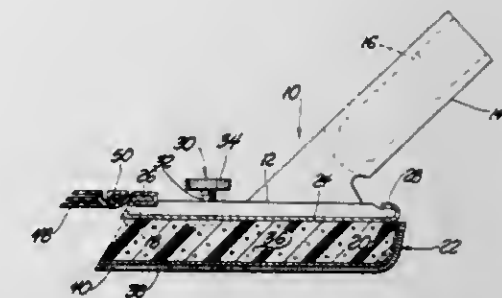
Earl M. Ash, 2498 Dalesford Dr., Troy, Mich. 48098
Filed Feb. 13, 1980, Ser. No. 121,264Int. Cl.³ B05C 17/00; A47L 1/15; B50S 3/04

U.S. Cl. 15—121

2 Claims

1. A car washing implement, comprising:
a paint-pad type holder and handle member,
a pad member sized for use with said holder and handle member and having a relatively fixed backing which is readily engaged to and disengaged from said holder and handle member for changing said pad member as and when desired,
said pad member being of a water retentive cellular construction for wash and rinse water saturation, as emerged

in a receptive bucket, and having a reasonably substantial thickness greater than needed or required for painting purposes and sufficient to allow for yielding conformity to ornamental and contoured auto body surfaces in the washing and distribution of rinse water thereover,
said pad member having a face opposite said holder and a rear edge extending beyond said holder to provide a work contacting surface on said rear edge,



a soft fibrous covering provided and disposed over the face and rear edge of said pad member for wear resistant and extended wash-life use of said pad member and to provide for more uniform wash and rinse water distribution there-through in the use thereof,
and a relatively free floating wiper blade having at least two wiping blade parts extending forwardly from said holder and handle member for rinse water wiping use as needed.

4,315,343

DOUBLE INSULATED VACUUM MOTOR ASSEMBLY

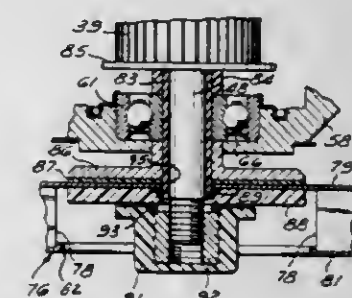
Thomas H. Neroda, and Roger E. Hollis, both of Watertown, N.Y., assignors to The Scott & Fetzer Co., Watertown, N.Y.

Filed Mar. 17, 1980, Ser. No. 130,984

Int. Cl.³ A47L 9/28

U.S. Cl. 15—339

8 Claims



1. A wet/dry utility vacuum cleaner assembly comprising a drum base having an interior for receiving vacuum-collected material, a cover for the base, a vacuum motor assembly mounted on the cover, an external port adapted to be coupled with a pickup hose and in communication with the interior of the drum base, the vacuum motor assembly including a universal type electrical motor and a circular vacuum chamber, the vacuum chamber being disposed axially between the motor and the base, the vacuum chamber including a central inlet facing and communicating with the drum interior and a peripheral outlet, a wall separating the motor and vacuum chamber, a portion of the metal motor shaft extending through the separating wall, a bearing mounted at said separating wall and rotatably supporting said shaft portion, a centrifugal fan mounted on said shaft portion in said vacuum chamber for creating a vacuum in said base interior, electrically insulating means preventing electrical current from being conducted between said shaft portion and fluids in said chamber, and seal means at said wall for preventing passage of fluid from said chamber into said motor, said shaft portion being covered with an electrically insulating sleeve, said fan being formed of sheet metal and being assembled over said sleeve, said metal shaft portion having an integral externally threaded free end extend-

ing axially beyond said sleeve, an electrically insulating nut threaded onto said shaft free end and retaining said fan thereon by axial compression of an annular portion of said fan surrounding said sleeve, and annular seal means compressed by said nut preventing contact of fluid with said threaded free end of said shaft.

4,315,344

VACUUM CLEANER WITH IMPROVED COMPRESSED AIR MEANS

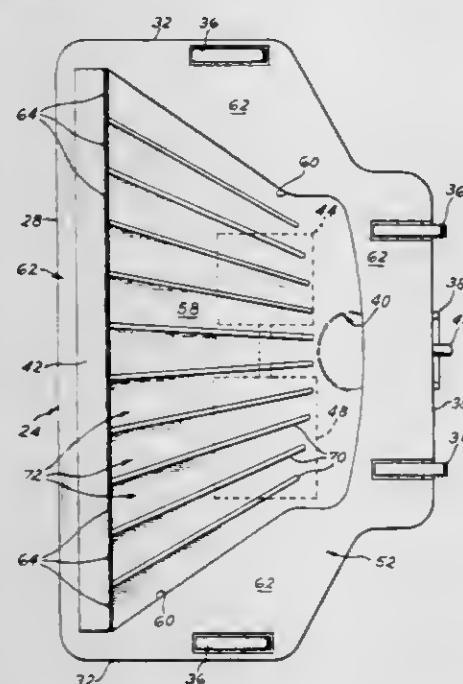
James C. Woodward, Elizabethtown, and Marion D. Holland, Cox's Creek, both of Ky., assignors to Robert E. Robbins, Elizabethtown, Ky.

Filed Aug. 15, 1980, Ser. No. 178,478

Int. Cl.³ A47L 5/14

U.S. Cl. 15—345

7 Claims



1. Vacuum cleaning apparatus including hood means adapted to be supported on and movable along a surface to be cleaned and having an opening on its bottom side confronting the said surface to form therewith a traveling vacuum chamber, said apparatus comprising:

- a suction nozzle means located within the hood means and having an outlet that is connected to a vacuum source;
- a jet stream manifold positioned generally across the hood means and being provided with a plurality of orifices which are directed at a flat angle toward the said surface to be cleaned;
- a low ceiling plate connecting the jet stream manifold with the suction nozzle means, and partitions suspended from the ceiling plate and positioned between adjacent orifices so as to form narrow wind tunnels connecting the jet stream manifold to the intake of the suction nozzle means;
- and an electrically driven miniature compressor positioned above the low ceiling plate and provided with a conduit to deliver a compressed fluid to the jet stream manifold.

4,315,345

PROFIED HINGE JOINT

Hendrikus J. Schijf, 2 Kraatsweg, 6732 Am Harskamp, Netherlands

Filed Jan. 3, 1980, Ser. No. 109,365

Int. Cl.³ E05D 7/10, 1/06

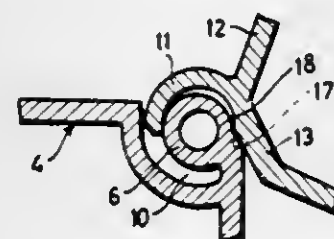
U.S. Cl. 16—267

8 Claims

1. A hinge joint including first and second cooperable hinge members,

- The first hinge member comprising:

- (a) an elongated frame adapted to be attached to a first part to be hinged, and
 - (b) a bead extending longitudinally along the frame, the bead having a substantially circular cross-sectional shape, and the bead having a recess in its exterior surface, the recess extending for the length of the bead, and
- II. the second hinge member comprising:
- (c) an elongated frame adapted to be attached to a second part to be hinged to the first part, and
 - (d) a concave channel extending longitudinally along the frame (c), the channel being sized to rotatably accom-



modate the bead within it, the channel having a longitudinal opening of a width such that when one longitudinal edge of the opening is located in the recess of the bead, the bead can pass between the longitudinal edges of the opening into the channel to assemble the hinge members, and when the hinge members are thereafter relatively rotated so that the one edge of the opening is out of registry with the recess, the bead cannot pass between the longitudinal edges of the opening, whereby the hinge members remain assembled in relatively rotatable condition.

4,315,346

CRUSH ROLL ARRANGEMENT FOR A CARD WEB

Robert Demuth, Wallisellen, Switzerland, assignor to Rieter Machine Works, Ltd., Winterthur, Switzerland

PCT No. PCT/EP78/00025, § 371 Date Aug. 24, 1979, § 102(e) Date Aug. 24, 1979, PCT Pub. No. WO79/00460, PCT Pub. Date Jul. 26, 1979

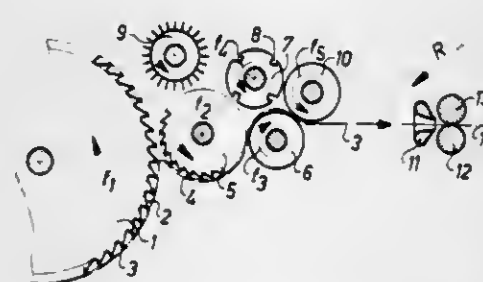
PCT Filed Dec. 6, 1978, Ser. No. 129,973

Claims priority, application Switzerland, Dec. 30, 1977, 16274/77

Int. Cl.³ D01G 15/96; B65H 27/00

U.S. Cl. 19—65 CR

28 Claims



1. Crush roll arrangement for a card web with two cooperating working rolls characterised in that at least one of the two working rolls is designed as a hollow member, the substantially cylindrical sleeve of which is adapted to be under the influence of a pressurized medium on the roll inside and which is elastically deformable in radial direction, and that a second roll is supported at such distance to counteract the deformation of the deformable roll locally.

4,315,347

FIBERIZATION OF COMPRESSED FIBROUS SHEETS VIA RANDO-WEBBER

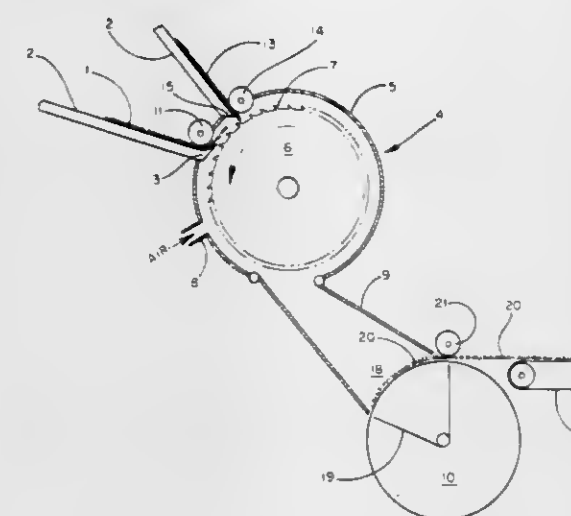
Jared A. Austin, Appleton, and Thomas P. Van Iten, Menasha, both of Wis., assignors to Kimberly-Clark Corporation, Menasha, Wis.

Filed Nov. 26, 1979, Ser. No. 97,242

Int. Cl.³ D01G 25/00

U.S. Cl. 19—145.7

5 Claims



1. A method for producing a non-woven fibrous web comprising a blend of short cellulosic fibers of papermaking length and longer reinforcing fibers, comprising the steps of:

- (a) feeding a compacted batt of short cellulosic fibers of papermaking length substantially radially to a rotating lickerin over a first nose bar such that said fibers are removed from said batt;
- (b) feeding a second compacted batt of longer reinforcing fibers over a second nose bar to the lickerin following the first nose bar in the course of lickerin rotation such that said fibers are removed from said batt so as to intimately blend the long and short fibers;
- (c) doffing the blend of short cellulosic fibers and the longer reinforcing fibers from the lickerin and directing the blend to a condensing screen to form a web, the improvement comprising: positioning said first nose bar such that it is separated from said lickerin by at least 0.040 inches, such that said short cellulosic fibers are removed from said compacted batt by vibratory forces generated by said lickerin impacting said compacted batt.

4,315,348

MECHANICAL LOCK FOR CLAMPS

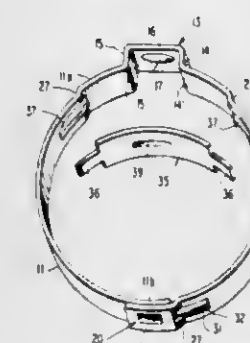
Hans Oetiker, Oberdorfstrasse 21, CH-8810 Horgen, Switzerland

Filed May 8, 1979, Ser. No. 36,979

Int. Cl.³ B65D 63/02; F16L 33/22

U.S. Cl. 24—20 CW

35 Claims



1. A clamp structure which comprises band means and at least one means for tightening the clamp structure about an object to be fastened, and in which at least one overlap exists

between an outer band portion and the free end of an inner band material which may cause a discontinuity in the smooth, ring-like internal configuration of the clamp structure, characterized by further means including a tongue-like means at the free end of the inner band material and an outwardly directed step in the corresponding overlapping area of the outer band portion provided with means for receiving the tongue-like means to thereby assure a substantially smooth, gap-free transition devoid of any step in the circumferential direction from each free end of the inner band materials to the ring-like configuration formed by the adjoining band portion of the band means when the clamp structure is tightened about said object by the use of said tightening means.

4,315,349

CONNECTING STRIP FOR CONVEYOR BELTS

Hermann Stolz, Muehlheim, Fed. Rep. of Germany, assignor to MATO Maschinen- und Metallwarenfabrik Curt Matthaei GmbH & Co. KG, Offenbach, Fed. Rep. of Germany

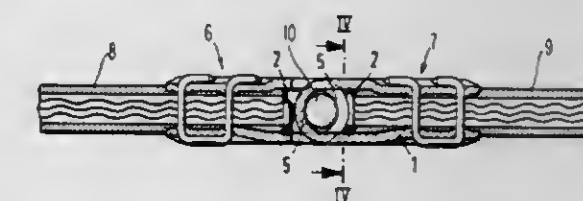
Filed Apr. 17, 1980, Ser. No. 141,218

Claims priority, application Fed. Rep. of Germany, May 21, 1979, 2920461

Int. Cl.³ F16G 3/02

U.S. Cl. 24—33 C

6 Claims



1. A connector strip for securing the ends of a conveyor belt to each other by means of a hinge pin, comprising a plurality of individual connector elements and means (2) operatively holding together said individual connector elements to form said strip, said holding means being rigidly secured to a surface of each connector element forming the strip, said holding means comprising a wire member having a wave form which is so connected to each connector element that the elements of a strip are axially aligned for the insertion of the hinge pin, whereby the bendability of the connector strip is assured for facilitating the insertion of the hinge pin (10).

4,315,350

OVERCENTER BUCKLE

Robert Looker, Carpinteria, and Richard E. McLennan, Rancho Palos Verdes, both of Calif., assignors to Satron, Inc., El Segundo, Calif.

Continuation-in-part of Ser. No. 3,544, Jan. 15, 1979. This

application Nov. 15, 1979, Ser. No. 94,579

Int. Cl.³ A44B 21/00

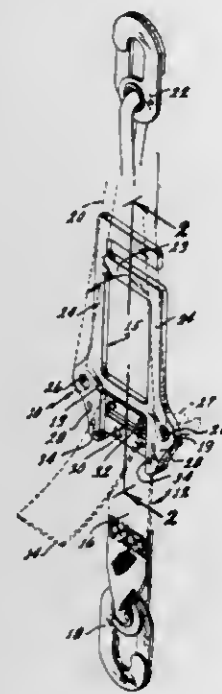
U.S. Cl. 24—68 R

12 Claims

1. A relatively flat overcenter buckle of the type which is connected to a loop of a connector extending in a first direction from the buckle and which is used for tensioning and removably securing to the buckle a belt extending in an opposite direction from the buckle through overcenter action of said buckle in which tension tends to keep said buckle in a locked position, said buckle comprising:

- a handle having a front surface and a rear surface, the handle having a pair of opposite sides with each side having an eye large enough for the connector to pass through and the eyes extending from each of said opposite lines along a line extending across said handle, the handle having two parallel legs extending perpendicularly to said line and spaced apart a distance sufficient to accommodate the width of the belt with clearance;
- a first cross member joined to said handle and extending parallel to said line across the space between the legs and

located in a plane which is offset with respect to the sides of said handle;
said handle being pivotable along an axis formed by said line between an unlock position in which the tension is released to a lock position in which the tension cooperates



with the offset of said first cross member to retain said buckle in said locked position;
said handle and cross member being a unitary structure; and, retaining means for retaining a loop of the belt to said handle.

4,315,351

SLIDER FOR RIBBONS AND ASSEMBLING PROCESS THEREOF

Dario Bartolini, Impruneta, Italy, assignor to Lovable Italiana S.p.A., Grassobblo, Italy

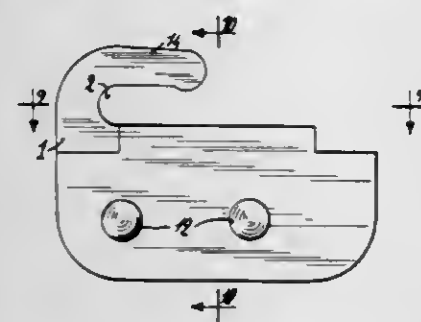
Division of Ser. No. 827,601, Aug. 25, 1977, abandoned. This application Dec. 11, 1978, Ser. No. 968,187

Claims priority, application Italy, Jun. 17, 1977, 24792 A/77

Int. Cl.³ A44C 5/18; A44B 11/25

U.S. Cl. 24—198

4 Claims



1. In combination with a fabric, a ribbon slider comprising a body or member of thermoplastic material including a first planar portion defining at least one ribbon passage and slide slot, and including a second welding or sealing portion extending as a continuation of said first portion, said second portion being coplanar with a face of said first portion and being provided with one or more side projections ultrasonically welded to said fabric by diffusion of the molten thermoplastic material of the tips of said projections through the loops of said fabric, said slider comprising two reversely opposed identical slider elements, each of the slider elements having a resilient arm cantilevered extending parallel to part of the slider edge opposite to said fabric welding or sealing portion to define part of the ribbon slide slot.

4,315,352

LOCKING DEVICE FOR A BRACELET OR NECKLACE

Hans R. Wagner, Rte. de Plagne 82, CH-2537 Vauffelin/BE, Switzerland

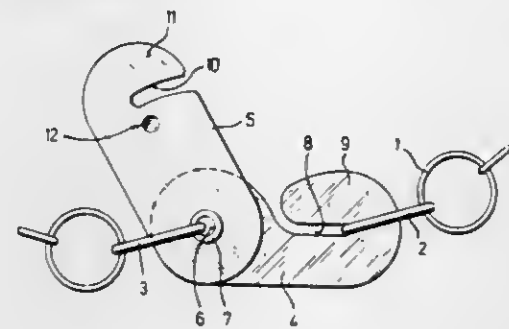
Filed Dec. 27, 1978, Ser. No. 973,786

Claims priority, application Switzerland, Dec. 27, 1977, 16054/77

Int. Cl.³ A44B 13/00

U.S. Cl. 24—241 SP

5 Claims



1. A jewelry clasp for bracelets and necklaces having two ends, each provided with a chain link, comprising:
a first plate and a second plate, which are pivotably coupled together for movement about a common pivot axis between an opening and locking position, said plates each having an aperture formed therethrough aligned with said pivot axis through which one of the chain links may extend, said first plate having a hook-like end portion which defines a guide slot for receiving the other of the chain links and said second plate having an arcuate slot formed therein having a portion running in a concentric manner with respect to the pivot axis which defines an arched portion on an end portion of said second plate disposed distal to the pivot axis relative to another end portion thereof which arched portion also runs generally concentrically with respect to the pivot axis and which, in said locking position, is received through said other chain link received in said guide slot of said hook-like end portion of said first plate, said guide slot of said first plate having a first portion opening onto an edge of said first plate which runs in a generally non-radial direction relative to said pivot axis and a second portion which merges with said first portion and which runs substantially in a radial direction relative to said pivot axis and which, in said locking position, crosses said arcuate slot of said second plate to define a single open area of overlap through which said other chain link may extend, said area of overlap lying exclusively in the radially running and the concentrically running portions of said guide slot and arcuate slot, respectively said area of overlap having a cross-section closely equal to the cross section of said other chain link, and said area of overlap being located at the terminal closed end of each slot.

4,315,353

CASKET VAULT

Lloyd L. Sorensen, 256 W. 300 South, Malad, Id. 83252

Filed Mar. 31, 1980, Ser. No. 135,329

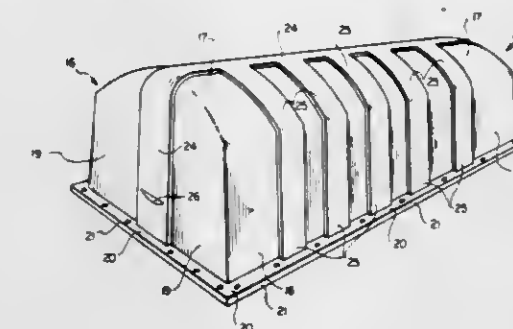
Int. Cl.³ A61G 17/00

U.S. Cl. 27—2

5 Claims

1. A lightweight, sealed burial vault made of plastic comprising:
a substantially rectangular base unit forming the floor of said vault, said base unit having an outwardly extending ledge around its perimeter;
a dome-like cover portion having a concave top integrally formed to the upper edges of upstanding side and end walls, said side and end walls also being integrally formed together at their junctions;
a flange extending outwardly from the bottom edge perimeter of the end said side walls, and flange being formed

integrally to the bottom edges of the end and side walls of said cover portion, wherein the flange mates with the ledge on the base unit when the dome-like cover portion is positioned on the base unit;
means for sealing the flange on said cover portion to the ledge on said base unit;
an elongate rib extending longitudinally along the longitudinal center line of the top of said cover portion and down-



wardly along the opposite end walls, said longitudinal rib being formed integrally to the top and end walls of the cover portion; and
a plurality of spaced, cross ribs extending upwardly along the side walls and then along the top of said cover portion to join said elongate rib, said cross ribs being formed integrally to the side walls and top of the cover portion with the upper ends of said cross ribs further being integrally formed to the side edges of said elongate rib.

4,315,354

CASKET CARRIER

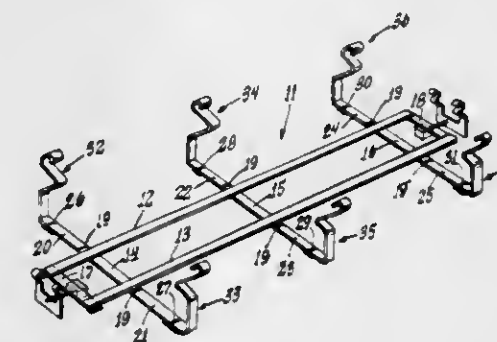
Paul Behrendt, 9429 N. Avers, Evanston, Ill. 60203

Filed Sep. 2, 1980, Ser. No. 183,189

Int. Cl.³ A61G 17/00

U.S. Cl. 27—27

8 Claims



1. A casket carrier comprising:

- a collapsible frame,
- said frame consisting of spaced apart elongated runners, a plurality of cross members extending beyond and to either side of said runners,
- handle supporting brackets connected to the ends of said cross members adapted to have facial contact with a portion of the sides of a casket when the latter is placed upon the carrier so as to hold the casket thereon,
- means for pivotally connecting said brackets to the ends of said cross members whereby said brackets may be folded into a collapsed position relative to said runners,
- means provided by said brackets for removably holding an elongated handle in a parallel elevated relation to said runners, and in a spaced relation to the sides of a casket when said cross members are in an extended casket receiving position, and
- an elongated handle held by said means provided by said brackets by which a casket placed on the carrier may be carried.

4,315,355

STRAND CRIMPING TREATMENT

Robert K. Stanley, Media, Pa., assignor to Techniprises Limited, Douglas, Isle of Man

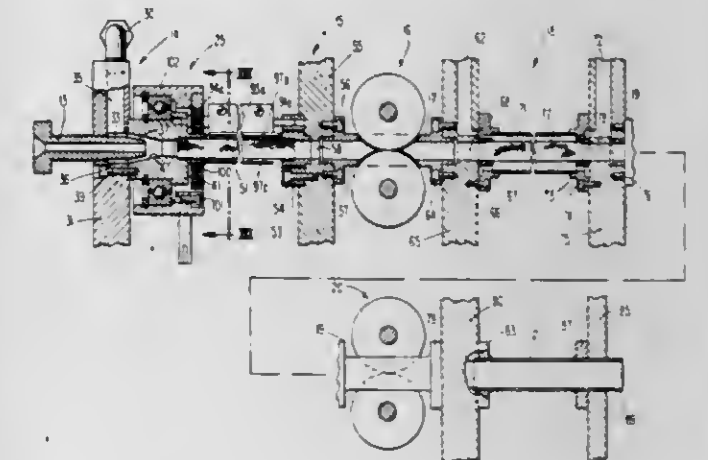
Continuation-in-part of Ser. No. 809,992, Jun. 27, 1977, Pat. No. 4,162,564. This application Jul. 26, 1979, Ser. No. 61,007

The portion of the term of this patent subsequent to Jul. 31, 1996, has been disclaimed.

Int. Cl.³ D02G 1/12, 1/20

U.S. Cl. 28—251

8 Claims



1. In compressive crimping of funicular textile material propelled lengthwise and accompanied by flow of propellant fluid into a first laterally confined region, wherein propelled textile material accumulates temporarily as a compressed mass in a downstream portion of the region, and at least some such fluid diffuses laterally from a portion of the region unoccupied by the compressed mass, the improved comprising utilizing positive lateral diffusion of such fluid to control the accumulation of compressed textile material in the region by controlling the rate of forwarding of such textile material out of the region, including the step of forwarding the textile material from the leading edge thereof at a rate commensurate with the extent of accumulation of the compressed mass of textile material in the region, into a separate treating region, confining the textile material temporarily in the separate region with dyestuff present therein, for fluid treatment therein, injecting treating fluid into the latter region, and thereby dyeing the textile material.

4. A jet stuffer crimper comprising laterally confining means for receiving and temporarily accumulating funicular textile material therein, an upstream portion of the confining means being foraminous and thereby adapted to permit propellant fluid to diffuse laterally therefrom, means for forwarding textile material from the leading edge of an accumulation thereof and out of the confining means, and movable sensing means for sensing lateral diffusion of propellant fluid from the confining means and including a plurality of vanes pivotally mounted about the foraminous portion of the confining means, means biasing the vanes to inhibit diffusion of the fluid therefrom, means for controlling the speed at which the forwarding means removes textile material from the confining means, and control linkage between the deflectable vanes and the speed-control means interconnected so that increased deflection of the vanes increases the forwarding speed, and a laterally confining treatment chamber having an entrance downstream from the forwarding means, variable-speed means for taking up textile material from the treatment chamber, and control linkage between the deflectable vanes and the variable-speed means interconnected so that increased deflection of the vanes increases the take-up speed.

4,315,356

FORMING EXPANDED MESH SHEET FROM DEFORMABLE STRIP

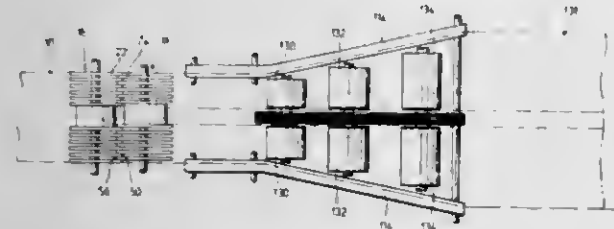
Gordon H. Laurie, Mississauga; Theodore J. Seymour, Oakville; Randall T. Sakauye, Mississauga, and John V. Marlow, Oakville, all of Canada, assignors to Cominco Ltd., Vancouver, Canada

Division of Ser. No. 970,298, Dec. 18, 1978. This application May 22, 1980, Ser. No. 152,288

Claims priority, application Canada, Oct. 31, 1978, 315190 Int. Cl.³ B21D 28/12, 17/00

U.S. Cl. 29—6.1

16 Claims



1. An apparatus for expanding metal strip comprising, in combination, a first pair of opposed rolls each having means for concurrently slitting and preforming at least a portion of said strip to provide a plurality of longitudinally extending strand-like components, said strand-like components comprising slit segments deformed out of the plane of the strip and unslit segments retained in the plane of the strip, said slit and deformed segments severed from laterally adjacent segments and substantially convexly curved from the plane of the strip whereby slit segments in laterally adjacent components extend from opposite sides of the plane of the strip and said unslit segments retained in the plane of the strip together define continuous bands extending laterally across the said portion of the strip, a second pair of opposed rolls each having means for slitting the strip at alternate bands to extend the slits in a staggered relation, and means for expanding the slit and preformed portion of the strip to form meshes by drawing opposite longitudinal edges of the strip apart whereby the curved segments are substantially straightened to form webs of the mesh joined by nodes formed by unslit portions of the bands.

4,315,357

APPARATUS FOR THE CONSTRUCTION OF FAN WHEELS OF THE DOUBLE-ASPIRATOR TYPE

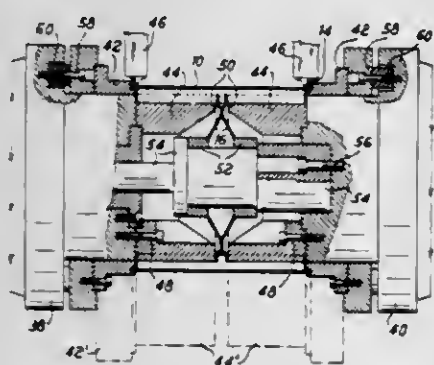
Michele Calvano, Bergamo, Italy, assignor to Aertermica Nicotra S.p.A., Italy

Continuation of Ser. No. 20,703, Mar. 15, 1979, abandoned. This application Dec. 18, 1980, Ser. No. 217,839

Claims priority, application Italy, Mar. 21, 1978, 21419 A/78 Int. Cl.³ B23P 11/00, 15/00, 21/00

U.S. Cl. 29—23.5

12 Claims



1. In combination with an apparatus for the manufacture of a fan wheel having a plurality of inclined elongated blades cylindrically mounted to a pair of end rings and at least one disk centrally keyed onto the blades and carrying a fan wheel hub, a press for fixing the end rings, the disk and the blades to each other, and a blade feed conveyor belt for carrying the required number of blades, to be assembled on the fan wheel,

spaced at a distance corresponding to the position of the blades when assembled on the fan wheel, and for feeding the blades to the press, the improved press comprising two horizontally spaced components, each component being displaceable one toward the other and concurrently rotatable about a common axis, each component having a seat surface for carrying one of the end rings, each component having means for collecting and retaining the blades coming from the conveyor belt and for pressing and keying the central disk to the blades, means for flanging the end rings directly onto the ends of the blades, said components being displaceable one toward the other between an initial position and a final position through successive positions including:

(a) a first position, above the conveyor belt, to successively rotatably collect the blades onto the components in response to rotation of the components, (b) a second position to insert the end rings onto opposite ends of the blades and to rotatably flange the rings onto said ends of the blades during continuous rotation of said components, and (c) a third position in engagement with the central disk to press and key the central disk to the blades.

4,315,358

METHOD FOR THE MANUFACTURE OF CAPACITIVE PICKUP STYLI

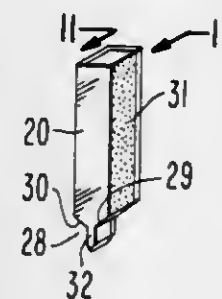
Rudolph H. Hedel, West Windsor, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Apr. 21, 1980, Ser. No. 142,134

Int. Cl.³ H01G 4/06

U.S. Cl. 29—25.42

8 Claims



1. The method for the manufacture of a capacitive pickup stylus comprising the steps of:

(a) providing a stylus blank of a dielectric material in the form of an elongated member having symmetrical diagonal cross-sectional halves along the length thereof and a pair of opposing polished faces with one face on each cross-sectional half;

(b) masking one of the cross-sectional halves along its length;

(c) applying a layer of an electrically conductive material to the other cross-sectional half whereby the polished face on the unmasked half is coated with the electrically conductive material and the polished face on the masked half is left uncoated; and

(d) machining a tip of a predetermined configuration on one of the terminal ends of the stylus blank with the electrically conductive material on the rearward surface of the stylus extending to the tip thereof and removing any conductive material deposited on other surfaces of the stylus blank in an amount sufficient to effectively insulate the conducting material on the other surfaces from the tip of said stylus.

4,315,359

HYDRODYNAMIC COMPLIANT THRUST BEARING AND METHOD OF MAKING

Stanley Gray, Skaneateles, N.Y., assignor to Mechanical Technology Incorporated, Latham, N.Y.

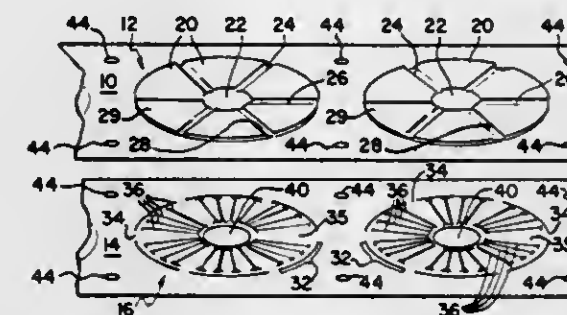
Division of Ser. No. 974,259, Dec. 29, 1978, Pat. No. 4,225,196.

This application Apr. 25, 1980, Ser. No. 143,543

Int. Cl.³ F16C 32/06, 39/04; B21D 53/10

U.S. Cl. 29—149.5 A

3 Claims



1. A method of making a compliant hydrodynamic fluid thrust bearing, comprising:

stamping a series of annular sections into a sheet of metal, said sections each including a plurality of angularly adjacent truncated sector-shaped pads, each separated from the adjacent pads by radially extending vanes;

stamping a plurality of annular patterns into a second sheet of metal, said patterns each including a plurality of resilient raised projections, said projections being arranged in a plurality of angularly adjacent clusters, said clusters being separated by radially extending vanes;

superimposing said first and second sheets, with said clusters of projections vertically aligned with said pads, and the vanes of said first and second sheets vertically aligned;

welding the vanes of said first and second sheets together; and

shearing the assembled and welded annular sections from the two sheets.

4,315,360

TRUCK HUB AND METHOD OF BANDING SAME

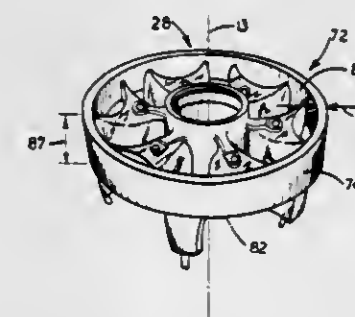
William E. Carmichael, 2592 McBride Crescent, Prince George, B. C., Canada (V2M 2A1), and Wayne Rodacker, 9816-105 St., Grande Prairie, Alberta, Canada (T8V 4K3)

Filed Sep. 13, 1979, Ser. No. 75,514

Int. Cl.³ B21K 1/34

U.S. Cl. 29—159.03

6 Claims



1. A method of making a banded truck hub from an existing truck hub, in which the existing hub has a central boss with a central axis, a plurality of spokes extending from the boss, and webs extending between the spokes; each spoke having a pair of side portions and a front portion blending smoothly together so as to be generally U-sectioned, each spoke also having an outer end having a partially cylindrical outer end face adapted to fit adjacent a tire rim, the outer face being defined in part by front and rear edge portions and outer margins of the side portions of the spokes; the method being characterized by:

(a) removing from the outer end of each spoke adjacent the

rear edge portion a generally U-sectioned portion of the cylindrical outer face and adjacent portions of the side portions of the spoke adjacent the outer margin thereof, thus forming a pair of spaced shoulders on the side portions of the spoke, the shoulders being defined by exposed generally axial edges of the side portions spaced generally equally from the central axis and also being defined by exposed generally radial edges of the side portions which are coplanar with an exposed partially annular edge of the cylindrical outer end face of the spoke,

(b) fitting, as a preformed ring, an annular rim onto the shoulders of each spoke, so that an inner face of the rim is adjacent the exposed generally axial edges of the side portions, and a generally annular end face of the rim is adjacent the generally radial edges of the side portions and the partially annular edges of the outer cylindrical faces of the spokes,

(c) welding the annular rim to the spokes so as to form a spoked hub with a banded rim.

4,315,361

METHOD OF REINFORCING A DUCT

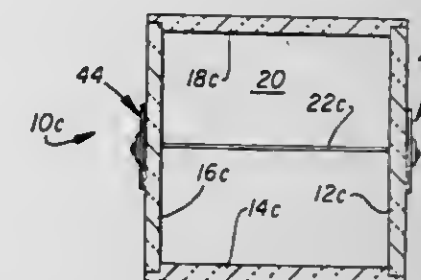
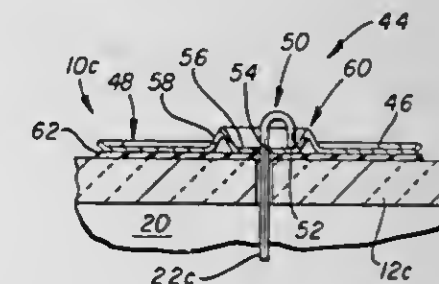
Ray G. Brooks, Irving, Tex., assignor to Malco Products, Inc., Annandale, Minn.

Division of Ser. No. 1,177, Jan. 5, 1979, Pat. No. 4,237,940. This application Jun. 30, 1980, Ser. No. 164,764

Int. Cl.³ B23P 11/00

U.S. Cl. 29—432.1

4 Claims



1. A method for reinforcing a duct comprising, in combination:

bending one end of a substantially straight stiff wire to form a hook;

placing a support washer against one side of the duct so that an outer face of the support washer faces away from the duct;

inserting the substantially straight end of the wire through the support washer, the adjacent side of the duct, and the opposite side of the duct until the tip of the hooked end of the wire substantially opposes the outer face of the support washer;

placing a second support washer over the substantially straight end of the wire against the side of the duct so that an outer face of the second support washer faces away from the duct;

cutting the portion of the wire protruding beyond the second support washer to a predetermined length; and

bending the portion of the wire protruding beyond the second support washer to form a hook with the tip of the portion of the wire protruding beyond the second support washer substantially opposed to the second support washer.

4,315,362

METHOD AND TOOL FOR PLACING BEADS ON A BRAID OF HAIR

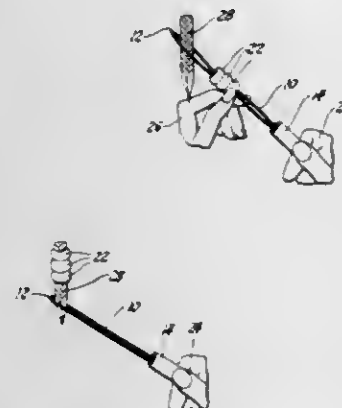
James W. Pigford, and Carolyn J. Green, both of 367 N. Maple, Ann Arbor, Mich. 48103

Filed Jul. 28, 1980, Ser. No. 172,711

Int. Cl.³ B23P 19/04

U.S. Cl. 29—433

5 Claims



1. A method for placing a bead on a braid of hair, comprising the steps of:
 - folding a stranded metal flexible wire cord so as to form a pair of resilient cord halves connected by an acute angle permanently bent elbow;
 - passing the elbow through the opening of a bead;
 - passing the braid through the two halves of the wire cord between the elbow and the bead;
 - pushing the bead onto the braid; and
 - removing the braid from between the two wire cord halves.
5. A beader device, comprising:
 - an elongated metal wire cord comprising strands of wire twisted together such that the cord is laterally uniformly resilient along its full length;
 - a plastic coating disposed the full length of the wire cord; the cord being bent in half to form a permanent acute angle elbow such that the ends of the cord are adjacent one another; and
 - a handle connected to the adjacent ends of the cord.

4,315,363

METHOD OF MAKING AND SECURING A LEAKAGE FLUX CONDUCTING DEVICE

Michael R. Barone, Sycamore, Ill., assignor to General Electric Company, Fort Wayne, Ind.

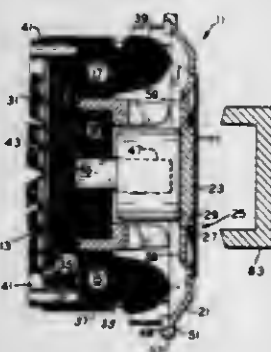
Division of Ser. No. 886,672, Mar. 15, 1978, Pat. No. 4,233,535.

This application Sep. 10, 1979, Ser. No. 73,926

Int. Cl.³ H02K 15/14

U.S. Cl. 29—596

12 Claims



1. A method of making a leakage flux conducting device and securing it to a non-ferrous end plate of a prime mover so that the device conducts generally across the end plate leakage flux emanating from a magnetic field established between a pair of opposite pole winding means of the prime mover upon the energization thereof, the method comprising the steps of:
 - (a) forming the device with a mass great enough to remain

- unsaturated with respect to the conducted leakage flux and lancing from the device a plurality of generally elongate deformable fingers each having a free end portion;
- (b) arranging the free end portions of the finger plurality with a plurality of associated parts therefor on the end plate; and
- (c) moving the device to its preselected assembly position on the end plate and deforming the fingers of the finger plurality so as to urge the free ends thereof into gripping engagement with the associated parts plurality on the end plate thereby to oppose the displacement of the device from its preselected assembly position on the end plate.

4,315,364

METHOD FOR FABRICATING A RECHARGEABLE ELECTRICAL CELL PACK HAVING OVER-CURRENT PROTECTION

Edward A. Leffingwell, Gainesville, Fla., assignor to General Electric Company, Gainesville, Fla.

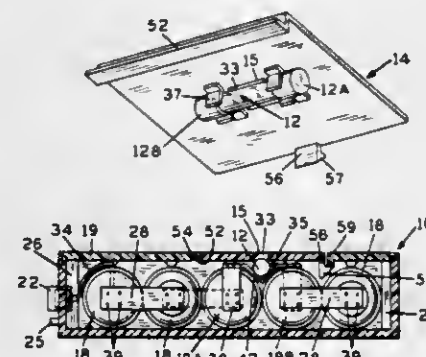
Division of Ser. No. 930,727, Aug. 3, 1978, Pat. No. 4,217,400.

This application Mar. 5, 1980, Ser. No. 127,316

Int. Cl.³ H01M 14/00, 2/04

U.S. Cl. 29—623.1

8 Claims



1. A method for fabricating an electrochemical cell pack comprising:
 - providing a casing having positive and negative terminals at the exterior thereof for connection to an external circuit;
 - positioning a plurality of electrochemical cells in a base portion of said casing, at least two of said cells being positioned to define a space between said at least two of said cells;
 - providing means for interconnecting said cells in a series circuit between said casing terminals, said series circuit being provided with a pair of electrically isolated contacts, each of said electrically isolated contacts having a terminal portion positioned in said space between said at least two of said cells;
 - providing a door in said casing;
 - securing circuit breaking means to said door so that said circuit breaking means is held within said casing when said door is closed;
 - positioning said circuit breaking means for at least partially occupying said space between said at least two of said cells, said circuit breaking means being positioned between said terminal receiving portions of said pair of electrically isolated contacts upon closing of said door for completing said series circuit and for interrupting said series circuit when the current flow therethrough exceeds a predetermined level.

4,315,365

TERMINAL POST INSERTING COMPONENT

Jon Wigby, Pennsylvania Furnace, Pa., assignor to Elco Corporation, El Segundo, Calif.

Filed Apr. 14, 1980, Ser. No. 140,182

Int. Cl.³ H05K 3/30

U.S. Cl. 29—739

23 Claims

1. A component for inserting a terminal post into an opening therefor in a substrate, comprising an elongate body having

4,315,367

METHOD FOR EFFECTING CLAMPING ENGAGEMENT

Jacob S. Haller, Northbrook; Gordon L. Mines, Elmhurst, and Meinert J. Mischnick, Mount Prospect, all of Ill., assignors to TRW Inc., Elk Grove Village, Ill.

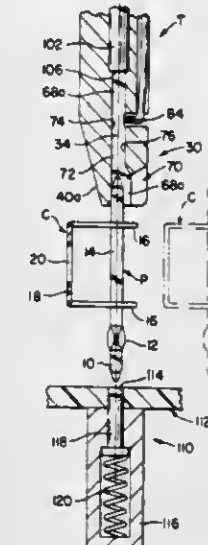
Division of Ser. No. 890,671, Mar. 27, 1978, Pat. No. 4,193,187.

This application Mar. 17, 1980, Ser. No. 130,652

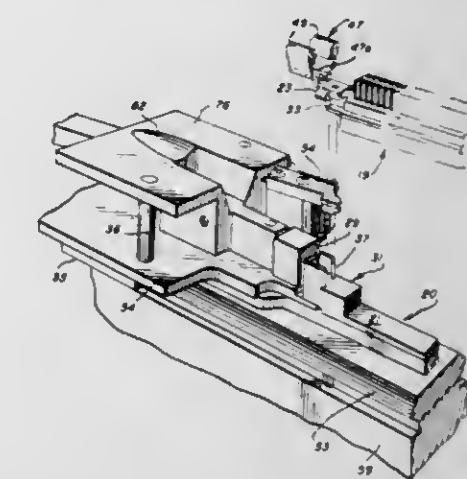
Int. Cl.³ H01R 43/04

U.S. Cl. 29—866

8 Claims



1. A method of terminating conductors emanating from a cable in contacts disposed in an electrical connector having a deformable, cable-engaging clamp mounted thereon in which a cable to be clamped is disposed, said terminating taking place at a terminating station, comprising the steps of moving said connector from a first station along a path of travel on guide means extending from such first station to such terminating station, and automatically urging said clamp into clamping engagement with said cable in the course of said connector movement along said path of travel.



4,315,366

METHOD OF MANUFACTURING MICROMINIATURE SOLID STATE DEVICES

Jan T. Palmer, West Wellow, England, assignor to U.S. Philips Corporation, New York, N.Y.

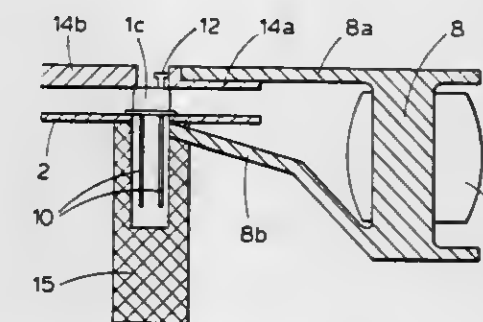
Filed Jan. 31, 1979, Ser. No. 7,854

Claims priority, application United Kingdom, Feb. 10, 1978, 05436/78

Int. Cl.³ H01R 43/00

U.S. Cl. 29—854

18 Claims



1. A method for manufacturing a microminiature solid state device comprising the steps of transporting a header of the device into a work area with approximately a desired orientation and accurately orienting said header in said work area by magnetically attracting at least a part of said header and pulling at least two lead pins of said header into engagement with an abutment made of a non-magnetizable material wherein said two lead pins extend through said header to form posts above said header and terminal leads below said header, and a magnet is located at an area adjacent to said posts to provide magnetic attraction with one pole of said magnet being at the area of said posts and an opposite pole of said magnet being at the area of said terminal leads.

4,315,368

OPTICAL FIBER CLEAVING APPARATUS

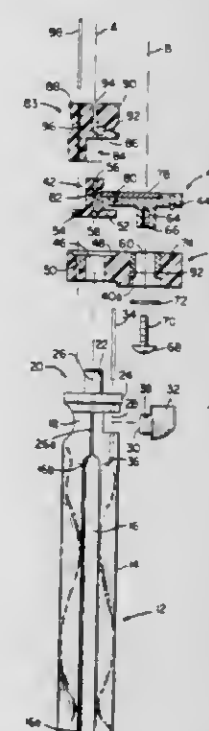
Rocco F. Basile, Roselle, N.J., assignor to Thomas & Betts Corporation, Raritan, N.J.

Filed Jan. 14, 1980, Ser. No. 111,844

Int. Cl.³ B25F 3/00

U.S. Cl. 30—124

10 Claims



1. Optical fiber cleaving apparatus comprising:
 - fiber support means having an elongate channel for supporting a fiber and including fiber shroud means having a fiber guide passage in longitudinal registry with said channel,

said shroud means defining an opening in communication with said fiber guide passage, said shroud means being fixed in non-rotative disposition relative to said channel longitudinal axis; and

fiber cleaving means supported by said fiber support means for rotation about an axis parallel to and spaced from the longitudinal axis of said channel, said cleaving means rotational axis being fixed in non-rotative disposition relative to said channel longitudinal axis, said cleaving means having a cutting element movable from a position exterior said fiber guide passage through said opening in said fiber shroud means and into said fiber guide passage on such rotation.

4,315,369

FOOD CUTTING AND GRASPING IMPLEMENT

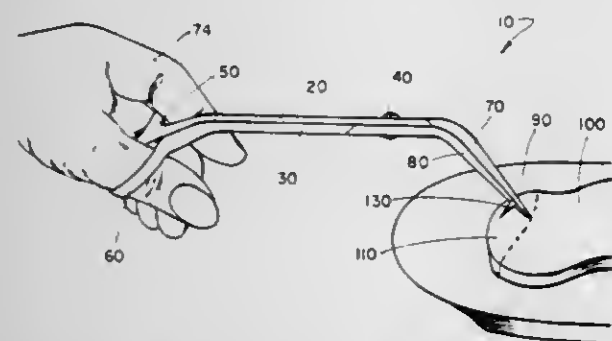
Maxwell Borow, 73 Hillcrest Rd., Martinsville, N.J. 08836

Filed Jun. 9, 1980, Ser. No. 157,850

Int. Cl.³ B26B 13/00

U.S. Cl. 30—257

3 Claims



1. A scissors-like apparatus for use by a one-handed person to cut food and direct the cut food to the person's mouth comprising

two blades pivotably coupled together and having parallel, overlying, generally central portions which lie in a first plane,

said blades having a finger hole portion at one end of each, said blades having a bent portion and also having overlying cutting end portions which perform a cutting function and are located remote from said finger hole portions, said cutting end portions of said blades lying completely in a second plane which is bent at an angle to said first plane and extend to said bent portion whereby, when the central portions of said blades are disposed horizontally and spaced above a food plate during a food cutting operation, said cutting end portions slant downwardly toward and can touch a food plate and the cutting portions can be used to cut food and then grasp the cut food to bring it to the person's mouth.

4,315,370

COMBINED SAW CHAIN TENSION ADJUSTER AND SAW CHAIN GUARD

David Horne, Staines, England, assignor to Black & Decker Inc., Newark, Del.

Filed Jul. 10, 1980, Ser. No. 168,379

Claims priority, application United Kingdom, Jul. 13, 1979, 24517/79

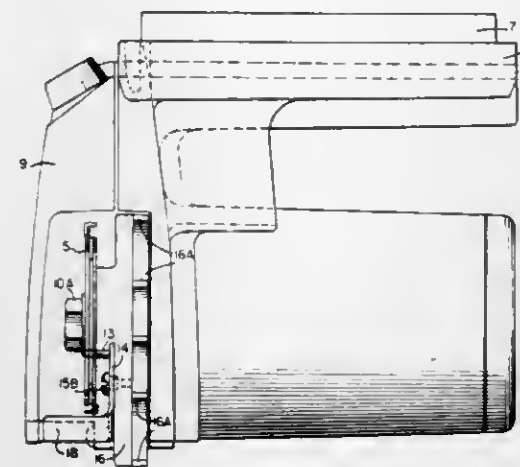
Int. Cl.³ B27B 17/14

U.S. Cl. 30—386

4 Claims

1. A chain saw having:
a chain bar upon which is mounted a cutting chain;
and
a lever for tensioning the cutting chain;
characterized in that:

the tensioning lever is configured to obstruct the cutting chain in the event of a breakage thereof;



thereby substantially shortening the length of the cutting chain thrown back toward the operator.

4,315,371

PRESET BRAKE DEVICE FOR LINE DRAWING MACHINE, DRAFTING MACHINE OR LIKE

Sadahiko Kotani, Fujimi, and Yoshitaka Gibu, Nakaitabashi, both of Japan, assignors to Asahi Seimitsu Kabushiki Kaisha, Tokyo, Japan

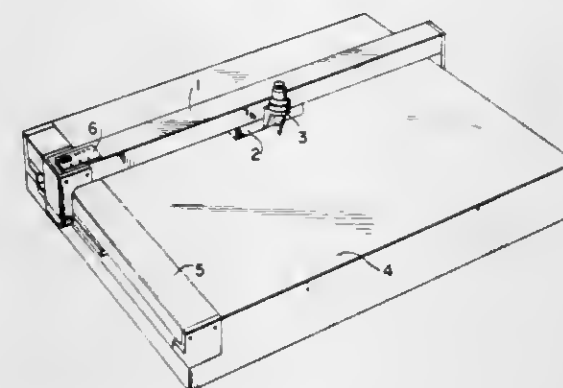
Filed Jan. 11, 1980, Ser. No. 111,201

Claims priority, application Japan, Jan. 12, 1979, 54-2533

Int. Cl.³ B25H 7/04; G01B 5/14

U.S. Cl. 33—1 M

9 Claims



1. A line drawing machine, comprising:
guide rail means disposed on said line drawing machine for guiding the movement of a line drawing instrument mounted thereon;

movable body means movable along said guide rail means for holding said line drawing instrument therein;

preset input station means disposed on said guide rail means for introducing a preset amount into said line drawing machine representing a desired amount of movement of said movable body means along said guide rail means and for generating an output signal representative of said desired amount of movement;

detector means disposed within said movable body means for detecting the amount of movement of said movable body means relative to said guide rail means and generating an output signal in response thereto;

means responsive to said output signals from said preset input station means and said detector means for determining when the amount of movement of said movable body means relative to said guide rail means is approximately equal to said preset amount introduced into said preset input station means and for generating a coincidence signal in response thereto; and

electromagnetic brake assembly means disposed within said movable body means and responsive to said coincidence

signal for arresting the movement of said movable body means relative to said guide rail means.

4,315,372

CALIPER FOR APPLYING CONSTANT PRESSURE TO AN OBJECT BEING MEASURED

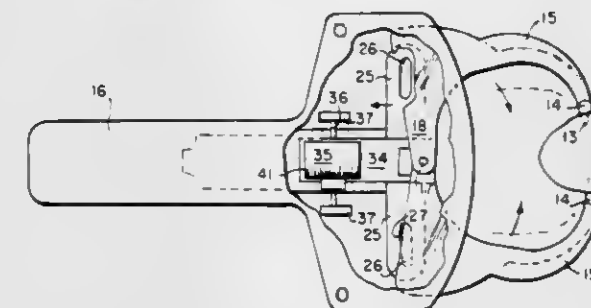
Jordan A. Kinkead, Atherton, Calif., assignor to Fitness Motivation Institute of America, San Jose, Calif.

Filed Apr. 17, 1980, Ser. No. 142,211

Int. Cl.³ G01B 5/00

U.S. Cl. 33—148 F

8 Claims



1. A caliper for applying a constant pressure to the surface of an object to measure the object thickness, said caliper comprising:

a housing;

a pair of caliper arms each having a first end pivotally connected to said housing and having a second end abutting the second end of the other caliper arm and separable therefrom by pivoting said arms about the pivotal connections;

a slide mechanism held on said housing and connected to each such caliper arm by a sliding pivotal connection at a point intermediate the ends; and

a constant tension spring connected to said slide mechanism to urge said caliper second ends into abutting relationship whereby movement of the slide mechanism will cause the caliper arm second ends to separate and be urged back together by said constant tension spring to measure the thickness of the object therebetween.

4,315,373

MACHINE VISE PROTRACTOR

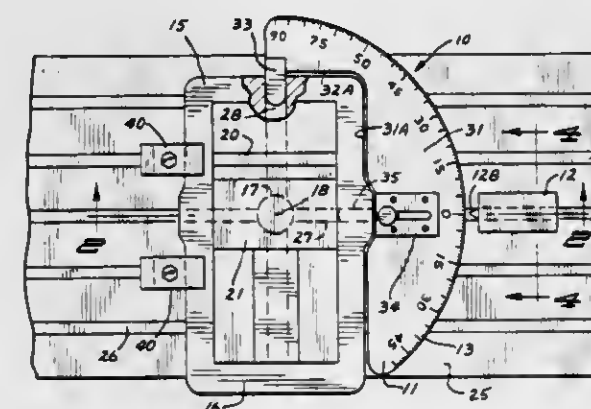
John D. Lenz, Coon Rapids, Minn., assignor to Kurt Manufacturing Company, Inc., Minneapolis, Minn.

Filed Feb. 25, 1980, Ser. No. 124,465

Int. Cl.³ G01B 3/56, 5/24

U.S. Cl. 33—174 TD

9 Claims



1. For use in connection with a machine vise having means for establishing a central upright rotational axis permitting rotation of such vise relative to a table with which such vise is used, the improvement comprising a protractor plate for use with such vise having an outer edge formed about a circle center, and having angle indicating indicia indicating angles about such circle center adjacent said outer edge, said protractor plate having inner edge portions positioned adjacent such vise, and releasable interlocking means cooperating between

the protractor plate inner edge portions and the vise to releasably retain the protractor plate relative to such vise with the circle center substantially coinciding with the central upright rotational axis of such vise.

4,315,374

BASEBALL SHOE

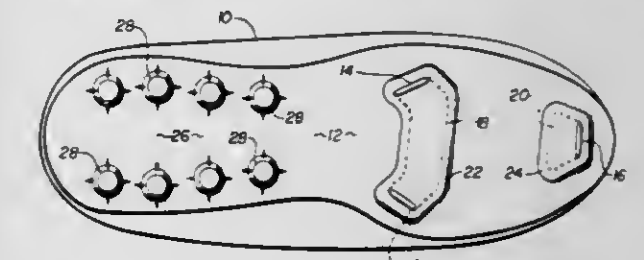
Andrew M. Sneeringer, 529 Main St., McSherrystown, Pa. 17344

Filed Jun. 2, 1980, Ser. No. 155,566

Int. Cl.³ A43B 5/00, 23/28; A43C 15/00

U.S. Cl. 36—126

3 Claims



1. A baseball shoe comprising in combination an upper shoe body, a unitary sole and heel molded from homogeneous material of limited flexibility similar to that of sole leather and affixed to the bottom of said body, metal base plate means enclosed within said sole and provided with integral metal blade-like spikes arranged in a triangular pattern with one spike near the outer tip of the sole and said spikes projecting perpendicularly from said base plate through said sole for ground-gripping when running to and from bases, and a cluster of blunt plug-like cleats molded integrally with said heel from the material of said sole and projecting therefrom in a pattern to afford ground-gripping capability in the heel area of the shoe but non-injurious to human personnel or base bags when sliding feet-first into a base bag, and said cluster of blunt plug-like cleats being in slightly curved rows disposed adjacent opposite sides of said heel.

4,315,375

EARTH MOVING BUCKET

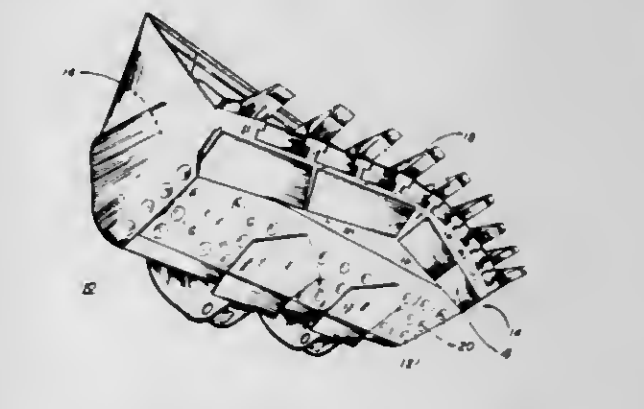
Raymond R. Shinn, P.O. Box 534, Jordan Valley, Ore. 97910

Continuation-in-part of Ser. No. 51,534, Jun. 25, 1979, abandoned. This application Jul. 21, 1980, Ser. No. 170,884

Int. Cl.³ E02F 3/00

U.S. Cl. 37—118 R

3 Claims



1. An earth moving bucket having a bottom wall, opposing sidewalls and a back wall wherein at least one wall includes a plurality of substantially hemispherical wear resistant members bonded to the outer earth-contacting surface of the wall in staggered relationship one to the other and wherein the wall to which the hemispherical members are bonded is of substantially 315-330 units hardness on the Brinell scale and wherein said hemispherical members are from substantially 370 to 410 units of Brinell hardness on the same scale.

4,315,376

DISPLAY DEVICE FOR GREETING CARDS

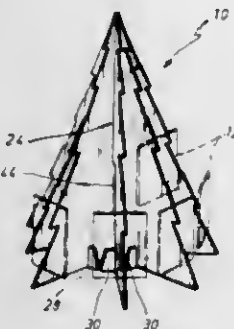
Larry Eichenauer, 6927 Long Point, Houston, Tex. 77050

Filed Dec. 1, 1980, Ser. No. 211,521

Int. Cl.³ G09F 1/10, 3/18; A63H 33/10; A01N 3/00

U.S. Cl. 40—124.4

5 Claims



1. A support structure for greeting cards and the like in the general appearance of a Christmas tree, said support structure comprising:

- (a) a plurality of sheets of material each being of generally triangular form and having slots formed therein, said sheets being positionable in interlocking intersecting relation at said slots and cooperating to form a self-standing generally triangular three dimensional structure generally in the form of a Christmas tree, each of said sheets being formed at the outer portions thereof to define a plurality of upwardly opening card slots each adapted to receive and support a greeting card in upstanding position for visual inspection; and
- (b) a generally horizontal base structure formed of sheet material having twice as many sides as the number of said plurality of sheets, said base structure defining a sheet orienting tab at each of said sides, each of said sheet orienting tabs extending upwardly from said base structure and defining a sheet orienting slot therein, the lower portions of each of said plurality of sheets being received by said sheet orienting slots of two of said sheet positioning tabs and being angularly oriented in predetermined relation by said tabs with respect to adjacent ones of said sheets.

4,315,377

SINGLE TRIGGER FIRING OF DOUBLE BARREL SIDE-BY-SIDE OR OVER-UNDER FIREARMS

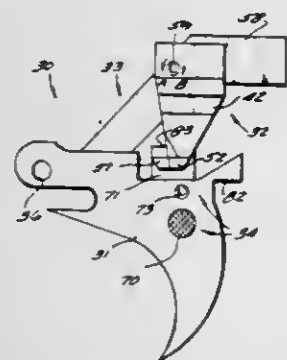
Jack J. Jenkins, 462 Stanford Pl., Santa Barbara, Calif. 93111

Filed Oct. 29, 1979, Ser. No. 89,629

Int. Cl.³ F41C 19/00

U.S. Cl. 42—42 R

14 Claims



1. A single trigger firing mechanism insertable as an integral unit into operative association with a double barrel side-by-side or over-under firearm having a pair of sears, said integral unit firing mechanism consisting essentially of

- a single trigger having means formed on an anterior portion thereof for mounting it for rotation about a first axis with respect to a firearm with which it is associated;
- connector means having a pair of distinct sear-supporting surfaces thereon for cooperation with the pair of sears of

the firearm with which said connector means is associated for supporting or releasing same;

means for mounting said connector means for pivotal movement, with respect to the rest of the unit, about a second axis generally parallel to said first axis, and for tilting movement, with respect to the rest of the unit, about a third axis generally perpendicular to said first and second axes; and

selector means for effecting tilting movement of said connector means about said third axis to thereby select which of the sears of the pair of sears of the firearm with which the unit is associated will be released first upon trigger actuation, said selector means comprising: a selector actuator mounted with said trigger and accessible outside of the firearm with which the unit is associated; a selector plate operatively mounted to said selector actuator and means for guiding linear movement of said plate in a dimension parallel to said first axis; a bore in said trigger extending parallel to said first axis and mounting said selector actuator for linear movement in said bore in a dimension parallel to said first axis; and detenting means for maintaining said plate in a position to which it has been moved in said dimension of movement thereof.

4,315,378

INACTIVE SPRING ASSEMBLY

Daniel D. Musgrave, 8201 Caraway St., Cabin John, Md. 20731

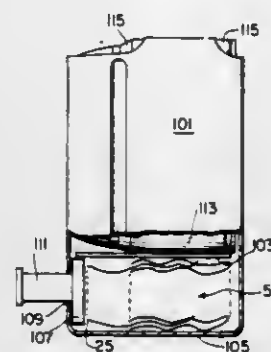
Continuation-in-part of Ser. No. 968,215, Dec. 11, 1978, Pat. No.

4,205,474. This application Jul. 6, 1979, Ser. No. 55,357

Int. Cl.³ F41C 25/02; F16F 1/18, 1/22

U.S. Cl. 42—50

14 Claims



14. A cartridge magazine for a firearm comprising: a casing for storing a stack of cartridges, said casing including an exit port with at least one lip; a follower in said casing adapted for urging said stack toward said port; a floor affixed to said casing; an inactive spring assembly positioned between said follower and said floor, said assembly comprising: a compactly folded resilient leaf including a plurality of vertexes; nested arcuate portions on said leaf adjacent to each of said vertexes; a first passage formed through said leaf at each of said vertexes; a second passage formed through each alternate fold of said leaf; and wedge means positionally adapted for insertion between said arcuate portions via said first and said second passages thereby tending to separate folds of said leaf and thrust said follower away from said floor.

4,315,379

HAND GUN GRIP WITH CONCEALED FASTENERS

Alan J. Lang, 26025 Scott Rd., Sun City, Calif. 92381

Filed Feb. 19, 1980, Ser. No. 122,567

Int. Cl.³ F41C 23/00

U.S. Cl. 42—71 P

6 Claims

1. A hand grip for hand guns comprising a pair of elastic grip parts including mating parts defining a common cavity therebetween for receiving the butt portion of the frame of a handgun;

said mating grip parts, including matching recesses having

4,315,381

AUTOMATIC HYDROPONIC GARDEN

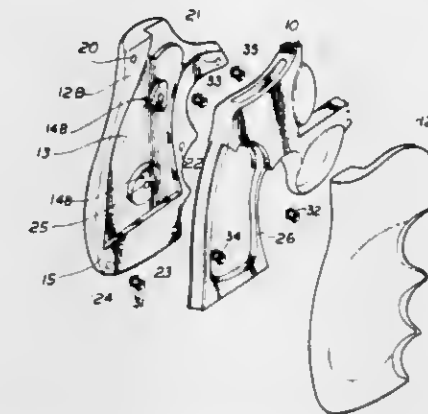
Stuart R. Dvorin, 742 Appleberry Dr., San Rafael, Calif. 94903

Filed Jan. 24, 1980, Ser. No. 114,989

Int. Cl.³ A01G 31/02

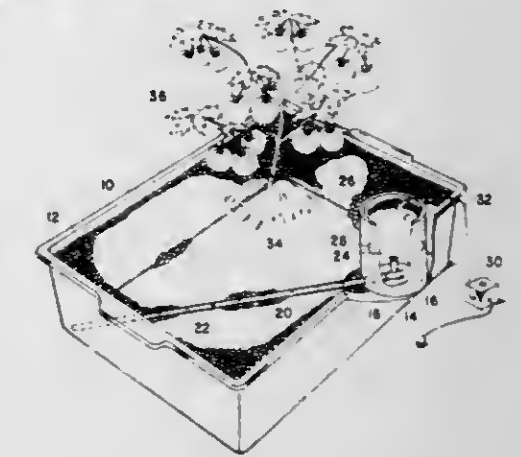
U.S. Cl. 47—59

9 Claims



with enlarged heads engaging the lips of the recesses to maintain the grip parts together about the frame of the hand gun;

said fasteners concealed within said grip when assembled on a handgun.



1. An automatic, immersion hydroponic garden, which comprises:

- (a) a container for water and growing medium,
- (b) water and growing medium in said container to at least a predetermined level in said container,
- (c) a mixing chamber for air and the water in said container and having a water inlet proximate the bottom of said chamber, an air inlet and an outlet for the air and water in admixture proximate the top of said chamber, and below the predetermined level in the container,
- (d) a water inlet tube connected to the water inlet of said chamber, extending along the bottom of said container, and having a plurality of apertures into which water may flow,
- (e) means for supplying air to the air inlet of said mixing chamber, and
- (f) an air and water mixture dispersing enclosure surrounding said mixing chamber and having a plurality of apertures through which water and air from said mixing chamber may be dispersed below the predetermined level in the container into said water and growing medium container.

4,315,380

METHOD OF PROCESSING SEEDS OR CEREAL TO ACCELERATE NATURAL GERMINATION

Maxwell W. Davidson, Edinburgh, Scotland, assignor to Maxwell Davidson Limited, Edinburgh, Scotland

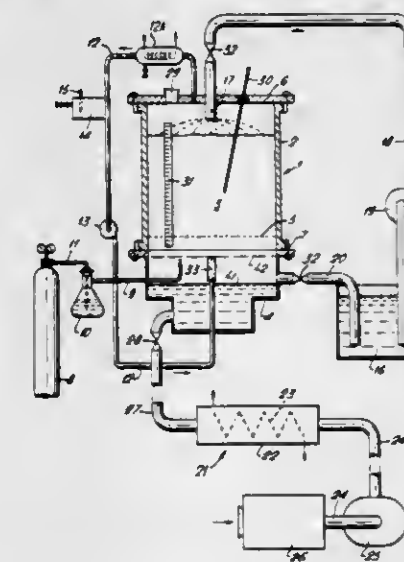
Filed Dec. 6, 1979, Ser. No. 100,742

Claims priority, application United Kingdom, Jul. 22, 1976, 30498/76; France, Jun. 13, 1978, 78 17592; Fed. Rep. of Germany, Jun. 20, 1978, 2826907

Int. Cl.³ A01B 79/00

U.S. Cl. 47—58

4 Claims



1. A method of pregerminating seeds to break seed dormancy to accelerate sprouting at a later period comprising steeping a bed of seeds in a body of oxygenated water, controlling the temperature of the bed during the steeping, draining the body of water from the bed and holding the seeds in a gaseous atmosphere maintained with an oxygen content ranging from at least 33 to about 100% oxygen by volume whereby putrefaction of such seeds by the development of anaerobic conditions therein is prevented.

4,315,382

PLANT CONTAINER

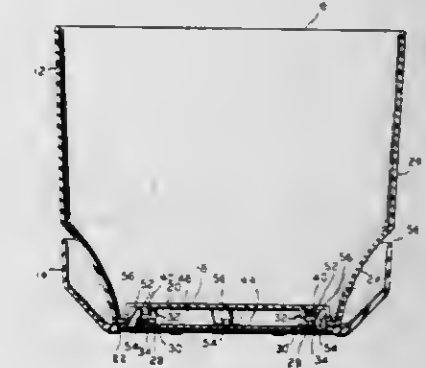
Arthur H. Kay, Schaumburg, and Ted Dzewulski, Rosemont, both of Ill., assignors to Phillips Petroleum Co., Bartlesville, Okla.

Filed Nov. 26, 1979, Ser. No. 97,247

Int. Cl.³ A01G 9/02

U.S. Cl. 47—66

22 Claims



1. A container for plants or the like comprising: a tray having a generally flat bottom portion and a rib upstanding from the bottom portion and interrupted at a plurality of positions;

a plurality of upwardly extending protuberances extending

from the bottom portion of said tray each positioned adjacent an interruption in the rib;
 a pot having a generally flat bottom portion and a downwardly extending rib extending downwardly from the bottom portion of said pot;
 a plurality of generally vertically aligned apertures in said pot each sized and shaped to receive a corresponding protuberance of said tray therethrough; and
 each upwardly extending protuberance having detent means thereon for providing an interference fit with a corresponding generally vertically aligned aperture in said pot so as to releasably connect said pot and said tray.

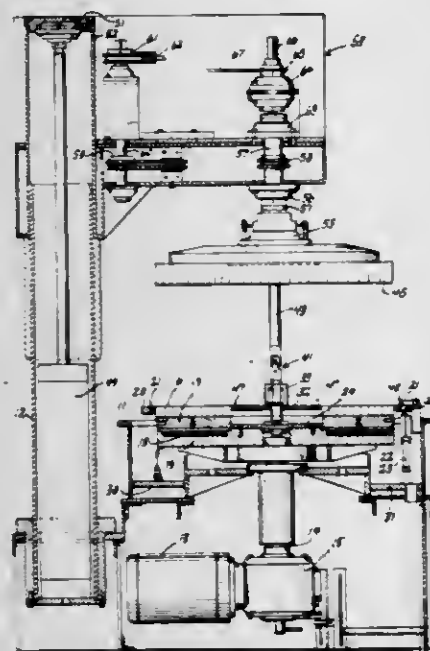
4,315,383

INNER GEAR DRIVE FOR ABRADING MACHINES
 Lawrence Day, Mount Prospect, Ill., assignor to Spitfire Tool & Machine, Co. Inc., Chicago, Ill.

Filed May 13, 1980, Ser. No. 149,347
 Int. Cl.³ B24B 5/00

U.S. Cl. 51—118

8 Claims

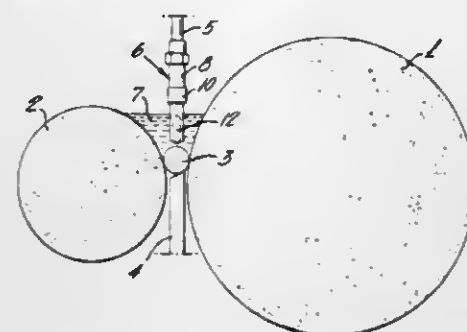


1. In an abrading machine comprising,
 - (a) upper and lower ringlike lap plates, each having an annular lap surface parallel to each other,
 - (b) means for independently rotating each of said lap plates about its own vertical axis,
 - (c) means supporting said upper lap plate and its rotating means for vertical movement relative to said lower lap plate,
 - (d) gearlike work carrying means carried on said lower lap plate,
 - (e) gear means in the plane of the annular lap surface of said lower lap plate for rotating said gearlike work carrying means relative to said lap surfaces independently of the rotation of said lap plates, and
 - (f) an overhead drive means for said gear means carried by said upper lap plate supporting means and including a rotatable drive shaft freely journaled through the center of said upper lap plate and said supporting means and being connected to said gear means for rotating the same in the plane of the annular lap surface of said lower lap plate, independently of the rotation of said upper and lower lap plates.

4,315,384
COOLING DEVICE IN A GRINDING MACHINE
 Bengt Roos, Lidköping, Sweden, assignor to Lidköpings Mekaniska Verkstads AB, Sweden
 Filed Feb. 26, 1980, Ser. No. 124,816
 Claims priority, application Sweden, Apr. 20, 1979, 7903471
 Int. Cl.³ B24B 55/02

U.S. Cl. 51—267

5 Claims



1. In a grinding apparatus comprising a grinding wheel rotatable about a generally horizontal axis and having a peripheral envelope surface for contacting and grinding a workpiece, means for cooling the grinding wheel and workpiece including means supplying a cooling agent under pressure to the grinding zone comprising an elongated manifold connected to a cooling agent supply source and extending generally parallel to the axis of the grinding wheel and a pair of spaced discharge nozzles confronting one another disposed above the contact of the grinding wheel and workpiece and radially outwardly of the envelope surface of the grinding wheel to supply cooling agent to the grinding zone in such amounts and with such a pressure that a mainly homogeneous mass of cooling agent is established between said nozzle openings, the mass contacting the ground surface of the workpiece and the envelope surface of the grinding wheel.

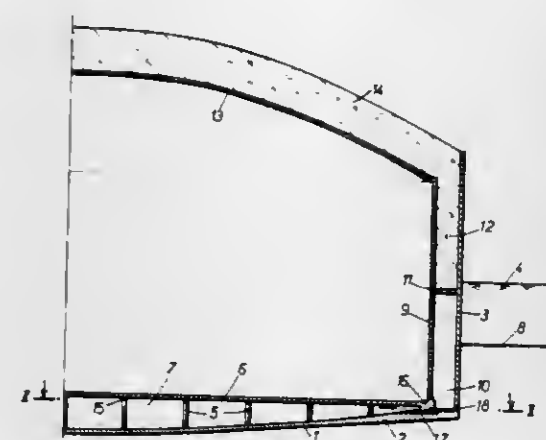
4,315,385

HIGH-SAFETY CONTAINER
 Philippe J. Moreau, Neuilly-sur-Seine, and Jacques G. A. Monsterleat, Marly-le-Roi, both of France, assignors to Campeon Bernard Cetra & Constructions Metalliques, Neuilly-sur-Seine, France

Filed Feb. 21, 1979, Ser. No. 14,006
 Claims priority, application France, Mar. 1, 1978, 78 05850
 Int. Cl.³ E04B 1/32; E02D 27/00

U.S. Cl. 52—80

16 Claims



1. A high-safety container for housing dangerous products or installations, said container comprising a combination of:
 - (a) a tank including an inner side wall, a floor and a top which define a storage enclosure,
 - (b) a continuous leak-proof foundation basement including a downwardly bulging cupola having an upper concave face and a convex undersurface exposed throughout to external upwardly-directed hydrostatic-like thrust,
 - (c) said tank floor being disposed above and spaced from the

upper concave face of said downwardly bulging cupola to define a lower ventilating gap therebetween,
 (d) pillar means extending between the tank floor and said upper concave face to support said tank over the cupola, and
 (e) an outer wall integral with said cupola to form an upwardly projecting peripheral extension of the cupola,
 (f) said outer wall and said inner sidewall being laterally spaced to form an annular space around said tank.

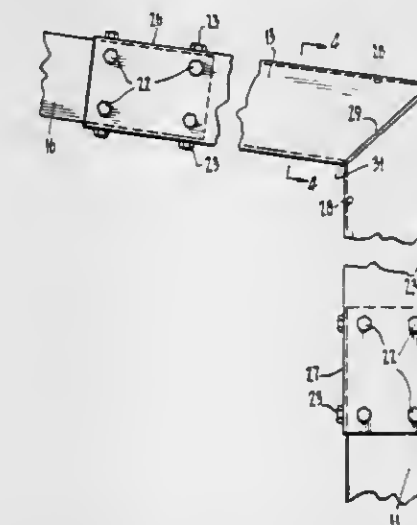
4,315,386

PORTAL BUILDING STRUCTURES
 Garry W. Clarke, 847 High Street Rd., Glen Waverley, Victoria, Australia

Filed Dec. 13, 1979, Ser. No. 103,517
 Claims priority, application Australia, Dec. 13, 1978, PD7104
 Int. Cl.³ E04B 7/02, 2/32

U.S. Cl. 52—93

16 Claims



1. A portal building frame comprising a pair of spaced substantially C-shaped cross-sectioned, upright columns, a pair of knee connectors engaged with upper ends of the columns and a substantially C-shaped roof frame member spanning between the knee connectors, the knee connectors each having a column engaging leg and a roof support leg, both legs being of substantially C-shaped cross-section and being of dimensions to closely telescopically interfit the respective column and roof frame member with the web portions of the sections lying in a substantially vertical plane, each of the legs of each knee connector being mitre cut at an angle whereby the roof support leg extends at the desired roof pitch angle when the mitred cut ends are interengaged, and a stiffening plate disposed between the mitred cut ends of both legs and welded to the web portion and flange portions of both legs, the columns, knee connectors and roof frame member being secured together with fasteners through engaging webs and engaging flanges of the components.

4,315,387

GROUND ANCHOR STAKE DEVICE
 John W. Lee, 7805 W. 96th St., Zionsville, Ind. 46077, and Benton Schrongham, 243 S. 25th St., Beech Grove, Ind. 46107

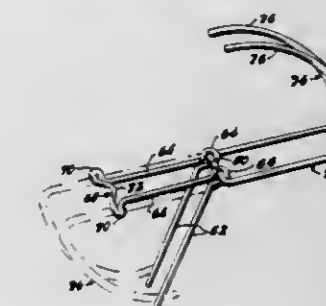
Filed Mar. 17, 1980, Ser. No. 131,209
 Int. Cl.³ E02D 5/74

U.S. Cl. 52—156

16 Claims

1. An anchor stake device, comprising a movably interconnected first body member means and a second body member means;
 - the first body member means having a first arm means and a spike means, the said first arm means and the said spike means being rigidly interconnected to one another in a relative position such that they are maintained at an angle with respect to one another;
 - and the second body member means having a second arm

means and a tine means, the said second arm means and the said tine means being rigidly interconnected;
 the said tine means being connected to the second arm means adjacent a first end of the said second arm means;
 means movably interconnecting the first and second body members by movably interconnecting the second end of the second arm means of the second body member means to the first body member means adjacent the interconnection of the first arm means means and the spike means but remote from the tethering means set forth below;
 tethering means by which an associated support member is to be supportingly connected to the anchor stake device;



- the ends of both the spike means and the tine means being free for pushing into the ground, on the ends thereof remote from the first arm means and the second arm means, respectively;
 the tine means being of curvilinear arcuate form having its radius of curvature generally coincident with the axis of the said movably interconnecting means;
 the anchor stake device being insertable in the ground by pushing the said spike means into the ground by pushing onto the said first arm means, then pushing the said tine means into the ground by pushing on the said second arm means until the said second arm means comes into substantial ground-engaging parallelism with the said first arm means.

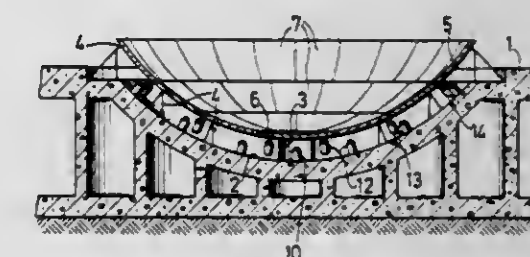
4,315,388

METHOD AND SYSTEM FOR MOUNTING A HEAVY SPHERICAL CONTAINER SHELL ON A FOUNDATION
 Fritz Ramseyer, Elgg, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland

Filed Nov. 14, 1979, Ser. No. 93,998
 Claims priority, application Switzerland, Nov. 24, 1978, 12053/78

Int. Cl.³ E04H 14/00; E04B 1/36
 U.S. Cl. 52—173 R

20 Claims



1. An apparatus for mounting a heavy spherical container shell on a foundation defining a spherical trough, said apparatus comprising
 - a multiplicity of props disposed in said trough
 - means for introducing and removing water into and from said gap for floating said shell off said props to permit removal of said props from between said shell and said trough and to thereafter lower said shell onto said resilient support means; and
 - means for introducing concrete into said gap to support said shell on said trough upon setting and developing bearing strength.

4,315,389

SELF-SUPPORTING OUTER METALLIC STAIRWAY
Gilbert L. Loix, Chaussee Brunehaut 22, 4462 Juprelle-Whogne, Belgium

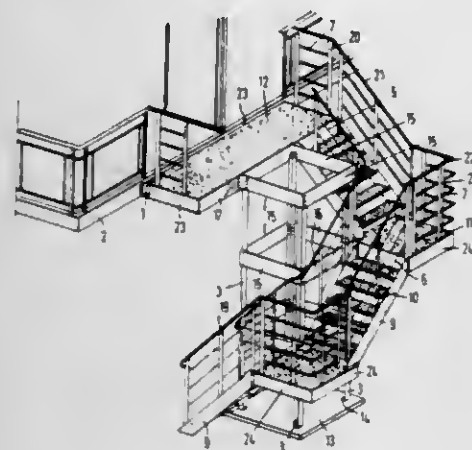
Filed Feb. 8, 1980, Ser. No. 119,785

Claims priority, application Belgium, Feb. 9, 1979, 874 067

Int. Cl.³ E04F 11/00

U.S. Cl. 52—185

14 Claims



1. Outer metallic stairway, particularly made of aluminium, for multistage buildings, which is generally intended to be used for allowing the occupants of a multistage building to evacuate the building and persons to go out and/or to go in by an outside means, characterized in that it consists essentially of flights of stairs and landings fixed and supported by means of four uprights forming a column of support that are mounted vertically in a square or rectangular arrangement, the flights of stairs being fixed to at least two of the sides of the support column, the uprights being connected to one another at different levels and at least on the level of the landings by means of four horizontal tie-bars, one of which on a level with a story landing being extended beyond a second upright for supporting said landing on a whole side or to be fixed to an existing landing and to support the flight of stairs fixed to it that descends from said landing, and two of the four tie-bars that are provided on the level of an intermediate landing being extended beyond one of the uprights in order to form a part of the supporting frame of an intermediate landing, the flight of stairs descending from said intermediate landing being fixed to one of said two extended tie-bars.

4,315,390

WALLBOARD CORNERS

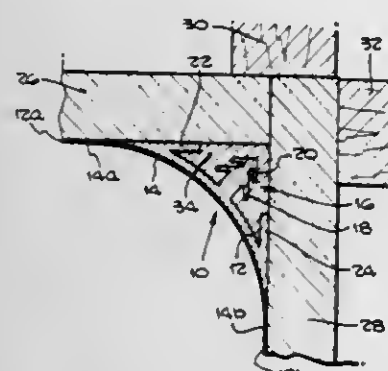
Michael Schaafsma, 2030 La Paloma, Tujunga, Calif. 91042

Filed Jun. 6, 1980, Ser. No. 157,284

Int. Cl.³ E04B 1/38

U.S. Cl. 52—288

13 Claims



2. A corner strip for two perpendicularly-disposed wall-board sheets, comprising:

means, disposed between said sheets, for effecting a curvilinear transition from one of said sheets to the other of said sheets, said effecting means comprising a longitudinally-extending and transversely concave member adapted for

positioning between said sheets, said concave member having longitudinally-extending feathered edges for abutting relation with said sheets;

means for anchoring said effecting means against said sheets, said anchoring means comprising means, attached to said concave member, for engaging a putty-like material placed in a corner formed by said perpendicularly-disposed sheets; and

tape means, bonded to said effecting means, for overlapping and bonding to said sheets, whereby a smooth transition is achieved between said effecting means and said sheets, said tape means comprising a piece of tape extending longitudinally along said concave member and transversely past said feathered edges, whereby said concave member is held by said engaging means against said putty-like material placed in said corner, with said feathered edges and said tape effecting a smooth transition between said concave member and said sheets.

4,315,391

COMPOSITE WALL STRUCTURE AND PROCESS THEREFOR

Matthew R. Piazza, Nichols, Conn., assignor to Maso-Therm Corporation, Hamden, Conn.

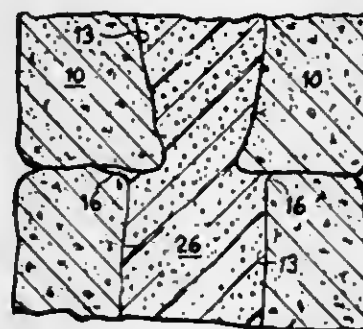
Continuation of Ser. No. 464,724, Apr. 26, 1974, abandoned.

This application Apr. 15, 1976, Ser. No. 677,479

Int. Cl.³ E02D 27/00; E04B 1/62, 2/14

U.S. Cl. 52—293

7 Claims



1. Wall structure comprising a plurality of stacked building blocks with direct contact between contiguous blocks each block having one or more vertical cells and forming a stacked wall structure without mortar or other binder or interlocking between contiguous blocks, said stacked blocks being united into said wall structure by substantially filling the vertical cells of said blocks being solely with a material consisting essentially of rigid urethane polymer foam which is adhesively secured to the walls of said cells and which extends into the surface pores thereof and into interior vertical and horizontal seams formed by said stacked blocks, said building blocks and said rigid foam forming a hermetically sealed, monolithic, insulated composite wall structure, the rigid foam in said cells imparting lateral strength to said composite wall.

4,315,392

ROOF COVER SHEET MATERIAL

Erik Sylvest, Werne a. d. Lippe, Fed. Rep. of Germany, assignor to Firma Icopal Baustoffe, Werne a. d. Lippe, Fed. Rep. of Germany

Filed Oct. 11, 1979, Ser. No. 83,879

Claims priority, application Fed. Rep. of Germany, Oct. 20, 1978, 2845700

Int. Cl.³ E04B 5/00

U.S. Cl. 52—309.1

10 Claims

1. A roof comprising a substrate over which is disposed roof covering sheet material, between said roof covering sheet material and said substrate there being disposed a spacing means, said spacing means being in the form of a nonwoven

4,315,394

WRAP-AROUND PACKAGING MACHINE

Fritz Noack, Ottoburen, Fed. Rep. of Germany, assignor to Emil Pester GmbH Verpackungsmaschinen, Wolfertschwen-den, Fed. Rep. of Germany

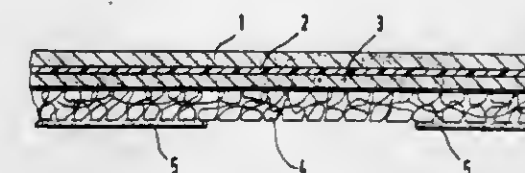
Filed May 4, 1977, Ser. No. 793,894

Claims priority, application Fed. Rep. of Germany, May 28, 1976, 2623907

Int. Cl.³ B65B 11/08, 13/02

U.S. Cl. 53—553

1 Claim



equalization, said nonwoven mat having a thickness of at least 6 mm.

4,315,393

INSERT FOR SUPPORTING HANGERS FOR CONDUIT, PIPE, CABLES, ETC., IN A CHANNEL MEMBER

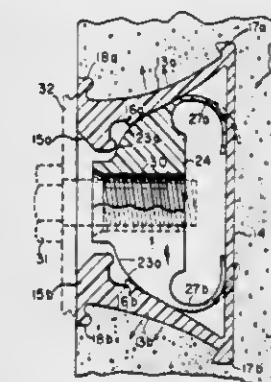
James B. Schack, 13841 SE, 241st, Kent, Wash. 98031, and Timothy L. Marks, 914 Lynnwood Ave. NE., Renton, Wash. 98055

Filed Nov. 29, 1979, Ser. No. 98,472

Int. Cl.³ E04B 1/38

U.S. Cl. 52—710

12 Claims



1. A removable insert for insertion in a carrier member having a U-shaped cross-section, the carrier member having a rear wall forming the base of the "U" and side walls forming the legs of the "U" and defining an entry opening therebetween, the insert connectable to supports for cables, pipes, conduits and the like comprising:

a main body having a front wall with rearwardly sloping surfaces, a rear wall and side walls joining the front and rear walls, the body of greater length than width, the width being less than the width of the entry opening between the legs of the channel member to allow insertion of the insert into the channel member, the depth of the insert being less than the depth of the channel member and the length of the insert determined by the distance between the side walls of the channel member, the length being sufficient for the sloping surfaces of the insert to contact the side walls of the channel member;

a threaded bore extending through the main body from the front wall to the rear wall for receiving a bolt therein through the entry opening of the channel member when the insert is positioned in place within the channel member; and

integral resilient legs extending from the rear wall of the main body adapted to contact the rear wall of the channel member and bias the sloping surfaces of the front wall of the insert into contact with the side walls of the channel member.

1. An improved tensioning device for use in a packaging machine for wrapping objects with a film, the packaging machine being formed by: a table for feeding objects, an upper supply roller and cooperating lower supply roller respectively above and below said feed table, a film wrapping curtain formed between said supply rollers and passing through a slit in said feed table; slide means movably arranged on said feed table for pushing said objects against said film curtain to form a film loop encasing said objects; two clamping elements mounted on either side of said feed table, one of said two clamping elements being movable into a clamping position in which two overlapping portions of said film adjacent said film loop are gripped between said two clamping elements; means for joining the two overlapping film portions by welding in a weld zone; separating means for separating the film wrapping thus formed from the rest of the film; the improvement comprising: providing a single tension roller for drawing the film loop taut around the objects, said tension roller having a top surface flush with the plane of the feed table and being arranged between said lower supply roller and the film loop, said tension roller is disposed in close proximity to the film loop at the surface of the table and is further defined by an axial slit extending along most of the axial length of the tension roller below the plane of the feed table and permanently traversed by the film immediately adjacent the film loop; the tension roller being movable to a first position to allow said slit to extend substantially in a direction of film travel enabling said film to pass substantially without obstruction from said lower supply roller through the slit to the film loop; a driving pulley affixed to the front end of the tension roller; a rope wound around said driving pulley, a first end of which being connected with a compressed-air cylinder provided with an adjustable valve for rotating said tension roller from said first position into a second position, whereby the film loop is tensioned in direct relation to the angular movement of said slit in response to rotation of said roller, and, tensioning occurs before the film portions are clamped, the second end of the rope being connected to a mechanical spring for rotating the tension roller in an opposite direction through the same rotation angle for returning said tension roller into said first position.

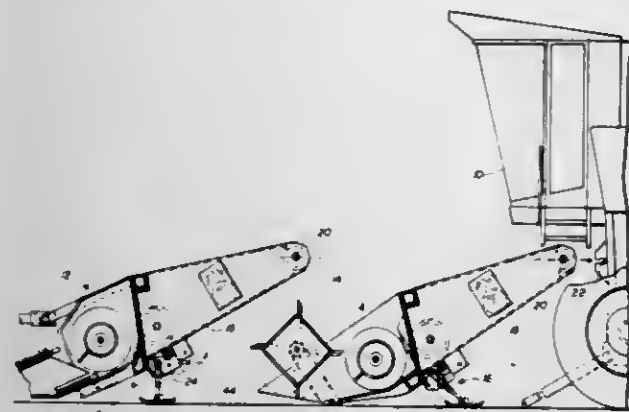
4,315,395

JACK STAND FOR AGRICULTURAL ATTACHMENT
 Stephen E. Randall, Narvon, and Carl G. Overly, New Holland, Pa., assignors to Sperry Corporation, New Holland, Pa.

Filed Apr. 21, 1980, Ser. No. 142,491
 Int. Cl.³ A01D 35/12

U.S. Cl. 56—10.1

3 Claims



1. A jack stand especially adapted for connection to an agricultural attachment, such as feeder housings, which are connectable to a powered agricultural machine, such as a combine, said jack stand being attachable to an appropriate location on said attachment to support the same in position for ready reconnection to such machine and comprising in combination, a supporting bracket comprising a pair of parallel plates secured in spaced relationship and connectable to said attachment and respectively provided with an arcuate row of positioning sockets disposed in an arc at equal radii around a pivot on said plates, a telescoping pair of leg members adjustable longitudinally, one end of one of said leg members being pivotally connected between said plates for pivotal movement in a vertical plane, pin means cooperable with said leg members and said positioning sockets to position said pair of leg members at a desired angular position relative to said attachment, at least one of said leg members having a longitudinal row of holes transversely therethrough and the other leg member having at least one hole transversely therethrough, a pin insertable through adjustably aligned holes in said leg members when selectively adjusted longitudinally to a desired length, and a shoe connected to the outer end of the other leg member for engagement with a supporting surface, whereby the angular and longitudinal adjustment of said pair of legs respectively relative to said supporting plates and each other afford an extensive range of adjustment vertically between said supporting plate and a supporting surface engaged by said shoe, such that the maximum height is greater than twice the minimum height and still permits compact arrangement thereof when disposed in a retracted inoperative position.

4,315,396

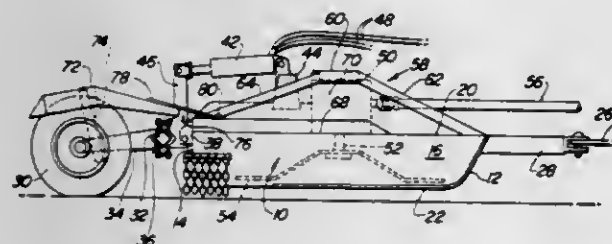
SHIELD AND DEFLECTOR MEANS FOR ORCHARD IMPLEMENT

Ken K. Oka, St. Catharines, and John Kulak, Port Colborne, both of Canada, assignors to Deere & Company, Moline, Ill.

Filed Jul. 23, 1980, Ser. No. 171,590
 Int. Cl.³ A01D 67/00

U.S. Cl. 56—320.1

7 Claims



1. A tractor-drawn and -powered orchard implement having a main body including front and rear ends and opposite sides,

a wheel support carried by and extending rearwardly from the rear end of the body, a ground-engaging wheel carried by the wheel support in such manner that a gap exists between the rear end of the body and the front portion of the periphery of the wheel, and a fender overlying the top portion of the wheel, characterized in that the wheel support, together with the wheel, is adjustable relative to the body, the fender is carried by the wheel support so as to be adjustable with the wheel and wheel support, and shield means is carried by the body and extends rearwardly in overlapping relation with the fender so as to bridge the aforesaid gap irrespective of adjustment of the wheel, wheel support and fender.

4,315,397

DEVICE FOR TWISTING A YARN BY MEANS OF A DOUBLE TWIST DEVICE

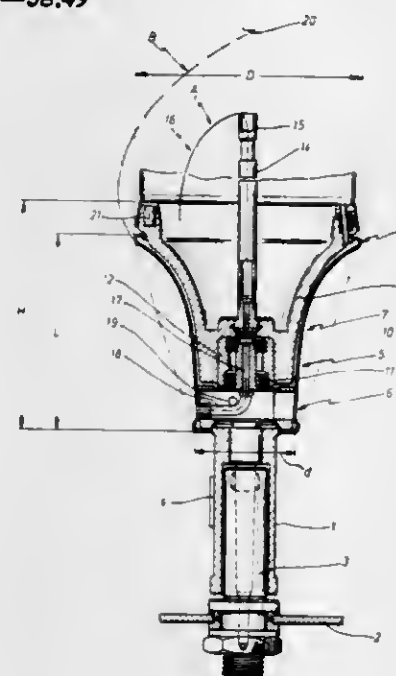
Carlos Matas Gabalda, Granges-les-Valence, France, assignor to ASA S.A., France

Filed Apr. 29, 1980, Ser. No. 144,841

Claims priority, application France, May 4, 1979, 79 11943
 Int. Cl.³ D01H 7/86

U.S. Cl. 57—58.49

6 Claims



1. A double twist spindle comprising:
 (a) a shaft adapted to be rotatably driven, the shaft having a first end to be supported on a machine frame;
 (b) a package carrying assembly rotatably mounted co-axially with the shaft for rotation independently of the shaft, the assembly including a base for supporting an end of a bobbin, and a hollow axle co-axial with the shaft;
 (c) retaining means for retaining the assembly against rotation with the shaft; and
 (d) a bowl element fixed to a second end portion of the shaft for rotation with the shaft, the bowl element comprising a hollow bowl which is co-axial with the shaft, which extends around the package carrying assembly, and which has a conduit defining a yarn passage with a yarn outlet; the hollow bowl having a first part which is of truncated conical shape in the region of the yarn outlet, the first part having a gradual slope, and having a further part which extends from the diverging end of the first part, the further part having a concave bell-mouthed configuration.

4,315,398

OPEN-END SPINNING APPARATUS

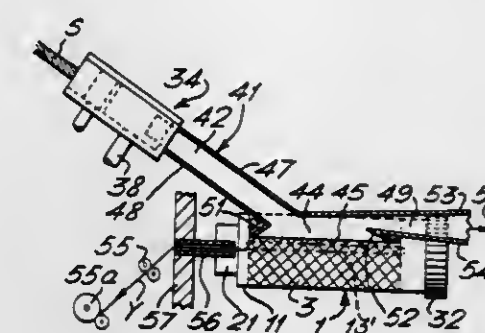
Alan Parker, Bolton, and William M. Farnhill, Burnley, both of England, assignors to Platt Saco Lowell Ltd., England

Filed Oct. 25, 1979, Ser. No. 88,262

Claims priority, application United Kingdom, Oct. 26, 1978, 42074/78; Jun. 6, 1979, 26163/79; Aug. 4, 1979, 27245/79
 Int. Cl.³ D01H 1/12, 7/898

U.S. Cl. 57—58.95

28 Claims



1. An open end yarn spinning apparatus comprising a yarn formation surface, fiber feed means for feeding discrete fibers to said surface, fiber duct means for conveying said fibers from said fiber feed means to said yarn formation surface, surface moving means for moving said yarn formation surface in such a manner as to twist said discrete fibers conveyed thereto and deposited thereon to form a yarn thereby, yarn withdrawal means for withdrawing said formed yarn from said surface in a direction transverse to the direction of movement of said surface, and fiber entraining means for providing an airstream within said duct means to entrain said discrete fibers and move the same through said duct means from said fiber feed means to said yarn formation surface, wherein said fiber entraining means provides a component airstream moving substantially parallel to the axis of said yarn being formed whereby fibers entrained in said airstream toward said surface are turned to a direction more parallel to said yarn axis as said fibers approach said yarn formation surface.

4,315,399

PROCEDURE FOR CLEANING A ROTOR OF A SPINNING UNIT OF THE OPEN-END TYPE

Hermann Pfeifer, Moillesulaz, and Erwin Zurcher, Le Lignon, both of Switzerland, assignors to Officine Savio S.p.A., Udine, Italy

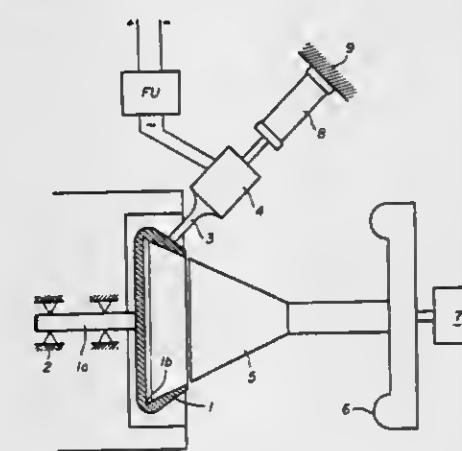
Filed Apr. 1, 1980, Ser. No. 136,247

Claims priority, application Switzerland, Apr. 2, 1979, 3040/79

Int. Cl.³ D01H 11/00

U.S. Cl. 57—302

2 Claims



1. A process for cleaning a rotor of an open-end spinning

unit, comprising imparting a vibration of an ultrasonic frequency corresponding to a harmonic of the natural frequency to at least one mode of vibration of a portion of a wall of said rotor delimiting a groove for the union of fibres, to impart to the surface of said groove an energy capable of detaching the particles of foreign matter lodged there, and discharging these particles from the rotor.

4,315,400

METHOD OF AND APPARATUS FOR PREHEATING PRESSURIZED FLUIDIZED BED COMBUSTOR AND CLEAN-UP SUBSYSTEM OF A GAS TURBINE POWER PLANT

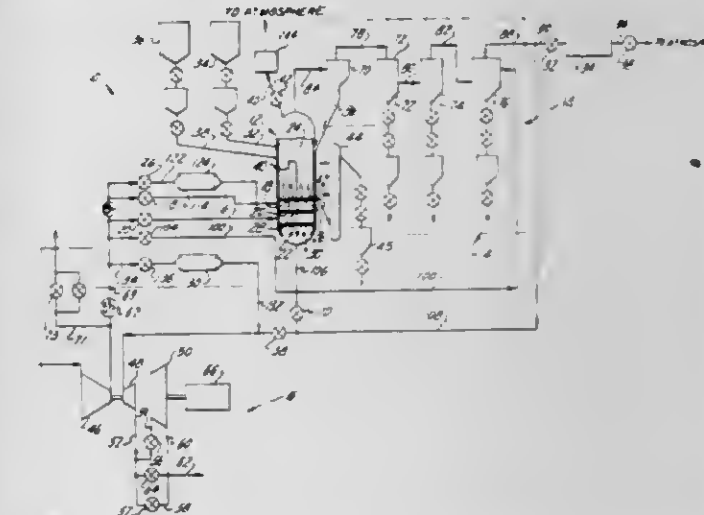
Rossa W. Cole, E. Rutherford, and August H. Zoll, Cedar Grove, both of N.J., assignors to Curtiss-Wright Corporation, Wood-Ridge, N.J.

Filed Feb. 8, 1980, Ser. No. 119,798

Int. Cl.³ F02C 3/26, 7/26

U.S. Cl. 60—39.02

8 Claims



1. In a gas turbine power plant having a pressurized fluidized bed combustor, a gas clean-up subsystem and a gas turbine-air compressor subsystem which are interconnected to provide for the generation of combustion gases in the combustor and flow of such gases through the gas clean-up subsystem and cleaned combustion gases from said gas clean-up subsystem to the gas turbine for driving the latter and said air compressor, the air compressor being connected to pass compressed air to the combustor, a preheating apparatus for heating the combustor and gas clean-up subsystem prior to start-up of the power plant comprising:

- (a) combustion means separate from said combustor for providing combustion gases,
- (b) first conduit means for connecting the combustion means with the gas turbine of said gas turbine-air compressor subsystem to conduct combustion gases to the gas turbine to drive the latter and thereby said air compressor,
- (c) second conduit means for communicating the air compressor with the gas clean-up subsystem and said combustor to pass heated compressed air thereto,
- (d) valve means disposed in said second conduit means and operative to a position to prevent flow of fluid from the gas clean-up subsystem to the gas turbine, and
- (e) vent means for the interior of said combustor and gas clean-up subsystem and selectively operative to communicate the interior of the combustor and gas clean-up subsystem with the atmosphere to effect flow of heated compressed air through the gas clean-up subsystem and combustor to thereby heat the gas clean-up subsystem and the combustor.

4,315,401

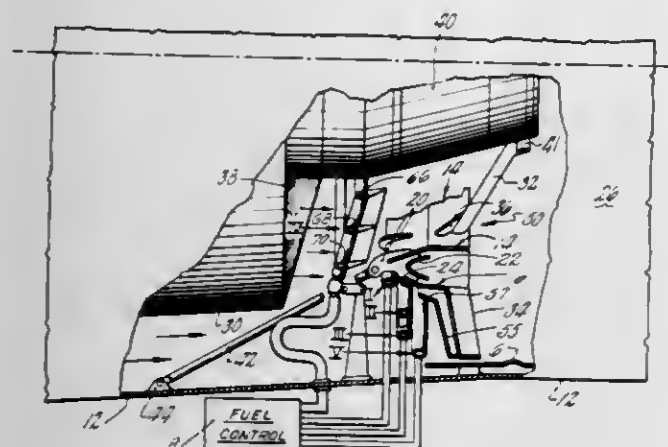
AFTERBURNER FLAMEHOLDER CONSTRUCTION
George W. Beal; James R. Grant, Jr., both of Palm Beach Gardens, and Kurt J. Hanloser, Lake Park, all of Fla., assignors to United Technologies Corporation, Hartford, Conn.

Filed Nov. 30, 1979, Ser. No. 99,054

Int. Cl.³ F02K 3/10, 3/04

U.S. Cl. 60—261

5 Claims



1. In combination, a core engine, a bypass duct around said engine, said core engine having a first exhaust means discharging a hot exhaust, said bypass duct having a second annular exhaust means directing a cooler flow therefrom, said first and second exhaust means opening directly into an afterburner, said afterburner having an outer wall extending downstream from said bypass duct, a flameholder means in said afterburner downstream of said first and second exhaust means, said flameholder means having an annular gutter section positioned downstream of said first exhaust means in said hot exhaust, a plurality of radial gutter sections extending radially outward from said flameholder means through said hot exhaust of said first exhaust means and into said cooler flow of said second exhaust means towards said outer wall of said afterburner downstream of said second exhaust means, a plurality of said radial gutter sections having a manifold on the forward portion thereof, each manifold having an inlet opening located downstream of and in line with said first exhaust means, each manifold having outlet openings on each side of said radial gutter section and in a portion downstream of and in line with said second annular exhaust means, said manifold directing hot exhaust flow from its inlet opening to its outlet openings.

4,315,402

HEAT TRANSFER PROCESS AND SYSTEM

Pasupati Sadhukhan, Bartlesville, Okla., assignor to Occidental Research Corporation, Irvine, Calif.

Continuation-in-part of Ser. No. 861,907, Dec. 19, 1977,

abandoned, and Ser. No. 907,143, May 17, 1978, Pat. No.

4,238,296. This application Jun. 18, 1979, Ser. No. 49,621

The portion of the term of this patent subsequent to Dec. 9, 1997, has been disclaimed.

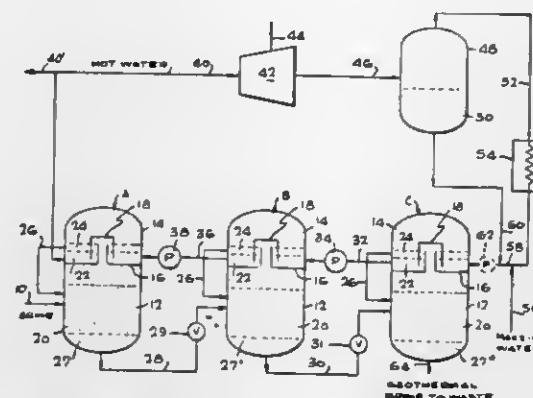
Int. Cl.³ F03G 7/00

U.S. Cl. 60—641.3

19 Claims

1. A heat transfer process which comprises in each stage of a plurality of interconnected like stages:
directly contacting a hot aqueous first liquid with a water immiscible second liquid having a boiling point lower than said first liquid in an evaporator zone, causing said immiscible second liquid to boil;
contacting the vapor of said immiscible second liquid generated during said boiling with a cooler aqueous third liquid in a condenser zone, causing condensation of said vapor

and heating said third liquid by transfer of latent heat from the condensing vapor; and,



recycling said condensed immiscible second liquid from said condenser zone to said evaporator zone.

4,315,403

AERO-HYDRAULIC GENERATOR AND A HEAT RECOVERY INSTALLATION INCLUDING SUCH A GENERATOR

Edmond Girard, Boulogne, and Robert Rey, Fresnes, both of France, assignors to Messier, Paris, France

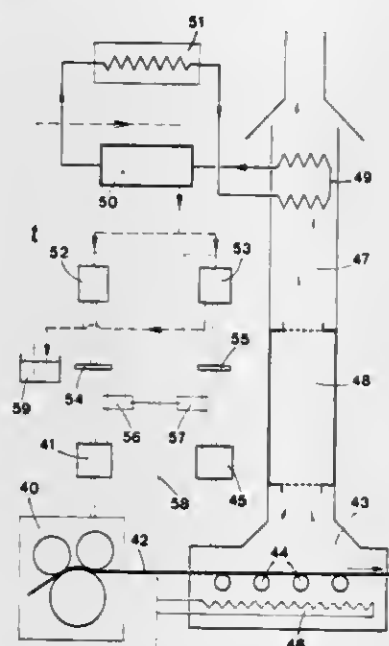
Filed Jan. 15, 1979, Ser. No. 3,383

Claims priority, application France, Feb. 2, 1978, 78 02846

Int. Cl.³ F01K 27/00

U.S. Cl. 60—643

11 Claims



1. An aero-hydraulic generator operable as a turbo-pump or motor compressor for insertion in a conduit comprising:
a sleeve housing having a hollow interior and including end connecting flanges at each end of said sleeve, for insertion of said sleeve in said conduit;
a positive displacement hydraulic pump-motor rotatable within said hollow interior, said pump-motor having a first shaft;
an axial turbine-compressor having a second shaft connected with said first shaft for connecting said turbine-compressor in tandem with said pump-motor;
said hydraulic pump-motor and said turbine-compressor being housed within said sleeve housing, so that a first fluid can pass axially of said first and said second shafts through said sleeve housing; and,
inlet and outlet conduits passing through said sleeve housing in a radial direction free of packings and transverse to said first and said second shaft for passage of a second fluid through said pump-motor without leakage to the exterior of the generator.

4,315,404

COOLING SYSTEM, FOR POWER GENERATING PLANT, USING SPLIT OR PARTITIONED HEAT EXCHANGER

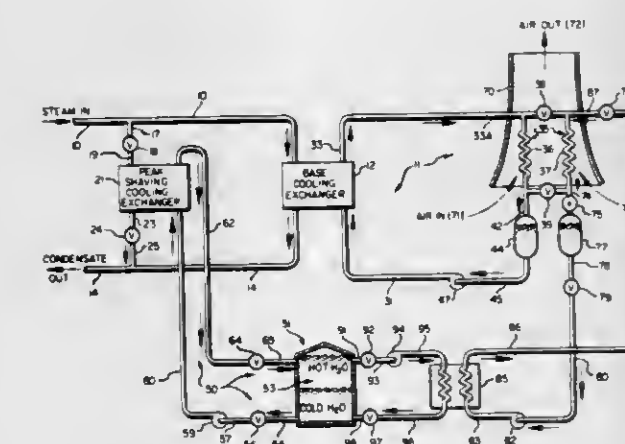
Richard L. Schmitt, Batavia; Ban-Yen Lai, Willowbrook, and Matloob Husain, Wheaton, all of Ill., assignors to Chicago Bridge & Iron Company, Oak Brook, Ill.

Continuation-in-part of Ser. No. 42,364, May 29, 1979, Pat. No. 4,270,358. This application Nov. 15, 1979, Ser. No. 94,480

Int. Cl.³ F28B 5/00

U.S. Cl. 60—690

19 Claims



9. A method of cooling a hot fluid stream which comprises:
contacting a hot fluid stream in indirect heat exchange with a base cooling fluid so long as the base cooling fluid accepts heat rejected from the hot fluid stream and adequately cools the same,
cooling the hot base cooling fluid by passing it through parallel first and second sections of a cooling tower heat exchanger and then returning it to again accept heat rejected by the hot fluid stream,
supplementing the cooling of the hot fluid stream when the base cooling fluid provides inadequate cooling thereof, after being passed through both of said first and second sections of the cooling tower heat exchanger, by contemporaneously also indirectly contacting the hot fluid stream with a secondary cooling liquid which is cold thereby heating the secondary cooling liquid,
delivering the hot secondary cooling liquid to a hot reservoir for storage,
isolating the flow and subsequent recirculation of base cooling fluid through the cooling tower heat exchanger first section from flow and subsequent recirculation of base cooling fluid through the cooling tower heat exchanger second section, when the hot fluid stream is sufficiently cooled by base cooling fluid itself cooled by passage through only the first section,
using the stream of base cooling fluid cooled by passing it through the second section of the cooling tower to cool hot secondary cooling liquid removed from the hot reservoir,
delivering the cold secondary cooling liquid to a cold reservoir for storage, and
withdrawing cold secondary cooling liquid from the cold reservoir and again delivering it into indirect heat exchange with the hot fluid stream when the base cooling fluid provides inadequate cooling.

4,315,405

COMBUSTION APPARATUS

Anthony Pidcock; Desmond Close, and William C. T. Kwan, all of Derby, England, assignors to Rolls-Royce Limited, London, England

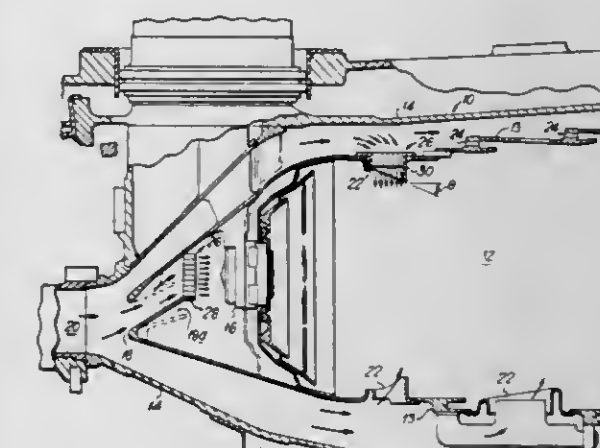
Filed Nov. 28, 1979, Ser. No. 98,173

Claims priority, application United Kingdom, Dec. 9, 1978, 47868/78

Int. Cl.³ F23R 3/46

U.S. Cl. 60—752

4 Claims



1. A combustion apparatus for a gas turbine engine comprising:
an outer casing;
a combustion chamber within said outer casing and defined by an inner casing spaced from said outer casing;
said combustion chamber having at least one primary air inlet and a plurality of dilution air inlets; and
at least one of said dilution air inlets having an airflow directing means arranged to receive an airflow from a source of compressed air and to direct said airflow in a predetermined direction to a location within the combustion chamber, said airflow directing means comprising an array of parallel arranged adjacent ducts having axes normal to an axis of the combustion chamber, each of said ducts having an inlet and an outlet, the direction of airflow to be directed being oblique to a common plane containing the inlets to said ducts of said airflow directing means, said outlets for said ducts lying in a common plane closely adjacent to the casing of said combustion chamber, and each of said ducts having a length to width ratio in a range of 2 to 3.

4,315,406

PERFORATE LAMINATED MATERIAL AND COMBUSTION CHAMBERS MADE THEREFROM

Jagnandan K. Bhangu, Ockbrook; Peter Fry, Allestree, and David Hustler, Nelson, all of England, assignors to Rolls-Royce Limited, London, England

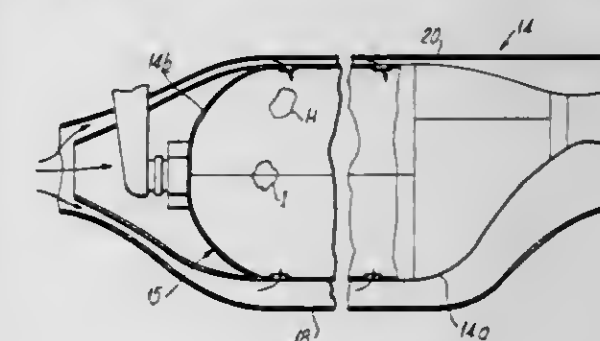
Filed Apr. 7, 1980, Ser. No. 137,776

Claims priority, application United Kingdom, May 1, 1979, 15152/79

Int. Cl.³ F23R 3/44

U.S. Cl. 60—754

4 Claims



1. In a gas turbine engine combustion chamber of the type

including a wall, at least part of the said wall being formed from a perforate laminated material, said material comprising first and second sheets having abutting surfaces, each of said sheets being provided with a plurality of perforations, at least one of the abutting surfaces of said sheets being provided with channels defining passageways in said perforate laminated material interconnecting said perforations of said first sheet with said perforations in said second sheet, said perforations in said first sheet being operable to meter the flow of a cooling fluid successively through said first and said second sheets, whereby discrete flows of said cooling fluid pass through said perforations in said first sheet and impinge upon the inside surface of said second sheet and then are emitted from the perforations of said second sheet, said perforations in said second sheet having a total cross-sectional area at least double the total cross-sectional area of perforations in said first sheet in a predetermined area of said material whereby cooling fluid emitted from the perforations of said second sheet tends to coalesce and substantially produce a film of cooling fluid adjacent to the outer surface of said second sheet over said predetermined area, said first sheet being defined as an outer cold-side sheet and said second of said sheets being defined as an inner hot-side sheet of said perforated laminated material of said combustion chamber, the improvement comprising the perforations of said inner hot-side sheet including a pattern in which adjacent perforations in said predetermined area of said perforate laminated material are out of alignment with each other axially along an axis parallel to the longitudinal axis of the combustion chamber and circumferentially out of alignment with each other in a plane transverse to the longitudinal axis of the combustion chamber whereby hot streaks of combustion products are prevented from developing along the outer surface of the inner hot-side sheet.

4,315,407

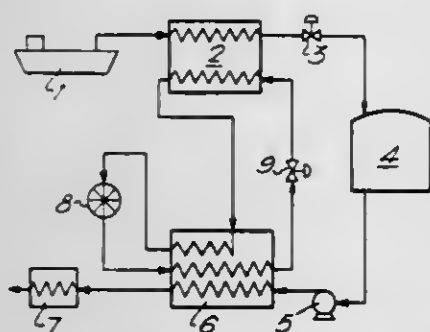
GAS STORAGE AND TRANSMISSION SYSTEMS
Malcolm R. Creed, Brentwood, and Ronald B. Gilmour, Woodford Green, both of England, assignors to British Gas Corporation, London, England

Filed Jun. 11, 1980, Ser. No. 158,488
Claims priority, application United Kingdom, Jun. 26, 1979, 22252/79

Int. Cl.³ F17C 7/02

U.S. Cl. 62—53

4 Claims



1. A method for storing and transmitting liquifiable gases, which method comprises cooling a pressurized first liquified gas stream by indirect heat exchange with a first refrigerant stream, to form a second liquified gas stream whose temperature is less than its initial boiling point at ambient pressure and a first warmed refrigerant stream, passing the second liquified gas stream to a storage vessel and storing said second liquified gas stream at ambient pressure, removing second liquified gas from said storage vessel and warming it by indirect heat exchange with a second warmed refrigerant stream, to form a third liquified gas stream and said first refrigerant stream, said warmed refrigerant stream also being in indirect heat exchange with said first warmed refrigerant stream to form second warmed refrigerant stream; and vaporizing said third liquified gas stream.

4,315,408
OFFSHORE LIQUIFIED GAS TRANSFER SYSTEM
Robert D. Karl, Pacific Palisades, Calif., assignor to Amtel, Inc., Providence, R.I.

Filed Dec. 18, 1980, Ser. No. 217,850
Int. Cl.³ F17C 7/02

U.S. Cl. 62—55

11 Claims



1. In a system for transferring cooled liquified gas from a liquifier of a shore based installation to a ship which has a heat insulated tank for holding the liquid, by way of an offshore transfer structure which moors the ship, and wherein the conduit assembly which carries material between the ship and shore includes a flexible hose structure lying in the water, the improvement wherein:

said flexible hose structure includes an inner hose forming a central passageway and having an inner hose periphery, and an outer hose surrounding said inner hose and having internal walls of much larger diameter than said inner hose periphery to leave an annular passageway between them; and including

means coupling said central passageway to said liquifier, to carry cooled liquid gas towards said vessel; and means coupled to said annular passageway to carry away vapor lying therein.

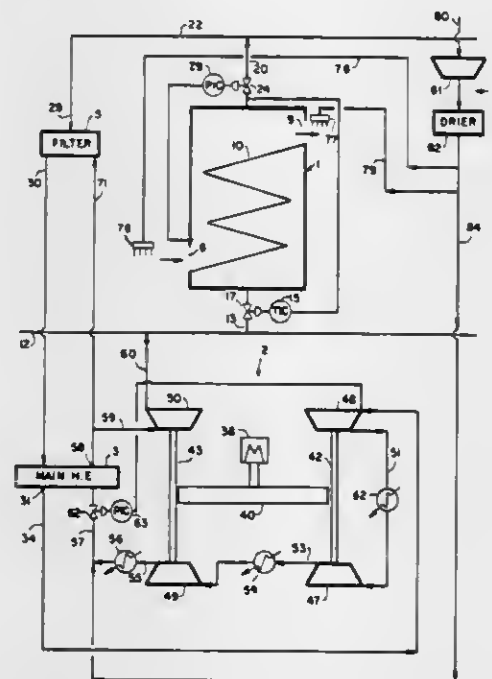
4,315,409
CRYOGENIC FREEZING SYSTEM

Alan L. Prentice, Surbiton, England, and Richard E. Filippi, Allentown, Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Dec. 22, 1980, Ser. No. 219,020
Int. Cl.³ F25D 13/06

U.S. Cl. 62—63

8 Claims



1. In an apparatus for freezing articles comprising in combi-

nation a freezer having an inlet for admitting the articles to be frozen, an outlet for permitting the frozen articles to leave said freezer and a conveyor for transporting the articles through said freezer from said inlet to said outlet thereof; a refrigerant supply main connected to said freezer for introducing refrigerant air to said freezer; a return main connected to said freezer for receiving the warmed air from said freezer; refrigeration means connected to said refrigerant supply main for supplying said supply main with air at cryogenic temperatures; and a main heat exchanger having a high pressure side connected to said refrigeration means and a low pressure side connected between said refrigeration means and said return main for exchanging the refrigerant value of said warmed air from said return main in said low pressure side with the air from said refrigeration means in said high pressure side; the improvement which comprises:

- said refrigeration means comprising a single refrigeration unit having a compression section and an expansion turbine section connected to said refrigeration supply main;
- said high pressure side of said main heat exchanger being connected between said compression and expansion turbine sections of said refrigeration means and said low pressure side being connected between said compression section of said refrigeration means and said return main, whereby the refrigeration value of said warmed air is exchanged with the air from said compression section of said refrigeration means in said high pressure side; and
- bag filter means connected between said return main and said main exchanger for removing ice particles from the warmed air in said return main prior to exchanging its refrigeration value in said main heat exchanger, which filter means comprises at least one bag which is periodically pulsed to remove ice collected therein.

4,315,410

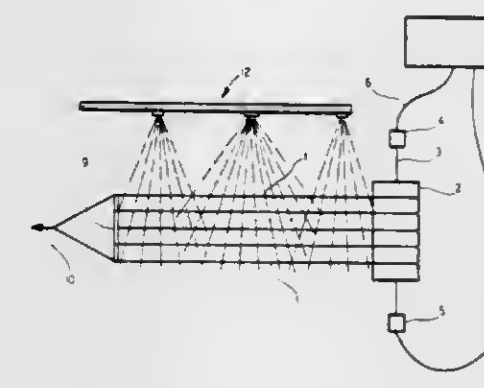
METHOD AND APPARATUS FOR MAKING ICE BLOCKS

Ivar Brandin, Norrköping, Sweden, assignor to Stal Refrigeration AB, Norrköping, Sweden

Filed May 12, 1980, Ser. No. 149,131
Int. Cl.³ F25C 1/00

U.S. Cl. 62—66

6 Claims



1. In the production of ice blocks for use as a supporting structure against a wall, the method which comprises placing a plurality of pipes in the immediate vicinity of said wall, applying water to said pipes externally thereof while passing through the pipes a cooling medium having a temperature below the melting point of ice, thereby freezing a layer of ice on said wall, then passing through said pipes a cooling medium having a temperature above the melting point of the ice, thereby loosening the pipes from the ice, and removing at least some of the pipes from said ice layer.

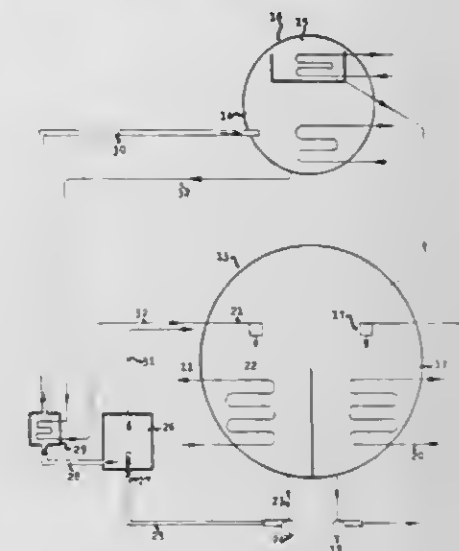
4,315,411
ALCOHOL TRAP

Isaiah Vardi, Rehovot; Yigal Kimchi, Ramat Gan, and Jonathan Ben-Dror, Hadar Am, all of Israel, assignors to Tadiran Israel Electronics Industries Ltd., Tel Aviv, Israel

Filed May 15, 1980, Ser. No. 150,135
Claims priority, application Israel, May 16, 1979, 57311
Int. Cl.³ F25B 15/00

U.S. Cl. 62—112

3 Claims



1. A process for operating the refrigeration cycle of a chiller of the type using water as a refrigerant and lithium bromide or the like as an absorbant and 2-ethyl n-hexanol as an additive, comprising the steps of:

- removing an aqueous lithium bromide solution containing 2-ethyl n-hexanol from an absorber;
- continuously separating the solution into a hexanol depleted phase and a hexanol enriched phase;
- recycling the enriched phase to the absorber; and
- feeding the alcohol depleted phase through a heat exchange means to a generator, said depleted phase being in heat exchanger relationship with lithium bromide fed from the generator to said absorber through said heat exchange means.

4,315,412

AIR CONDITIONING APPARATUS UTILIZING SOLAR ENERGY AND METHOD

Gershon Meckler, 7425 Democracy Blvd., Unit 212, Bethesda, Md. 20034

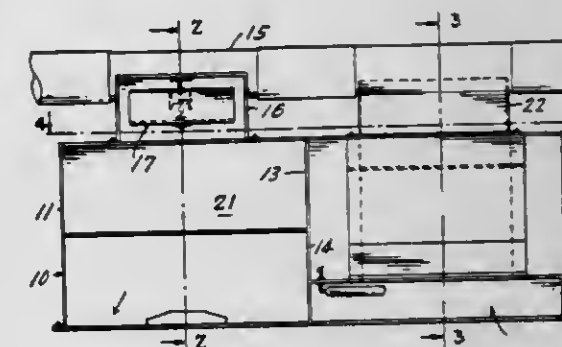
Continuation of Ser. No. 897,271, Apr. 17, 1978, abandoned, which is a continuation of Ser. No. 735,548, Apr. 18, 1978, Pat. No. 4,084,389, which is a continuation of Ser. No. 572,792, Apr. 29, 1975, abandoned. This application May 19, 1980, Ser. No. 150,953

The portion of the term of this patent subsequent to Apr. 18, 1995, has been disclaimed.

Int. Cl.³ F25D 17/00, 17/06

U.S. Cl. 62—179

24 Claims



1. Apparatus for delivering air for air conditioning a zone of a building, said apparatus comprising, in combination, a mixing

chamber having a first and a second air inlet, means for delivering primary, conditioned air through said first inlet to said chamber, means effective to vary the rate at which primary conditioned air is delivered to said chamber between a maximum and a predetermined lesser rate, an outlet operatively connected to deliver air from said chamber to the zone of the building, induction means operative to induce a flow of air into said chamber through the said second inlet thereof for mixture therein with primary conditioned air and delivery therewith through said outlet to the building zone, and means within said apparatus for transferring heat to the air induced to flow through said second inlet prior to the time it is mixed with primary conditioned air.

4,315,413

SELECTIVE TEMPERATURE CONTROL SYSTEM

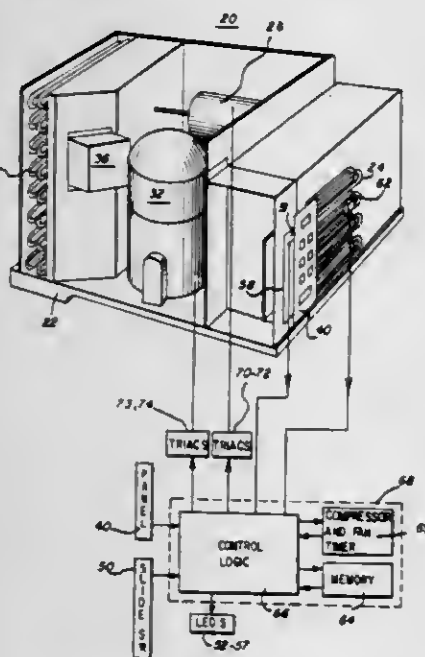
Daniel A. Baker, St. Joseph, Mich., assignor to Whirlpool Corporation, Benton Harbor, Mich.

Filed Dec. 31, 1979, Ser. No. 108,694

Int. Cl.³ F25D 17/00; G01K 7/00

U.S. Cl. 62—180

42 Claims



1. A temperature control system for a space cooling device having an evaporator, a variable speed evaporator fan and a compressor, comprising:

- an ambient thermistor having a resistance variable in accordance with the temperature of a space;
- conversion means coupled to said ambient thermistor for converting said thermistor resistance into a digital number proportional to said space temperature;
- a memory for storing a plurality of digital numbers representing set point temperatures;
- set point selection means coupled to said memory for retrieving from said memory one of said digital set point numbers;
- difference means coupled to said conversion means and said set point selection means for determining the difference between said digital space temperature number and said selected digital set point number;
- control means coupled to said difference means for adjusting the speed of said evaporator fan and the energization of said compressor; and
- operation mode selection means coupled to the control means for selecting at least one of a plurality of operation modes including a first mode in which the evaporator fan speed and the compressor energization are controlled according to the magnitude of said difference and a second mode in which only the compressor energization is controlled according to the magnitude of said difference.

4,315,414 AUTOMATIC CLEANING OF REFRIGERATED CASE INTERIOR SURFACES

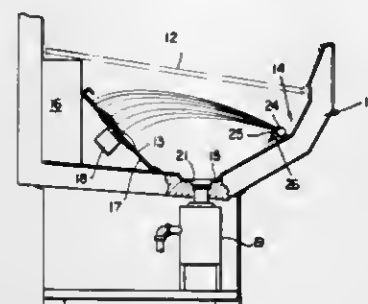
Fayez F. Ibrahim, Niles, Mich., assignor to Tyler Refrigeration Corporation, Niles, Mich.

Filed May 5, 1980, Ser. No. 146,430

Int. Cl.³ F25B 19/00; F28G 9/00

U.S. Cl. 62—231

7 Claims



2. A refrigerated display case comprising a refrigerant circulation system, a space wherein air cooled by the refrigerant system is circulated, a heat exchange shelf or platform overlying said space on which articles for display are placed, a spray system for cleansing the interior walls of said space and including a passage containing a valve connecting said spray system with a source of cleaning liquid, and a drainage system for said space opening into the lower portion of said space characterized control means operably connected to said refrigerant system, said spray system and said drainage system, and means for automatically actuating said control means between a normal condition wherein a refrigerant system is active and said spray system and drainage system are inactive, and a space cleaning condition wherein said refrigerant system is inactive, said spray system is activated to discharge cleansing liquid on the space walls and said drainage system is activated for removal of said liquid from the space, said refrigerant system containing a compressor driven by an electrical motor, said drainage system containing an electrical motor for driving a disposal unit and valve having an operating solenoid, characterized by said control means comprising switching means in the circuit of said motors and said solenoid and time controlled means for actuating said switching means.

4,315,415 PLENUM TYPE VARIABLE AIR VOLUME MOUNTING CURB

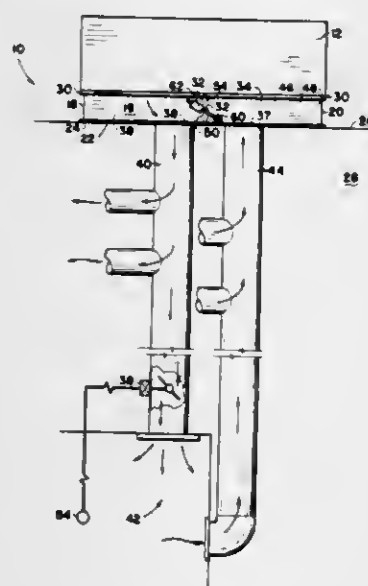
Roy J. Wilson, Tulsa, Okla., assignor to John Zink Company, Tulsa, Okla.

Filed Aug. 21, 1979, Ser. No. 68,487

Int. Cl.³ F25D 23/00

U.S. Cl. 62—263

2 Claims



2. In an air conditioning unit mounting curb with provisiong

for ducts for passage of air to and from an air conditioning unit from and to a plurality of rooms immediately subadjacent, comprised of a rectangular outer perimeter, a closed bottom, a wall dividing said curb into two plenums, at least one opening in one of said plenums for supply of air to said rooms, and at least one opening in a second of said plenums for return air from said rooms, the improvement comprising a normally closed bypass means between said plenums, said bypass means comprising an opening in said dividing wall, a damper blade covering said opening and hingeably connected to the return air side of said dividing wall, means to yieldably maintain said damper blade normally closed until a given pressure differential is established, comprising a hinge connecting the top edge of said damper blade to said return air side of said dividing wall, a first lever being pivotally connected at one end adjacent the lower portion of said damper blade, a second lever pivotally connected at one end to an opposite end of said first lever and an opposite end of said second lever pivotally connected between a plurality of parallel lugs, connected to said bottom of said return air plenum by a first end of an axle rod passing therethrough, an opposite end of said axle rod extending outwardly parallel to said dividing wall through said outer perimeter, and an adjustable counter-weight attached to said opposite end of said axle rod, means to open said bypass means, responsive to said given pressure differential acting thereupon, and thus provide a variable air volume system to said rooms.

4,315,416

BATH CONTAINER FOR A REFRIGERATION EQUIPMENT

Walter Frey, Holgenburg 17, and Rolf Kaiser, Dulkweg 21, both of 73 Esslingen, Fed. Rep. of Germany

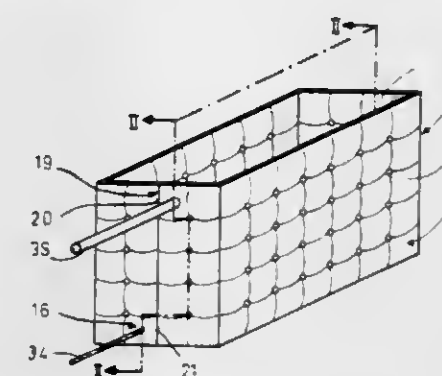
Filed Sep. 18, 1980, Ser. No. 188,279

Claims priority, application Fed. Rep. of Germany, Sep. 27, 1979, 2939076

Int. Cl.³ F25D 11/04

U.S. Cl. 62—438

11 Claims



1. A bath container for cooling a liquid contained therein, particularly for use in refrigeration equipment, comprising a jacket bounding a space for the liquid and including a bottom wall and a peripheral side wall formed by two individual walls arranged to form an enclosed hollow chamber therebetween, said peripheral side wall being rigidly connected to said bottom wall and having an upper opening for receiving the liquid and being of a substantially rectangular cross-section to form four space boundary wall elements constituting said hollow chamber, said two individual walls being connected to each other by connecting spots uniformly spaced from each other to divide said hollow chamber into a plurality of chambers communicated with one another; one of said space boundary wall elements forming two end surfaces of said side wall; a capillary tube for injecting a refrigerant into said hollow chamber and located near one of said end surfaces; a refrigerant discharging member for withdrawing the refrigerant from said hollow chamber and located near another one of said end surfaces, said feeding member and said discharging member being spaced from one another at the most possible distance along the height of said jacket so that the refrigerant enters said capillary tube, passes through said hollow chamber and leaves the same through said refrigerant discharging member whereby said

jacket functions as an evaporator; and a surface heating element mounted on said bottom wall and including a heating wire of a substantially small cross-section and being isolated from said bottom wall by an insulating mat rigidly connected to said bottom wall, said heating wire being embedded into said mat.

4,315,417

BOREHOLE LOGGING TOOL CRYOSTAT

Alain Zarudiansky, Velizy, France, assignor to Schlumberger Technology Corporation, Houston, Tex.

Filed Jun. 19, 1980, Ser. No. 161,069

Claims priority, application United Kingdom, Jun. 21, 1979, 21750/79

Int. Cl.³ F25B 19/00

U.S. Cl. 62—514 R

8 Claims



1. A cryostat for a high-sensitivity photon detector and adapted for use in a borehole logging tool, comprising: an evacuable housing of generally tubular form; an elongate single-phase heat sink of solid, thermally conductive material disposed within said housing for thermal contact with a photon detector to be maintained at cryogenic temperatures; and means for establishing thermal contact between said heat sink and a cooling means separate from said cryostat, prior to use of the cryostat, whereby said detector is maintained at cryogenic temperatures by absorption and retention of heat within said heat sink.

4,315,418

OVERLOAD COUPLINGS

Ary van der Lely, 10A, Weverskade, Maasland, and Cornelis J. G. Bom, 36, Esdoornlaan, Rozenburg, both of Netherlands

Division of Ser. No. 872,545, Jan. 26, 1978, Pat. No. 4,199,963.

This application Sep. 11, 1979, Ser. No. 74,545

Claims priority, application Netherlands, Feb. 1, 1977, 7701012

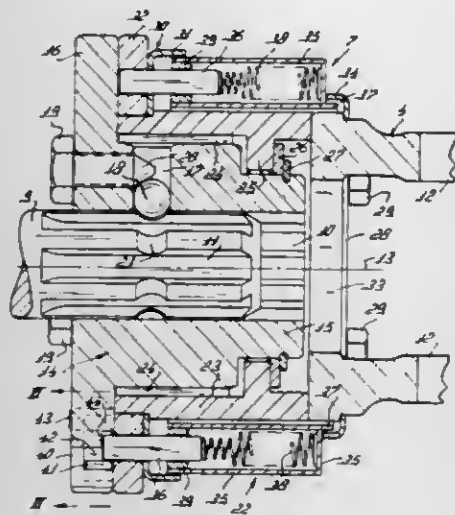
Int. Cl.³ F16D 3/56

U.S. Cl. 64—28 R

9 Claims

1. A replaceable holder containing frangible pins any one of which is adapted to hold two members of an overload coupling against relative rotation until overload, said holder comprising a housing and a plurality of elongated pins mounted side-by-side within said housing, said holder being adapted for quick release connection to the outer surface of one of the members that has spaced apart retaining rims on the outer surface thereof, lug means for detachably retaining said holder between said rims so that the forward end of said housing is

normally positioned adjacent aligned recesses in said two members, said forward end of the housing comprising guide means for said pins and said guide means having corresponding



openings that slideably receive said pins, spring means in said housing urging at least one of said pins through a respective opening of the housing towards said recesses.

4,315,419

CONTOURED PILE FABRIC AND A PROCESS FOR THE PREPARATION THEREOF

Bert Kernbichler, Obertshausen, and Christian Wilkens, Heusenstamm, both of Fed. Rep. of Germany, assignors to Karl Mayer Textilmaschinenfabrik GmbH, Obertshausen, Fed. Rep. of Germany

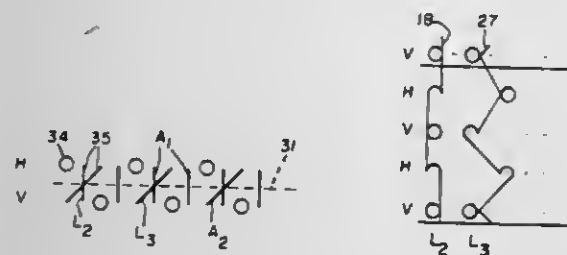
Filed Jan. 21, 1980, Ser. No. 113,582

Claims priority, application Fed. Rep. of Germany, Feb. 5, 1979, 2904203

Int. Cl.³ D04B 23/02

U.S. Cl. 66—87

13 Claims



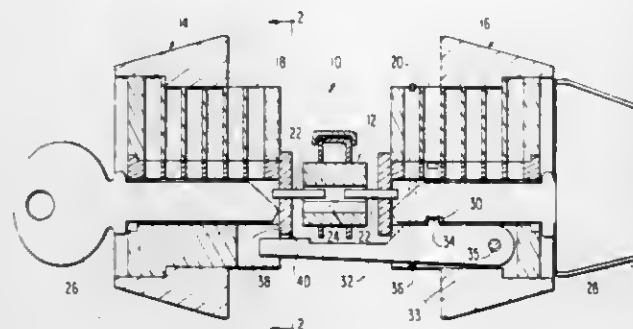
1. A process for fabricating knitted fabric having patterns formed thereon by pile threads of different lengths on a double needle bed warp knitting machine including two needle beds and a plurality of guidebars associated therewith comprising the steps of:

- knitting the pile forming threads carried by a first guidebar about the needles forming the ground fabric on a first needle bed;
- knitting said first guidebar pile forming threads about the needles of a second needle bed and returning to step (a);
- knitting the pile forming threads carried by a second guidebar about the needles forming the ground fabric on said first needle bed;
- knitting said second guidebar pile forming threads about the needles of a second needle bed and returning to step (c); said first guidebar and said second guidebar being provided with different displacements when moving between said first and second needle beds; and
- centrally cutting said pile forming threads appearing between the fabric formed by said first and second needle bars along the entire width of said fabric to form two separate panels.

4,315,420
RETAINED KEY DOUBLE CYLINDER DEADBOLT
 Ronald N. Oliver, 559 Howard Dr., Salem, Va. 24153
 Filed Apr. 11, 1980, Ser. No. 139,523
 Int. Cl.³ E05B 9/10, 17/04

U.S. Cl. 70—379 R

6 Claims



- A retained key double cylinder lock deadbolt including:
 - a locking deadbolt assembly with a deadbolt slidable from a retracted position to a locking position;
 - a pair of cylinder lock assemblies, one being an outside cylinder lock and the other being an inside cylinder lock;
 - a locking cylinder in each cylinder assembly;
 - deadbolt actuating means operated by either locking cylinder when the locking cylinder is operated with a proper key for moving the deadbolt from retracted position within the housing to locking position;
 - a pair of proper keys, one for each of the inside locking cylinder and one for the outside locking cylinder; with means for retaining the inside key by the improvements comprising:
 - notch means in the inside key only;
 - mechanical latch means adjacent the locking deadbolt assembly and cooperating with the cylinder lock assemblies to be operable by the outside locking cylinder, the mechanical latch means cooperating with the notch means in the inside key to retain the inside key in the inside locking cylinder unless released by operation of the outside locking cylinder under operation of the outside key;
 - and means preventing operation of the inside locking cylinder by the outside key.

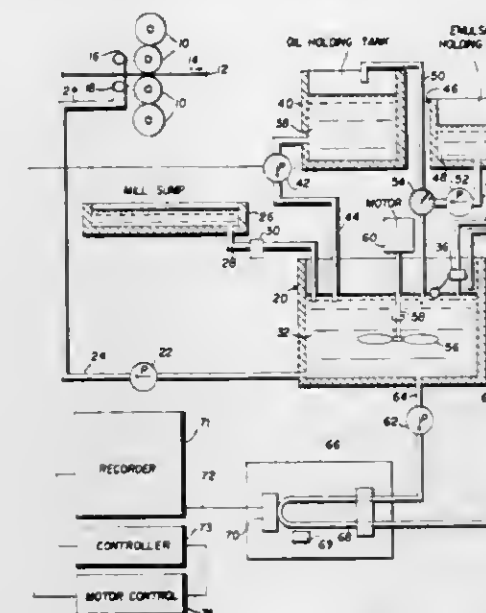
4,315,421
METHOD OF CONTROLLING THE CONCENTRATION AND STABILITY OF AN EMULSION
 Walter A. Wilson, Pittsburgh, Pa., assignor to National Steel Corporation, Pittsburgh, Pa.
 Division of Ser. No. 948,626, Oct. 3, 1978, Pat. No. 4,202,193.
 This application Dec. 4, 1979, Ser. No. 100,206
 Int. Cl.³ B21B 27/10, 45/02; G05D 11/06

U.S. Cl. 72—42

23 Claims

- A method of controlling the stability of an oil-in-water emulsion suitable for use as a lubricant in a metalworking operation comprising the steps of,
 - circulating a portion of the emulsion through a liquid density measuring cell and operating the cell to generate a first electric signal proportional to the density of the emulsion flowing through the cell,
 - periodically interrupting the flow of the emulsion through the cell and maintaining a quantity of the emulsion in the cell in a quiescent state for a predetermined time sufficient to permit the oil and water phases of the emulsion to at least partially separate,
 - operating the cell to determine the density of the emulsion in the cell at the termination of the predetermined time and to generate a second electric signal proportional to the determined density of the at least partially separated emulsion, and

comparing the first and second electric signals to determine the change of density of the liquid in the cell during the

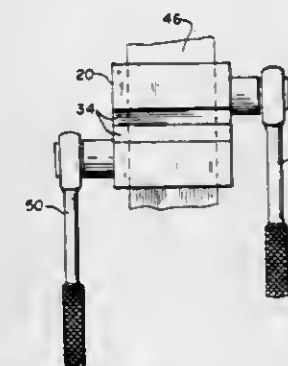


predetermined time and utilizing the determined change of density as an indication of emulsion stability.

4,315,422
BENDER EMPLOYING SOCKET WRENCH MEANS
 Thomas D. McBride, Washington Township, Bergen County, N.J., assignor to Joan McBride, Westwood, N.J.
 Filed Jun. 10, 1980, Ser. No. 158,322
 Int. Cl.³ B21D 7/00

U.S. Cl. 72—388

4 Claims

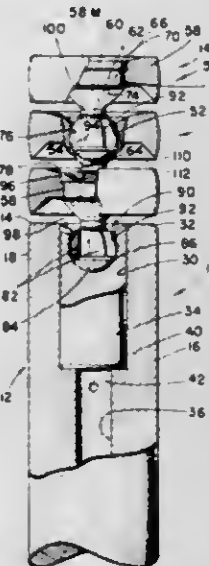


- Apparatus for bending metal strip, said apparatus actuated by two socket wrench handles and including:
 - two jaw members of substantially like U-shaped configurations, each jaw member having upper and lower jaw portions secured to an end member, the inner faces of the upper and lower jaw portions being substantially parallel, said end member having means for receiving, retaining and being driven by a socket wrench handle;
 - a bevel edge of at least forty-five degrees formed along one longitudinal edge of the upper jaw and with this bevel substantially approaching the inner face of the jaw;
 - a shim adapted to be inserted in the space in the jaw and adjacent the strip being bent, said shim adapted to urge and maintain an inserted strip adjacent the upper jaw, and
 - means for urging the inserted strip of metal toward and to each of the upper jaws and retaining said strip during bending as the strip is moved around a theoretical bending point at the contiguous facing beveled edges of the upper jaws with the beveled edges adjacent the strip being bent.

4,315,423
TUBE BENDING MANDREL
 Samuel B. McGuire, Arvada, Colo., assignor to Bending Products, Inc., Englewood, Colo.
 Filed May 30, 1980, Ser. No. 154,923
 Int. Cl.³ B21D 9/03

U.S. Cl. 72—466

10 Claims

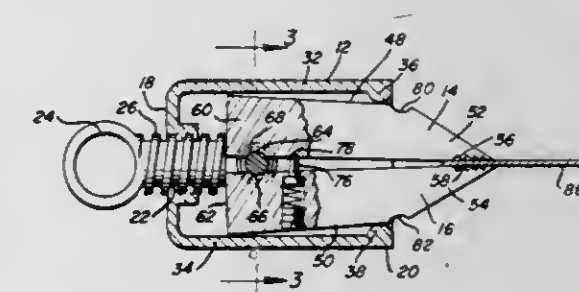


- The improved ball and socket assemblies connectable in end to end relation with rings therearound to define the bendable portion of a pipe bending mandrel which comprise: at least two elongate rigid links contoured to provide a spherically-shaped head of less than 180° in angular extent at one end, a body at the end opposite said head having an outer surface shaped to receive and detachably mount a ring, and a neck of reduced size interconnecting said head and body, the body of at least one of said links having a spherical socket therein of the same curvature as said head but of greater than 180° in angular extent and having a mouth opening in a direction opposite the latter; and, at least two arcuate spherically-surfaced ring segments adapted to encircle the neck adjacent the head of another of said link members, said segments cooperating with one another and said adjacent head to define a ball sized mate with the socket in said one socket-carrying link to form a universal coupling therewith.

4,315,424
VEHICLE BODY CLAMP
 Davis R. Jarman, 612 Ward Dr., and Virgil H. Hinson, 206 Fairway Oak, both of Brunswick, Ga. 31520
 Filed Jan. 16, 1980, Ser. No. 114,103
 Int. Cl.³ B21J 13/02

U.S. Cl. 72—479

12 Claims



- An auto body gripping clamp including a base component defining a pair of spaced opposing abutment surfaces, a pair of elongated side-by-side levers including first and second pairs of corresponding end portions projecting in opposite directions from opposite sides of a plane transverse to said levers and containing said abutment surfaces, said levers being supported from said base component for longitudinal shifting relative thereto, said first pair of end portions projecting from one side of said plane defining opposing jaw surfaces for clamping an auto body portion therebetween, means carried by said base

component for attaching a pull member thereto for applying a pulling force thereon in a direction opposite to the direction in which said first pair of end portions project, said levers including pairs of remote and adjacent longitudinal surfaces, said remote surfaces being slightly divergent toward said second end portions, said remote surfaces being slidably engageable with said abutment surfaces to cam said first pair of end portions toward each other upon shifting of said levers relative to said base component in longitudinal directions of said levers in which said first end portions thereof project, and pivot means operatively associated with the opposing sides of the second pair of end portions of said levers interconnecting the latter for relative angular displacement about an axis extending transversely of said levers for swinging of said first pair of end portions toward and away from each other.

4,315,425

CLAMPING DEVICE FOR FASTENING A TOOL TO A TOOL HOLDER

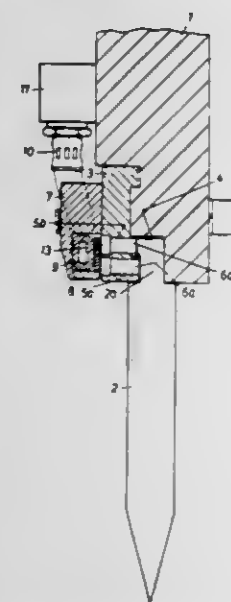
Vaclav Zbornik, Oftringen, and Walter Gygli, Niederbipp, both of Switzerland, assignors to Haemmerle AG, Zofingen, Switzerland

Filed Jul. 29, 1980, Ser. No. 173,674

Claims priority, application Austria, Aug. 1, 1979, 5286/79
Int. Cl.³ B21D 37/04

U.S. Cl. 72—481

5 Claims



1. A hydraulically pressurized block clamping assembly for receiving a bending tool and clamping the tool in a receiving groove of the ram of a folding press, said assembly comprising: a clamping block cooperating with the groove of the ram in which the tool is received; holes in said clamping block for receiving pins, one in each hole, to secure said ram to said tool by means of said block; said pins being arranged longitudinally along said groove in said ram; a bearing block fastened by pins to said clamping block; said bearing block having a receiving groove in the region of said longitudinally arranged pins of said clamping block; an elastic hose in said receiving groove of said bearing block adapted to be pressurized and bear against the tool to clamp it in the groove of said bearing block; and a pressure valve means for pressurizing said elastic hose and for venting the pressure whereby said tool may be released upon venting and is clamped upon pressurizing.

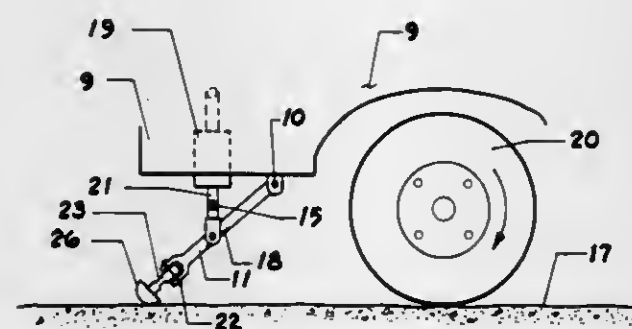
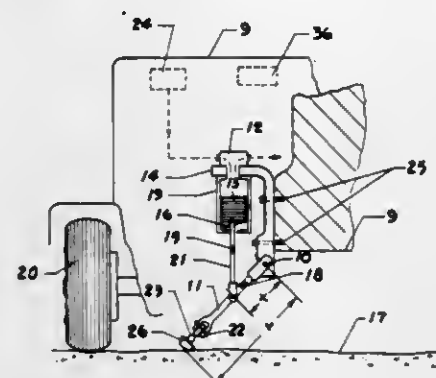
4,315,426 FRICTION COEFFICIENT MEASUREMENT FROM A MOVING VEHICLE

Ronald E. Brandon, 1734 Lenox Rd., Schenectady, N.Y. 14611
Filed Jan. 10, 1980, Ser. No. 110,985

Int. Cl.³ G01N 19/02

U.S. Cl. 73—9

3 Claims



1. A method of measuring and indicating sliding coefficient of friction values for vehicles operating on roadways comprising the steps of:

Lowering an instrumented probe with a non rotatable tip from a vehicle moving with a predetermined speed to momentarily contact the roadway with the non-rotatable tip of said probe in a fully sliding manner with a rate of slip substantially equal to said speed,

measuring the vertical and horizontal loads acting on said probe by means of strain gauges, combining said loads in an electronic unit to produce a signal indicating the sliding coefficient of friction, and producing a display of said coefficient of friction.

4,315,427 APPARATUS, METHOD AND SYSTEM FOR DETERMINING THE INTEGRITY OF SEALED CONTAINERS

L. David Leiter, Willow Grove, and Jacob Ravn, Phoenixville, both of Pa., assignors to The West Company, Phoenixville, Pa.

Filed May 12, 1980, Ser. No. 148,694

Int. Cl.³ G01M 3/02

U.S. Cl. 73—52

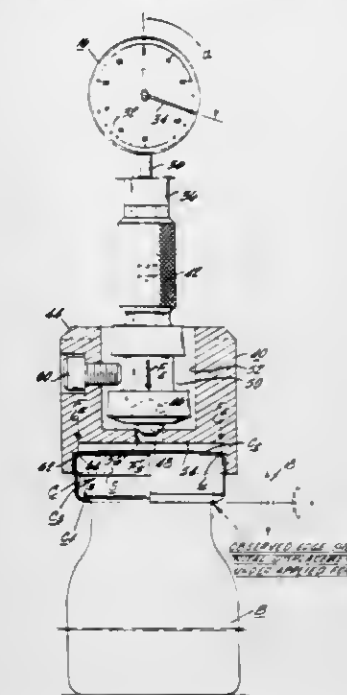
6 Claims

1. A method for testing the integrity of the seal of a container sealed by means of a closure comprising a resilient sealing element and a mechanical element compressing said resilient sealing element and locking the same in sealed relationship to said container which comprises:

applying an external force to said mechanical element in a direction to further compress said resilient sealing element,

sensing displacement of said mechanical element relative to said container when said externally applied force is substantially equal to the initial residual static force in said

compressed resilient sealing element, and comparing the said residual static force so determined to a predetermined



standard known to indicate sufficient compression of said resilient sealing element to provide an acceptable seal.

4,315,428

SENSOR FOR DETECTING PARTICLES IN A FLUID FLOW

Paulus A. Stuivenwold, and Kornelis Van Timmeren, both of Rijswijk, Netherlands, assignors to Shell Oil Company, Houston, Tex.

Filed Jun. 5, 1980, Ser. No. 156,835

Claims priority, application United Kingdom, Jun. 26, 1979, 22278/79

Int. Cl.³ E21B 47/10; G01N 15/00

U.S. Cl. 73—61 R

6 Claims



1. A sensor for detecting particles in a fluid flow, including: at least one metal ring-shaped member supporting transducer means in acoustic wave contact therewith; a rod provided with a shoulder; clamping means for clamping the ring-shaped member on the rod by exerting an axial force on the rod and the member; and material having elastic properties arranged between the ring-shaped member and the rod, and between the ring-shaped member and the surfaces by which the clamping force is exerted on the ring-shaped member.

4,315,429 METHOD OF DETERMINING DEFORMATION CHARACTERISTICS OF CONSTRUCTION MATERIALS AND SOIL

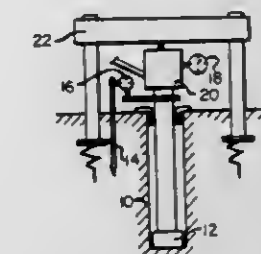
Viktor N. Morozov, prospekt Kosmonavtov, 31, kv. 29, Ukhta; Ilya A. Gimpelson, ulitsa Yaroslava Gashka, 4, korpus 1, kv. 532, and Vladislav M. Bogomolov, prospekt Energetikov, 72, korpus 1, kv. 38, both of Leningrad, all of U.S.S.R.

Filed Feb. 19, 1980, Ser. No. 122,620

Int. Cl.³ G01N 33/24

U.S. Cl. 73—84

7 Claims



1. A method of determining the deformation characteristics of construction materials and soil with the use of a die, including the following successively performed steps: placing said die of a predetermined diameter on the material being tested; applying an increasing load to said die, to cause the displacement thereof owing to the deformation of said tested material by a value equalling 0.03 to 10.0 diameters of said die; measuring said displacement of said die; using the data obtained by said measurement to calculate the modulus of deformation of said material; gradually relieving the load applied to said die; measuring the displacement of said die due to the elasticity.

4,315,430

GAS CALORIFIC CONTENT ANALYZING APPARATUS

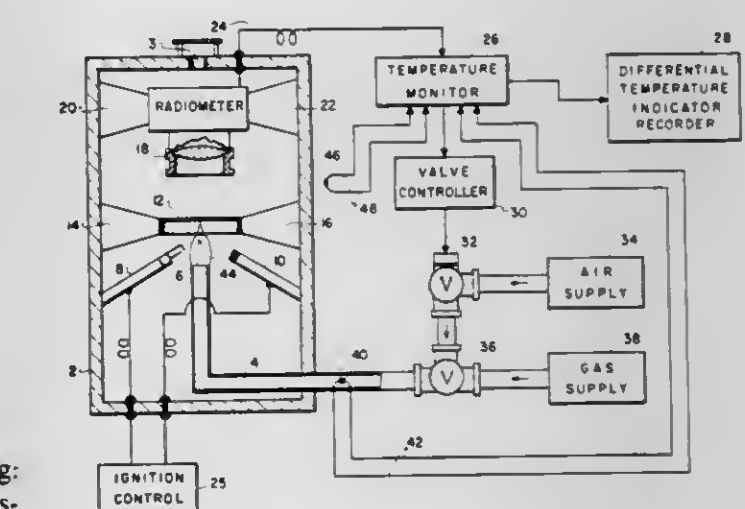
Eugene L. Szonntag, Flourtown, Pa., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Feb. 21, 1980, Ser. No. 123,411

Int. Cl.³ G01N 25/30

U.S. Cl. 73—190 CV

12 Claims



1. A gas calorific analyzer comprising gas-air ratio control means for controlling a gas-air mixture, combustion means for producing combustion of said gas-air mixture, means for producing an output signal representative of the temperature increase produced by the combustion of the gas-air mixture, peak detecting means responsive to said output signal to

control said control means to change the gas-air ratio until a peak is detected in said output signal and indicating means for producing an indication of said output signal as a measure of the calorific content of the gas to be analyzed wherein said means for producing an output signal includes a "black body" heated by the combustion of said gas-air mixture and a temperature detecting means for monitoring the temperature difference between said "black body", said gas-air mixture and an ambient temperature of the environment of said gas analyzer.

4,315,431

ADJUSTABLE FLOW DIVIDER FOR MASS FLOWMETERS

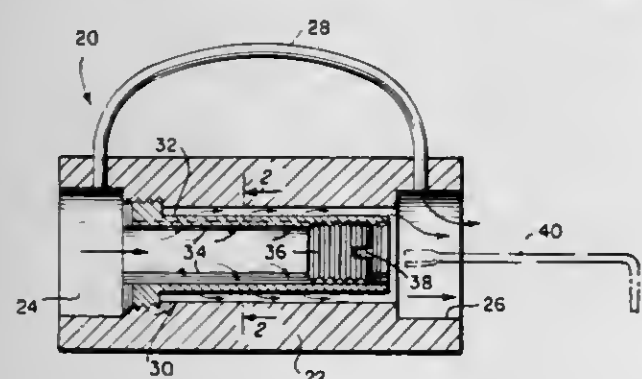
Charles E. Hawk, Newport News, Va., assignor to Teledyne Industries, Inc., Los Angeles, Calif.

Filed Oct. 9, 1980, Ser. No. 195,512

Int. Cl.³ G01F 5/00; F15D 1/14

U.S. Cl. 73-203

12 Claims



1. An adjustable flow divider for a flowmeter comprising: a porous tube having an inlet end for receiving a portion of a fluid flow to be measured, said tube having a plurality of longitudinally extending projections on an inner surface thereof;
- a generally cylindrically shaped plug, inserted within said tube and having a threaded outer surface, the thread diameter of said plug being larger than the inside diameter of said tube, said plug tapping said projections as the plug moves within said tube to form a seal against fluid flow between said tube and the plug; and
- means for adjusting the position of said plug relative to said tube to vary the total porous surface area exposed to said fluid thereby regulating the amount of fluid flow through the tubes.

4,315,432

ENCLOSURE FOR PROTECTING INSTRUMENTS AGAINST ADVERSE ENVIRONMENTS

Roger A. Newton, 17835 Gebhardt Rd., Brookfield, Wis. 53005

Filed Jun. 12, 1980, Ser. No. 158,894

Int. Cl.³ G01L 19/14; G01P 1/02

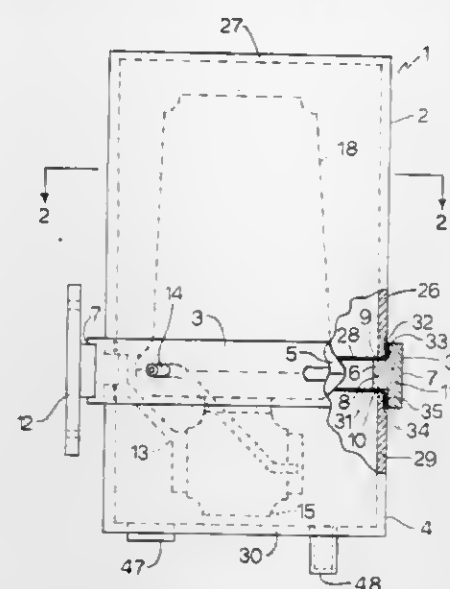
U.S. Cl. 73-431

7 Claims

1. A protective enclosure for an instrument of the type used for measuring an electromagnetic, physical, fluid or electrical parameter comprising the combination of:

first and second housing elements and a support ring, each housing element being detachably joined to the support ring to define a protective enclosure; the support ring having an inner wall sealingly mounted between each of said first and second housing elements and opening onto the interior of the protective enclosure and an outer wall positioned exteriorly thereof; mounting means attached to a portion of the inner wall of the support ring for supporting an instrument inside the enclosure;

means attached to the outer wall of the support ring for supporting the enclosure on a rigid surface; and



plural instrument line means sealingly extending through the support ring for connection with an instrument inside the enclosure.

4,315,433

POLYMER FILM ACCELEROMETER

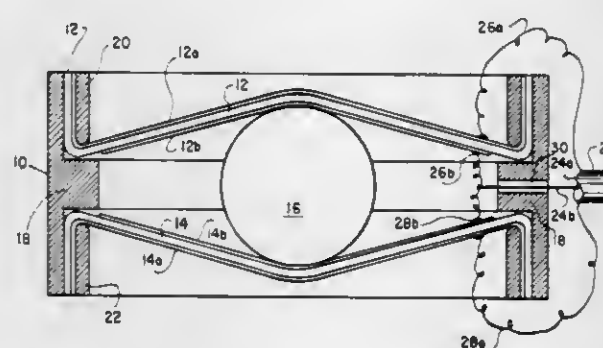
Seymour Edelman, Silver Spring, and Beverly F. Payne, Gaithersburg, both of Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Mar. 19, 1980, Ser. No. 131,575

Int. Cl.³ G01P 15/09

U.S. Cl. 73-517 R

9 Claims



1. An accelerometer comprising a frame; a first sheet of piezoelectric polymer film having an inner surface and an outer surface and mounted in said frame under tension; a second sheet of piezoelectric polymer film having an inner surface and an outer surface and mounted in said frame under tension; an inertial mass disposed between said first and second sheets and in contact therewith such that acceleration of said mass causes a change in the tension on both of said sheets; at least one electrode comprising a metallic coating on said first sheet; a measuring means; and an electrical conductor connecting said electrode to said measuring means.

4,315,434

PULSE WIDTH MODULATION (PWM) WITH JEWEL PIVOT ACCELEROMETER

Marcus R. Eastman, Orlando, Fla., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed May 21, 1980, Ser. No. 152,001

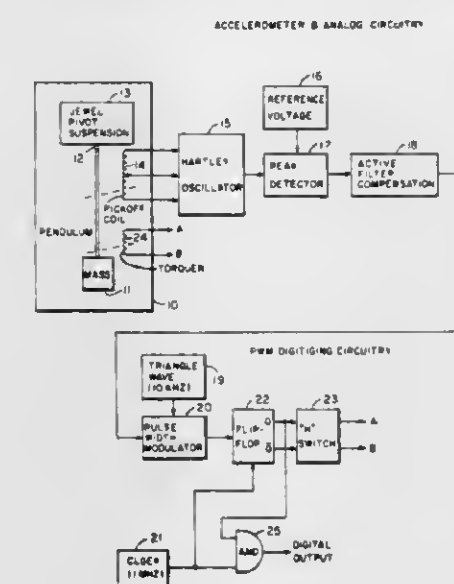
Int. Cl.³ G01P 15/13

U.S. Cl. 73-517 B

1 Claim

1. In an accelerometer having a pendulous mass mounted by a jewel pivot suspension with a pivot bearing, a pickoff coil,

and a torque coil, the improvement comprising a Hartley oscillator having an input connected to said pickoff coil for sensing the current in the pickoff coil and producing an analog output signal proportional thereto at an output of said oscillator; a peak detector having an input connected to the output of said oscillator and having an output; a filter having an input connected to said output of said detector and having an output; a pulse width modulator connected to output of said filter for converting the analog signal into a pulse width modulated



digital output; gating means connected to said pulse width modulator so as to produce a digital output proportional to changes sensed by the accelerometer; said gating means comprising a flip-flop having an input connected to an output of said pulse width modulator and having two outputs; an "H" switch having inputs connected to the outputs of said flip-flop and having an output; and said outputs of said "H" switch being connected to said torque coil for nulling said accelerometer and burnishing the pivot bearing.

4,315,435

DUAL SCAN ULTRASONIC SCANNER

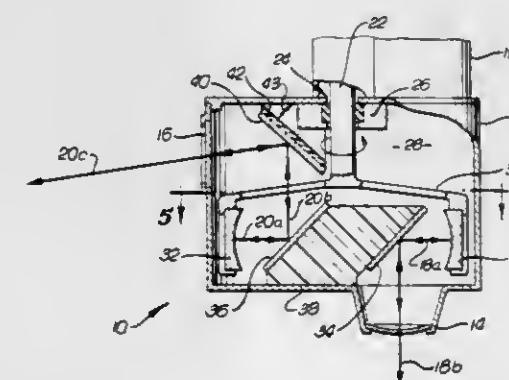
Andrew Proudian, Chatsworth, Calif., assignor to Second Foundation, Chatsworth, Calif.

Filed Jun. 30, 1980, Ser. No. 164,316

Int. Cl.³ G01N 29/04

U.S. Cl. 73-628

16 Claims



1. A dual scan ultrasonic scanner comprising: a housing; one or more ultrasonic transducers movably mounted within the housing; drive means for causing the transducer(s) to traverse an arcuate path within the housing; first reflector means positioned within the arcuate path for receiving and reflecting ultrasonic waves from the transducer(s), wherein said first reflector means are oriented with respect to the ultrasonic waves to cause the ultrasonic waves to scan across the first reflector means and are

reflected to converge at a point a preselected distance in front of the first reflector means; and second reflector means positioned within the arcuate path for receiving and reflecting ultrasonic waves from the transducers, wherein the second reflector means are oriented with respect to the ultrasonic waves to cause the ultrasonic waves to diverge as they exit from the housing.

4,315,436

FLOW-RATE TRANSDUCER WITH ELECTRICAL OUTPUT

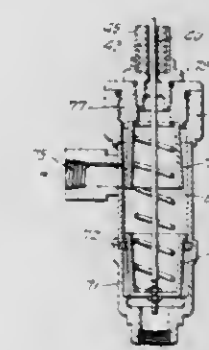
Garry-Owen McCabe, New Hartford, and William P. Milish, Bristol, both of Conn., assignors to Transamerica DeLaval Inc., Princeton, N.J.

Continuation-in-part of Ser. No. 117,791, Feb. 1, 1980. This application Jun. 12, 1980, Ser. No. 158,869

Int. Cl.³ G01F 1/24

U.S. Cl. 73-861.54

17 Claims



1. A fluid-flow responsive electric transducer, comprising a valve body having a fluid passage between an inlet and an outlet, said body including seat structure having a circular opening and dividing said passage into an inlet chamber and an outlet chamber, guide means including a cylindrical-bore formation in fixed adjacent relation to said seat structure and within said outlet chamber, said bore formation being coaxial with and of greater radius than said seat opening, a cupped piston structure having a cylindrical outer surface portion in close clearance relation with the seat opening, said piston structure having a closed end in the inlet chamber and an open end exposed to the outlet chamber, said piston structure having at its open end a radially outward flange in guided engagement with said bore formation, one of said structures having an elongate slot of predetermined flow-characterizing width in such coacting adjacency with the other of said structures that with piston-member displacement away from a seated no-flow position the effective slot opening increases as a substantially linear function of such displacement, whereby over the slotted region, said piston member will be longitudinally displaced as a substantially linear function of rate of flow for a given fluid in said passage, and electrical transducer means including a part connected to said piston and a part mounted to said body and producing an electrical output signal having a varying parameter which is a substantially linear function of piston displacement.

4,315,437

DEVICE FOR DRIVING AND DISPLACING A BEAM RESTING UPON GUIDE RAILS, AND ONE OR MORE CARRIAGES ATTACHED TO THE BEAM

Jean Etcheparre, and Bernard Etcheparre, both of Merignac, France, assignors to Societe Lectra Systemes, S.A., Pont de Le Maye, France

Filed Jul. 25, 1978, Ser. No. 927,862

Claims priority, application France, Jul. 25, 1977, 77 23575

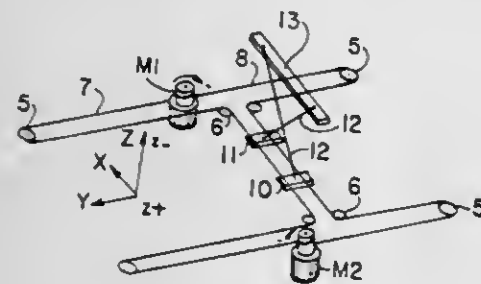
Int. Cl.³ F16H 27/02

U.S. Cl. 74-89.22

2 Claims

1. A device for driving and displacing a beam and at least one carriage attached to said beam, said device comprising: (a) a beam displaceable in a direction parallel to two guide rails;

- (b) at least two carriages displaceable in a direction transverse to said parallel direction;
- (c) two crossed arms, each of said arms being attached at one end to one of said carriages and at a second end to an upper cross piece adapted to support an external member; and
- (d) at least one cable stretched over a plurality of pulleys and wound around each of two drums which extend from motors rotatable in at least two directions, each of said carriages being attached to a different portion of said cable, wherein said at least one cable, said pulleys and said drums combine to effect displacement of at least one of



said beam and said carriages, said at least one cable being stretched symmetrically over at least two pulleys connected to ends of said rails and a plurality of said pulleys attached to said beam so that said stretched cable defines an H-shaped configuration, said motors and said drums being symmetrically disposed on opposite rails between the ends of said rails, and said cable being wound symmetrically on opposite directions about each of said drums, whereby rotation of said motors will wind the cable on one of said drums and unwind the cable on the other of said drums, such that the carriages are displaced symmetrically by the rotation of at least one of said motors such that said cross piece will be displaced in a vertical plane.

4,315,438

CONVERSION ASSEMBLY FOR DISPENSING PUMPS AND THE LIKE

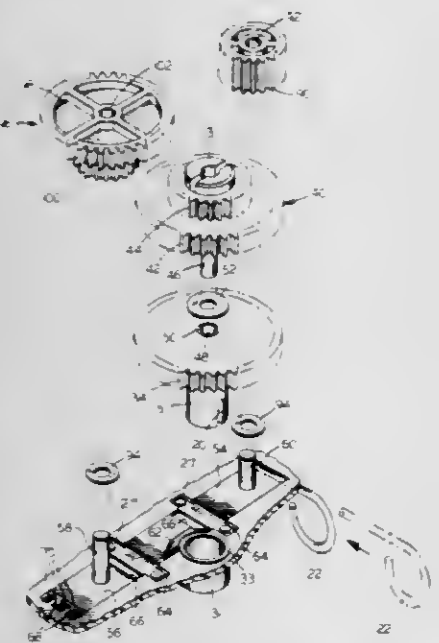
Tom Stephenson, Simsbury, Conn., assignor to Petroleum Meter & Pump Co., Inc., Avon, Conn.

Filed Apr. 21, 1980, Ser. No. 142,039

Int. Cl.³ F16H 3/34

U.S. Cl. 74—352

13 Claims



1. A converter for a fuel pump computer comprising: a housing; a drive shaft in said housing mounted for rotation about a fixed axis and adapted for driven engagement with the pump meter; a driven shaft in said housing coaxially rotatably mounted and adapted for driving engagement with the variator of the computer; a gear assembly comprised of two drive gears

coaxially disposed for independent rotation about said fixed axis, at least one of said drive gears being a compound gear including first and second coaxial gear elements, said drive shaft and said driven shaft each being fixed to a different one of said drive gears; a slide member mounted in said housing adjacent said gear assembly for movement between first and second positions; a first idler gear mounted on said slide member for rotation about a first axis parallel to said fixed axis and spaced laterally to one side of said gear assembly, said first idler gear being constructed complementarily to mesh with said first gear element of said compound drive gear and the other of said drive gears, to couple them for conjoint rotation; a second idler gear mounted on said slide member for rotation about a second axis parallel to said fixed axis and spaced laterally to the opposite side of said gear assembly, said idler gear being complementarily constructed to mesh with said second gear element of said compound drive gear and said other drive gear, to couple them for conjoint rotation; biasing means in said housing urging said slide member toward said second position thereof; and mechanical locking means disengageably mounted in said housing to lock said slide member in said first position, and exteriorly accessible for disengagement to release said slide member for movement to said second position under the force of said biasing means, said idler gears being so positioned on said slide member that a different one of them engages said gear assembly in each of said positions thereof, whereby said slide member may be so positioned that said driven shaft is rotatable by said drive shaft in one ratio, by effecting the engagement of said first idler gear simultaneously with said other drive gear and said first gear element of said compound drive gear, and whereby said slide member may be repositioned so that said driven shaft is rotatable by said drive shaft in a different ratio, by effecting the interengagement of said second idler gear simultaneously with said other drive gear and said second gear element of said compound drive gear.

4,315,439

DRIVE APPARATUS FOR ROTARY UNIT

Heinz Grachtrup, Ennigerloh, Fed. Rep. of Germany, assignor to Krupp Polysius AG, Beckum, Fed. Rep. of Germany

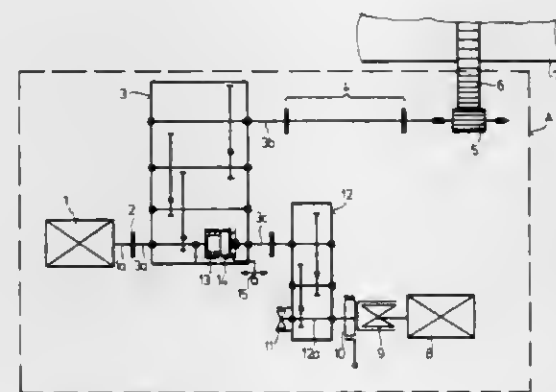
Filed May 14, 1980, Ser. No. 149,837

Claims priority, application Fed. Rep. of Germany, Jun. 7, 1979, 7916367[U]

Int. Cl.³ F16H 37/06

U.S. Cl. 74—661

22 Claims



1. In a drive arrangement for a rotating unit, such as a rotary kiln, a drum mill, or the like having a main motor, a main transmission unit arranged between the main motor and the unit to be driven, an auxiliary motor, an auxiliary drive transmission unit arranged between the auxiliary motor and the main transmission unit, a centrifugal brake arranged between the auxiliary motor and the main transmission unit, and an overriding clutch rotatable in each of two opposite directions for overriding the auxiliary drive, the improvement comprising a shift clutch engageable with the overriding clutch for arresting the overriding clutch in both directions of rotation.

4,315,440

DOUBLE SCREW EXTRUDER TRANSMISSION

Siegfried Chszaniecki, Hanover, Fed. Rep. of Germany, assignor to Hermanno Berstorff Maschinenbau GmbH, Fed. Rep. of Germany

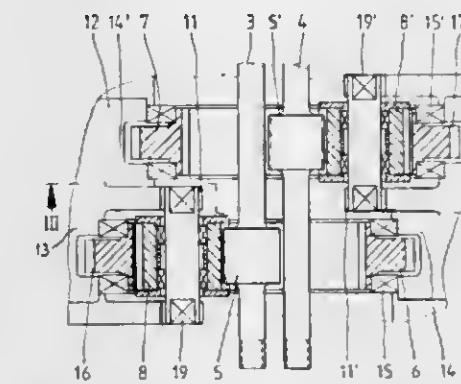
Filed Oct. 10, 1979, Ser. No. 83,324

Claims priority, application Fed. Rep. of Germany, Dec. 4, 1978, 2852445

Int. Cl.³ F16H 37/06, 57/00, 3/44

U.S. Cl. 74—665 G

2 Claims



1. A double-screw extruder transmission comprising two driven shafts which are parallel to and at a small spacing from one another, a respective driven pinion on each of said two driven shafts and secured against rotation with respect thereto, said two driven pinions being axially displaced relative to one another, two sets of three intermediate gears, one for each of said two driven pinions, each of said sets of three intermediate gears being meshed with a respective one of said driven pinions and equiangularly spaced therearound, a pair of ring gears, a transmission housing mounting said pair of ring gears, each of said ring gears surrounding and being meshed with a respective one of said sets of intermediate gears and located coaxially with the respective one of said driven pinions and drive means for said ring gears, wherein each of said driven pinions and two of the gears of each of said sets of three intermediate gears are disposed without mounting and the third gear of each of said sets of intermediate gears is mounted so as to be displaceable in directions radially of the respective one of said driven pinions, all of said gears of said sets of intermediate gears being capable of floating relative to each other and relative to said driven pinions so as to uniformly transmit power to said driven pinions.

4,315,441

TRANSMISSION FOR A HYDRAULICALLY DRIVEN VEHICLE

Eiichi Fukuda, Komatsu, Japan, assignor to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

Filed Dec. 10, 1979, Ser. No. 101,436

Claims priority, application Japan, Dec. 11, 1978, 53-151914

Int. Cl.³ F16H 37/06

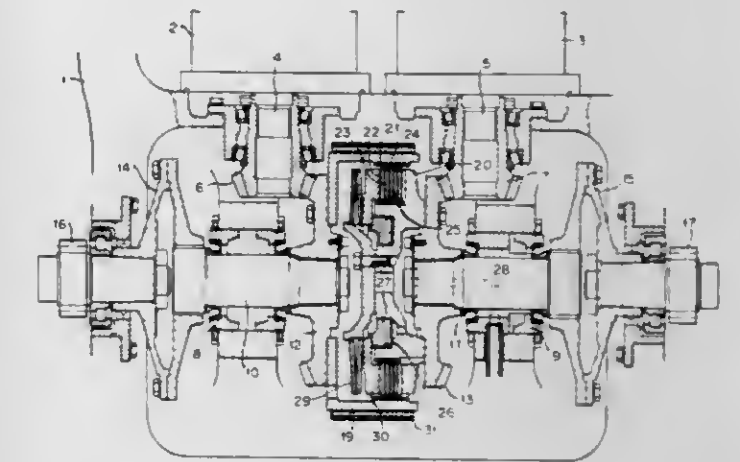
U.S. Cl. 74—665 M

2 Claims

1. A transmission for a hydraulically driven vehicle, comprising:

- a final drive gear casing;
- a pair of hydraulic motor means each having an output shaft connected thereto, the each output shaft being extended into said final drive gear casing and having formed thereon a bevel pinion;
- a pair of final drive shaft means each being rotatably supported by said final drive gear casing and aligned with each other;
- a pair of bevel gears each fixedly mounted on said respective final drive shaft means, each of said bevel gearing being adapted to mesh with said respective bevel pinions;
- clutch means provided between said pair of final drive shaft means for directly connecting and disconnecting said pair of final drive shaft means, said clutch means including a clutch housing fixedly secured to one of said bevel gears, cylinder means fixedly secured to the other of said bevel

gears, said cylinder means having a hydraulic cylinder chamber formed therein, piston means mounted within said hydraulic cylinder chamber, a plurality of annular plates fixedly mounted on the inner face of said clutch



housing, a plurality of discs mounted on said cylinder means, each of said discs being alternately arranged with respect to said annular plates, and spring means for urging said plurality of discs toward said annular plates; and brake means mounted on said clutch means.

4,315,442

AIRCRAFT GENERATOR STARTER-DRIVE

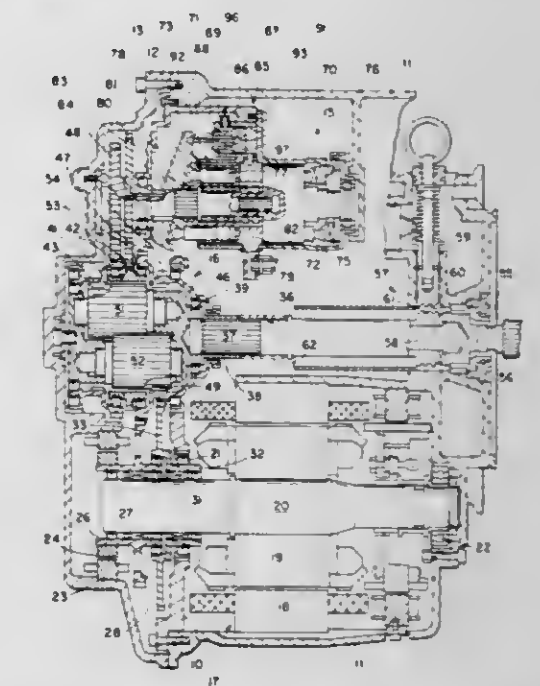
Michael A. Cordner, Mount Morris, Ill., assignor to Sundstrand Corporation, Rockford, Ill.

Filed Feb. 15, 1980, Ser. No. 122,147

Int. Cl.³ F16H 47/04

U.S. Cl. 74—687

23 Claims



11. A starter-drive for use between an aircraft engine and a generator/motor to transmit in either direction, comprising: a first shaft connectible with said generator/motor, a second shaft connectible with said engine, a differential including first, second and third elements, said first element rotatable with said second shaft and said third element rotatable on said second shaft, a first hydraulic unit drivingly connected to said first element, a second hydraulic unit drivingly connected to said second element, said first and second hydraulic units hydraulically interconnected through and controlled by a control valve, said third element drivingly connected through a first clutch

to said first shaft for driving said generator/motor in a generating mode, and through a second clutch to said first shaft for driving said engine from said generator/motor in a starting mode.

said control valve operative in said starting mode to control flow between said hydraulic units to thereby divide the delivery of rotary power from the generator/motor to said second shaft and said engine through said differential and said hydraulic units.

4,315,443

TRANSMISSION FOR USE IN MOTOR VEHICLE

Seitoku Kubo; Koujiro Kuramochi, and Tatsuo Kyushima, all of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

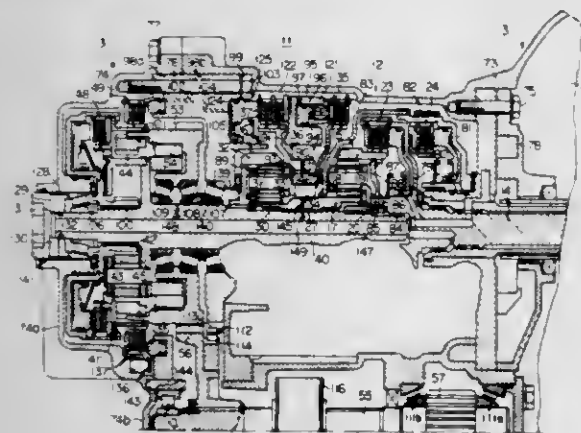
Filed May 11, 1979, Ser. No. 38,285

Claims priority, application Japan, May 11, 1978, 53-56116

Int. Cl.³ F16H 37/08, 47/00, 57/10

U.S. Cl. 74—695

11 Claims



1. In a motor vehicular transmission for transmitting power between the engine and wheel axles of the type including a fluid-type torque converter; an auxiliary speed-change gear assembly coaxial with and operatively coupled to said fluid-type torque converter and including an output means with a first gear, and an overdrive unit and an underdrive unit, each of units respectively having at least a planetary gear unit with sun and ring gears, planetary pinions, and a planetary carrier, for providing a plurality of forward speed range drives including overdrive, and a reverse drive, wherein said auxiliary speed change-gear assembly transmits a driving force from said fluid-type torque converter to said output means; a countershaft extending in parallel to the longitudinal axis of said auxiliary speed change-gear assembly; a second gear mounted on said countershaft and meshing with said first gear; and a final reduction-gear assembly for transmitting a driving force from said countershaft to said wheel axles, the improvement comprising:

at least one bearing mounted on a shaft holding said carrier of the overdrive gear unit and rotatably supporting said first gear; and, wherein said carrier of the overdrive gear unit comprises an input element for overdrive and said ring gear of the overdrive gear unit comprises an output element for overdrive, and said first gear is mounted coaxial with said overdrive ring gear.

4,315,444

METHOD OF MANUFACTURE OF BLADE MEMBERS FOR WIRE STRIPPING DEVICE

Joseph A. Perrino, Rehoboth, Mass., and Thomas W. Perrino, Johnston, R.I., assignors to Micro Electronics, Inc., Rehoboth, Mass.

Division of Ser. No. 12,663, Feb. 16, 1979, Pat. No. 4,271,729.

This application Mar. 9, 1981, Ser. No. 241,702

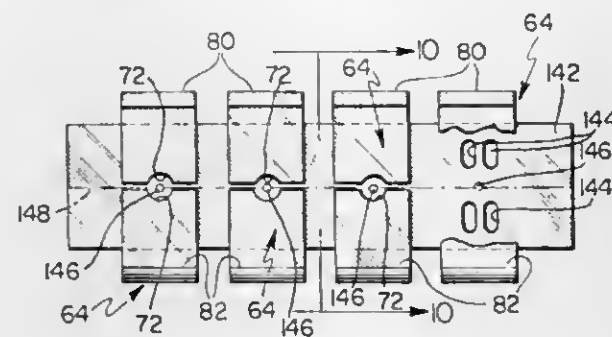
Int. Cl.³ B21K 5/12; B21D 28/06

U.S. Cl. 76—101 R

3 Claims

1. A method of forming a blade member for use in a wire stripping device, comprising the steps of blanking out an elongated strip of thin blade material to form a plurality of flow-through openings arranged in spaced apart groups and a hole of reduced predetermined diameter located intermediate the longitudinal edges of said strip and centrally of each group of said flow-through openings, molding pairs of body portions on

gated strip of thin blade material to form a plurality of flow-through openings arranged in spaced apart groups and a hole of reduced predetermined diameter located intermediate the longitudinal edges of said strip and centrally of each group of said flow-through openings, molding pairs of body portions on



said strip and around said openings wherein said body portions are formed with arcuate notches around said reduced diameter holes, cutting each pair of said body portions from said strip and breaking said pairs of body portions along a common line thereof to define individual blade members that are usable in said wire stripping device in cooperating relationship.

4,315,445

KNOT TYING TOOL

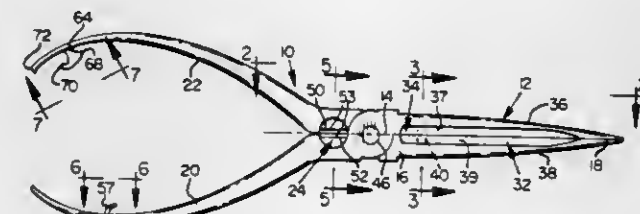
Woodrow Catron, P.O. Box 104, Mosier, Oreg. 97040

Filed Mar. 31, 1980, Ser. No. 135,505

Int. Cl.³ B25B 7/00

U.S. Cl. 81—5.1 R

4 Claims



1. A hand tool for use in tying knots in fishing line and the like, comprising:

- a tapered elongate finger having a base and a relatively smaller tip, said finger comprising mating first and second elongate halves, each also having a base and a tip, said finger having a longitudinal axis and height and width dimensions orthogonal to said longitudinal axis and being tapered along said longitudinal axis in said height and width dimensions from maximum height and width at said base toward minimum height and width at said tip;
- handle means comprising a pair of elongate handles for holding said tool during its use, each of said handles being affixed to the base of a different one of said first and second elongate halves and extending away from said tips of said respective halves, said handles crossingly overlapping one another at a location adjacent said bases of said halves, and said handles being pivotally connected to one another such that said first and second halves may be moved between a position of mating contiguity and a position in which said halves are separated from one another;
- said elongate finger defining a groove therein, said groove extending along the longitudinal dimension of said finger from said base toward said tip, the depth of said groove decreasing in the direction of said tip; and
- means for tightening a loop, including a pair of opposed cavities defined respectively by said first and second halves of said elongate finger, said cavities opening toward one another for receiving respective portions of a loop and being movable toward and away from one another in response to movement of said handles relative to one another.

4,315,446

STUD TENSIONING DEVICE

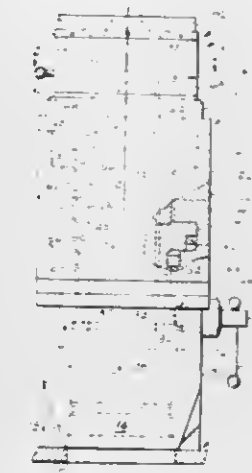
Joseph N. Orban, 18 La Salle Ave., Cranford, N.J. 07016

Filed Apr. 30, 1979, Ser. No. 34,500

Int. Cl.³ B25B 29/02

U.S. Cl. 81—57.38

15 Claims



1. A tensioning device for an engaging member having a lower engaging section and an upper engaging section to be placed in tension to a predetermined load upon the lower engaging section, said device comprising:

- a housing having a power unit therein to expand and retract within the housing whereby the upper engaging section is adapted to be tensioned and released;
- a cam and clamp assembly comprising a segmented clamp and a plurality of elements interconnected between the housing and the segmented clamp, said plurality of elements actuated to provide motion between the elements, each of the adjacent moving elements of said cam and clamp assembly moving in different modes from each other;
- guide means within the housing slideably engaging and moving said segmented clamp between a closed position for clamping the engaging member and an open position for releasing the engaging member upon actuation of said cam and clamp assembly to close or open the clamp.

4,315,447

NO MAR PLIERS

Lawrence Tartaglia, c/o George Spector 3615 Woolworth Bldg.,

233 Broadway, and George Spector, 3615 Woolworth Bldg.,

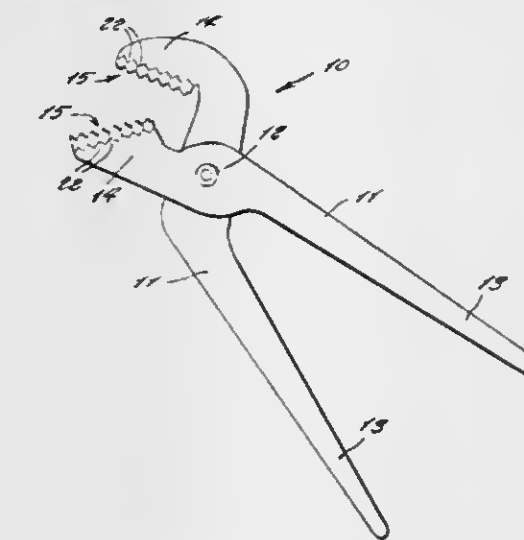
233 Broadway, both of New York, N.Y. 10007

Filed Apr. 17, 1980, Ser. No. 141,045

Int. Cl.³ B25B 7/02

U.S. Cl. 81—421

3 Claims



1. A no-mar pliers, comprising in combination, a pair of crossing, metal levers, one ends of said levers forming handles

for being squeezed together in a hand, an opposite end of said levers forming mating jaws for grasping work therebetween, and each jaw being lined with a removable insert made with molded rubber impregnated with magnetic particles wherein each said insert is made of a plurality of longitudinal, cross sectionally hexagonal sections adjacent each other so to form a toothed face on each opposite side of said insert.

4,315,448

HYPODERMIC NEEDLE DESTRUCTOR

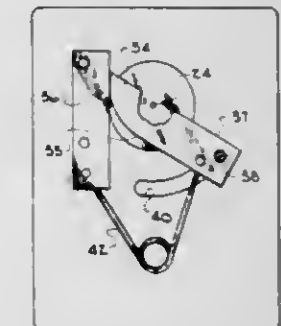
Edward W. Ball, 3418 Sleepy Hollow, Wichita, Kans. 67208

Filed Jul. 28, 1980, Ser. No. 172,968

Int. Cl.³ B23D 15/04, 21/06

U.S. Cl. 83—167

8 Claims



1. A hypodermic needle destructing device comprising: a receptacle; a base plate positioned on the front of the receptacle; a pivotally mounted knob on the base plate having an opening in the center thereof adapted to receive hypodermic needles; a knife blade means pivotally supported against the base plate approximate one end of the blade means; a slot in the base plate; a pin means anchored to the knob passing through the slot in the base plate and pivotally attached to the opposite end of the knife blade whereby rotation of the knob causes the knife blade to pivot from its retracted position across said opening and shear the needle which is extending through said opening; and biasing means on the knife blade urging the blade toward its retracted position.

4,315,449

CAM OPERATED

base, a carriage mounted on the base for movement relative to the base and along a path parallel to the path of movement of the stock, a motive power source for displacing the carriage between extended and retracted positions, and a mechanism mounted on the carriage comprising a shearing element movable through a reciprocal cycle comprising a shearing stroke and a withdrawal stroke to shear the stock, the improvement comprising:

a cam member pivotally mounted on the base adjacent the end of the retracted position of the carriage and aligned with the path of carriage travel, a follower connected to the shearing element and operatively associated with the cam member to drive said element through said shearing stroke as the carriage is moved by the motive power source with and in the direction of the stock using power supplied at least substantially exclusively by said source, and means for permitting angular travel of the other end of the cam member for permitting travel of the shearing element through the withdrawal stroke independently of linear travel of the carriage.

4,315,450

METHOD OF AND APPARATUS FOR SCIVING BELTS

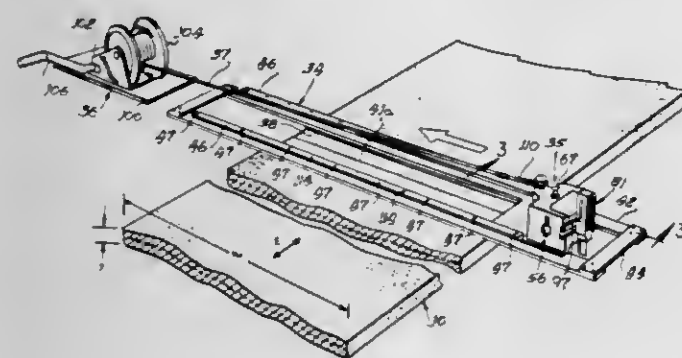
Winston C. Pray, Lombard, Ill., assignor to Flexible Steel Lacing Company, Downers Grove, Ill.

Filed Jan. 25, 1980, Ser. No. 115,366

Int. Cl.³ B26D 3/06, 9/00

U.S. Cl. 83—862

10 Claims



1. A method of forming a groove in a belt end and in cutting off the portion of the belt to form a butt end comprising the steps of: securing a support means onto one face of the belt means crosswise of the belt means and in the general area it is desired to form a butt end, adjusting first cutter means on a carriage relative to the support means so that the first cutter means lines up below the one belt means face, connecting a power means to said carriage, advancing the first cutter means across the belt means and the support means by said power means so that the first cutter means cuts a slice from the one face to leave a groove crosswise of the belt means, adjusting a belt cutoff cutter means on said carriage so that the second cutter means lines up transverse to the belt means, advancing the carriage and the second cutter means along the means support by said power means so that the second cutter means cuts the belt means in two in the area of the groove to define a butt end for the first end portion of the belt means.

4,315,451

ELECTRONIC MUSICAL INSTRUMENT WITH AUTOMATIC ACCOMPANIMENT DEVICE

Yasuji Uchiyama; Akira Nakada, and Akio Imamura, all of Hamamatsu, Japan, assignors to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan

Filed Jan. 22, 1980, Ser. No. 114,248

Claims priority, application Japan, Jan. 24, 1979, 54-7391

Int. Cl.³ G10F 1/00

U.S. Cl. 84—1.03

7 Claims

1. In an electronic musical instrument, the improvement comprising:

keys for playing notes of the instrument;

a key detection circuit coupled to said keys for producing

per each of depressed ones of said keys a key code which represents a name of the key;

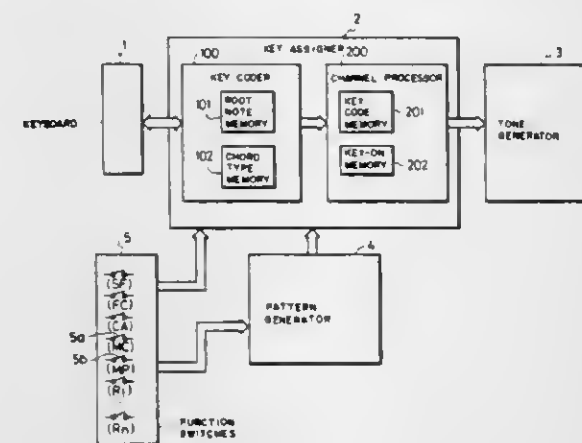
a tone generator circuit including a plurality of tone production channels respectively for generating musical tone signals as designated by the key codes supplied thereto;

a key code memory having storage positions corresponding in number to said tone production channels and storing key codes of the depressed keys in a certain subset of said storage positions, and a circuit for providing a key-on signal for the duration that each key code is supplied to said key code memory;

a key-on memory for storing the respective key-on signal for each corresponding storage position of said key code memory;

a root note memory storing a key code of a single key corresponding to a root note among the keys depressed in the keyboard;

means for producing key codes for bass tones in accordance with contents stored in said root note memory and for producing a bass indication signal which indicates that these key codes are for the bass tones;



an automatic performance circuit for supplying said key codes for bass tones to said key code memory in a rhythmic pattern, said bass indication signal causing said supplied bass tone key codes to be entered into storage positions in said key code memory of other than said certain subset; first means for selecting a chord tone memory function, second means, independent of said first means, for selecting a bass tone memory function, means for maintaining storage, in the positions of said key-on memory corresponding to said certain subset of storage positions, of signals indicating the on-state after release of said each keys under the condition that the chord tone memory function is selected, and means for continuing the production of said bass tone key codes and bass indication signal after release of the depressed keys under the condition that the bass tone memory function is selected,

whereby automatic generation of a chord designated by said key codes stored in said key code memory continues after key release when said chord tone memory function is selected, and whereby automatic bass tone generation continues after key release when said bass tone memory function is selected.

4,315,452

ELECTRONIC ORGAN PERCUSSIVE MODULATOR

David A. Yoshinari, Prospect Heights, Ill., assignor to Whirlpool Corporation, Benton Harbor, Mich.

Filed Aug. 2, 1979, Ser. No. 62,949

Int. Cl.³ G10H 1/02

U.S. Cl. 84—1.26

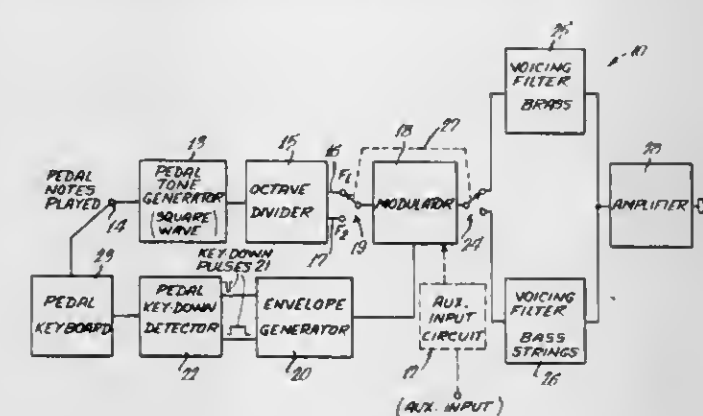
18 Claims

1. In an electronic organ including a keyboard having a plurality of selectively actuatable keys, and tone generator means for producing rectangular pulses at any one of a plurality of different frequencies individually determined by a partic-

ular key which is actuated, means for generating sounds simulating percussive tones produced by musical instruments, said generating means comprising:

a differentiating circuit coupled to said tone generator means for receiving and differentiating said rectangular pulses to provide differentiated tone generator pulses;

a modulator circuit connected so as to receive said differentiated tone generator pulses from said differentiating circuit and having a control input and means for clipping so as to distort said tone generator pulses at a level determined by a signal applied to said control input;



an envelope signal generating circuit having an output connected to said modulator circuit control input, said envelope generator producing a percussive envelope signal provided to said control input for causing variable clipping by said clipping means of said differentiated tone generator pulses as an incident of each key actuation, the waveshape of said variably clipped differentiated tone generator pulses being non-rectangular; and means for providing an audible sound corresponding to the variably clipped differentiated tone generator pulses produced by said modular circuit.

4,315,453

PERCUSSION AID

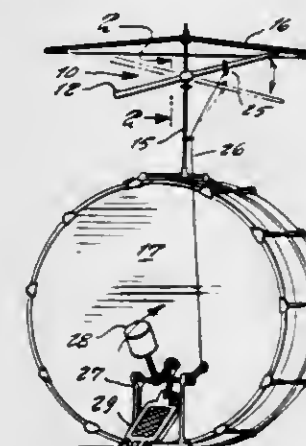
Charles Gabor, c/o George Spector, 3615 Woolworth Bldg., 233 Broadway, and George Spector, 3615 Woolworth Bldg., 233 Broadway, both of New York, N.Y. 10007

Filed Jan. 18, 1980, Ser. No. 113,310

Int. Cl.³ G10D 13/02

U.S. Cl. 84—422 R

5 Claims



1. A percussion aid device comprising a collar for adjustably securing said device on a cymbal post in combination with a sleeve adapted to adjustably receive a drumstick therein including resilient means connecting said sleeve pivotally to said collar said device being mounted adjacent a cymbal whereby the drumstick may be resiliently pivotally displaced relative to the collar to strike the cymbal, in further combination with a wire connected to drumstick and a foot pedal, including means to adjust the torsional resiliency of the said resilient means.

4,315,454

PISTON FOR A METERING DEVICE AND A METHOD OF PRODUCING SAME

Erich R. Knödel, Wertheim-Kemba, Fed. Rep. of Germany, assignor to Walter Graf u. Co. GmbH & Co., Wertheim am Main, Fed. Rep. of Germany

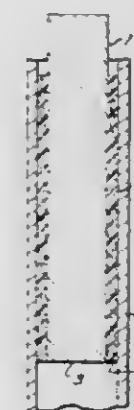
Filed Feb. 6, 1978, Ser. No. 875,155

Claims priority, application Fed. Rep. of Germany, Sep. 29, 1977, 2743911

Int. Cl.³ F01B 29/08; F16J 1/02

U.S. Cl. 92—170

3 Claims



1. A metering dispenser comprising a piston slidable in a glass cylinder, said piston comprising an elongated cylindrical core consisting of glass or ceramic material and a casing of polytetrafluoroethylene characterized in that the casing consists of a prefabricated elongated massive uniform tube of polytetrafluoroethylene reinforced with 20-40% by weight of glass fibers sufficient to reduce the coefficient of linear thermal expansion of said casing by 20 to 50 percent from that of unfilled polytetrafluoroethylene and having a wall thickness between about 1 and 3 mm, with said tube being thermally shrunk on the cylindrical surface of said core without an adhesion promoter effecting a casing texture reversal and said casing having an external diameter substantially equal to the internal diameter of said glass cylinder.

4,315,455

ADJUSTABLE SOFFIT VENT

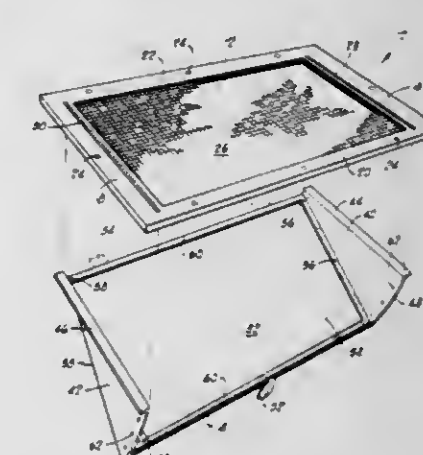
James L. Shaklee, Rte. 6, Box 11, Enid, Okla. 73701

Filed Feb. 19, 1980, Ser. No. 122,445

Int. Cl.³ F24F 13/00

U.S. Cl. 98—32

7 Claims



1. A roof vent for installation under roof eaves to provide adjustment of ventilation, comprising: frame means defining a central air flow space of generally rectangular form; foraminous means formed in said central air flow space; first and second slots formed through said frame means on opposite sides of said central air flow space; and air scoop means formed as a panel having opposite sides formed perpendicularly for interlocking reception up

through said first and second slots so that said air scoop means may be positioned in selected positions to regulate the degree of opening to said central air flow space.

4,315,456

AIR-CURTAINING APPARATUS FOR FIRE PROTECTION

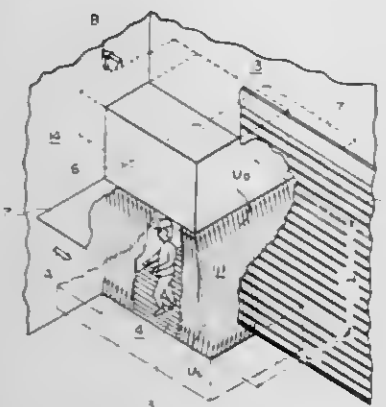
Taro Hayashi, Nara, and Aritsune Moriyama, Nishinomiya, both of Japan, assignors to Sanko Air Plant, Ltd., Osaka, Japan

Filed Dec. 5, 1979, Ser. No. 100,289

Int. Cl.³ F24F 9/00

U.S. Cl. 98—36

9 Claims



5. An air-curtaining apparatus used in a fire escape passage of a underground town or the like so as to protect escapers from smoke and gases caused in the underground town by fire, said air-curtaining apparatus comprising:

- a supply means defining a supply opening to eject an air flow in the form of an air-curtain with a uniform air velocity distribution across the cross-sectional area of said supply opening, said supply means including a first flow-rate equalizing means, a perforated plate and a grille disposed one above the other;
- a supply duct connecting said supply means to an air-supply fan means;
- an exhaust means defining an exhaust opening of a size to receive both said air-curtain and additional air attracted from the surroundings by said air-curtain, with uniform air velocity distribution, wherein said exhaust means includes a second flow-rate equalizing means and an exhaust chamber disposed one above the other, and said exhaust opening and said supply opening are spaced apart and are opposite to each other;
- a first exhaust duct connecting said exhaust means to an air-exhaust fan means; and
- a second exhaust duct connecting said air exhaust means to open air.

4,315,457

DUCT ATTACHMENT MEANS FOR AN AIR CONDITIONING UNIT

Richard D. Lang, Chittenango, and Theodore S. Bolton, Liverpool, both of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed May 19, 1980, Ser. No. 151,040

Int. Cl.³ F24F 13/02

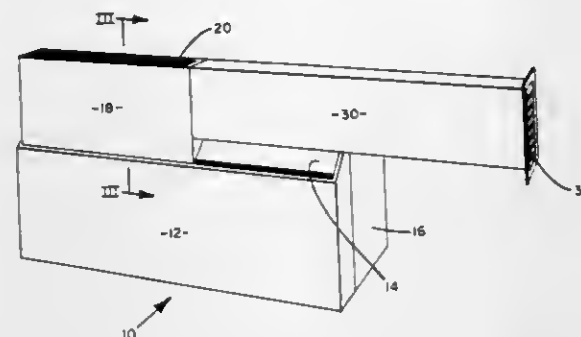
U.S. Cl. 98—40 C

10 Claims

7. Apparatus for attaching a duct to an air conditioning unit having a conditioned air discharge opening covered by a removable grille which comprises:

- a housing connected to receive the conditioned air discharged from the air discharge opening, said housing having a housing air discharge opening and a duct opening formed therein and including means for securing the housing to the air conditioning unit at the discharge opening;
- means located within the housing for directing conditioned air discharged from the air conditioning unit between the

housing air discharge opening and the duct opening, whereby the conditioned air being discharged from the unit may be dispersed to separate discharge air streams



one flowing from the housing through the housing discharge and the other flowing from the housing through the duct opening.

4,315,458

VENTILATED WIND-DIVERTER SHED FOR MAN-SPRAYING OF POLYURETHANE FOAM FROM WITHIN ONTO ROOFS

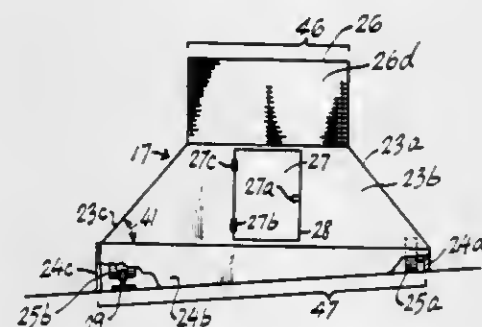
Raymond M. Hudson, 111, P.O. Box 443, Bernardsville, N.J. 07924

Filed Dec. 1, 1980, Ser. No. 211,706

Int. Cl.³ B05C 15/00

U.S. Cl. 98—115 VM

12 Claims



1. A ventilated wind-diverter shed comprising in combination: an enclosure structure consisting essentially of a circumscribing wall structure having a bottom open port, said circumscribing wall structure being substantially upright at an upwardly and inwardly-inclined angle ranging from about 40 degrees to about 70 degrees from a horizontal, and said circumscribing wall having a top open port; a screen means mounted across said top open port, said screen means being for providing air ventilation to space shaped by said circumscribing wall structure from exterior air and for limiting polyurethane spray droplets-escape during spraying downwardly through said bottom open port from within the space; said circumscribing wall structure having dimensions along a horizontal and along height sufficiently large such that said space is large enough to house an upright man and spraying equipment; and travel means mounted onto said circumscribing wall structure along substantially a horizontal during spraying of polyurethane downwardly through said bottom open port.

4,315,459

METHOD FOR PROCESSING METAL MATERIAL INTO BALES

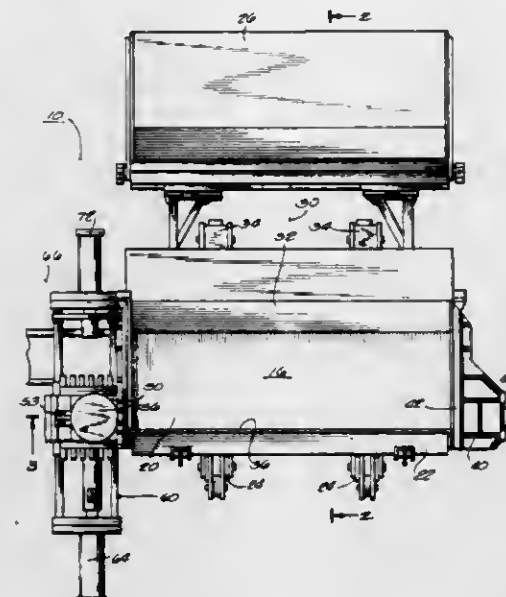
Roman Schmalz, Milwaukee, Wis., assignor to Logemann Brothers Company, Milwaukee, Wis.

Continuation of Ser. No. 126,423, Mar. 3, 1980, abandoned, which is a division of Ser. No. 22,805, Mar. 22, 1979, Pat. No. 4,230,037. This application Apr. 3, 1981, Ser. No. 250,881

Int. Cl.³ B30B 1/32

U.S. Cl. 100—39

4 Claims



1. A method of forming compact bales of material comprising the following steps:

- (a) introducing the material to be baled into a first baling chamber, said baling chamber comprised of a bottom, four walls and an open top;
- (b) positioning a cover member on the open top of the first baling chamber to seal the material therein;
- (c) compressing the material in the first baling chamber into the shape of a block by applying pressure to said material in a horizontal direction from one side of the first baling chamber;
- (d) feeding an end section of the block from the first baling chamber into an interconnected second baling chamber, said feeding movement being in a direction at right angles to the direction of the baling pressure applied to said material as recited in paragraph (c);
- (e) severing the end section located in the second baling chamber from the body of the block; and
- (f) compressing the severed end section in the second baling chamber to thereby form a completed bale.

4,315,460

DRUM TYPE LINE PRINTER

Yo Sato, Tokyo, Japan, assignor to Kabushiki Kaisha Sato, Japan

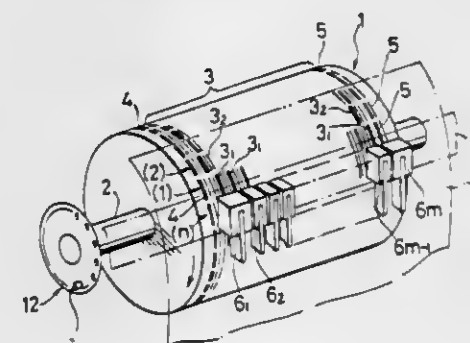
Filed Jan. 31, 1980, Ser. No. 117,269

Claims priority, application Japan, Feb. 15, 1979, 54-17144

Int. Cl.³ B41J 9/12

U.S. Cl. 101—93.09

4 Claims



1. A drum type line printer for printing bar codes in a line,

comprising: a drum; a plurality of axial lines of imprintable bar code characters on the surface of the drum; in each line of the characters, there are a first plurality of information characters and at least one control character, and the control character is adjacent to at least one of the information characters in the line;

a first plurality of printing hammers, one for each of the information characters, each for striking the respective information characters so that the information character may be printed;

the one printing hammer for the at least one information character adjacent to the control character being of greater width than the other printing hammers for the one printing hammer to simultaneously strike both the control character and the adjacent at least one information character in that line.

4,315,461

SCREEN PRINTING MACHINE

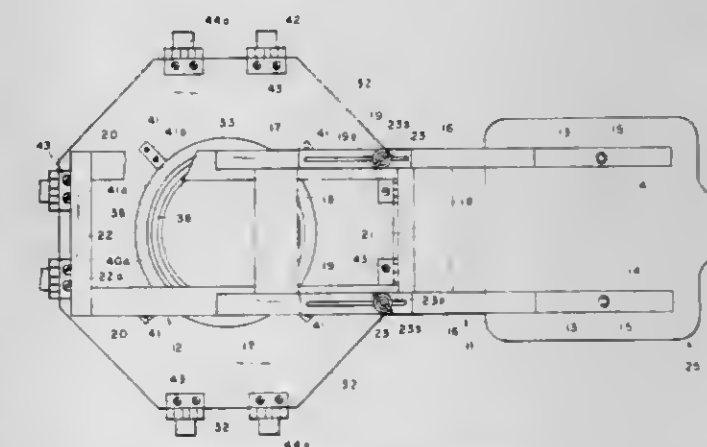
C. W. Harpold, 274 Greenbrier Dr., SE., Grand Rapids, Mich. 49506

Filed Oct. 1, 1979, Ser. No. 80,450

Int. Cl.³ B41F 15/04

U.S. Cl. 101—115

13 Claims



1. A screen printing machine, comprising:

- a frame;
- a printing platen fixedly connected with said frame and adapted to receive thereon an article to be printed;
- a printing head having at least two pairs of C-shaped clamps; each pair of clamps being hingedly attached to a different side of said printing head for connecting therewith at least two printing screens having different, mating designs therein arranged to print a bifurcated pattern on said article, and each of said screens having an end segment; each of said clamps having an open face which is oriented outwardly and adapted to receive and retain the end segment of said printing screens therein; means for rotatably connecting said printing head with said frame, whereby selective rotation of said printing head sequentially positions said screens over said platen; and means for translating each of said printing screens between a printing position wherein said screens are sequentially aligned with said printing platen and abuttingly overlie the article thereon, and a storage position wherein said printing screens are spaced apart from said printing platen;
- means for slideably connecting said printing head with said frame for varying the distance between said printing head and said printing platen and selectively locating the position of said pattern on said article without disturbing the registry between the designs on said printing screens; and
- a registry stop connected with said frame and having first and second portions between which at least one of said clamps are received and retained in said printing position for positively positioning said screens in a predetermined angular relationship with said printing platen.

4,315,462

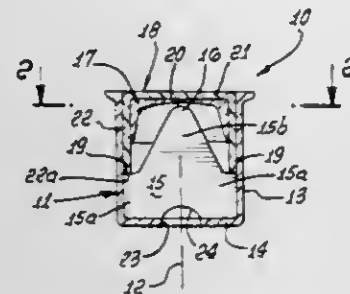
SHOT GUN SHELL PRIMER

Gary L. Vollers, 11471 Tampa Ave., No. 149, Northridge, Calif. 91336

Filed Sep. 10, 1979, Ser. No. 73,950
Int. Cl.³ F42C 19/10

U.S. Cl. 102—204

7 Claims



1. In a primer assembly for a shot gun shell,
 - (a) a one-piece unitary plastic outer cup defining an axis and having a cylindrical side wall and a bottom wall,
 - (b) and a plastic anvil plate extending in an axial radial plane transversely within and crosswise of the cup interior, the plate having an anvil tip facing toward the mouth of the cup,
 - (c) the anvil plate being integral with the cup side wall and bottom wall so that the plate and cup have one-piece unitary construction,
 - (d) the assembly including an inner plastic cup telescopically interfitting the outer cup, the inner cup having a bottom wall extending crosswise of the mouth of the outer cup and in spaced relation to the anvil tip defined by the anvil plate whereby detonatable primer mix may be introduced into the inner cup and between the bottom wall of the inner cup and said plate,
 - (e) the assembly including a flash hole formed in the outer cup bottom wall, in alignment with the anvil plate,
 - (f) there being a thin layer of plastic material covering the flash hole, said layer being integral with said plate and bottom wall to be ruptured in response to detonation of the primer mix,
 - (g) the outer cup, anvil plate and thin layer covering the flash hole being of one-piece molded construction, said plate directly and integrally joined to said cup side wall and bottom wall at locations radially outwardly spaced from said thin plastic layer.

4,315,463

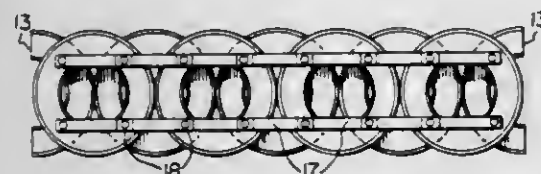
BLASTING MAT

Leo H. Arcand, R.R. #1, Sturgeon Falls, Ontario, Canada (POH 2G0)

Filed Feb. 5, 1980, Ser. No. 118,851
Int. Cl.³ F42D 5/00

U.S. Cl. 102—303

11 Claims



1. A blasting mat comprising an interconnected array of circumferentially intact vehicle tire elements, comprising alternating contacting rows of tread-to-tread contacting tire elements of similar peripheral dimensions, the tire elements in any given row offset by about one-half a tire diameter from the adjacent tire elements in each adjacent row thus forming a brickwork

pattern, and retaining means contacting the tire elements and retaining the tire elements in the said array.

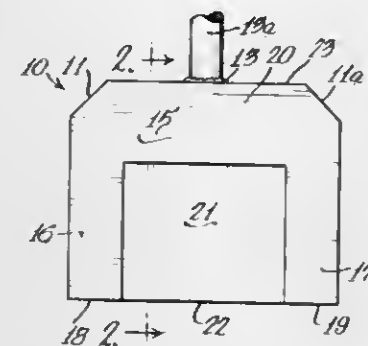
4,315,464

TAMPER TIP FOR RAILROAD TIE TAMPING MACHINES

Walter S. Borden, P.O. Box 866, Racine, Wis. 53403
Continuation of Ser. No. 834,230, Sep. 19, 1977, abandoned. This application Jul. 2, 1979, Ser. No. 53,856Int. Cl.³ E01B 27/13

U.S. Cl. 104—10

4 Claims



1. A tamper tip of abrasion-resistant metal said tamper tip being of generally rectangular shape and having a front surface having an outer generally inverted U-shaped portion having legs tapering from thinner leading edge portions to a thicker top portion forming the base of the "U" with the top of said base forming the top of the tamper tip, an integral inner portion completely filling the interior part of the U-shaped portion, said inner portion having an exposed edge contiguous with and having the same thickness as the leading edges of the legs to provide a continuous edge of constant thickness, with the length of said continuous edge being greater than the distance from said continuous edge to the top of the tamper tip, and with said inner portion being of substantially constant thickness throughout its extent, said tamper tip having a planar back surface extending from said continuous edge to the top of the tamper tip and with said exposed edge of the inner portion comprising not more than 60 percent of the length of said continuous edge.

4,315,465

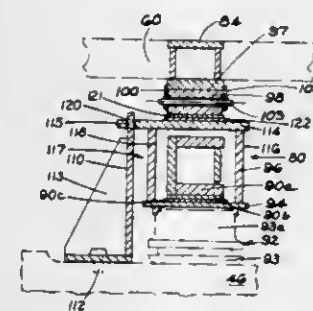
CONSTANT CONTACT SIDE BEARING FOR ARTICULATED RAIL CARS

Eugene J. Cordani, St. Louis, and Frederick E. Vorwerk, St. Peters, both of Mo., assignors to ACF Industries, Incorporated, New York, N.Y.

Continuation-in-part of Ser. No. 929,576, Jul. 31, 1978, abandoned. This application May 27, 1980, Ser. No. 153,470
Int. Cl.³ B61F 3/08, 5/14

U.S. Cl. 105—4 R

35 Claims



1. A side bearing assembly for use on an articulated truck supporting the adjacent ends of a pair of railway cars, each side bearing adapted to be mounted on a truck bolster on opposite sides thereof; each side bearing comprising: a rectangular channel or tube mounted on the truck and having spaced vertical legs; and a first bearing surface located between said

vertical legs which receives a first extension from one adjacent car end; said first extension being free to slide horizontally on said first bearing; said channel or tube extending above said first bearing surface and having a second bearing surface thereon, and a second extension from the other adjacent car including a pivoted, depending bearing member which rests upon and is supported by said second bearing surface; said pivot allowing the second car end to rotate vertically about said side bearing as vertical inclines are traversed; said depending member being free to slide horizontally upon said second bearing surface as said second car end rotates horizontally relative to the truck.

4,315,466

ADJUSTABLE TABLE

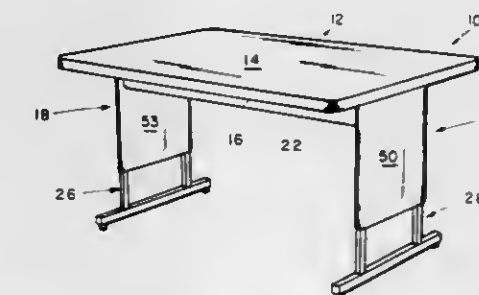
Milton E. Boeriger, Hamilton, Mich., assignor to Fleetwood Furniture Company, Zeeland, Mich.

Filed Jan. 11, 1980, Ser. No. 111,385

Int. Cl.³ A47B 9/12

U.S. Cl. 108—147

17 Claims



1. A continuous height adjustable wheelchair table, comprising:
 - a member defining a work surface;
 - a frame structure secured to an underside of said member;
 - a pair of leg structures, each positioned at an end of said member and said frame structure including means for telescopically receiving said leg structures;
 - raising and lowering means positioned underneath said member and connected to said leg structures for continuously raising and lowering said member with respect to said leg structures, said raising and lowering means including:
 - an actuator having an extendible and retractable rod and means extending under and immediately adjacent the work surface to be accessible by hand operation, said actuator movable in a lineal path of travel for ease of operation by a handicapped operator for extending and retracting said rod;
 - control means for limiting the extension of said rod; and
 - flexible motion transmitting means connected to said rod and said leg structures for raising and lowering said member as said rod extends and retracts.

4,315,467

COLLAPSIBLE COCKTAIL TABLE

Robert D. Vanderminde, Granville, N.Y., assignor to The Telescope Folding Furniture Co., Inc., Granville, N.Y.

Filed Sep. 7, 1979, Ser. No. 73,389

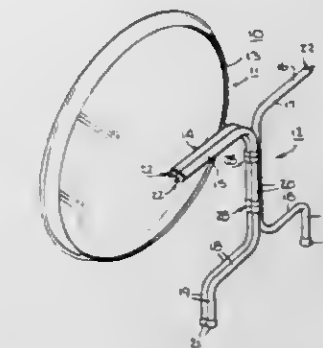
Int. Cl.³ A47B 3/06

U.S. Cl. 108—157

14 Claims

1. A collapsible table comprising
 - a table top having a depending peripheral edge;
 - and
 - a leg assembly including three pivotally interconnected legs for supporting said table top, each said leg having a vertical post portion disposed about a vertical axis and a radially outwardly directed portion extending from said post

portion for frictionally engaging said peripheral edge to secure said table top to said leg assembly with at least one



of said legs being pivotal about said axis of a respective leg to frictionally engage said peripheral edge.

4,315,468

CONTROL SYSTEM FOR A SINGLE AUGER STARVED-AIR COMBUSTOR

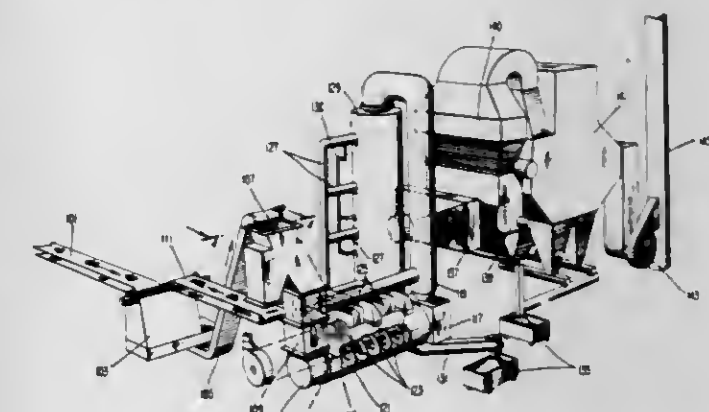
Robert C. Tyer, Baldwin, Fla.; Robert E. Fitch, Kent, and Gordon H. Tucker, Enumclaw, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed May 9, 1980, Ser. No. 148,374

Int. Cl.³ F23K 3/00

U.S. Cl. 110—101 CF

8 Claims



1. A starved-air combustor system comprising:
 - a combustion chamber having an inlet end for receiving fuel, said combustion chamber for combusting said fuel, said combustion chamber being divided into a plurality of combustion zones;
 - means for conveying said fuel through said combustion to said combustion zones in said combustion chambers; and
 - means responsive to the temperatures in said combustion zone for controlling said supply means to supply selected quantities of air to said combustion zones wherein said conveying means conveys said fuel through said combustion chamber at a selectively variable rate and wherein said controlling means controls said supplying means to increase the supply of said air to said combustion zones responsive to an increase in the rate of said conveying means and to decrease the supply of air to said combustion zones responsive to a decrease in said rate of said conveying means.

4,315,469

METHOD AND DEVICE FOR DISTRIBUTING LIQUID FUEL TO A FLUIDIZED BED

Dag Vareide, Nedre Mollenberggate 83, and Odd E. Solheim, Chatarina Lysbolms vei 6B, both of, N-7000 Trondheim, Norway

Division of Ser. No. 12,748, Feb. 16, 1979, Pat. No. 4,243,380.

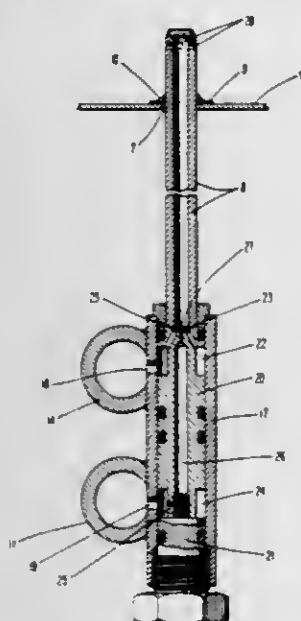
This application Apr. 21, 1980, Ser. No. 142,112

Claims priority, application Norway, Feb. 17, 1978, 780549

Int. Cl.³ F27B 15/00; F23G 5/00

U.S. Cl. 110—245

6 Claims



1. In a fluidized bed incinerator comprising a constriction plate supporting a fluidized bed of refractory particles, said constriction plate having a plurality of tuyeres therethrough for supplying fluidizing and primary combustion air to said bed from a windbox provided below the constriction plate; a plurality of substantially vertical risers extending through the constriction plate and feeding liquid fuel to the fluidized bed separate from the combustion air; and means for supplying fuel and gaseous driving agent to the risers below the constriction plate, the improvement wherein

said means for supplying said liquid fuel comprises closed pipe loops within which the fuel circulates and a restricted fuel nozzle positioned at the lower end of the risers for atomizing said fuel and for connecting each of said risers to one of said closed loops; and

said means for supplying said gaseous driving agent comprises a feed pipe system for supplying small quantities of high pressure gaseous driving agent and one or more restricted driving agent nozzles for connecting each of said risers to said feed pipe system, said driving agent nozzles being positioned in close proximity to said fuel nozzles for intimate admixture of the driving agent and the atomized fuel at the lower end of the riser.

4,315,470

WORKPIECE GUIDE CONTROL FOR SEWING UNITS

Giancarlo D. Torre, Biassono, and Luigi Avesani, Bollate, both of Italy, assignors to Rockwell-Rimoldi, S.p.A., Milan, Italy

Filed Sep. 10, 1980, Ser. No. 185,835

Claims priority, application Italy, Sep. 25, 1979, 25964 A/79

Int. Cl.³ D05B 21/00

U.S. Cl. 112—121.15

5 Claims

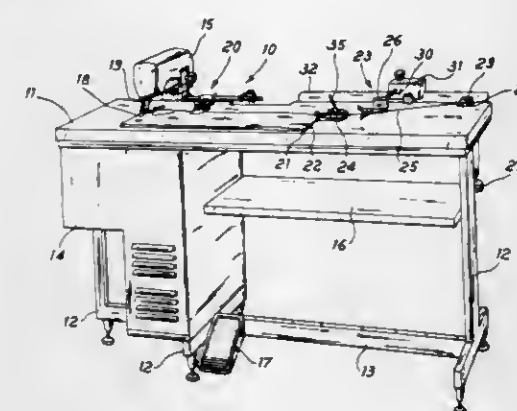
1. A control apparatus for a workpiece guide mounted for sliding movement on the worksurface of a sewing unit intermediate a sewing machine and a traveling gripper for applying tension to a workpiece being advanced on the worksurface to the stitching instrumentalities of the machine, said control apparatus comprising:

(a) a guide support member (39) mounted on the sewing unit for effecting limited longitudinal sliding movement of the

guide to a position of close proximity with the stitching instrumentalities;

(b) means operatively connected to said support member for moving the latter and guide carried thereby in a direction perpendicular to the direction of advance of a workpiece;

(c) activating means connected to and for actuating said moving means; and



(d) means carried by the traveling gripper for actuating said moving means through said activating means to effect clearing the pathway of the traveling gripper and permit the latter to advance to that position of close proximity with the stitching instrumentalities from which the guide was displaced by said moving means.

4,315,471

WORKPIECE GUIDE FOR SEWING MACHINES

Giancarlo D. Torre, Biassono, and Vittorio de Simone, Milan, both of Italy, assignors to Rockwell-Rimoldi, S.p.A., Milan, Italy

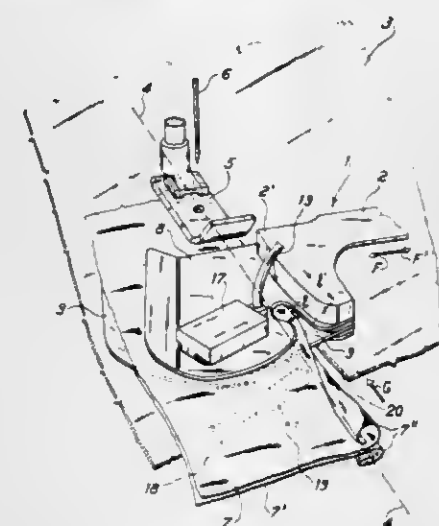
Filed Jul. 24, 1980, Ser. No. 171,880

Claims priority, application Italy, Sep. 7, 1979, 25530 A/79

Int. Cl.³ D05B 35/10

U.S. Cl. 112—153

5 Claims



1. A guide for uncurling and aligning the edges of superposed layers of fabric adjacent the sewing axis and prior to entering the sewing zone of a sewing machine of the type having a presser foot and worksurface, said guide comprising:

(a) a supporting arm (2) mounted on the machine upstream of the sewing zone in spaced and parallel relation with the worksurface;

(b) a pair of plate elements (8, 10) assembled in spaced and vertical alignment in one end (2') of said supporting arm including:

(i) an intermediate plate element (9) assembled between said plate elements (8, 10) defining passages (11, 12) therebetween;

(c) guide walls (13, 14) forming the inner surfaces of said passages (11, 12) for aligning and guiding the layers of fabric in the direction of the sewing axis;

4,315,473

MODULAR BENCH FOR SEWING MACHINE

Giancarlo D. Torre, Biassono, Italy, assignor to Rockwell-Rimoldi, S.p.A., Milan, Italy

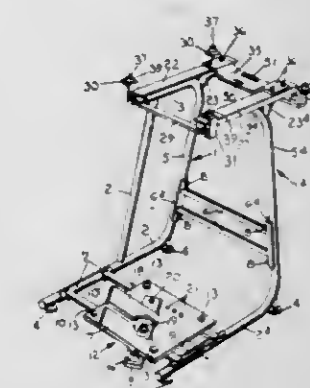
Filed Feb. 27, 1980, Ser. No. 125,310

Claims priority, application Italy, Apr. 2, 1979, 21481 A/79

Int. Cl.³ A47B 29/00

U.S. Cl. 112—217.1

11 Claims



1. A modular bench for supporting a sewing machine, its operating motor and a pedal control unit for effecting selective actuation of the operating motor, said modular bench comprising:

- (a) a pair of spaced upright members (1, 1a) including:
 - (i) lower branches (2, 2a) defining a base; and
 - (ii) upper branches (3, 3a) extending parallel with and having a length less than said lower branches;
- (b) cross pieces (6, 7) interconnecting said spaced uprights (1, 1a);
- (c) a longitudinal member (22) mounted on each said upper branches (3, 3a);
- (d) a plate 32 fixed to and interconnecting said longitudinal members (22) for supporting the sewing machine;
- (e) a bracket 35 fixed to and interconnecting said longitudinal members 22 for supporting the machine's operating motor;
- (f) a first vibration dampening means operatively connected to said upper branches (3, 3a) for elastically isolating said plate 32 and bracket 35 from said upright members (1, 1a);
- (g) support brackets (30, 31) attached to said vibration dampening means for supporting a working table (40) in operative association with the sewing machine;
- (h) a second vibration dampening means interposed between said support brackets (30, 31) and working table (40) for elastically isolating the latter from the sewing machine and operating motor;
- (i) a plate (11) mounted on said cross piece (7) for supporting the pedal control unit; and
- (j) means for selectively locating the pedal control unit in any one of a plurality of predetermined positions on said plate 11.

4,315,472

ELECTRONIC SEWING MACHINE

Hachiro Makabe, Fussa; Kazuo Watanabe, Hachioji; Hideaki Takenoya, Hachioji; Eiichi Shomura, Hachioji, and Yoshinobu Toomura, Hachioji, all of Japan, assignors to Janome Sewing Machine Co. Ltd., Tokyo, Japan

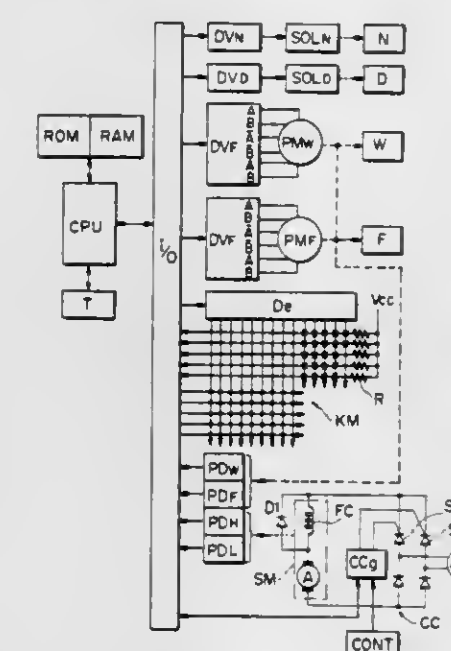
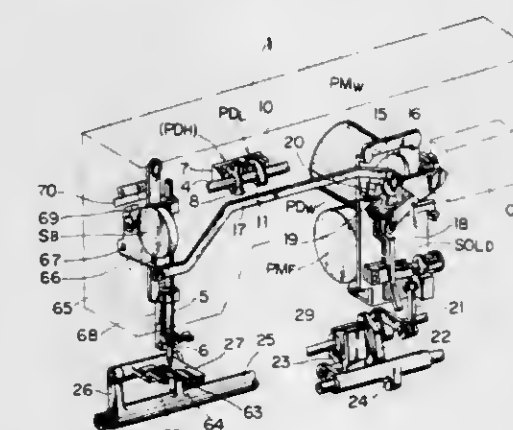
Filed Mar. 18, 1980, Ser. No. 131,357

Claims priority, application Japan, Mar. 26, 1979, 54-35213

Int. Cl.³ D05B 3/02

U.S. Cl. 112—158 E

4 Claims



1. An improvement to a sewing machine in which a pulse motor is subjected to a lesser load during straight stitching and to a greater load during a movement of a mechanism from an initial first mechanism position to a desired second mechanism position, comprising:

- a first means connected to the mechanism and determining the first mechanism position;
- a second means determining the second mechanism position in accordance with user requirements;
- a third means connected to the first means and the second means and computing position difference information which is used to operate the pulse motor to allow the movement to take place; and
- a motor control connected to the third means and to the pulse motor, the motor control regulating motor speed in accordance with the difference information.

4,315,474

THREAD TAKE-OFF DEVICE OF A SEWING MACHINE

Ernst Dreier, Steckborn, Switzerland, assignor to Fritz Gerauf Aktiengesellschaft Bernina-Nahmaschinenfabrik, Steckborn, Switzerland

Filed May 6, 1980, Ser. No. 147,164

Claims priority, application Switzerland, May 23, 1979, 4831/79

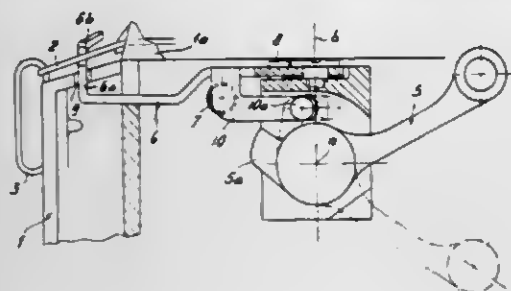
Int. Cl.³ D05B 49/00

U.S. Cl. 112—242

8 Claims

1. In a sewing machine apparatus containing a needle thread reservoir, a thread tightener and a take-up lever, the improvement which comprises a thread take-off device disposed in the zone of the thread path between the needle thread reservoir and the thread tightener for taking off a slack amount of thread reserve from the needle thread reservoir, said thread take-off device being operatively connected to a spring bias means for

maintaining said take-off device in said thread path, said take-off device being pivotally mounted for movement against said bias, substantially perpendicularly to the thread path, and said take-up lever being rotatably mounted to the sewing machine



and adapted to engage said thread take-off device so that by the operation of the take-up lever, said take-up lever engages said take-off device, causing said take-off device to intersect the thread path against the bias of the spring bias means.

4,315,475

KNOCKDOWN CATAMARAN

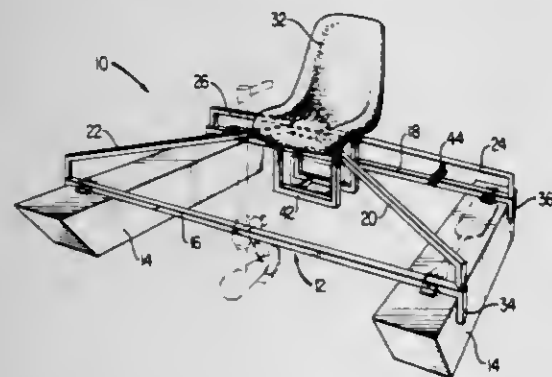
John B. Echols, 725 N. Pearl St., Natchez, Miss. 39120

Filed Mar. 7, 1980, Ser. No. 128,198

Int. Cl.³ B63B 7/00

U.S. Cl. 114—61

6 Claims



1. A knock-down watercraft assembly comprising: a pair of elongate floats, each having a top area and a side area;

frame structure means for interconnecting said floats in laterally spaced relation substantially parallel to each other, said frame structure means including, a pair of cross member struts, each having downwardly extending legs at opposite ends thereof, attachment means for releasably connecting each cross member strut, in substantially parallel relationship to each other, to said elongate floats such that the pair of elongate floats and pair of cross member struts are in rectangular relationship and the area enclosed within the pair of cross member struts and pair of elongate floats is open, said attachment means comprising laterally extending channels mounted on the top area of the elongate floats, said channels receiving the cross member struts such that each cross member strut lies against the top area of the elongate float and each downwardly extending leg lies against the side area of the elongate float to prevent rotation of the elongate float with respect to the cross member strut, and connecting means for releasably connecting the channels with the cross member struts,

a plurality of diagonal risers, each diagonal riser comprising a strut having an upwardly extending end portion affixed to the cross member strut substantially adjacent to the laterally extending channel, and having a major portion extending from the end portion in a direction toward the center of the rectangle defined by the elongate floats and cross member struts and angled upward with respect to the cross member struts;

swivel seat mounting means interconnecting each diago-

nal riser substantially at the center of the rectangle defined by the elongate floats and cross member struts; and

a swivel seat rotatably mounted on said swivel seat mounting means, wherein the distance between the cross member struts and the height of the swivel seat above the cross member struts are such that one of said cross member struts provides a foot rest for an operator seated in said seat.

4,315,476

STEERING SYSTEM FOR A SHIP

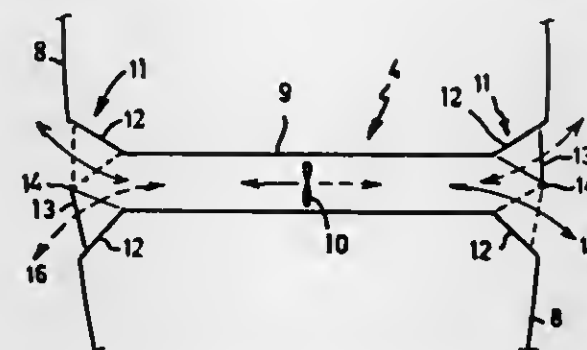
Josephus A. M. van der Tak, 47 Wassenaarseweg, The Hague, Netherlands

Filed Oct. 14, 1980, Ser. No. 196,673

Int. Cl.³ B63H 25/46

U.S. Cl. 114—151

3 Claims



1. In a steering system for a ship including a hull, a flow duct formed through said hull and opening through the side of the hull in a longitudinally elongated duct nozzle at each end of the flow duct, a propeller rotatable in said flow duct, and a flow shifting valve in at least one of said nozzles, the improvement comprising:

- (a) said flow shifting valve being mounted in said one nozzle for pivotal movement about a vertical axis lying substantially in the plane of the hull side through which said nozzle opens;
- (b) said valve being wedge-shaped with opposite wedge sides which converge towards said pivot axis; and
- (c) said valve being movable about said axis whereby in one position of said valve one of said wedge sides is flush with said hull side and the other of said wedge sides acts as a flow guide, and in another position of said valve the other of said wedge sides is flush with said hull side and the one wedge side acts as a flow guide.

4,315,477

SEMI-OPEN LIQUID PHASE EPITAXIAL GROWTH SYSTEM

Cheng-Chi Wang, Thousand Oaks, and August H. B. Vanderwyck, Newbury Park, both of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Division of Ser. No. 132,756, Mar. 24, 1980, Pat. No. 4,263,065.

This application Dec. 9, 1980, Ser. No. 214,548

Int. Cl.³ H01L 7/00

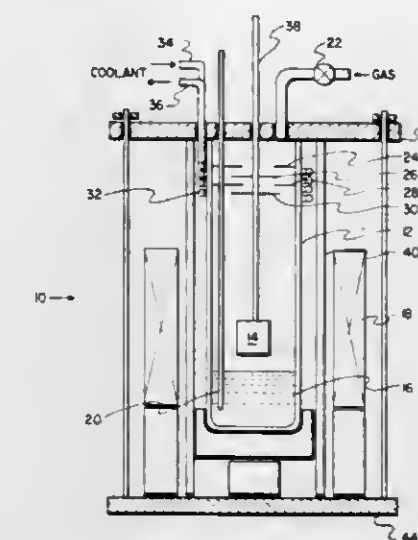
U.S. Cl. 118—64

5 Claims

1. An apparatus for growing an epitaxial layer on a substrate, comprising:

- a sealable container for receiving said substrate and a growth solution;
- a controllable source of heat for adjusting the temperature of said growth solution;
- a controllable source of pressure communicating with said container to reduce the vaporization of components dissolved in said solution;
- a cooling zone within said container for condensing components vaporized from said solution, said cooling zone including a quantity of quartz wool positioned in said

container above said growth solution and a conduit positioned near to said quantity of quartz wool for receiving a cooling fluid; and



a movable fixture for supporting said substrate and contacting said growth solution with said substrate.

4,315,478

DOCTOR BLADE FOR LABELING MACHINE

Sidney T. Carter, Shrewsbury, Mass., assignor to A-T-O Inc., Willoughby, Ohio

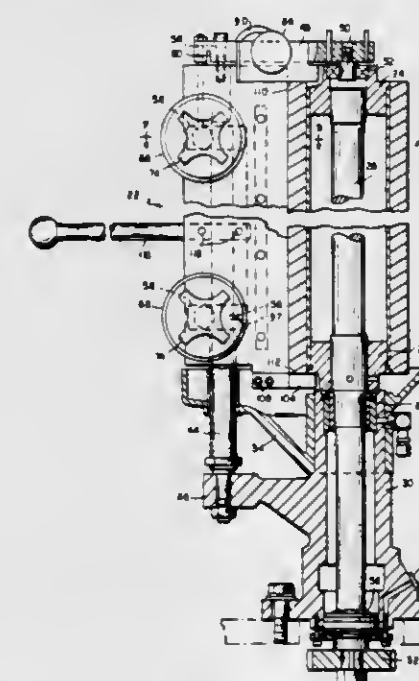
Division of Ser. No. 42,040, May 24, 1979, Pat. No. 4,226,660.

This application Feb. 13, 1980, Ser. No. 121,017

Int. Cl.³ B05C 1/02

U.S. Cl. 118—262

5 Claims



1. In a labeling machine, a glue-applying assembly comprising a glue-applying roll, means supporting the glue-applying roll at its ends for rotation about a predetermined axis, a doctor blade and means supporting the doctor blade adjacent the surface of the glue-applying roll with its edge adjacent the peripheral surface of the glue-applying roll for adjustment of the blade into parallel relation with the surface of the glue-applying roll and for adjustment of the proximity of the edge of the blade relative to the surface of the glue-applying roll comprising a spindle, means supporting the spindle in spaced, parallel relation to the axis of the glue-applying roll, a pair of blocks rotatably mounted on the spindle in axially-spaced relation thereon, a pair of eccentric means mounting the blade to the blocks, said eccentric means enabling adjusting the blade on the spindle to a position wherein the edge of the doctor is precisely parallel to the surface of the glue-applying roll, a cylinder bolted to the support for the spindle containing a piston and a rod protruding from the cylinder, spring means on

the spindle biasing the doctor in a direction to have engagement with the protruding end of the piston rod and wherein the spring means biases the doctor away from the surface of the glue-applying roll and the piston moves the doctor toward the surface of the glue-applying roll.

4,315,479

SILICON WAFER STEAM OXIDIZING APPARATUS

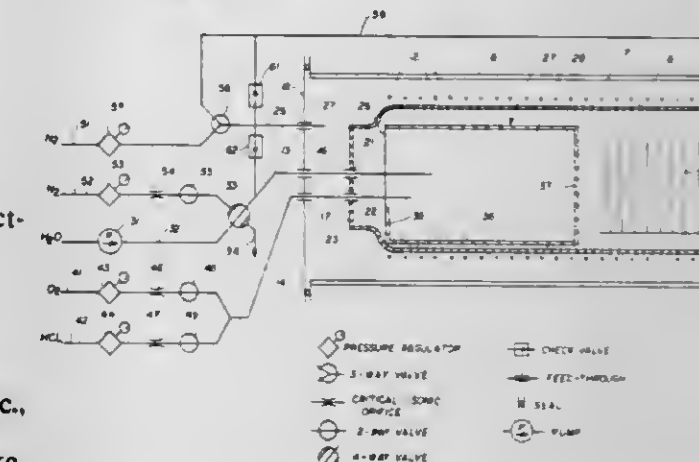
Monte M. Toole, Mill Valley, and Robert B. Champagne, Mountain View, both of Calif., assignors to Atomel Corporation, Mountain View, Calif.

Filed Jun. 27, 1980, Ser. No. 126,721

Int. Cl.³ H01L 21/316

U.S. Cl. 118—726

3 Claims



1. In a high-pressure, high-temperature gaseous chemical apparatus having a housing providing a pressure chamber and a vessel mounted therein and providing a reaction chamber dimensioned for receipt of semiconductor wafers and first means for heating said reaction chamber, for introducing therein chemically active gas under pressure, for introducing an inert gas under pressure in said pressure chamber external of said vessel for equalizing the pressures in said chambers, and for discharging said active gas from said reaction chamber in a continuous flow operation, the improvement comprising:

- second means in said reaction chamber providing a water boiling enclosure having a water vapor discharge opening communicating with the interior of said reaction chamber and being constructed to confine liquid water therein while permitting water vapor escape through said opening; and
 - third means for introducing water under pressure into said enclosure;
- said second means being formed for discharging water vapor to said reaction chamber in a continuous flow operation.

4,315,480

TEAT CUPS FOR MILKING MACHINES

Daniel O. Noorlander, 508 W. 630 North, Orem, Utah 84057

Filed Jun. 30, 1980, Ser. No. 164,164

Int. Cl.³ A01J 5/04

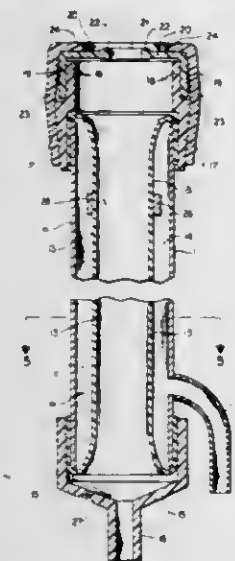
U.S. Cl. 119—14.49

13 Claims

1. A teat cup assembly for automatic milking machines which employ a milk line operating at substantially constant vacuum and a source of pulsating vacuum, said teat cup assembly comprising:

- a rigid, tubular, outer shell having a port therein adapted to be connected to the source of pulsating vacuum;
- an elongate, tubular inflation member made of a resilient, flexible, elastomeric material, said inflation being adapted to be received longitudinally within said outer shell, with the inflation being of sufficient length to extend beyond the ends of said outer shell and with the opposite end portions of said inflation being expanded and turned back over the respective ends of said outer shell, whereby a

- pulsating vacuum chamber is defined between said inflation and said shell;
- a lower cap member adapted to fit securely over the lower portion of said inflation which is turned back over the lower end of said outer shell, whereby the lower portion of said inflation is sealed tightly between the cap member and the outer shell, said cap member having a nipple extending therefrom which is adapted to be connected to said milk line which operates at substantially constant vacuum;
- a substantially cylindrical sleeve member adapted to fit securely over the upper portion of said inflation which is turned back over the upper end of said outer shell, whereby the upper portion of said inflation is sealed tightly between the sleeve member and the outer shell;



- a cup-like, teat entrance member made of a resilient, flexible elastomeric material, said cup-like teat entrance member comprising a substantially cylindrical side section and a diaphragm having a central opening therein molded integrally to one end of said cylindrical side section, said cylindrical side section of said teat entrance member being adapted to fit over at least the upper portion of said sleeve member so that when the teat entrance member is positioned on said sleeve member said diaphragm extends across the open end of said sleeve member and the opening in said diaphragm is located substantially coaxial with the longitudinal axis of said inflation member; and
- a substantially cylindrical, upper cap member which is adapted to slide substantially tightly over the teat entrance member and sleeve member to securely hold the teat entrance member in place and to provide protection for the elastomeric teat entrance member.

4,315,481

BREEDER HOUSE SYSTEM

Larry R. Coile, Rte. 1, Box 295c, and Bob F. Coile, Rte. 1, Box 291, both of Comer, Ga. 30629

Filed Nov. 13, 1980, Ser. No. 206,365

Int. Cl.³ A01K 31/00

U.S. Cl. 119—21

6 Claims



4. A breeder house for chickens comprising an elongated

enclosure having a scratch area extending in the lengthwise direction, a raised platform extending along at least one side of the scratch area, and an array of nests also arranged along the same side of the scratch area, each nest comprising an enclosure with a plurality of internal compartments, one side of said enclosure serving as an entrance side and having an array of entrance openings permitting hens to enter and exit from the compartments and perch means adjacent said entrance openings, and said nests also being provided with means permitting the collection of eggs from said compartments, characterized by means supporting said nests substantially in alignment with one another along said scratch area with their entrance sides facing said platform and with the bottoms of said nests being sufficiently close to the platform to permit hens to move readily from the platform to the perch means, yet sufficiently spaced from the nearest edge of the platform to permit chickens to move from the platform to the scratch area and from the scratch area to the platform, through the spaces between the bottoms of the entrance sides of the nests and the nearest edge of the platform, said breeder house having a row of stanchions arranged along said nearest edge of the platform and extending upwardly from the floor of the breeder house, and having bracket means comprising a plurality of brackets, one bracket being secured to each stanchion and extending laterally therefrom toward the scratch area, the bracket means on said stanchions providing vertical support for said array of nests, and in which said array of nests rests on said bracket means, and having hoist means for simultaneously raising nests upwardly from a plurality of said brackets.

4,315,482

THREE-DIMENSIONAL PHONETIC ALPHABET

Stephen R. Cooper, 246 Sunrise Hill Ct., Norwalk, Conn. 06851, and Charles H. Cooper, 144-60 25th Dr., Flushing, N.Y. 11354

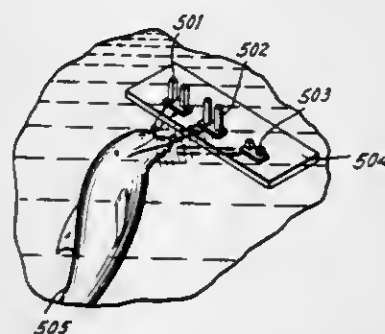
Division of Ser. No. 955,621, Oct. 30, 1978, Pat. No. 4,245,587.

This application May 22, 1980, Ser. No. 152,518

Int. Cl.³ A01K 15/02

U.S. Cl. 119—29

31 Claims



1. A set of alphabet symbols for communicating with aquatic mammals, each symbol comprising at least one three-dimensional object chosen from the group consisting of a right circular cylinder, a rectangular solid having flat faces, a rectangular solid having concave faces and a hyperboloidal solid, each object having an acoustically distinct echolocation image for detection of the objects and discrimination among the objects by said aquatic mammals, said symbols being adapted to be arranged in sequences such that said aquatic mammals can be trained to identify such sequences as symbolizing a plurality of respective concepts, each symbol also representing a human language phonetic value comprised of at least one speech sound, such that human individuals can identify such sequences as symbolizing a plurality of respective human-language words.

4,315,483

ANIMAL FEEDER

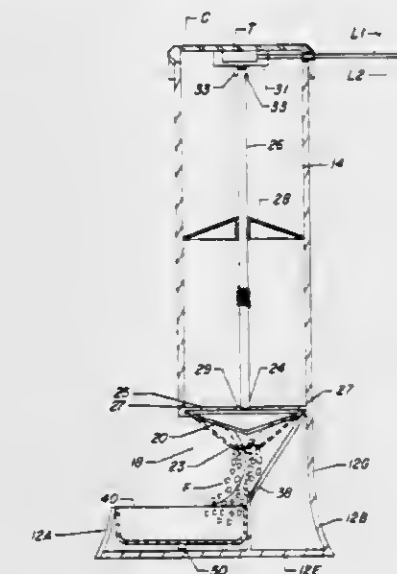
Raymond T. Scheidler, Saginaw, Mich., assignor to Ronald Frederick Park, Saginaw, Mich., a part interest

Filed Apr. 7, 1980, Ser. No. 138,204

Int. Cl.³ A01K 7/00

U.S. Cl. 119—51.11

14 Claims



1. An animal feeder comprising:
- storage means for storing consumable product such as animal food;
- selectively enableable and disableable food dispensing means for dispensing said consumable product from said storage means;
- feed trough means for receiving a predetermined amount of dispensed product to be removed by an animal for consumption; and
- control means, operable at predetermined intervals when any portion of said predetermined amount of consumable product has been removed from said trough means, for enabling said dispensing means to dispense product until said predetermined amount of consumable product is again received by said feed trough means;
- said control means including means for disabling said dispensing means when said predetermined amount of consumable product is again received by said trough means.

4,315,484

ANIMAL FEEDER

Charles A. Kingery, Washington Court House, Ohio, assignor to Marting Mfg. Inc., Washington Court House, Ohio

Filed Jun. 16, 1980, Ser. No. 159,692

Int. Cl.³ A01K 5/00

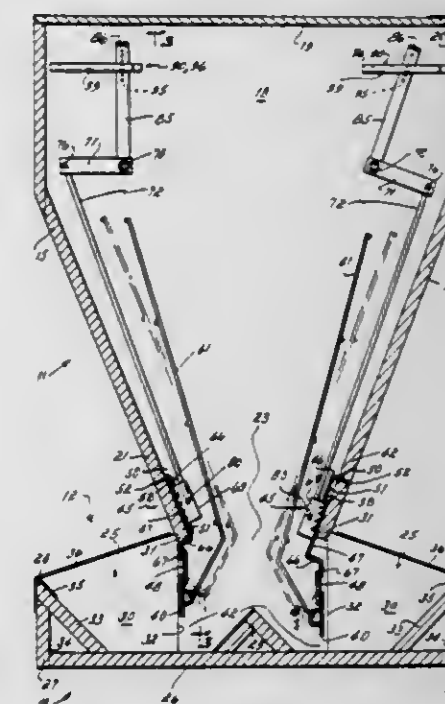
U.S. Cl. 119—53

3 Claims

1. An animal feeder comprising,
- a feed hopper having side walls, end walls, a bottom assembly, and an open top,
- a movable closure operable to close said open top of said feed hopper,
- metering means positioned to extend below the lower edge of at least one of said side walls,
- said bottom assembly including a feed trough under said metering means and in communication with said feed hopper,
- said metering means including a slide plate housing, a slide plate, and an agitator plate,
- said housing being mounted upon said one side wall,
- an enclosure defined between said one side wall and said housing,
- said slide plate having an upper end extending into said enclosure and a lower end extending below said housing,
- said agitator plate being pivotally suspended from said slide plate,
- a wire grid attached to the agitator plate so as to be movable with the agitator plate, said wire grid being located on the

inward side of the agitator plate and extending into the feed hopper such that movement of said agitator plate and attached wire grid prevents compacting of feed in the bottom of said hopper,

adjustment means for effecting vertical adjustment of said slide plate relative to said housing, said adjustment means including an upwardly extending rod connected at its lower end to said slide plate and at its upper end to one end of a crank arm, said crank arm being rotatable about a transverse shaft extending between said end walls of said feed hopper, and handle means accessible through the



open top of said feed hopper for effecting oscillatory movement of said crank arm about said transverse shaft to cause vertical adjustment of said slide plate and of the depending agitator plate, and

locking means for locking said handle means in any of a plurality of different angular positions of adjustment, said locking means comprising a locking bar fixed to the inside surface of one end wall of said hopper, said locking bar having a plurality of recesses located on the inside edge thereof into which a side edge portion of said handle means is movable to secure said handle means against inadvertent movement.

4,315,485

VAPOR GENERATOR FOR FUELS HAVING DIFFERENT FLAME RADIATION INTENSITIES

Tomotsuchi Kawamura, Chiba, and Hisao Haneda, Yokohama, both of Japan, assignors to Sulzer Brothers Limited, Winterthur, Switzerland and Mitsubishi Heavy Industries Ltd., Tokyo, Japan

Filed Aug. 20, 1980, Ser. No. 179,790

Claims priority, application Switzerland, Aug. 22, 1980, 7648/79

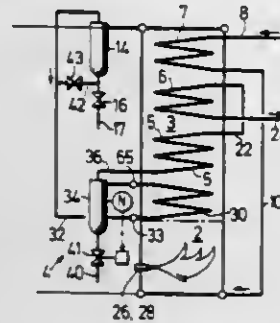
Int. Cl.³ F22D 7/00

U.S. Cl. 122—406 R

8 Claims

1. A vapor generator comprising
- an evaporator heating surface for a working medium defining a combustion chamber and an exhaust gas flue above said combustion chamber;
- at least one burner in said combustion chamber for burning a high flame radiation fuel to produce a flame and a flow of exhaust gas;
- at least one burner in said combustion chamber for burning a low flame radiation fuel to produce a flame and a flow of exhaust gas, said burners being disposed at a common level in said combustion chamber;
- a plurality of tubes defining a convection heating surface for

the working medium within said exhaust gas flue and above said combustion chamber for passage of a flow of an exhaust gas thereover in heat exchange relation with the working medium therein;



a superheater heating surface in said flue downstream of said convection heating surface relative to the flow of working medium and a flow of exhaust gas; and
a water separator connected between said convection heating surface and said superheater heating surface for conducting the flow of working medium therebetween.

4,315,486

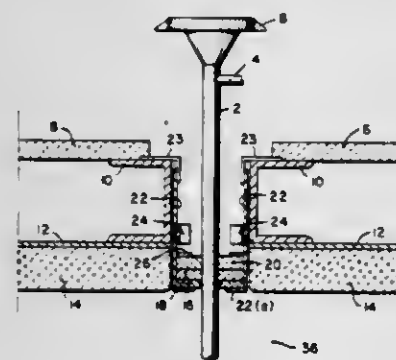
FLOATING RADIANT TUBE SHEETS FOR VERTICAL TUBE REFORMERS AND THE LIKE

Howard H. Seeman, Seaford, N.Y., and Robert F. Kaupp, Willow Grove, Pa., assignors to Selas Corporation of America, Dresher, Pa.

Filed Jul. 30, 1980, Ser. No. 173,834
Int. Cl.³ F22B 37/24, 17/02; F28F 7/00

U.S. Cl. 122—510

17 Claims



1. Furnace apparatus for heating portions of a plurality of individual vertically extending tubes, while permitting vertical expansion and contraction of all said tubes, including any such tubes which become significantly bowed or bent, and preventing significant strain to be placed on said bowed or bent tubes, comprising, in combination, an enclosed fire box having a roof, a plurality of vertically extending tubes being disposed in said fire box, with the upper ends of said tubes extending through said roof, a plurality of openings being formed in said roof to permit extension of the top of said tubes therethrough, floatable fire box cover means surrounding said tubes proximate said openings and permitting vertical expansion and contraction of said tubes, said floatable fire box cover means being floatable vertically upwardly and downwardly through a limited distance, to compensate for upward and downward movement of bowed or bent tubes.

4,315,487

METHOD AND APPARATUS FOR MODIFYING THE IGNITION SYSTEM OF MULTI-CYLINDER ENGINES

James W. Wyatt, Sr., 916 Walker St., Wenatchee, Wash. 98801, and James D. McEntire, 9025 11th SW., Seattle, Wash. 98106
Filed Oct. 17, 1979, Ser. No. 85,502

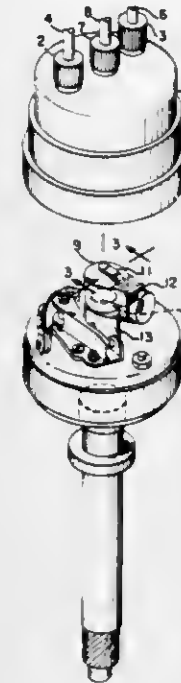
Int. Cl.³ F02P 7/02

U.S. Cl. 123—146.5 A

9 Claims

1. In an ignition system for a multi-cylinder engine having a plurality of cylinders with associated spark plugs and at least

power and exhaust strokes associated with each cylinder, a single ignition coil and a circuit breaker block with a pair of points which open and close on rotation of a cam driven by a crankshaft of the engine, causing each spark plug to fire immediately before the power stroke and during the exhaust stroke of its associated cylinder, the improvement comprising means for converting said ignition system to a distributed spark ignition system including:



a distributor cap overlying the circuit breaker block with a plurality of electrical contacts attached to the coil and spark plugs, and
a rotor within said distributor cap for distributing electricity between the contacts of said distributor cap in timed sequence, and
adapter means for adapting said cam for attachment to said rotor, whereby each spark plug will be fired immediately prior to the power stroke of its associated cylinder only.

4,315,488

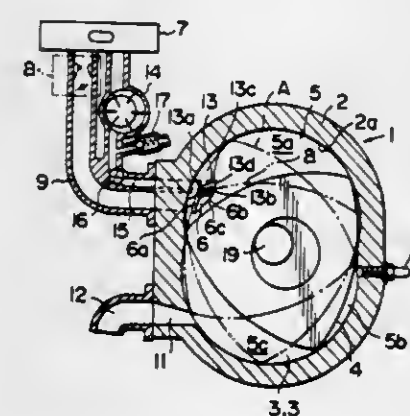
ROTARY PISTON ENGINE HAVING SUPERCHARGING MEANS

Tomoo Tadokoro, and Haruo Okimoto, both of Hiroshima, Japan, assignors to Toyo Kogyo Co., Ltd., Hiroshima, Japan
Filed Nov. 8, 1979, Ser. No. 92,289

Claims priority, application Japan, Nov. 13, 1978, 53-139981; Nov. 13, 1978, 53-139982; Nov. 13, 1978, 53-139983
Int. Cl.³ F02B 53/06, 53/08

U.S. Cl. 123—213

9 Claims



1. Rotary piston engine comprising a casing which includes a rotor housing having an inner wall of trochoidal configuration and a pair of side housings secured to the opposite sides of the rotor housing to define a rotor cavity of trochoidal configuration in the casing, a rotor of polygonal configuration disposed in said rotor cavity for rotation with apex portions in

sliding engagement with the inner wall of the rotor housing to define working chambers of which volumes are cyclically changed upon rotation of the rotor, an intake system including main intake port means formed in at least one of said side housings and supercharging port means formed in at least one of said side housings, said main and supercharging port means being so formed that they are opened substantially simultaneously and the supercharging port means is closed later than the main intake port means, means for providing a supply of air-fuel mixture to the main intake port means, and means for positively supplying air to the supercharging port means.

4,315,489

ROTARY PISTON ENGINE HAVING SUPERCHARGING MEANS

Tomoo Tadokoro; Haruo Okimoto; Yasuo Honda; Hiroshi Nomura, and Masato Yoshimura, all of Hiroshima, Japan, assignors to Toyo Kogyo Co., Ltd., Hiroshima, Japan

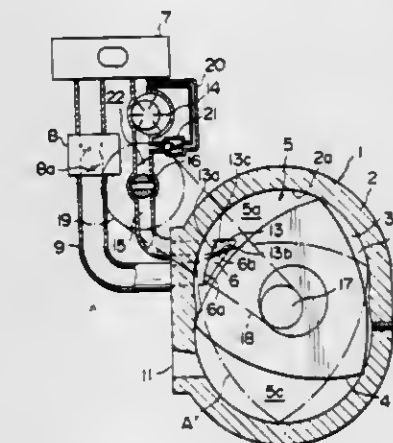
Filed Apr. 10, 1980, Ser. No. 138,892

Claims priority, application Japan, Apr. 12, 1979, 54-45087

Int. Cl.³ F02B 53/06, 53/08

U.S. Cl. 123—213

8 Claims



1. Rotary piston engine comprising a casing which includes a rotor housing having an inner wall of trochoidal configuration and a pair of side housings secured to the opposite sides of the rotor housing to define a rotor cavity of trochoidal configuration in the casing, a rotor of polygonal configuration disposed in said rotor cavity for rotation with apex portions in sliding engagement with the inner wall of the rotor housing to define working chambers of which volumes are cyclically changed upon rotation of the rotor, an intake system including main intake port means and supercharging port means formed in said casing so that the supercharging port means is closed later than the main intake port means, means for providing a supply of intake gas to the main intake port means, and means for positively supplying supercharging gas to the supercharging port means, timing valve means associated with said supercharging port means and adapted to be opened at an end period of intake stroke under a low speed engine operation, valve timing control means responsive to engine speed for advancing open timing of the timing valve means in response to an increase in the engine speed.

4,315,490

PREVAPORIZING DIESEL INJECTOR

William T. Webber, Agoura, and Leon Stabinsky, Chatsworth, both of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Filed Jun. 30, 1980, Ser. No. 164,751

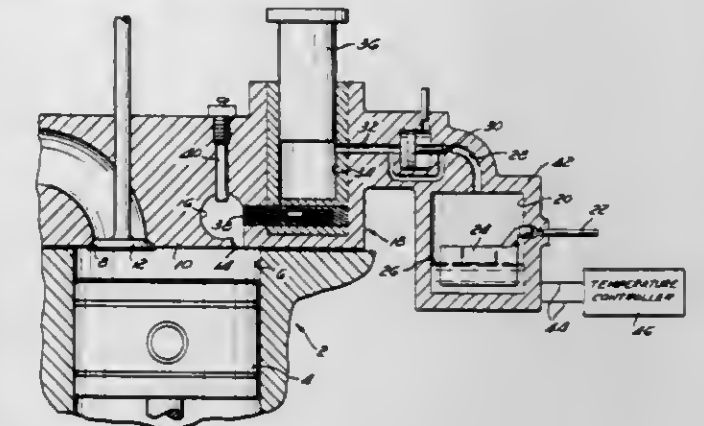
Int. Cl.³ F02B 19/14

U.S. Cl. 123—275

5 Claims

1. A diesel engine comprising:
an engine cylinder;
a piston movable within said engine cylinder;
a precombustion chamber communicating with said engine cylinder;

fuel injector means delivering vaporized fuel into said pre-combustion chamber in a predetermined manner;
a fuel vaporizing chamber;



liquid supply means for delivering liquid fuel into said fuel vaporizing chamber from a suitable source; and
vapor delivery means for delivering vaporized fuel from said fuel vaporizing chamber to said fuel injector means.

4,315,491

FUEL INJECTION TYPE INTERNAL COMBUSTION ENGINE

Kelso Takeda, Susono, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

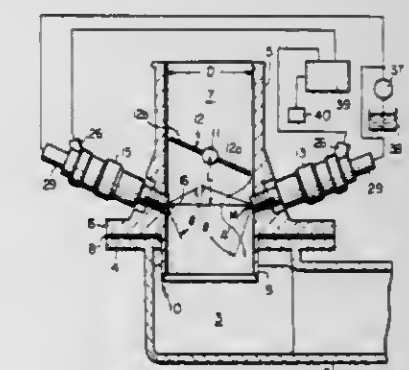
Filed Aug. 10, 1979, Ser. No. 65,563

Claims priority, application Japan, Jan. 23, 1979, 54/5535

Int. Cl.³ F02M 51/00

U.S. Cl. 123—478

17 Claims

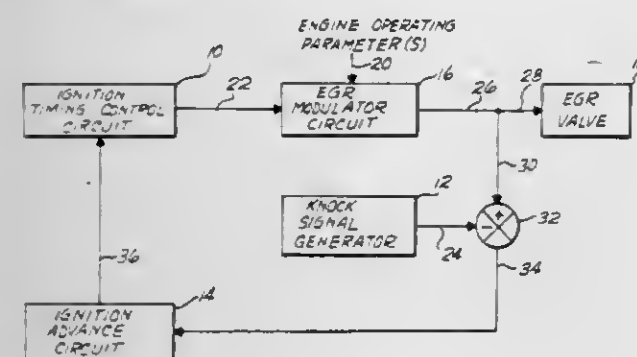


1. A fuel injection type of internal combustion engine having an engine body;
an intake duct fixed onto said engine body and defining an intake passage therein;
a throttle valve arranged in said intake passage;
a first fuel injector having a fuel nozzle arranged in said intake passage;
a second fuel injector having a fuel nozzle arranged in said intake passage; and
injection control means for controlling the injecting operation of said first and second fuel injectors, wherein the improvement comprises:
said injection control means being arranged to control said first fuel injector so as to deliver fuel intermittently at a uniform cyclic rate, with each period of intermittent injection not exceeding about 20 m sec, to maintain a fixed predetermined amount of fuel injected from said first fuel injector under all steady state operating conditions of the warmed-up engine, and to control said second fuel injector so as to vary the amount of fuel injected from said second fuel injector as a direct function of the amount of intake air flow.

4,315,492
EGR VALVE CONTROL SIGNAL PROCESSING FOR INTERNAL COMBUSTION ENGINE
 Conrad O. Gardner, 22905 108th W., Edmonds, Wash. 98020
 Filed Jun. 12, 1980, Ser. No. 158,811
 Int. Cl.³ F02M 25/06

U.S. Cl. 123-571

7 Claims



4. An EGR/ignition timing control system for an internal combustion engine having an ignition control system and an EGR modulator circuit for generating an EGR valve control signal, said EGR/ignition timing control system further comprising in combination:

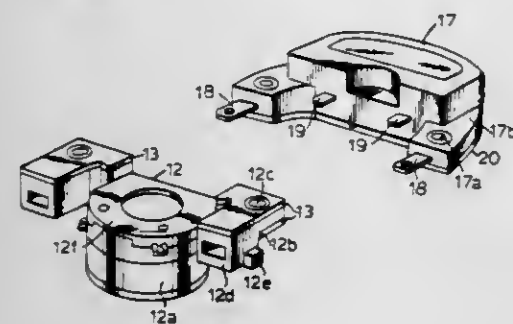
- means for providing a signal representative of an engine combustion condition;
- circuit means responsive to said EGR valve control signal and said signal representative of an engine combustion condition for providing a further signal; and,
- means responsive to said further signal for controlling ignition timing of said ignition timing control system.

4,315,493
INTERNAL COMBUSTION ENGINE IGNITION DEVICE
 Masayoshi Onishi; Yoshikatu Haruta; Toshiyuki Sakurai, and Shigemi Yamamoto, all of Himeji, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
 Filed Nov. 9, 1979, Ser. No. 92,753

Claims priority, application Japan, Nov. 16, 1978, 53/142074; Nov. 16, 1978, 53/158451[U]; Nov. 16, 1978, 53/158452[U]
 Int. Cl.³ F02P 1/00

U.S. Cl. 123-617

12 Claims

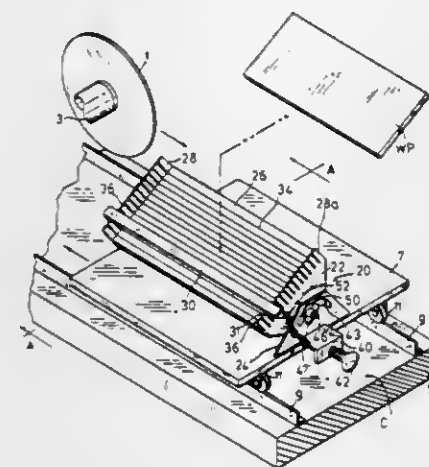


1. An ignition device for an internal combustion engine, comprising: a housing; a rotary shaft journaled in said housing; a signal unit mounted in a predetermined position within said housing and having a signal coil for generating ignition signals due to the rotation of said rotary shaft; and an ignition unit adjacent to said signal unit within said housing laterally thereof with respect to the axis of said shaft, said ignition unit including a semiconductor amplifier circuit for receiving said ignition signals and for controlling a current flowing through an ignition coil, said signal unit having a portion laterally opposed to said ignition unit and having a pair of output terminals, and said ignition unit having a portion laterally opposed to said signal unit and having a pair of input terminals mechanically and electrically connected to said output terminals for mechanically and electrically connecting said units.

4,315,494
MASONARY SAW JIG
 Michele DiPlacido, 141 Taysham Crescent, Toronto, Ontario, Canada
 Filed Apr. 21, 1980, Ser. No. 142,261
 Int. Cl.³ B28D 7/04

U.S. Cl. 125-35

3 Claims



1. A portable mitre guide jig for use with a masonry saw, said mitre guide jig comprising a triangular body portion having a work piece receiving face and a pair of symmetrical side faces converging to an apex, and an end portion to which said body portion is adjustably secured to adjust said work piece receiving face about said apex from a right hand cutting position to a left hand cutting position to enable cutting from either side of the saw, said end portion being provided with clamping means to removably clamp said mitre guide jig to a masonry saw platform, said work piece receiving face being flat and being bordered by at least one end rail which is raised relative to said work piece receiving face for preventing horizontal movement of a work piece placed thereon against said at least one side rail, an adjustable support bar for supporting the work piece on said work piece receiving face and means for locating said support bar at a plurality of different supporting positions on said work piece receiving face, said side faces providing an adjustment stop to prevent over adjustment of said work piece receiving face with respect to the saw and said body portion being provided with a plurality of spaced notches for receiving said support bar at said plurality of different supporting positions in said notches.

4,315,495
STABILIZER FOR HINGE OF REMOVABLE OVEN DOOR

David A. Jellies, Cleveland, Tenn., assignor to Magic Chef, Inc., Cleveland, Tenn.

Filed Nov. 3, 1980, Ser. No. 203,503
 Int. Cl.³ F23M 7/00

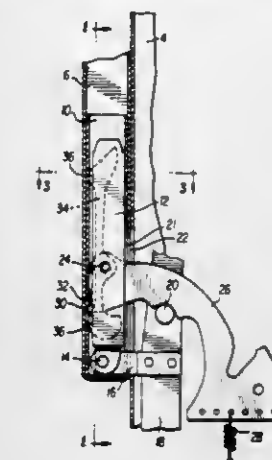
U.S. Cl. 126-194

3 Claims

1. In stabilizing means for the hinge of a removable oven door wherein the oven door is provided with a pocket to removably receive an elongated hollow hinge element pivoted to a range, the improvement comprising:

- a resilient stabilizer member mounted in said hollow hinge element and having spaced ends projecting from one side thereof sufficiently to engage an inner surface of said pocket when said element is inserted therein and flex said ends inwardly whereby to eliminate any looseness between said element and pocket, said resilient stabilizer

being pivotally mounted in said hollow hinge element on a pivot axis intermediate said ends to permit limited piv-



otal movement of said ends inwardly and outwardly of said element.

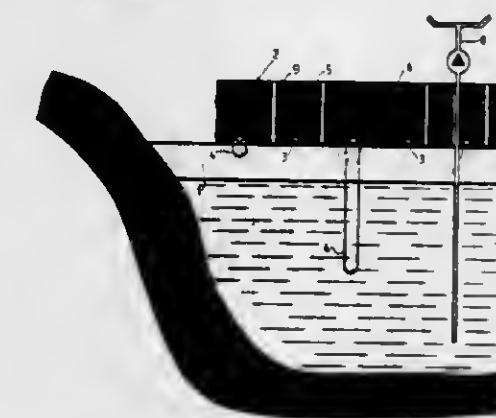
4,315,496
APPARATUS FOR STORAGE AND RECOVERY OF LOW TEMPERATURE THERMAL ENERGY

Anders D. Backlund, Holmen, S-820 90 Ytterhogdal, Sweden
 Filed May 9, 1979, Ser. No. 37,251

Claims priority, application Sweden, May 12, 1978, 7805459
 Int. Cl.³ F24J 3/02

U.S. Cl. 126-415

7 Claims



1. An apparatus for storing and recovering low temperature thermal energy from a mass which is at least sufficiently water saturated that a layer of ice forms thereover in cold ambient temperatures, comprising:

- a continuous bed of heat insulating material covering the mass, adapted to rest on the layer of ice, and adapted to float on water in the absence of ice;
 - a conduit system disposed on the underside of, and carried by the bed, the conduit system being in heat exchanging relationship with at least one of the water and the layer of ice;
 - a heat carrying medium flowing in the conduit system for extracting low temperature thermal energy directly from the mass, inducing an accelerated production of ice in cold ambient temperatures, the conduit system having an intake and outlet for routing the medium from and to an area to be heated, the apparatus being capable of cooling the area in warm ambient temperatures;
 - a layer of solar radiation absorbing materials overlaying the bed of insulating material, both materials having vertical passages therethrough; and,
 - means for drawing cold water from beneath the bed and the layer of ice and spraying the water over the layer of solar radiation absorbing material, the sprayed water being heated before it percolates down through the passages in the bed, further heating the mass;
- whereby low temperature energy for heating the area may be extracted from the mass even at sub-freezing ambient

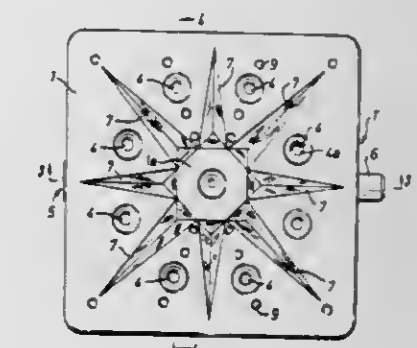
temperatures by the accelerated production of ice, and whereby the accelerated production of ice due to the extraction of low temperature energy for heating the area facilitates subsequent use of the mass for cooling the area in warmer temperatures.

4,315,497
HOLLOW HEAT EXCHANGER TILE
 Lewis Vardey, 33, Lower Rd., Leatherhead, Surrey, England
 Filed Sep. 9, 1980, Ser. No. 185,607
 Claims priority, application United Kingdom, Sep. 14, 1979, 31992/79

Int. Cl.³ F24J 3/02

U.S. Cl. 126-416

11 Claims



1. A hollow heat exchanger tile means for solar heating a swimming pool made of synthetic plastics material having a liquid inlet and a liquid outlet at peripherally spaced edge parts of a chamber having a floor which rises towards the centre of the tile and is shaped to promote liquid flow in a curved path between the inlet and the outlet, characterised in that the radially inward part of the chamber has at least one flared-ended hollow column extending between the top and bottom faces of the tile and that one or other of the inlet or the outlet is formed by a tubular projection from the edge of the tile.

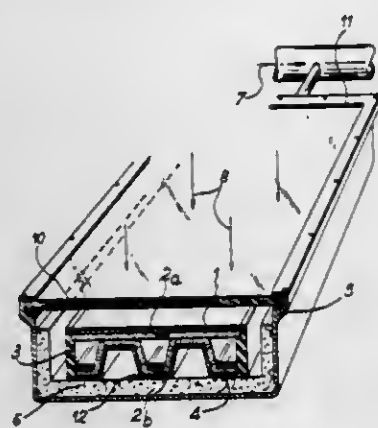
4,315,498
SOLAR COLLECTOR
 Bernard Devin, Gif-sur-Yvette; Jean-Paul Durand, Fontaine par Chateau Landon, and Michel Guillemot, Talant, all of France, assignors to Commissariat a l'Energie Atomique, France
 Filed Apr. 10, 1980, Ser. No. 139,138
 Claims priority, application France, Apr. 13, 1979, 79 09409
 Int. Cl.³ F24J 3/02

U.S. Cl. 126-422

7 Claims

1. A solar collector of the heat pipe type, comprising in per se known manner a container containing a heat pipe absorber of the solar energy, insulation placed between the absorber and the bottom of the container, at least one glass partition on the container, as well as the devices necessary for assembling and sealing the system, said heat pipe absorber being constituted by a tightly sealed case formed by a first heat collecting wall, a second wall forming the base, and side walls, a capillary system lining the inside of the case and a heat transfer fluid which wets this capillary system, wherein the capillary system comprises a first part applied to the first wall and a second part applied to the second wall and wherein at least one of the said first and

second walls is deformable under the action of an overpressure in the case, said first and second parts of the capillary system



having no point of contact when the wall is deformed and at least one line of contact when the wall is not deformed.

4,315,499

SELF-COMPENSATING SOLAR COLLECTOR

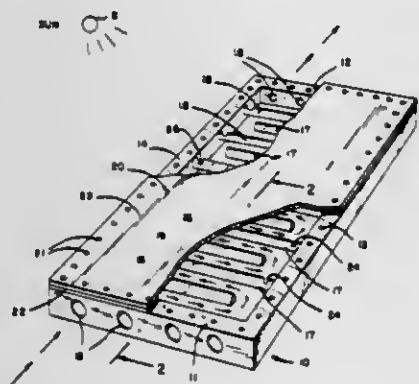
David E. Sbonerd, 6 Golden State, Rancho Mirage, Calif. 92270

Filed Nov. 24, 1980, Ser. No. 209,336

Int. Cl.³ F24J 3/02; F28F 7/00

U.S. Cl. 126-422

5 Claims



1. A self-compensating solar collector including, in combination:

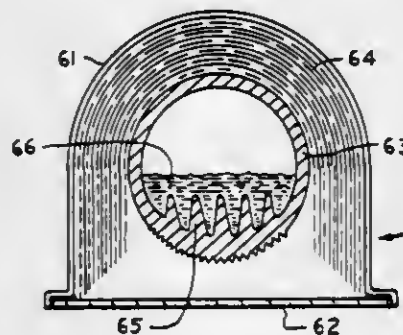
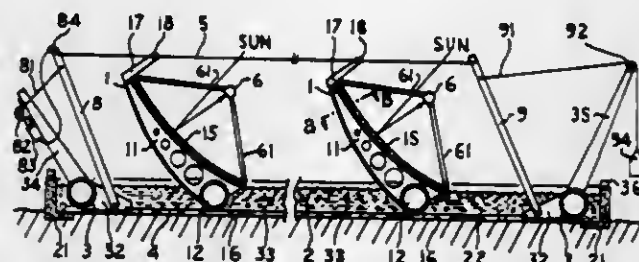
- a collector tray having an inlet and outlet;
- means in said tray defining a mass fluid flow labyrinth channel between said inlet and outlet; and
- a thermally responsive diaphragm-absorber plate covering said collector tray and movable from a first position confining mass fluid flow to said labyrinth channel, to a second upwardly deflected position in response to heating of the diaphragm to an elevated temperature to free the mass fluid flow from the labyrinth channel to thereby provide an expanded fluid flow path whereby during both cooling and heating, automatic compensation in the mass flow rate of the fluid through the collector with changes in temperature takes place to maintain the collector relatively cool and thereby increase the efficiency of the collector.

4,315,500
COLLECTION OF SOLAR ENERGY
Warren W. Gonder, 440 Horseshoe Dr., Grants Pass, Oreg. 97526

Continuation of Ser. No. 924,210, Jul. 12, 1978, Pat. No. 4,214,572. This application May 2, 1980, Ser. No. 145,967
Int. Cl.³ F24J 3/02

U.S. Cl. 126-425

7 Claims



1. Apparatus for collecting solar energy, which apparatus comprises

- a pool of liquid;
- a frame buoyantly disposed on and in contact with said pool of liquid;
- a plurality of horizontal elongate parallel solar collection devices for collecting solar energy, said devices being attached to said frame and each said device comprising (i) an elongate horizontal reflector body which is buoyantly disposed on and in contact with said pool of liquid and which has a reflecting surface of generally parabolic cross-section and (ii) an elongate horizontal absorption device at the focal point of said parabolic reflecting surface wherein said absorption device comprises an outer elongate generally tubular member and an inner elongate generally tubular member which is within said outer member and is separated therefrom by a gas at subatmospheric pressure; wherein said outer member comprises at least one transparent longitudinally extending portion through which solar rays reflected by said reflector can enter to impinge upon said inner member and wherein said absorption device also comprises at least one longitudinally extending reflecting surface which substantially reduces re-radiation in the form of thermal energy of rays which have been absorbed by said inner member;
- azimuthal rotation means for rotating said frame to place said solar collection devices in a desired position relative to the sun; and
- elevational rotation means for rotating each said horizontal reflector body about its longitudinal axis to place said collection devices in a desired position relative to the sun.

4,315,501

SOLAR HOT WATER UNIT AND SYSTEM

Raymond L. Ward, 2 Monadnock Rd., Worcester, Mass. 01609

Filed May 9, 1980, Ser. No. 148,405

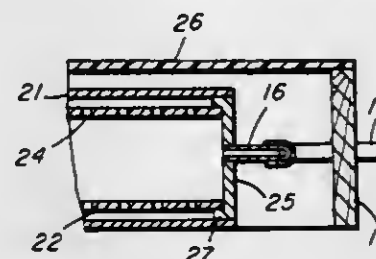
Int. Cl.³ F24J 3/02

U.S. Cl. 126-449

4 Claims

1. An economically useful solar hot water heating unit comprising

at least one relatively large pipe assembly positioned at the roof of a building for which hot water is to be provided, support members supporting said pipe assembly in position, a frame surrounding said pipe assembly and including the adjacent portion of the roof and a cover member mounted to enclose said pipe assembly and to insulate said assembly from the surrounding atmosphere, each pipe assembly comprising an outer, pressure-sustaining tube and an inner perforated spiral tubing formed of sheet material in spiral configuration and having spiral agitating means comprising spiral-formed irregularities on the wall of said spiral tubing being adapted to mix water flowing therethrough by said spiral agitating means, said mixture



being accomplished by interaction between the flow of water and said spiral agitating means, end caps mechanically fitted to said outer pressure sustaining tubes and means associated with said end caps for sealing said assembly and for supporting said spiral tubing within said outer tubes, inlet conduit means from the water supply for said building to said pipe assembly to the hot water usage system of said building, and a light transmitting member positioned to transmit light from the sun to each pipe assembly, said light transmitting member being the upper one of said portion of the roof and said cover member.

4,315,502

LEARNING-RELAXATION DEVICE

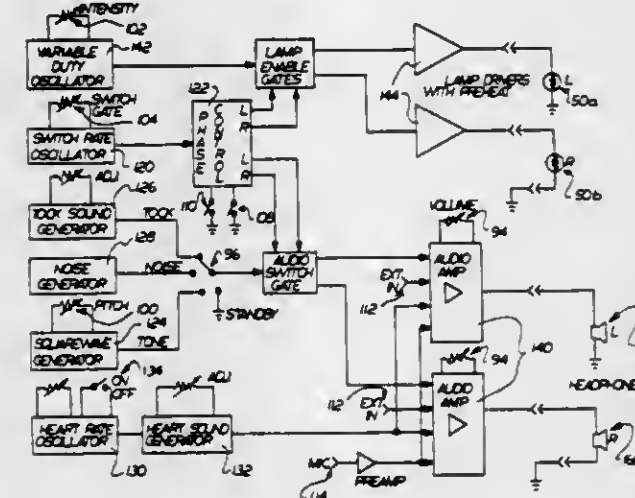
Denis E. Gorges, 4392 State Rd., Cleveland, Ohio 44109

Filed Oct. 11, 1979, Ser. No. 84,051

Int. Cl.³ A61N 1/34

U.S. Cl. 128-1 C

23 Claims



1. A learning-relaxation device for stimulating the central nervous system and the brain waves of a human subject having left and right eyes and left and right ears comprising: light means providing pulsating light signals individually to the left and right eyes of the subject and for limiting at least peripheral vision in the left and right eyes, sound means operable independently of said light means and providing at least one pulsating sound signal individually to the left and right ears of the subject while blocking ambient sound to both left and right ears, and control means for individually varying frequency and inten-

sity of each of said pulsating signals and phase of one of said signals relative to the other of said signals.

4,315,503

MODIFICATION OF THE GROWTH, REPAIR AND MAINTENANCE BEHAVIOR OF LIVING TISSUES AND CELLS BY A SPECIFIC AND SELECTIVE CHANGE IN ELECTRICAL ENVIRONMENT

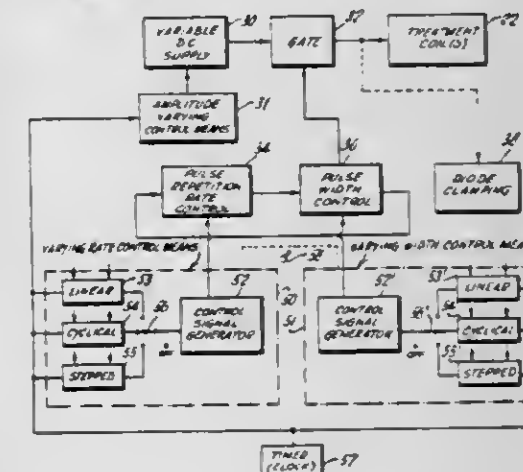
John P. Ryaby, Essex Fells, and Arthur A. Pilla, Wyckoff, both of N.J., assignors to Electro-Biology, Inc., Fairfield, N.J.

Continuation of Ser. No. 927,758, Jul. 25, 1978, abandoned, which is a continuation-in-part of Ser. No. 742,706, Nov. 17, 1976, Pat. No. 4,105,017, which is a continuation-in-part of Ser. No. 633,408, Nov. 19, 1975, abandoned. This application Dec. 5, 1979, Ser. No. 100,291

Int. Cl.³ A61N 1/40

U.S. Cl. 128-1.5

28 Claims



1. An electromagnetic body-treatment device for surgically non-invasive modification of the growth, repair and maintenance behavior of living tissues and cells by a specific and selective change in electrical environment, comprising electromagnetic means including a portion adapted for positioning alongside an afflicted body region to be treated, said electromagnetic means including electrical-coil means for establishing via said portion a flux path through the body region, means for electrically exciting said coil means with a succession of low-voltage unidirectional asymmetrical pulses, said pulses having a minimum width characteristic of at least 100 microseconds and a minimum pulse-repetition-rate characteristic of at least one per second and a minimum low-voltage characteristic of at least 0.00001 volt per centimeter of treated tissue and/or cells corresponding to about 0.01 microampere per square centimeter of treated tissue and/or cells, and function-varying means operatively associated with said electrical-excitation means for varying at least one of said characteristics in the course of a body treatment and within a range of variation extending above the stated minimum value thereof.

4,315,504

ELBOW SUSPENSION DEVICE

Dennis B. Drennan, Evanston; Donald J. Maylahn, Skokie, and Thomas R. Schleichner, Wilmette, all of Ill., assignors to DM Systems, Inc., Evanston, Ill.

Filed Jan. 26, 1981, Ser. No. 228,102

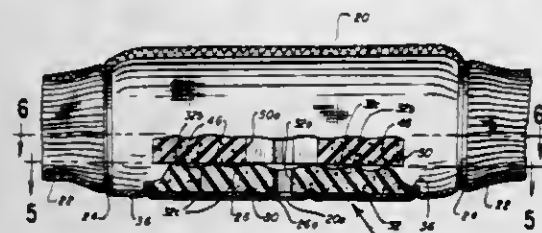
Int. Cl.³ A61B 19/00

U.S. Cl. 128-149

22 Claims

1. A suspension device for protection of the elbow against contact with bed sheets and other objects, comprising: a tubular sleeve of flexible material adapted to be slipped onto the arm and having a base portion adapted to be positioned in overlaying relation with respect to the bony protuberance of the elbow; a first support pad in said sleeve mounted on said base portion and formed of resilient cellular foam with a central

opening adapted to annularly support an outer end portion of the bony protuberance of the elbow spaced from said base; and
a second support pad in said sleeve mounted on said first support pad and formed of resilient cellular foam with an



opening overlying the opening of said first support pad, said opening of said second pad being elongated outwardly with respect to said central opening of said first support pad in a direction extending longitudinally of the arm and having edges for supportive contact with the arm.

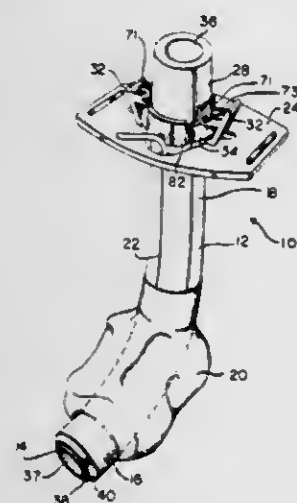
4,315,505

TRACHEOSTOMY TUBE WITH DISPOSABLE INNER CANNULA

Norman C. Crandall, Costa Mesa, and Robert C. French, El Toro, both of Calif., assignors to Shiley, Inc., Irvine, Calif.
Filed Apr. 7, 1980, Ser. No. 137,626
Int. Cl.³ A61M 25/02

U.S. Cl. 128—200.26

4 Claims



1. A tracheostomy tube for insertion into a patient's trachea through an opening in the neck to assist breathing, said tube being adapted to use with disposable inner cannulae, comprising:

an outer cannula having a distal end for insertion within said trachea and a proximal end remaining outside said trachea, said distal end having a reduced diameter portion;
a disposable inner cannula having approximately at least the same length or longer length as said outer cannula removably inserted into said outer cannula, said disposable inner cannula having a tip at its distal end comprising an annular raised portion with an annular tapered surface sloping toward said tip, means for stationarily securing said inner cannula to said outer cannula; and

said tapered surface on said inner cannula abutting against said reduced diameter portion on said outer cannula upon insertion of said inner cannula into said outer cannula thereby providing means proximal the distal end of said disposable inner cannula and said outer cannula for (i) forming a gas seal between said disposable inner cannula and said outer cannula for preventing leakage of either incoming or expelling gas and (ii) compensating for dimensional variations in said disposable inner cannula by insuring that the distal tip of said inner cannula is flush

with or extends only slightly beyond the end of the outer cannula.

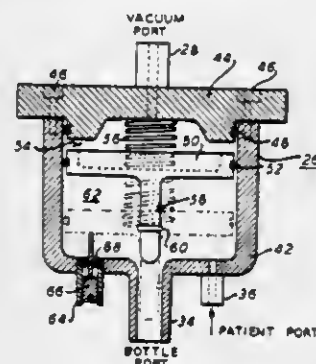
4,315,506

POSITIVE PULSE DEVICE

John P. Kayser, Madison, and Norman A. Rick, Mt. Horeb, both of Wis., assignors to Alreo, Inc., Montvale, N.J.
Continuation of Ser. No. 10,095, Feb. 7, 1979, abandoned. This application Oct. 14, 1980, Ser. No. 196,985
Int. Cl.³ A61M 1/00

U.S. Cl. 128—276

6 Claims



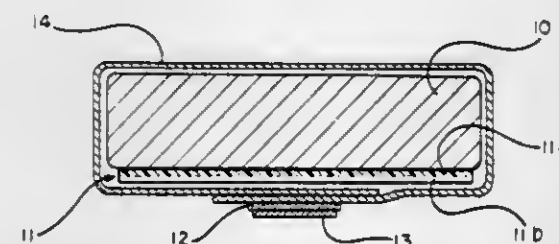
1. A positive pulse device operable from a vacuum source and adapted to be located in a patient drainage line leading from a patient to the vacuum source, said device comprising an enclosed housing, a movable piston within said housing separating the interior of said housing into first and second chambers, said second chamber having an inlet for receiving fluids from the patient and an outlet in communication with the vacuum source, said first chamber adapted to be connectible to said source of vacuum, bias means on said piston exerting a force thereon in a direction toward said second chamber, said first chamber being dimensioned such that vacuum applied to said first chamber overcomes said bias means to hold said piston in a first position withdrawn toward said first chamber, said first chamber being adapted to selectively be placed at atmosphere pressure causing said bias means to force said piston to move to a second position collapsing said second chamber, whereby fluids from the patient collected in said second chamber are forced therefrom in a backward direction toward the patient.

4,315,507

SANITARY NAPKIN WITH HEAT FUSIBLE BAFFLE
Howard A. Whitehead, and Attila Matray, both of Appleton, Wis., assignors to Kimberly-Clark Corporation, Neenah, Wis.
Filed Apr. 11, 1980, Ser. No. 139,580
Int. Cl.³ A61F 13/16

U.S. Cl. 128—287

12 Claims



1. A multilayer sanitary appliance comprising a fluid pervious body contact layer, an absorbent layer and a fluid impervious exposed thermoplastic baffle, said baffle having at least two adjacent layers of material a first of which is fusible with at least a first of said layers being fused to either the body contact layer or the absorbent layer and another of said layers being nonfusible at temperatures greater than at least said first of said baffle layers.

4,315,508

SELF-CENTERING MULTIPLE USE GARMENT SUSPENSION SYSTEM

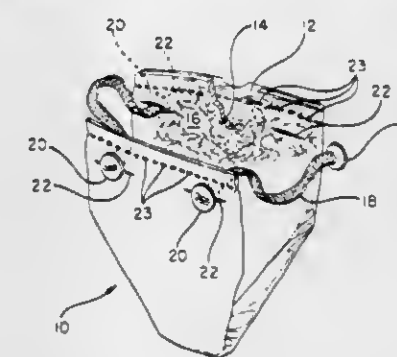
Martha E. Bolick, Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Mar. 31, 1980, Ser. No. 135,536

Int. Cl.³ A61F 13/16

U.S. Cl. 128—289

10 Claims



1. A garment and suspension system therefor for use in absorbing and containing human waste excrement consisting essentially of,

in combination, an absorbent pad having an absorbent medium contained between a liquid impervious backing and a facing material, said combination being of generally rectangular configuration and having a width in the range of from 6 to 22 inches and length in the range of from 10 to 34 inches with a releasable attachment means adjacent each corner thereof; and a pair of elastic straps formed from a soft, nonirritating, nonabrasive elastic having high strain and low stress properties with dimensions in the range of from 2 inches to 20 inches in length and $\frac{1}{2}$ inch to 5 inches in width and having at each end fastening means for use in association with the attachment means of said absorbent sheet;

wherein said garment and suspension system in use results in the straps extending toward the waist of the wearer and at an angle of from 25° to 45° with horizontal and provides a vertical vector of force to maintain the garment snugly in place.

4,315,509

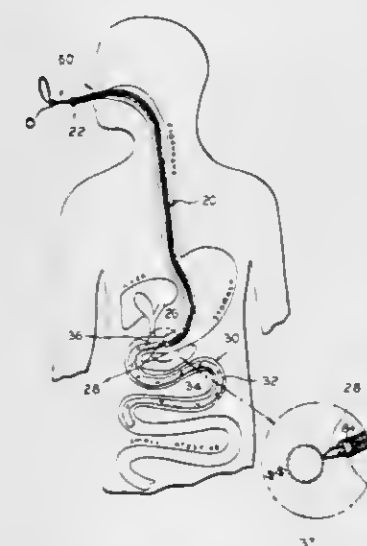
INSERTION AND REMOVAL CATHETERS AND INTESTINAL TUBES FOR RESTRICTING ABSORPTION

Julie A. Smit, 1045 Hinman Ave., Evanston, Ill. 60602
Continuation-in-part of Ser. No. 757,929, Jan. 10, 1977, Pat. No. 4,134,405. This application Oct. 16, 1978, Ser. No. 951,864

The portion of the term of this patent subsequent to Jan. 16, 1996, has been disclaimed.
Int. Cl.³ A61B 17/00

U.S. Cl. 128—303 R

41 Claims



1. A method of inserting an instrument including a thin wall tube which is open on both ends and is implanted while com-

pletely empty and collapsed in radial dimension, said tube comprising means for restricting absorption of food chemicals within at least the intestinal portion of the alimentary canal of an animal body while said food chemicals are being squeezed by bodily peristaltic action, said method comprising the steps of (a) inserting a thin wall tube while in a state which is flexible enough to be passed completely through the throat and be implanted entirely within said portion of said alimentary canal which is below the stomach at a position wherein said tube does not extend out of the intestinal portion of the alimentary canal of said body while it is so implanted, said tube lacking substantially all radial rigidity and being completely collapsible at least in parts when empty and at the time of implanting, (b) locating said tube with its open ends positioned to enable digesting food chemicals to enter and expand said tube only to the extent that food is within said tube and to pass under peristaltic action completely through said tube while digestion continues whereby said tube may be used to control absorption of food chemicals in that portion of the alimentary canal which is lined by said tube, said digesting food chemicals which pass through said tube being the normally consumed food which enters the body in whole, non-digested form through the mouth of a patient, said non-digested food solids becoming partially digested in the stomach before coming into contact with and entering said implanted tube, and (c) anchoring said implant tube at a point which is below the intake to the stomach so that said implanted tube and its entire anchoring remain in place entirely within a selected part of the alimentary canal, below said intake point.

4,315,510

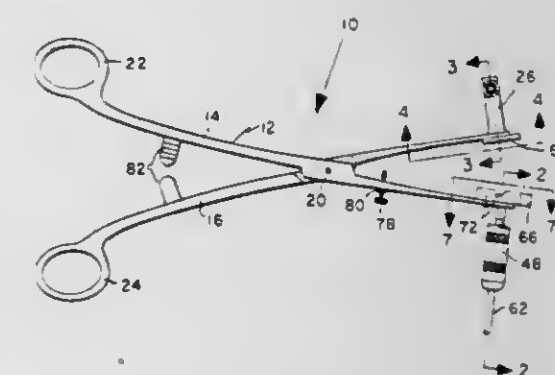
METHOD OF PERFORMING MALE STERILIZATION
Harry Kihn, Lawrenceville, N.J., assignor to Cooper Medical Devices Corporation, Newtown, Pa.

Filed May 16, 1979, Ser. No. 39,652

Int. Cl.³ A61B 17/36

U.S. Cl. 128—303.1

13 Claims



13. In a method of sterilizing a male by coagulating the vas attached to the testes without substantially harming the scrotum skin adjacent said vas and without incision of said skin, the step which comprises directing microwave radiation at said vas through said skin along a path remote from said testes from outside said skin at a frequency effective to cause permanent coagulation of said vas substantially exclusively of said skin for sufficient time to heat said vas to a temperature at which said vas coagulates.

4,315,511

ENDARTERECTOMY APPARATUS

Albert K. Chin, Stanford, Calif., assignor to Thomas J. Fogarty, Palo Alto, Calif.

Filed Sep. 7, 1979, Ser. No. 73,252

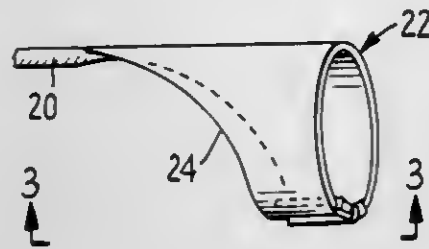
Int. Cl.³ A61B 17/32

U.S. Cl. 128—305

2 Claims

1. An endarterectomy instrument comprising: an annular knife having a cutting edge at one end thereof directed longitudinally of the knife and through a full 360° of its periphery; a

wire carrier attached tangentially to said knife and extending away from said one end in the direction of said cutting edge whereby said knife may be pulled along an occluded artery to excise an arteriosclerotic occlusion therefrom, said knife being split longitudinally and having overlapped end portions to thereby enable said knife to be yieldingly compressible radially for insertion within an artery and to thereafter enable said knife

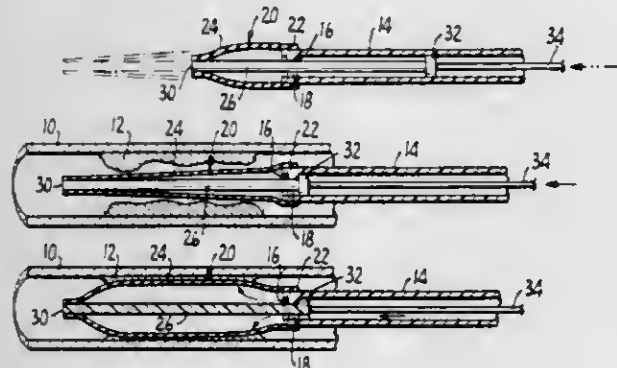


to apply a substantially constant outwardly directed pressure against and through a full 360° of the interior circumference of said artery as said occlusion is being excised to thereby maintain the knife against deviation from axial alignment with the artery; and, means carried by said knife to prevent said end portions from separating while permitting sliding movement of said end portions relative to each other during compression and expansion of said knife.

4,315,512
PISTON EXTENSION BALLOON DILATATION CATHETER APPARATUS AND METHOD
Thomas J. Fogarty, 770 Welch Rd., Palo Alto, Calif. 94304
Filed Jan. 24, 1980, Ser. No. 114,982
Int. Cl.³ A61M 29/02

U.S. Cl. 128—344

16 Claims



1. Apparatus for dilating a partially occluded section of a blood vessel, said apparatus comprising: an elongated flexible catheter adapted for passage through the vessel, said catheter having an open distal end; an elastomeric balloon having a mouth sealingly secured in fluid communication with the open distal end of the catheter; a piston connected to the balloon and slidably received within the catheter for movement relative thereto between an extended condition wherein the piston stretches the balloon lengthwise and a retracted position wherein the piston releases the balloon from such stretching; means to selectively move the piston between the retracted and extended conditions; said balloon having an outer diameter in its uninflated and extended condition which is less than the outer diameter of said catheter; and means to impart internal fluid pressure to the catheter to selectively inflate the balloon.

4,315,513
GASTROSTOMY AND OTHER PERCUTANEOUS TRANSPORT TUBES

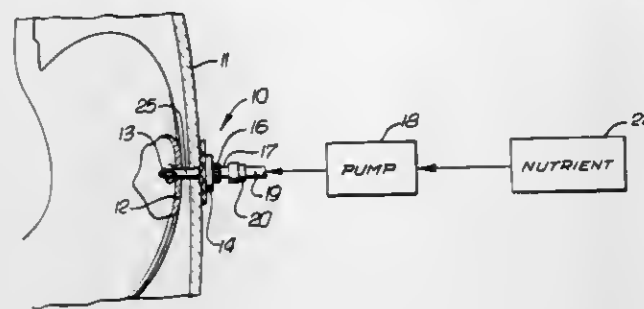
Michael S. Nawash, 605 Nakoma St., Midland, Mich. 48640; Suzanne Stillman, 826 N. Whittier Dr., Beverly Hills, Calif. 90210, and Robert S. Mason, 745 W. Mariposa Ave., El Segundo, Calif. 90245

Filed Mar. 10, 1980, Ser. No. 129,089

Int. Cl.³ A61M 25/00, 3/00

U.S. Cl. 128—348

2 Claims



1. In a gastrostomy or like percutaneous transport tube of the type having a length of tubing with a first end configured for enlargement when inserted into the stomach or other bodily region of a patient, said first end having apertures for the passage of fluid, a one-way valve and fluid supply coupling assembly at the other end of said tubing, comprising:

- a rigid, generally cylindrical body having at one end a projection engaging said tubing, there being an axial channel through said projection, said body having at the other end a flange adapted to extend in closely spaced parallel relationship to the exterior abdominal wall then said percutaneous transport tube is emplaced,
- connector means, exteriorly removably attachable to said body at the flange end thereof, for disconnectable coupling to a nutrient or like fluid supply, and
- a one-way valve in said body comprising:
 - a tapered counterbore extending coaxially from the distal end of said projection to said axial channel,
 - a second counterbore extending coaxially through said flange end to said channel, and
 - a flexible resilient unitary valve member consisting of an elongated stem extending through said channel, a valve closure at one end of said stem, said valve closure being disposed within said tapered counterbore, and a crosspiece at the other end of said stem, said crosspiece being disposed within said second counterbore, said stem being slightly longer than said channel so as to permit limited axial movement of said unitary valve member from a closed position in which back pressure from said bodily region forces said valve closure into valve closing relationship with the shoulder between said tapered counterbore and said channel, and an open position in which nutrient or like fluid from said supply passing through said channel urges said valve closure away from said shoulder so as to permit the flow of said fluid into said bodily region.

4,315,514
METHOD AND APPARATUS FOR SELECTIVE CELL DESTRUCTION

William Drewes, 100 Ellison Ave., Bronxville, N.Y. 10708, and Martin Levine, Hastings-on-Hudson, N.Y., assignors to William Drewes, Bronxville, N.Y.

Filed May 8, 1980, Ser. No. 148,058

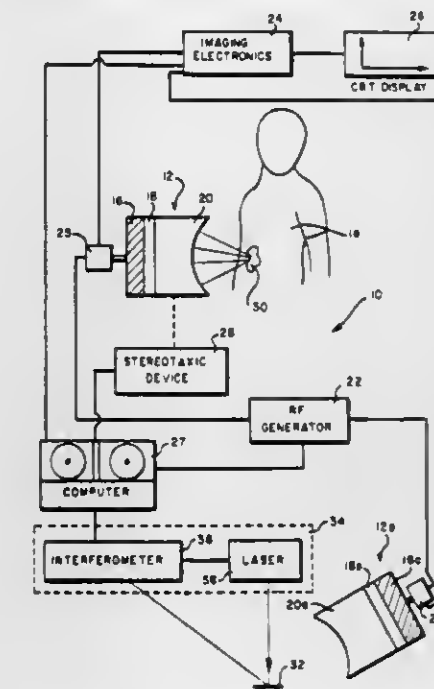
Int. Cl.³ A61B 5/00

U.S. Cl. 128—653

6 Claims

1. A method for destroying selected cells in a host without damage to non-selected cells, comprising: selecting a transmission path from an energy source to the selected cells;

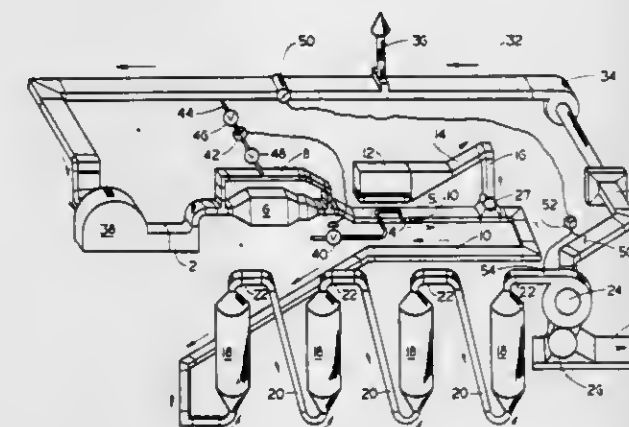
determining one or more of the resonant frequencies of the selected cells; comparing the transmissibility of the selected cells at said one or more resonant frequencies with the transmissibility of the non-selected cells in the transmission path at said one or more resonant frequencies;



selecting, as a destructive frequency, one of said one or more resonant frequencies at which the transmissibility of said selected cells is higher than the transmissibility of said non-selected cells in the transmission path; and transmitting energy from said source at said destructive frequency along said transmission path with sufficient intensity to destroy said selected cells without destroying said non-selected cells in the transmission path.

4,315,515
TOBACCO DRYING APPARATUS
Luther J. Mills, III, Louisville, Ky., assignor to Brown & Williamson Tobacco Corporation, Louisville, Ky.
Filed Apr. 11, 1980, Ser. No. 139,536
Int. Cl.³ A24B 3/00, 3/12
U.S. Cl. 131—303

6 Claims



1. An apparatus for humidifying air and drying tobacco comprising: means for circulating the air in a substantially closed system; means for heating the air in this system; means for introducing tobacco at one end of the system and in the path of heated air; means in advance of the tobacco introduction station for injecting steam into the air stream downstream of the means for heating the air in the system, said steam introduction being substantially parallel to the air stream; means in the system at a point beyond the tobacco introduc-

tion station in which the tobacco is conveyed upwardly by the hot moisturized air; means for separating the tobacco from the conveying air; exhaust means for discharging moisture-laden air from the system; and, sensing means for sensing the temperature of the air and its humidity following the discharge of the tobacco, said sensing means regulating the amount of steam being injected into the system.

4,315,516
CONTINUOUS CHAIN FORMED FROM A MULTIPLICITY OF LOOPS FORMED FROM DENTAL FLOSS MATERIAL AND APPARATUS FOR PRODUCING THE SAME

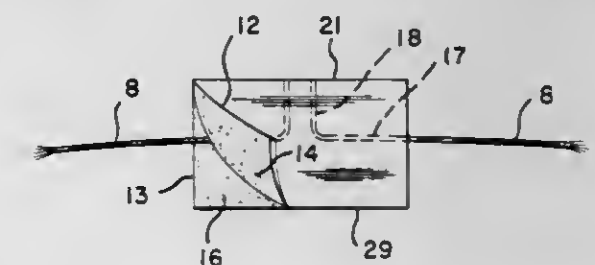
Joseph Zappel, 2 Cielo Dr., Scotts Valley, Calif. 95066

Filed Sep. 19, 1980, Ser. No. 188,711

Int. Cl.³ A61C 15/00

U.S. Cl. 132—90

20 Claims



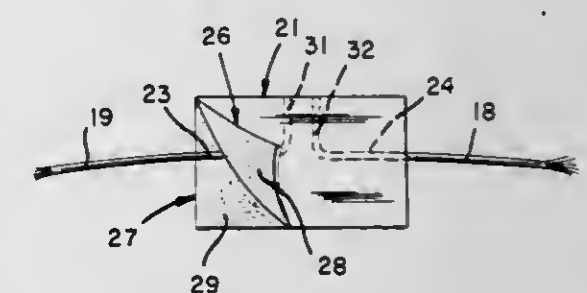
1. As an article of manufacture, an elongated chain of indeterminate length and including a tape portion and a dental floss portion;

- (a) said tape portion having adhesive on one surface thereof; and
- (b) said dental floss portion having sections thereof intermediate its ends adhesively attached to said tape portion.

4,315,517
DEVICE FOR CLEANING TEETH TO PREVENT THE FORMATION OF PLAQUE
Mark D. Krag, 217 Edelen Ave., Los Gatos, Calif. 95030
Filed Oct. 31, 1978, Ser. No. 956,249
Int. Cl.³ A61C 15/00

U.S. Cl. 132—89

9 Claims



1. A device for cleaning teeth, comprising: a first flexible strand of predetermined length having first and second ends; a second flexible strand of predetermined length having first and second ends, said first and second strands forming a pair of strands, corresponding first and second ends of said pair of strands being in close proximity, said strands being of sufficient length to form, when said corresponding first and second ends are joined, a single closed loop large enough for at least one finger of each hand of the user to penetrate the loop; and first and second adhesive tabs means joining corresponding first ends and corresponding second ends, respectively, of

said pair of strands to complete a single, closed, flexible and limp loop.

4,315,518

METHODS OF AND SYSTEM FOR CONTROLLING COPPER CONCENTRATION IN A SOLUTION

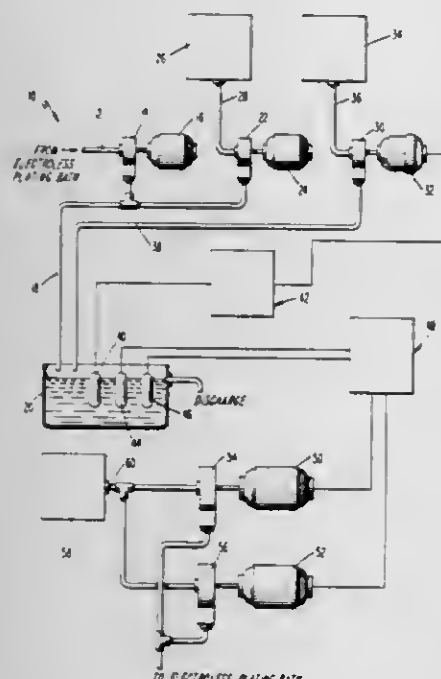
Ernest W. Sawyer, Richmond, Va., assignor to Western Electric Company, Inc., New York, N.Y.

Filed Jun. 30, 1980, Ser. No. 164,656

Int. Cl.³ G05D 11/13

U.S. Cl. 137—3

17 Claims



1. A method of controlling copper concentration in a solution containing a complexer where complexer molarity exceeds copper molarity in a desired ratio, which comprises the steps of:

- drawing a sample from a first solution containing a complexer where complexer molarity exceeds copper molarity in a desired ratio;
- adding a second solution containing a known concentration of cupric ions to the sample to form a combined solution where the copper molarity exceeds the complexer molarity;
- determining the copper concentration of the combined solution as a measure of the copper concentration in the first solution; and
- adding cupric ions to the first solution in response to the determination of copper concentration of the combined solution to maintain the desired ratio.

4,315,519

GOVERNOR HYDRAULIC PRESSURE SUPPLY APPARATUS FOR AUTOMATIC TRANSMISSIONS

Nobuaki Miki, Nagoya; Shiro Sakakibara, Toyokawa, and Fumitomo Yokoyama, Anjo, all of Japan, assignors to Aisin-Warner Kabushiki Kaisha, Anjo, Japan

Filed Aug. 22, 1980, Ser. No. 180,431

Claims priority, application Japan, Aug. 30, 1979, 54-119970[U]

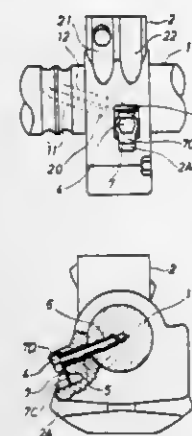
Int. Cl.³ G05D 13/34

U.S. Cl. 137—56

4 Claims

1. A hydraulic governor pressure supply apparatus for vehicle's automatic transmissions having governor valve means mounted on an output shaft from the automatic transmissions, the governor valve means including hydraulic fluid input and output lines and the output shaft including hydraulic fluid input and output lines which are connected with the corresponding input and output lines in the governor valve means for supplying an input line pressure to the governor valve means and for receiving a governor pressure output from the valve means, respectively, wherein the improvement includes

tightening bolt means for tightening the combined governor valve means and output shaft in the region adjoining the interface between the two elements at which the input fluid lines and output fluid lines are connected with each other, respec-



tively, the tightening bolt means being screwed to the shaft thereby producing a pressure or pushing force in the above region to bring the two elements in closer contact with each other in said region.

4,315,520

FLUID LEAKPORT ORIFICE STRUCTURE

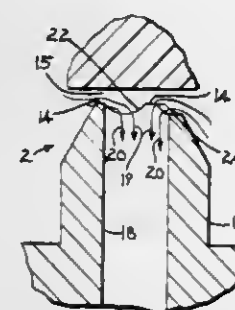
Louis D. Atkinson, New Berlin, and Wesley W. Rineck, Wauwatosa, both of Wis., assignors to Airtrol Components, Inc., New Berlin, Wis.

Filed Jul. 22, 1980, Ser. No. 171,127

Int. Cl.³ G05D 16/00

U.S. Cl. 137—82

11 Claims



1. A leakport orifice apparatus for generating a stable fluid signal comprising a nozzle member having an outer seat land of a substantially flat continuous configuration, a closure member having a closure surface mounted in overlying relationship to the seat land and relatively movable with respect to such seat land for variably adjusting the flow passageway between the closure member and nozzle and thereby throttling the fluid passing between the nozzle and the closure member and said closure member being capable of vibrational movement with respect to the nozzle, and means mounting said closure member for relative movement to and from the seat land, said seat land and said closure member being constructed and arranged to establish and maintain an auxiliary flow path in addition to and external to said restricted flow passageway between the seat land and the closure member, said auxiliary flow passageway external to said restricted flow passageway being selected and constructed to compensate for vibration forces generated by the jet stream passing between the orifice and the closure member.

4,315,521

FLUID PRESSURE SIGNAL CONTROLLER

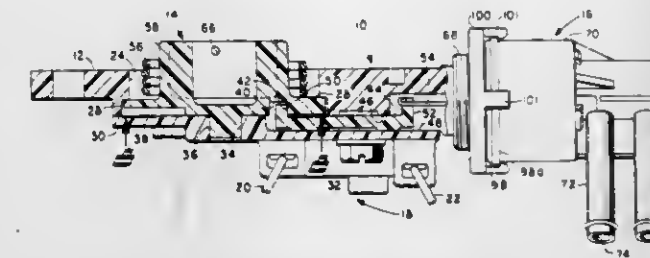
Patrick J. Anderson, Hoffman Estates, and Andrew A. Kenny, Roselle, both of Ill., assignors to Eaton Corporation, Cleveland, Ohio

Filed May 5, 1980, Ser. No. 146,903

Int. Cl.³ G05D 16/00

U.S. Cl. 137—85

25 Claims



1. A fluid pressure signal controller comprising:

- (a) support means;
- (b) cam means rotatably mounted on said support means, said cam means being adapted for connection to a rotatable input shaft for rotation thereby;
- (c) cam follower means movably received on said support means and operative to provide substantially rectilinear movement in response to rotation of said cam means;
- (d) valve means movably mounted on said support means, said valve means providing, upon connection to a source of variable fluid pressure, a regulated fluid pressure output signal, said valve means including a valve seat and a valve member movable with respect thereto for regulating said output signal and means biasing said valve means for altering said regulated output signal, wherein said cam follower means is operatively connected to said biasing means for varying the bias on said valve means in response to rotary movement of said cam means; and
- (e) means for adjusting the position of said valve means with respect to said support means for altering the calibration of said valve means with respect to a given position of said cam means.

4,315,522

FLUID DISTRIBUTION APPARATUS

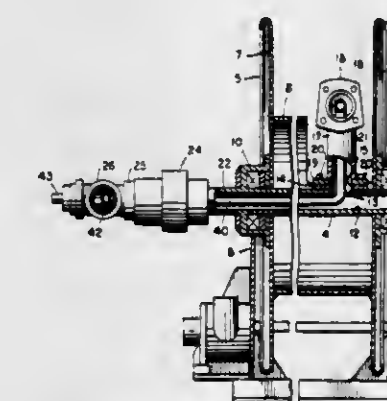
Ray M. Brown, 4548 N. Milwaukee, Chicago, Ill. 60630

Filed Nov. 15, 1979, Ser. No. 94,369

Int. Cl.³ B65H 75/34

U.S. Cl. 137—355.17

12 Claims



1. Fluid distribution apparatus comprising

- a. supporting means,
- b. a hose reel comprising
 - (1) an elongated central portion rotatably mounted on said supporting means for rotation around the longitudinal axis of said central portion, and
 - (2) a body portion disposed on said central portion for rotation therewith,
- c. conduit means, including said central portion, for feeding working fluid therethrough,

- d. said conduit means also including an elongated, flexible conduit adapted to be wound on said reel,
 - e. said flexible conduit comprising an inner hose and an outer hose, said inner hoses disposed inside of the outer hose,
 - f. connecting means on said central portion for affixing one end of said outer hose in communication with said central portion for the transfer of working fluid therethrough,
 - g. said inner hose extending through said connecting means on said central portion and through said central portion for transferring working fluid therethrough,
 - h. said central portion is journaled in said supporting means, and further includes
 - (1) an outer stationary tubular member, extending radially outward from said body portion and in communication with said central portion,
 - (2) an outer swivel connector connecting said outer stationary tubular member to said central portion,
 - (3) an inner stationary tubular member, and
 - (4) an inner swivel connector connecting said inner stationary tubular member to one end of said inner hoses;
 - i. said outer stationary tubular member comprises a T-connector having
 - (1) a proximal end portion connected to said swivel connector,
 - (2) a distal end portion disposed in substantially axial alignment with said proximal end portion, and
 - (3) a middle end portion disposed between said proximal and distal end portions thereof and opening laterally to the axial alignment of said proximal and distal end portions,
 - j. said inner stationary tubular member is disposed in said distal end portion; and
 - k. said reel being rotatable for winding said flexible conduit onto said reel and unwinding said flexible conduit from said reel.
8. Fluid distribution apparatus comprising
- a. supporting means,
 - b. a hose reel comprising
 - (1) an elongated central portion rotatably mounted on said supporting means for rotation around the longitudinal axis of said central portion, and
 - (2) a body portion disposed on said central portion for rotation therewith,
 - c. an elongated, flexible conduit adapted to be wound on said reel,
 - d. said conduit
 - (1) comprising an inner hose and an outer hose, and said inner hose disposed within said outer hose and said conduit having a proximal end section and a distal end section,
 - e. said central portion having a passageway disposed longitudinally therein for feeding working fluid therethrough,
 - f. connecting means on said central portion affixing the proximal end of said outer hose to said central portion in communication with said passageway for transferring working fluid therethrough,
 - g. said inner hose extending through said connecting means and said passageway for transferring working fluid, and
 - h. said reel being rotatable in two opposite directions around said longitudinal axis of said central portion for
 - (1) winding said conduit onto said reel, and
 - (2) unwinding said conduit from said reel, respectively
 - i. said conduit includes a connector having
 - (1) a proximal end segment, including an inner tubular member and an outer tubular member connected to respective ends of said hoses at said distal end section of said conduit, and
 - (2) a distal end segment wherein said inner tubular member extends through the wall of said outer tubular member and said inner and outer members are disposed in side-by-side relation to each other.

4,315,523

ELECTRONICALLY CONTROLLED FLOW METER AND FLOW CONTROL SYSTEM

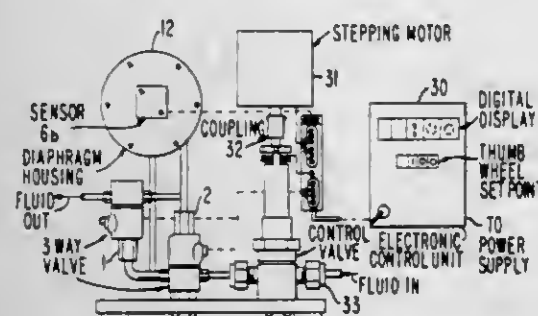
Imad Mahawili, Sunnyvale, and Timothy J. Boyle, Cupertino, both of Calif., assignors to American Flow Systems, Inc., Sunnyvale, Calif.

Filed Mar. 6, 1980, Ser. No. 127,918

Int. Cl.³ G01F 3/20

U.S. Cl. 137—486

11 Claims



1. Structure comprising:

- a chamber containing a first and a second opening through which fluid can pass;
- a flexible diaphragm located in said chamber so as to divide said chamber into two portions, a first chamber accessed through said first opening and a second portion being accessed through said second opening;
- a magnet attached to said flexible diaphragm;
- means for directing fluid whose flow is being measured through said first opening into said first chamber while withdrawing the fluid whose flow is being measured through said second opening from said second chamber and, into response to a control signal, reversing the chambers in which the fluid is inserted and from which the fluid is withdrawn, the movement of fluid into one chamber and out of the other chamber causing said flexible diaphragm to move into the chamber from which the fluid is being withdrawn;
- means for continuously producing an output signal representative of the position of said magnet;
- means for converting said output signal to a sequence of digital signals;
- means for processing said sequence of digital signals to produce a second signal representative of the flow rate of said fluid into and out of said chamber;
- means for comparing said flow rate to a reference flow rate to produce a control signal representative of the difference between said measured flow rate and said reference flow rate; and
- means, responsive to said control signal, for changing the flow rate of said fluid.

4,315,524

DAMPING DEVICE FOR CHECK VALVES

Jürgen Hoffmann, Erlangen, and Werner Eck, Herzogenaurach, both of Fed. Rep. of Germany, assignors to Kraftwerk Union Aktiengesellschaft, Mülheim, Fed. Rep. of Germany

Filed Aug. 13, 1980, Ser. No. 177,717

Claims priority, application Fed. Rep. of Germany, Aug. 16, 1979, 2933201

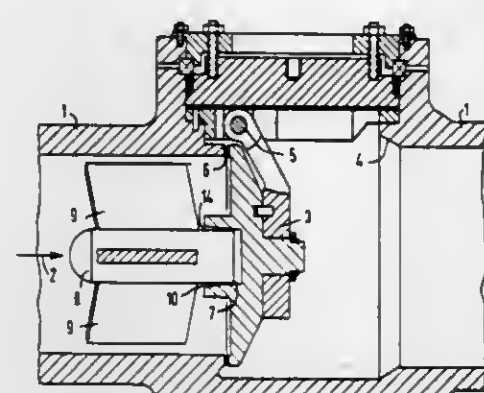
Int. Cl.³ F16K 15/03

U.S. Cl. 137—514.3

3 Claims

- 1. Damping device for a check valve in a pipeline traversible by a liquid, the check valve having a closure member pivotable by flow of the liquid into a position wherein it lies on a valve seat in the pipeline so as to close the valve, the damping device comprising at least two parts, of which a first part is a cylinder and a second part a piston reciprocatingly received in said cylinder, one of said first and second parts being connected to the closure member and the other of said first and second parts being connected to the valve seat, said cylinder comprising means defining a depression closed at one end thereof and open at the opposite end thereof, said piston comprising a plunger

substantially matching the cross section of said depression and disposed so as to project into said open end of said depression shortly before the closure member has reached the position thereof wherein the valve is closed, the outer surface of said plunger and the defining surface of said depression being so formed as to define a gap narrowing down during closing movement of the closure member, and including substantially radially extending support plates securing said other of said



4,315,525

MIXING VALVE

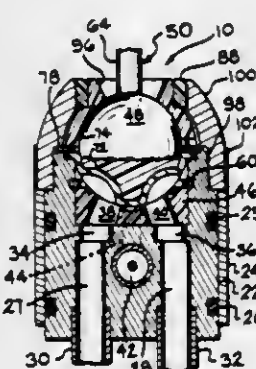
Walker Messick, and Gerald E. Christiansen, both of Flora, Ind., assignors to Stephen A. Young Corporation, Flora, Ind.

Filed Dec. 22, 1980, Ser. No. 218,783

Int. Cl.³ F16K 7/12

U.S. Cl. 137—625.4

6 Claims



1. A mixing valve comprising:

- a body having two inlet passages, an outlet duct and a valve cavity including a valve seat disposed therein with the outlet duct and the inlet passages terminating in an outlet port and two spaced inlet ports to said valve seat,
- a generally spherical closure member universally pivotable within said body so as to normally cover and seal said inlet ports and prevent flow from said inlet ports to said outlet port in a closed position,
- said closure member having two recesses spaced apart by a divider portion such that upon movement of said closure member to an open mixing position each of said recesses permits fluid communication between one of said inlet ports and said outlet port to open both inlet ports,
- each of said recesses in said open mixing position overlying one of said inlet ports and extending circumferentially beyond said inlet port in a direction away from the other of said inlet ports such that upon movement of said divider

portion to progressively overly and close one of said inlet ports the other of said inlet ports remains substantially open, means for moving said closure member between said closed position and said open mixing position and to control the mixture of the fluids from the two inlet ports by moving said closure member to other open positions; and a flexible diaphragm fitted between said valve seat and said closure member so as to enhance sealing between said closure member and said inlet and outlet ports, said diaphragm being resiliently deformable into said recesses in response to pressure of fluid in said inlet passages when said closure member is moved to said open positions.

4,315,526

STEAM VALVE OF TURBINE SYSTEM IN POWER GENERATING PLANT

Atushi Ohtomo, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kanagawa, Japan

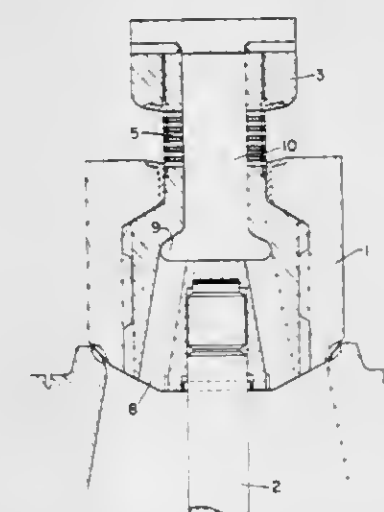
Filed Oct. 24, 1979, Ser. No. 87,673

Claims priority, application Japan, Oct. 27, 1978, 53-147030

Int. Cl.³ F16K 1/32

U.S. Cl. 137—630.14

1 Claim



- 1. In a steam valve assembly for use in a steam turbine system of a power plant of the type comprising a by-pass valve having a peripheral wall connected to a boiler through a plurality of holes formed through said peripheral wall, said by-pass valve being provided with an inner chamber in communication with said holes, a main valve disposed below and slidably connected to said by-pass valve, a valve seat disposed around said by-pass valve, a valve rod having a top end fitted into said by-pass valve, and a passage communicating said chamber of said by-pass valve with a turbine, the improvement in which said chamber of said by-pass valve takes the form of a cylindrical space with its bottom portion enlarged and said passage opens at said enlarged bottom portion.

4,315,527

EXPANSION TANKS FOR PRESSURIZED FLUIDS AND DIAPHRAGMS THEREFOR

Leon Donnenberg, Levittown, N.Y., and Helmut J. Draxler, Cincinnati, Ohio, assignors to TMI Sales Corporation, Forest Hills, N.Y.

Filed Jan. 14, 1980, Ser. No. 111,551

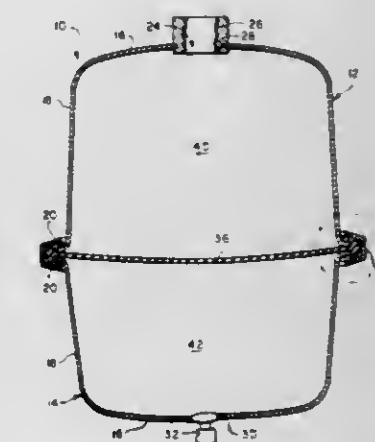
Int. Cl.³ F16L 55/04

U.S. Cl. 138—30

6 Claims

- 1. An expansion tank for pressurized fluids comprising: first and second shell halves, each of said shell halves including a central wall portion and a sidewall merging at one extremity thereof with said central wall portion and terminating at the other extremity thereof in a peripherally extending outwardly directed skirt; and shell halves being oriented with the said extremities thereof having the re-

spective said skirts facing toward each other, whereby said skirts are generally superposed; an opening in one of said shell halves for the passage therethrough of a liquid; an opening in the other of said shell halves for the passage therethrough of air; a diaphragm formed of elastomeric material extending across the interior of the tank and having a peripheral edge which is between said superposed skirts and said tank shell halves, said diaphragm comprising a central sheet terminating in said peripheral edge, said peripheral edge being formed by a peripherally extending column integral with and formed of the same material as said central sheet



- and a pair of flange elements and a web element therebetween integral with and extending inwardly of said sheet from said column, each of said flange elements being spaced from an opposed side of said web element to form an annular slot therewith; said skirts of said shell halves being releasably and sealingly positioned within respective ones of said annular slots such that said diaphragm divides the interior of the thus formed tank into a pair of chambers sealed relative to each other and relative to the ambient atmosphere external to the tank; and locking means for releasably maintaining said shell halves and said peripheral edge of the diaphragm in joined sealing relationship.

4,315,528

SUPPORT OF FIXING DEVICE FOR PIPES

Pierre Pouderoux, Meudon La Foret; Jean-Jacques Marsault, Meudon; Pierre Devoucoux, Suresnes, and Roger Gerard, Hargeville, all of France, assignors to Societe Anonyme dite: Stein Industrie, Velizy-Villacoublay, France

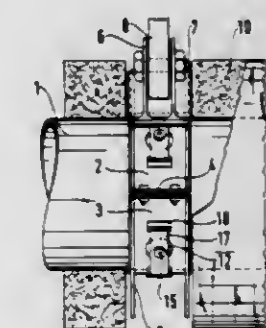
Filed Nov. 30, 1979, Ser. No. 99,231

Claims priority, application France, Nov. 30, 1978, 78 33887

Int. Cl.³ F16L 3/00; E21F 17/02

U.S. Cl. 138—106

4 Claims



- 1. A pipe support for pipes whose walls are thin in proportion to their diameter and which are subjected to large temperature variations and/or which must be protected against earthquakes, said device comprising: a circular collar which surrounds the pipe and is spaced apart therefrom and which is pierced with holes along at

least two points spaced symmetrically about the periphery of said collar;
 fittings welded to the pipe at circumferential positions on the pipe which are centered with respect to said respective holes in said collar;
 connection parts engaged in respective fittings;
 at least one of said fittings and said engaged connection parts at each of said holes extending radially through said holes and outwardly of said pipe;
 projecting parts integral with said collar at circumferentially spaced positions at opposite sides of each hole and projecting outwardly thereof; and
 wherein said device further includes flexible strips being welded intermediate of their ends to said connection parts, extending parallel to said collar, and being welded on their ends to the radially outboard ends of said parts integral with said collar to opposite sides of said holes and remote therefrom;
 whereby, said flexible strips function to provide sufficient play to avoid deformation to the pipe subsequent to thermal expansion and contraction and protect said pipe to an appreciable extent from the effects of earthquakes.

4,315,529

WEAVING MACHINE HAVING MEANS FOR VENTILATING A WEFT SUPPLY MEANS

Heinz Baumann, Winterthur, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland

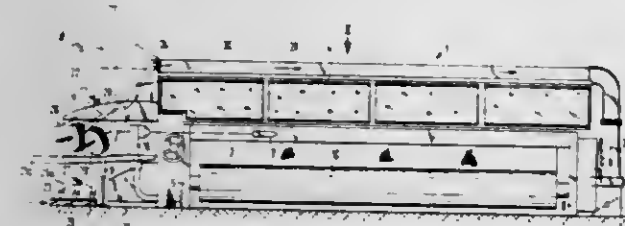
Filed Jul. 17, 1979, Ser. No. 58,246

Claims priority, application Switzerland, Jul. 17, 1978, 7684/78

Int. Cl.³ D03D 49/00

U.S. Cl. 139—1 C

10 Claims



1. A weaving machine comprising a machine frame;
 first means mounted on said frame for forming a shed of warp yarns in a given region of said frame;
 a weft supply means disposed outside said region for supplying a weft yarn to said region, said weft supply means including at least one weft bobbin, a yarn brake and a weft storage means; and
 second means mounted on said frame for directing an air flow past said weft supply means, said second means including a hood extending over said weft supply means.

4,315,530

CONTROL FOR A DOBBY MECHANISM

Josef Brock, Viersen, and Paul Surkamp, Krefeld, both of Fed. Rep. of Germany, assignors to Maschinenfabrik Carl Zangs Aktiengesellschaft, Krefeld, Fed. Rep. of Germany

Filed Sep. 21, 1979, Ser. No. 77,827

Claims priority, application Fed. Rep. of Germany, Sep. 22, 1978, 2841278

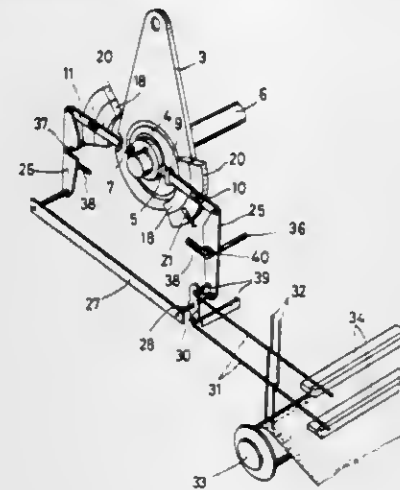
Int. Cl.³ D03C 1/12

U.S. Cl. 139—76

9 Claims

1. In a control for a dobby mechanism with a wedge coupling between a drive shaft and an eccentric for the shaft motion, whereby the wedge is couplable and uncouplable with a coupling member in two coupling positions which are diametrically opposite to each other, the improvement comprising two radially moveably mounted switching rods,

each coupling member is connected with each one of said radially moveably mounted switching rods, respectively, two control levers and a coupling rod operatively connected and constituting means for connecting said two switching rods with each other,
 spring means for pulling said control levers under spring action into starting positions thereof,
 a moveable needle mechanism,
 pressure guides constituting means cooperating with the needle mechanism,



a control axle means for being moved back and forth synchronously with the rhythm of said pressure guides,
 a balance lever operatively connected with said needle mechanism and with one of said two control levers, the latter one via said balance lever cooperating with said needle mechanism and cooperating with said control axle means,
 a fixed pivot axle,
 the other of said control levers is mounted on said fixed pivot axle.

4,315,531

TRANSPORT CONTAINER

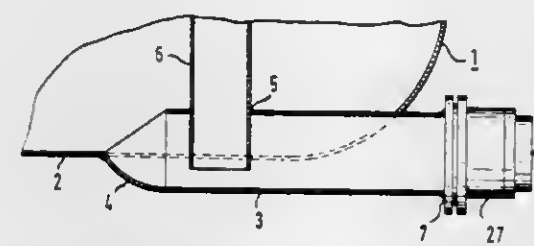
Helmut Gerbard, Weitefeld, Fed. Rep. of Germany, assignor to Westerwalder Eisenwerk Gerbard GmbH, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 35,812, May 4, 1979, abandoned. This application May 25, 1979, Ser. No. 42,552
 Claims priority, application Fed. Rep. of Germany, May 6, 1978, 2819955

Int. Cl.³ B65B 3/04; B65D 90/10

U.S. Cl. 141—98

41 Claims



1. Transport container comprising:
 a large diameter cylindrical shell for holding material to be transported, said shell being formed by a cylindrical shell wall,
 at least one pipe member rigidly connected to the cylindrical shell wall,
 and connection means for fixtures such as material inlet and outlet means, relief pressure valve means, and the like, wherein the connection means are carried by the at least one pipe member, and wherein each of the at least one pipe members has a curved outer pipe wall disposed longitudinally astride said cylindrical shell wall with one of upper and lower circumferentially contiguous portions thereof

being within said shell wall and the other of said upper and lower portions being outside of said shell, whereby stresses in the region of said rigid connection are reduced.

4,315,532

APPARATUS FOR FILLING CAULKING TUBES WITH IMPROVED LINKAGE MEANS

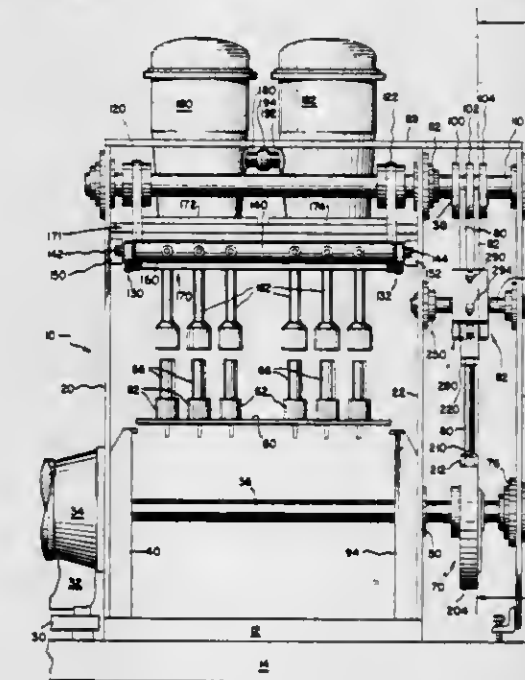
Robert M. Elsworth, 330 Albany-Shaker Rd., Loudonville, N.Y. 12211, assignor to Robert M. Elsworth, Loudonville, N.Y.

Filed Apr. 27, 1979, Ser. No. 33,830

Int. Cl.³ B65B 43/56

U.S. Cl. 141—183

26 Claims



1. An apparatus for filling caulking tubes with liquid compositions and with improved adjusting means for determining the amount of liquid composition being placed in the caulking tubes, comprising,

a frame,
 drive means in the lower end of said frame for driving a conveyor belt means with empty caulking tubes placed thereon;

feed means being driven by said linkage means for passing said liquid composition into the empty caulking tubes on said conveyor belt means where the amount of said composition placed into said caulking tubes is determined by the travel in said linkage means wherein said linkage means and adjusting means comprises cam and lever means driven by said drive means said cam and lever means connected to and driving said adjusting means which is a plate which reciprocates at its rear end on a fixed shaft surrounded by box means wherein said plate is adjusted and maintained in position in said box means by screw means and such that the upper drive lever which drives said feed means is connected in a fixed position on said box means but is slideably connected to said plate means such that said cam and lever means will drive the forward end of said plate means in a reciprocating motion which will be transmitted to said upper lever to reciprocate said upper drive lever and the amount of reciprocating motion transmitted to said upper drive lever will depend on the lateral position of said plate means in said box means which is determined by said screw means and which determines the amount of travel of said upper drive lever about the fixed shaft to which said plate means is connected.

4,315,533

TRANSFER SYSTEMS

Geoffrey J. Eagles, Meopham, England, assignor to GEC Mechanical Handling Limited, Wiltshire, England

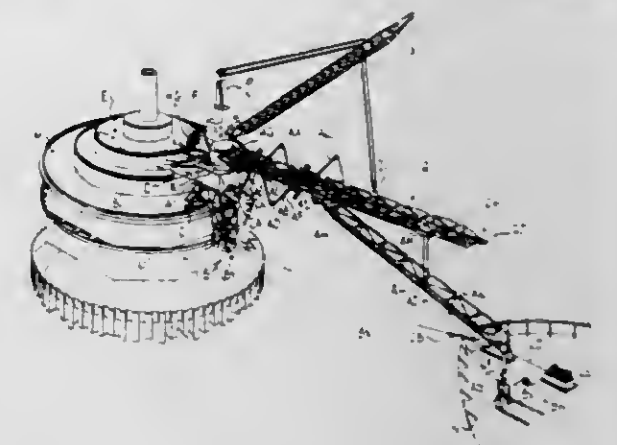
Filed Mar. 29, 1979, Ser. No. 24,884

Claims priority, application United Kingdom, Jun. 30, 1978, 28427/78

Int. Cl.³ B65B 3/04; B67D 5/00

U.S. Cl. 141—387

16 Claims



1. An arrangement for establishing a mechanical connection between two relatively movable structures comprising a double boom assembly carried by a support which is rotatably mounted on one said structure for enabling the boom assembly to be slewed about a generally vertical axis, the double boom assembly comprising a main boom pivotably carried by the support, so that it can be raised and lowered, and an auxiliary boom carried by a trolley which is capable of axial movement along the main boom, and, at the outer end of the auxiliary boom, a coupling means for connecting said end of the auxiliary boom to cooperating coupling means of the other structure and incorporating or associated with a universal joint which permits a degree of movement between the second structure and the boom assembly, and the auxiliary boom being supported intermediate its ends by a cable and pulley system, which system incorporates one or more lower pulleys at a fixed position on the auxiliary boom, and one or more upper pulleys carried by a further trolley supported by the main boom and movable axially along it at a fixed distance outwardly from the main trolley.

4,315,534

WOOD SPLITTER

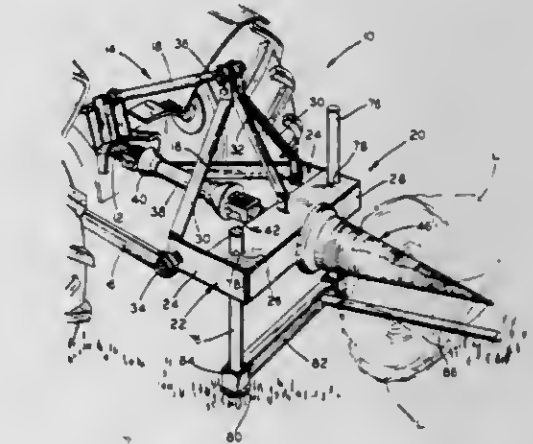
George H. Blackstone, Toledo, Ohio, assignor to Arnold Industries, Inc., Toledo, Ohio

Filed Jul. 14, 1980, Ser. No. 168,480

Int. Cl.³ B27L 7/00

U.S. Cl. 144—194

10 Claims



1. A wood splitter comprising a splitter cone of generally truncated conical shape having an opening at its smaller end, a conical tip having a threaded shank extending through said

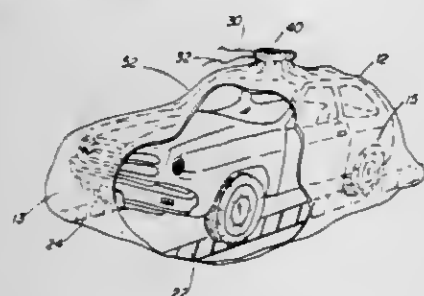
opening, a hollow shaft extending into said splitter cone from the larger end thereof, said hollow shaft having an internally-threaded end into which said threaded shank is threaded, a rod-like elongate member in said hollow shaft, said rod-like member having an outer diameter similar to the inner diameter of said hollow shaft to fit closely therewith, said rod-like member having one end terminating short of said threaded shank, and having another end terminating outside said splitter member near the outer end of said hollow shaft, and means for maintaining said rod-like member in a fixed longitudinal position relative to said hollow shaft and for causing said rod-like member and said sleeve to rotate together.

4,315,535

FLOOD PROTECTION CONTAINER FOR VEHICLES
Daniel S. Battle, 2473 N. Rampart St., New Orleans, La. 70117
Filed Jul. 31, 1980, Ser. No. 173,992
Int. Cl.³ B65D 81/18

U.S. Cl. 150—11

11 Claims



1. A flood protection apparatus for vehicles, comprising:
 - a. a unitary flexible container, having at least a bottom, and a continuous sidewall integrally and sealably connected thereto and extending upward during operation;
 - b. an upper orifice in the container for receiving a vehicle within;
 - c. a length of cord housed within a continuous channel on the uppermost end of the sidewall for constricting the orifice of the container after the vehicle has been placed within;
 - d. at least one marking placed on the bottom of the container running its length, and up one side of the container for indicating placement of the tires of the vehicle within the container.

4,315,536

PNEUMATIC TIRE

Ulrich Knipp, Bergisch-Gladbach; Otto Ganster, and Gerd Sahler, both of Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

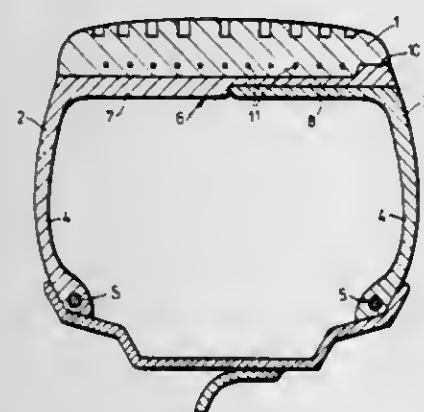
Filed Jun. 8, 1978, Ser. No. 913,702

Claims priority, application Fed. Rep. of Germany, Jun. 28, 1977, 2729061

Int. Cl.³ B60C 19/00

U.S. Cl. 152—330 R

5 Claims



1. A pneumatic tire comprising an encircling tread and two

side members, wherein each side member comprises a side wall having a bead ring and part of the tread backing, characterized in that said tread backing has the following features:

- (a) the tread backing is formed as a ring which extends to the center of the tire and is intimately joined to the side wall on the other side;
- (b) bands whose length is substantially equal to the width of said ring are fixed on the circumference of said ring in the center of the tread;
- (c) the width of said bands is approximately equal to the distance between said bands;
- (d) there are recesses in the part of said ring facing the tread, into which said bands of the other side fit during assembly, so that said tread backing has a substantially flush surface after assembly and so that each band will be in direct contact with the tread; and
- (e) there are beads on the end of said bands for clamping in the tread.

4,315,537

METHOD OF MAKING A MOLD

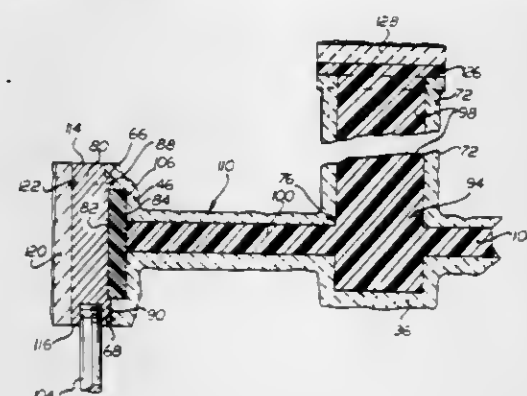
William S. Blazek, Valley City, Ohio, assignor to TRW Inc., Cleveland, Ohio

Filed May 21, 1976, Ser. No. 688,525

Int. Cl.³ B22C 9/22, 9/00

U.S. Cl. 164—27

48 Claims



1. A method of making a mold for a cast product having a plurality of airfoils disposed in a circular array, said method comprising the steps of providing a plurality of airfoil pattern segments formed of a relatively flexible and disposable material, providing a circular pattern member formed of a material having a greater rigidity than material forming the airfoil pattern segments, placing the airfoil pattern segments in a circular array engaging the circular pattern member to form a pattern assembly, said step of placing the airfoil pattern segments in a circular array includes placing the airfoil pattern segments in an array with joints between the airfoil pattern segments free of material interconnecting the airfoil pattern segments so that the airfoil pattern segments can be readily moved relative to each other, connecting the airfoil pattern segments with the circular pattern member to thereby retard movement of the airfoil pattern segments relative to each other and the circular pattern member while maintaining the joints between the airfoil pattern segments free of material interconnecting the airfoil pattern segments, repetitively dipping the pattern assembly in liquid ceramic mold material to form a covering of ceramic mold material overlying at least a portion of the pattern assembly, at least partially supporting the airfoil pattern segments with the relatively rigid circular pattern member during said dipping steps, at least partially drying the covering of ceramic mold material overlying the pattern assembly, disposing of the airfoil pattern segments to expose a circular array of ceramic airfoil mold surfaces having configurations corresponding to the configurations of the airfoil pattern segments, and moving the relatively rigid circular pattern member away from the ceramic airfoil mold surface after

performing said step of disposing of the airfoil pattern segments.

4,315,538

METHOD AND APPARATUS TO EFFECT A FINE GRAIN SIZE IN CONTINUOUS CAST METALS

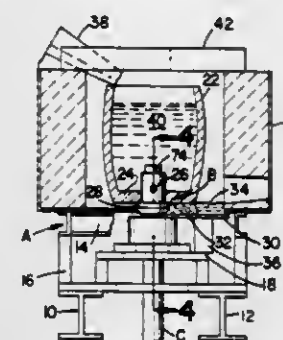
Thomas D. Nielsen, 148 Overbrook Rd., Elyria, Ohio 44035

Filed Mar. 31, 1980, Ser. No. 135,330

Int. Cl.³ B22D 11/00

U.S. Cl. 164—488

7 Claims



1. A method for continuous casting of an alloy rod for obtaining a polygonal grain structure with fine grain boundaries, said method comprising the steps of:

providing a reservoir of alloy material in its liquid state and a hollow continuous casting die disposed in flow communication with said reservoir;

maintaining said alloy material at a temperature above its liquid temperature at least adjacent the area of flow communication between said reservoir and die;

delivering said liquid alloy material from said reservoir to said die through flow passages which are completely submerged in said reservoir of liquid alloy material;

transforming said liquid alloy material to a solid state in said die at an interface zone extending across the cross-sectional area of said alloy as said liquid alloy material moves through said die to said interface zone from a near freezing zone adjacent said interface zone;

said step of transforming said liquid alloy material to a solid state being carried out to obtain a general fine polygonal grain structure throughout substantially the entire cross-sectional area of said alloy at said interface zone by eliminating gross directional solidification of said alloy material at said interface zone;

said step of transforming said liquid alloy material to a solid state with a generally polygonal grain structure being carried out by maintaining the temperature of said liquid alloy material generally uniform throughout the cross-sectional area thereof at least adjacent said near freezing zone; and,

said step of maintaining the temperature of said liquid alloy material generally uniform including the step of producing transverse movement of said liquid alloy material throughout substantially the entire cross-sectional area thereof adjacent said near freezing zone in a direction transverse to the direction of movement of said alloy material through said die, said step of producing transverse movement of said liquid alloy material being carried out by focusing entry of said liquid alloy material into said die through said passages so as to impart a generally cyclonic motion thereto during said step of delivering.

4. In apparatus for continuous casting of an elongated rod wherein liquid alloy material flows from a reservoir into a hollow die through flow passages which are completely submerged in said liquid alloy material in said reservoir for transformation into a solid state at an interface zone to form a portion of said rod having the cross sectional conformation of said die and wherein rod portions thus formed are continuously drawn outwardly from a die exit end, an improved arrangement for obtaining a polygonal grain structure and fine grain boundaries in said rod comprising:
 - heat controlling means disposed in operative communication with said die to facilitate generally uniform temperatures

in said liquid alloy material at a near freezing zone therefor adjacent said interface zone, said heat controlling means preventing the formation of thermal gradients in said alloy material for a sufficient magnitude to produce gross directional solidification thereof at said interface zone; and,

said heat controlling means including means for continuously mixing said alloy material in said die at least adjacent said near freezing zone as said alloy material flow toward said interface zone by producing transverse movement of said liquid alloy material throughout substantially the entire cross-sectional area thereof at least adjacent said near freezing zone,

wherein said means for mixing includes a plurality of alloy feed passages defined by feed openings communicating between said reservoir and the interior of said die adjacent said near freezing zone, said feed openings being spaced apart from each other and focused into said die interior in a manner for automatically imparting a generally cyclonic motion to said liquid alloy material as it enters said die, said cyclonic motion also causing shearing of primary dendrites in said alloy from adjacent the internal side wall of said die and distributing said dendrites across said interface zone to provide nuclei for equiaxed crystals.

4,315,539

SELF EQUALIZING CONTROL MECHANISM FOR OSMOTICALLY PUMPED HEAT PIPES

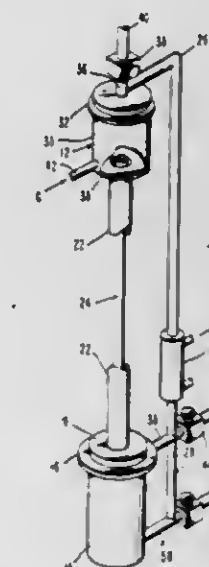
Robert A. Anderson, Ridgecrest, and George L. Fleishman, Cerritos, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Dec. 26, 1979, Ser. No. 106,986

Int. Cl.³ F28D 15/00

U.S. Cl. 165—1

13 Claims



12. In an osmotically pumped heat pipe having a solvent evaporator, a solvent permeable membrane and serially coupled solvent vapor and liquid paths coupled therebetween, a method for controlling the rate of pumping solvent through the solvent permeable membrane to the evaporator comprising the step of flowing solvent vapor between the solvent side of the membrane and the solvent vapor path.

4,315,540

DEVICE FOR FIXING A RADIATOR INTO A VEHICLE PARTICULARLY INTO A HEAVY-TRUCK VEHICLE

Jean-Pierre Moranne, Franconville, France, assignor to Societe Anonyme des Usines Chausson, Hauts-de-Seine, France

Filed Apr. 25, 1980, Ser. No. 145,269

Claims priority, application France, May 4, 1979, 79 11294

Int. Cl.³ F28F 9/00

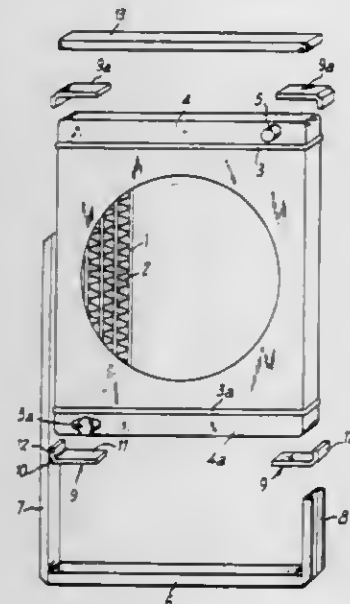
U.S. Cl. 165—67

13 Claims

1. An arrangement for resiliently mounting a radiator having

a front face adapted to be mounted vertically in a vehicle, the arrangement comprising:

a cradle surrounding the radiator, means to mount said cradle on said vehicle said radiator having upper and lower headers which each include horizontal and vertical portions, said horizontal and vertical portions being disposed substantially perpendicular to said front face; and



resilient means mounted between said horizontal portion of said headers and corresponding adjacent portion of said cradle and also between said vertical portion of said headers and corresponding adjacent portion of said cradle, said resilient means applying permanent compression forces onto the radiator for isolating it from said cradle.

4,315,541

DEVICE FOR SCRAPING OFF DEPOSITS FROM INTERNAL SURFACES OF ELONGATED TUBES

Sadao Murata, Takaisbi, and Tadanobu Numata, Kamakura, both of Japan, assignors to Mitsui Toatsu Chemicals Incorporated and Toyo Engineering Corporation, both of Tokyo, Japan

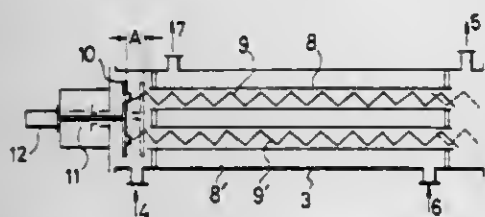
Filed Aug. 29, 1979, Ser. No. 70,615

Claims priority, application Japan, Sep. 6, 1978, 53-108514

Int. Cl.³ F28F 9/24

U.S. Cl. 165-94

4 Claims



1. A device for scraping off a deposit of a polymer from the internal wall surface of the heat transfer tube of a multi-tubular heat exchanger for an external cooler to be used for a continuous polymerization process, the resulting liquid polymerization product being passed through said heat transfer tube; said device comprising a plurality of flexible, helical coil springs each of which is adapted to be installed in a respective one of the tubes and is sized so as to have a small clearance from the internal wall of the tube, the pitch length of each said flexible, helical coil spring being from one-tenth to ten times the length of the internal diameter of said tube; means for reciprocally moving each said flexible, helical coil spring for the length equivalent to at least three-fourths of the pitch length of said flexible, helical coil spring; and means for coupling one common end of the coil springs to the means for reciprocally moving each said flexible, helical coil spring whereby each

said flexible, helical coil spring scrapes off the deposit from the internal wall surface of its respective tube.

4,315,542

MECHANICAL TUBING DRAIN

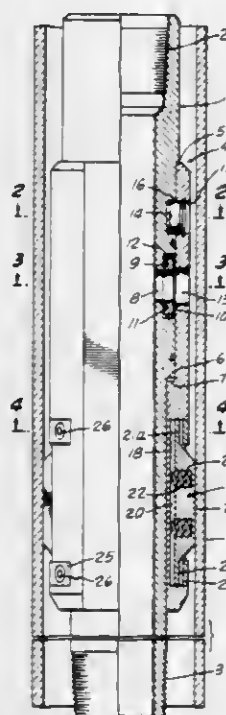
Roy R. Dockins, Jr., 1906 Ninth St., Anaheim, Calif. 92802

Filed Oct. 26, 1979, Ser. No. 88,364

Int. Cl.³ E21B 33/129, 34/12

U.S. Cl. 166-117.7

8 Claims



1. A drain for a well tubing string, comprising:
a tubular mandrel having at least one lateral port and adapted to be interposed between sections of a tubing string;
a sleeve member surrounding said mandrel and rotationally movable thereon, said sleeve having at least one lateral port;
sealing means disposed about the lateral mandrel port sealing engaging said sleeve, said means comprising an enlarged annular recess in said mandrel surrounding said mandrel port, a sealing ring situated in said recess, said ring having a width less than the depth of said recess providing a gap between the outer surface of said ring and the inner surface of said sleeve, a washer ring surrounding said sealing ring in sealing contact with said sleeve, and an O-ring of lesser diameter than said washer ring, said O-ring situated between said sealing ring and the bottom surface of said recess;
support means for maintaining said mandrel port and said sleeve port in longitudinal alignment;
guide means for controlling rotational movement of said sleeve with respect to said mandrel;
stop means on said sleeve for engaging the casing wall of an oil well, said means operative to limit rotation of said sleeve when said tubing string is rotated.

4,315,543

SEAL SYSTEM FOR WELLHEAD ISOLATION TOOL DIFFUSER

Thomas J. Luers, and Richard L. Gloux, both of Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.

Filed Aug. 10, 1979, Ser. No. 65,654

Int. Cl.³ E21B 33/126

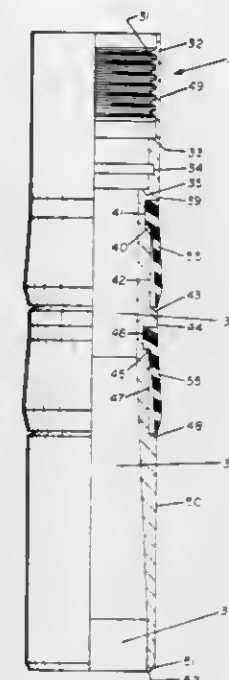
U.S. Cl. 166-202

13 Claims

1. Seal means for a guide nose of a wellhead isolation tool, comprising:

a resilient, elastomeric seal in the form of an outwardly flared inverted cup having an opening therethrough, a

relatively thick upper wall and a relatively thin lower wall; and
a stepped circumferential groove in the exterior of said guide nose, said stepped circumferential groove having a



4,315,544

LOCKING DEVICE FOR LANDING WITHIN A WELL CONDUIT

Christian K. Monanni, Turfiff, Scotland, and Sidney J. Littleford, Dubai, United Arab Emirates, assignors to Baker International Corporation, Orange, Calif.

Filed Jan. 15, 1979, Ser. No. 3,154

Int. Cl.³ E21B 23/02

U.S. Cl. 166-214

5 Claims



1. In an apparatus adaptable to be run within a subterranean well for the setting and locking of a locking module within a complimentary profile of a landing nipple carried on a conduit within the subterranean well, the improvement comprising: longitudinally extending probe means carried by said apparatus at one end thereof; receiving means exteriorly defined on said probe means for selective receipt of a lock control member of a lock control means and for shifting of said lock control

member to one of two positions; and means on said apparatus for shifting said lock control member to the other of said two positions while said lock control member is maintained in said receiving means, said lock control means comprising a collet defining at least one flexible finger at one end thereof and a plunger having an abutment thereon at the other end thereof, said plunger being responsively urged by said means on said apparatus for shifting said lock control member to the other of said two positions while said lock control member is maintained in said receiving means.

4,315,545

METHOD OF RECOVERING PETROLEUM FROM A SUBTERRANEAN RESERVOIR INCORPORATING AN ACYLATED POLYETHER POLYOL

Charles M. Blair, Jr., Buena Park, Calif., assignor to Magna Corporation, Santa Fe Springs, Calif.

Continuation of Ser. No. 45,360, Jun. 4, 1979, Pat. No. 4,216,828, which is a continuation-in-part of Ser. No. 917,055, Jun. 19, 1978, abandoned, which is a continuation-in-part of Ser. No. 917,057, Jun. 19, 1978, abandoned. This application Apr. 21, 1980, Ser. No. 142,318

The portion of the term of this patent subsequent to Aug. 12, 1997, has been disclaimed.

Int. Cl.³ E21B 43/22

U.S. Cl. 166-274

5 Claims

1. The method of recovering petroleum from a subterranean reservoir, comprising the steps of: (1) introducing into said reservoir a predeterminable amount of an acylated polyether polyol wherein said polyether polyol has an average molecular weight of about 15,000 or less and is derived from the reaction of an alkylene oxide containing less than about 10 carbon atoms with a member of the group consisting of polyols, amines, polyamines and amino alcohols containing from about 2 to about 10 active hydrogen groups capable of reaction with alkylene oxides, said member having 18 or less carbon atoms, and the acylating agent being a member selected from the class consisting of mono- and polybasic carboxylic acids, acid anhydrides and iso-, diiso-, and polyisocyanates, said acylated polyether polyol, at about 25° C.: (a) being soluble in water and in isooctane to the extent of less than about 1% by volume; (b) having a solubility parameter in the range of between about 6.9 and about 8.5; and (c) spreading at the interface between distilled water and refined mineral oil to form a film having a thickness no greater than about 20 Angstroms at a spreading pressure of about 16 dynes per cm; and (2) contacting said petroleum in said reservoir with an effective thin film forming amount of said acylated polyether polyol.

4,315,546

DOUBLE ROLL ROCK WINDROWER

Harley D. Fahrenholz, Clarissa, Minn.

Filed May 5, 1980, Ser. No. 146,671

Int. Cl.³ A01G 43/00

U.S. Cl. 171-65

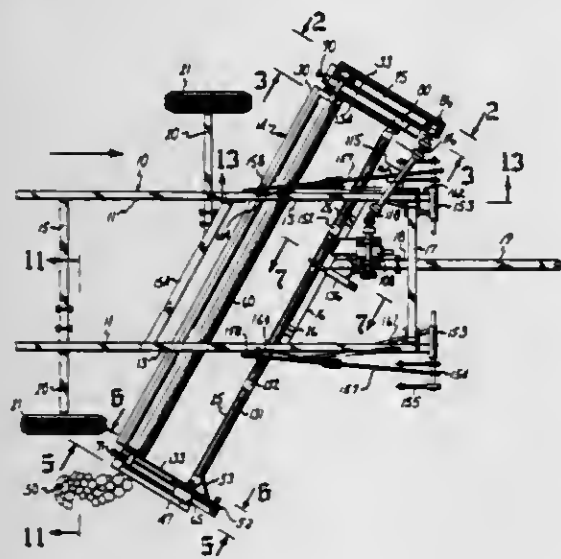
4 Claims

1. A windrower for rocks and debris on the ground comprising:

a frame;
a roller assembly comprising first and second rollers having generally parallel axes;
a pair of first arms;
means to mount the first roller on said first arms at trailing ends of the first arms;
means to pivotally mount said first arms to the frame to permit movement of the trailing ends of the arms and the first roller relative to the ground;
a pair of second arms;
means to pivotally mount the second arms to move with the first arms and being pivoted at locations spaced from the trailing ends of the first arms whereby the first and second rollers may separate;
means to mount said second roller on said second arms at

trailing ends of the second arms in position adjacent to, generally above and substantially parallel to the first roller the second arms permitting the second roller to pivot upwardly relative to the first roller;

means operable between the first and second arms to permit adjustably spacing the rollers relative to each other; and means to drive the rollers about their axes with the arms positioned to permit the first roller to be contiguous to the ground and the second roller spaced above the ground, said first and second rollers being positioned with their



axis oblique to the direction of travel whereby rocks and the like engaged by the rollers are moved along the rollers and discharged at one end of the rollers;

said rollers being of construction and rotated in the same direction so that the lower edge portion of both rollers tends to impel the rocks in opposite direction to the direction of movement, the peripheries of said rollers being completely spaced from each other during use but preventing materials to be windrowed from passing between the rollers.

4,315,547

AGRICULTURAL ATTACHMENT

Willy Rau, Weibelm, and Christian Taus, Kirchheim, both of Fed. Rep. of Germany, assignors to Maschinenfabrik Rau GmbH, Weibelm, Fed. Rep. of Germany

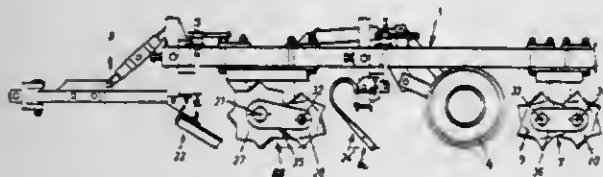
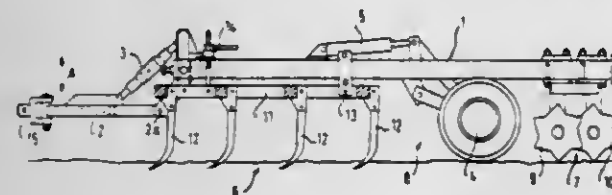
Filed Apr. 24, 1979, Ser. No. 32,905

Claims priority, application Fed. Rep. of Germany, Apr. 26, 1978, 2818274; Sep. 27, 1978, 2842037

Int. Cl.³ A01B 49/02, 21/04, 79/00

U.S. Cl. 172-1

45 Claims



1. An attachment for agricultural machines, comprising a frame having a leading portion and a trailing portion; first soil-treating means mounted at said leading portion of said frame; second soil-treating means mounted at said trailing portion of said frame; wheel means mounted on said frame for supporting the latter when an agricultural machine provided

with the attachment moves on a road, said wheel means being displaceable between a first position in which they engage the ground and support said frame thereon with said first and second soil-treating means being upwardly spaced from the ground, and a second position in which they do not engage the ground; means for coupling said frame at said leading portion thereof to a lifting drive so that, when said wheel means are in said second position, said trailing portion of the frame is supported on the ground by said second soil-treating means; a separate support mounted on said frame for supporting said first soil-treating means, said support having one end pivotally mounted on said frame and another end operatively connected to said frame so as to pivot said support relative to said frame and about said one end of said support; and means for adjustably connecting said other end of said support to said frame.

36. A method of cultivating soil by an attachment for agricultural machines, which comprises a frame having a leading portion with first soil-treating means and a trailing portion with second soil-treating means, wheel means mounted on the frame and displaceable in the vertical direction and coupling means for coupling the leading portion of the frame to an agricultural machine, the method comprising the steps of displacing the wheel means to a supporting position in which they engage the ground and the first and second soil-treating means are upwardly spaced from the ground so that the attachment can move on a road; displacing the wheel means to a non-supporting position in which they do not engage the ground and the first and second soil-treating means engage the ground so that the first and second soil-treating means can treat the soil; and lifting the leading portion of the frame relative to the coupling means so that said first soil-treating means is lifted from the ground, whereas the trailing portion of the frame is supported on the ground by said second soil-treating means, whereby the attachment can make turns on a field without displacing the wheel means to the supporting position.

4,315,548

TRACTOR WITH A TRACTION LOAD SENSING DEVICE
Norimi Nakamura, Sakai; Shigeaki Okuyama, Kawachinagano; Shigekazu Hasegawa, Sakai; Yoshlyuki Katayama, Osaka, and Mitubiko Obe, Sakai, all of Japan, assignors to Kubota, Ltd., Japan

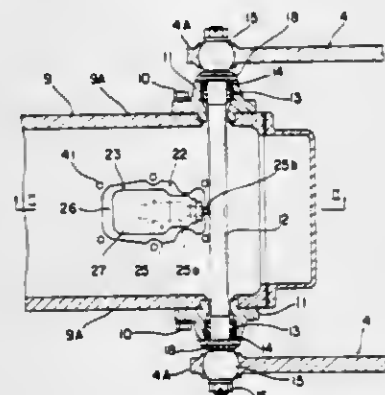
Filed Apr. 24, 1980, Ser. No. 143,933

Claims priority, application Japan, Oct. 1, 1979, 54-136413[U]; Oct. 18, 1979, 54-144534[U]

Int. Cl.³ A01B 63/112

U.S. Cl. 172-430

7 Claims



1. A tractor with a soil-engaging implement and a traction load sensing device needed for effecting regulation of the implement load, comprising:

- a transmission case constituting a structural member of the tractor;
- a pair of lower links functioning for connecting the said soil-engaging implement to the transmission case;
- a sensor bar mounted on the transmission case in such a manner as to show displacement responsive to the implement traction load exerted on the lower links;
- a detection device adapted to detect the amount of the dis-

placement of the sensor bar, the detection device being accommodated in and secured to the transmission case in an oil-tight manner, provided, however, with means for allowing access thereto for enabling easy mantling and dismantling thereof from outside the transmission case;

a casing accommodating therein the detection device establishing complete sealing or approximately establishing such state, said detection device comprising a sensor body and a sensor retractably mounted on the sensor body; and the transmission case having an opening in a floor plate thereof for accommodating the said casing as may be brought in therethrough from outside, and the said case having as one constituent element thereof, a releasable lid for the said opening.

4,315,549

SOIL WORKING MACHINE WITH INTERCONNECTED DISPLACEABLE SUPPORTS WHICH MAINTAIN ORIENTATION

Cornelis van der Lely, 7, Brüschenrain, Zug, Switzerland

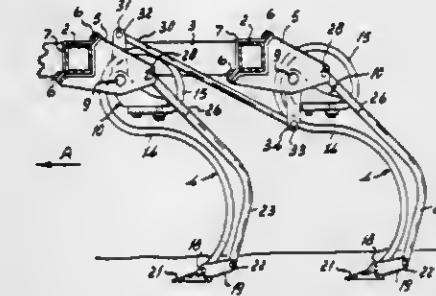
Filed May 30, 1979, Ser. No. 43,741

Claims priority, application Netherlands, Jun. 5, 1978, 7806076; Jun. 5, 1978, 7806077

Int. Cl.³ A01B 15/00

U.S. Cl. 172-657

11 Claims



6. A soil working machine comprising a frame and at least two soil working members supported on said frame, said members being positioned one behind the other with respect to the direction of travel, each member comprising a leading support having an upper resilient fastening portion bent through at least 180° and said fastening portion being interconnected to said frame by pivot means, a rigid control-arm having an upper portion pivoted to the frame, said arm being located to the rear of said pivot means, said support and arm extending downwardly to respective pivots to a soil working element, the pivot connections of the support and control arm to the frame and to the soil working element defining a quadrilateral linkage, the supports of said two members being interconnected by a rigid coupling, whereby one support is displaced responsive to the movements of the other support and the respective soil working elements of said members maintain soil working orientation.

4,315,550

SELF-PROPELLED APPARATUS FOR SETTING CEMETERY MARKERS AND THE LIKE

David W. Fulkerson, 8360 W. Six Mile Rd., Northville, Mich. 48167, and Lawrence W. Smith, 26950 Taft Rd., Novi, Mich. 48050

Division of Ser. No. 830,022, Sep. 2, 1977, abandoned, which is a continuation-in-part of Ser. No. 625,141, Oct. 23, 1975, Pat. No. 4,051,684. This application Oct. 16, 1978, Ser. No. 951,578

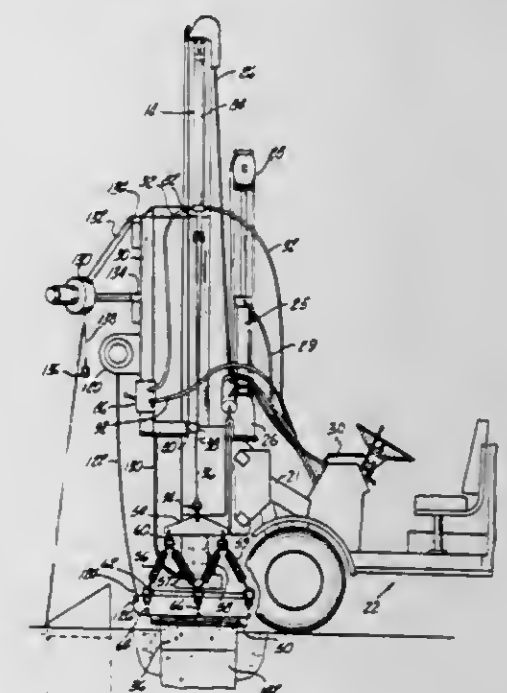
Int. Cl.³ E02D 7/08

U.S. Cl. 173-28

25 Claims

1. In a combination wheeled unit comprising a self-propelled wheeled vehicle and a vertically upstanding hammer tower carried on said vehicle, said hammer tower having a vertically reciprocal hammer thereon arranged and constructed to provide a generally downwardly directed percussion blow, that improvement especially adapted for driving previously installed cemetery markers downwardly into the ground to be

substantially flush with the ground so as to permit a grass mower to pass over said markers with the cutting blade of the mower operating at a normal cutting height, said improvement comprising force transmitting means, mounting means supporting said force transmitting means on said unit for movement relative to said hammer and said hammer tower, said force transmitting means being positionable beneath said hammer over a cemetery marker, said force transmitting means comprising an upper hard, rigid flat surface portion adapted to be impacted by said hammer and a lower flat surface portion that is substantially softer and less rigid than said upper portion for engagement with an upper surface of a cemetery marker, said lower portion being integrally connected with said hard upper portion so as to transmit impact forces from said hammer to a marker positioned beneath said lower portion, said supporting means operatively supporting said force transmitting means independently of said hammer for retractable movement between an operating position wherein the plane of said force transmitting means is arranged generally perpendicular with the path of reciprocable movement of said hammer so that said force transmitting means will be engaged upon downward movement of said hammer, and a non-operating position wherein the plane of said force transmitting means is arranged generally parallel to and spaced laterally away from the path of reciprocable movement of said hammer so that force transmit-



ting means will not be engaged by said hammer upon downward movement thereof.

18. In a combination wheeled unit comprising a self-propelled vehicle and a vertically upstanding hammer tower carried on said vehicle, said hammer tower having a vertically reciprocal hammer thereon arranged and constructed to provide a generally downwardly directed percussion blow, the improvement comprising shock-transmitting means, mounting means supporting said shock-transmitting means on said unit for movement relative to said hammer and said hammer tower, said shock-transmitting means being positionable beneath said hammer to engage means to which hammer impact is to be transmitted, said shock-transmitting means comprising an upper hard rigid flat surface portion adapted to be impacted by said hammer and a lower surface portion that is substantially softer and less rigid than said upper portion for engagement with an upper surface of said means to which said impact is to be transmitted, said lower portion being integrally connected with said hard upper portion so as to transmit impact forces from said hammer, said supporting means operatively supporting said shock transmitting means independently of said hammer for retractable movement between an operating position wherein the plane of said shock transmitting means is arranged generally perpendicular with the path of reciprocable move-

ment of said hammer so that said shock transmitting means will be engaged upon downward movement of said hammer, and a non-operating position wherein the plane of said shock transmitting means is arranged generally parallel to and spaced laterally away from the path of reciprocable movement of said hammer so that shock transmitting means will not be engaged by said hammer upon downward movement thereof.

4,315,551

ROD DRIVER

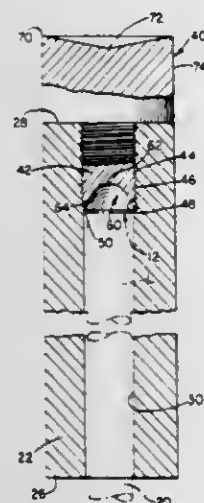
Samuel J. Iannone, 15 W. Willow St., Beacon, N.Y. 12508

Filed Feb. 21, 1980, Ser. No. 123,390

Int. Cl.³ B25C 1/00

U.S. Cl. 173-128

2 Claims



1. A rod driver comprising: an elongate body having a fore end and an aft end and a rod receiving bore defined longitudinally therethrough; a driving head threadably mounted on said body aft end, said driving head having a boss projecting into said rod receiving bore, said boss forming a bore covering portion covering said rod receiving bore and a cutout portion defined in said boss, said cutout being curved outwardly of said bore so that said bore has a concave blind end adjacent said body aft end, whereby, a rod received in said rod receiving bore has one end thereof contacting a surface defining said cutout portion so that any deformation of said rod one end caused by impact between said driving head cutout portion defining surface and said rod one end is controlled by the shape of said cutout portion.

4,315,552

RAISE DRILL APPARATUS

Jack O. Winsor, Seattle, Wash., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed May 14, 1979, Ser. No. 38,754

Int. Cl.³ B23Q 5/027, 5/033

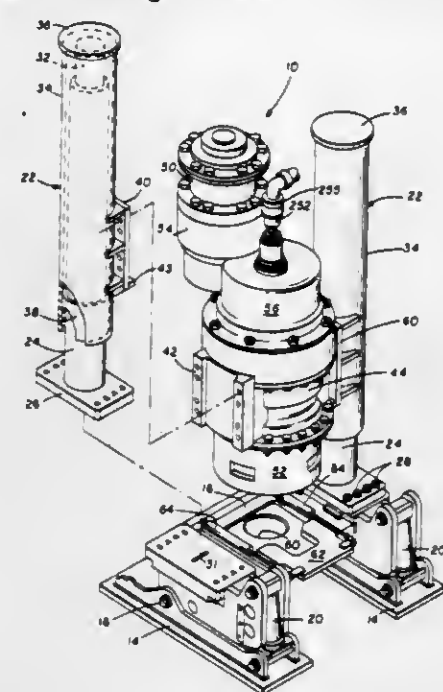
U.S. Cl. 173-159

10 Claims

1. An improved drilling apparatus of the type which includes a ground engaging base, a torque transmitting apparatus for engaging and transmitting torque to drill pipe, and means mounted on the base for moving and guiding said torque transmitting apparatus back and forth along the drill pipe axis, wherein the improvement comprises:

- (a) said moving and guiding means comprising two or more hydraulic cylinders connected at one end to the base of the drill apparatus and each having a movable piston rod projecting from its other end and away from the base;
- (b) a guide tube surrounding and connected to the outer end of each piston rod, and each tube having an inner surface portion in overlapping sliding engagement with the outer surface portion of its associated cylinder; and
- (c) connecting means for rigidly connecting the torque transmitting apparatus between the guide tubes, said

torque transmitting apparatus being the only direct connection between the guide tubes, and wherein the torque



transmitting apparatus is guided back and forth along the drill pipe axis solely by the guide tubes moving along said cylinders.

4,315,553

CONTINUOUS CIRCULATION APPARATUS FOR AIR DRILLING WELL BORE OPERATIONS

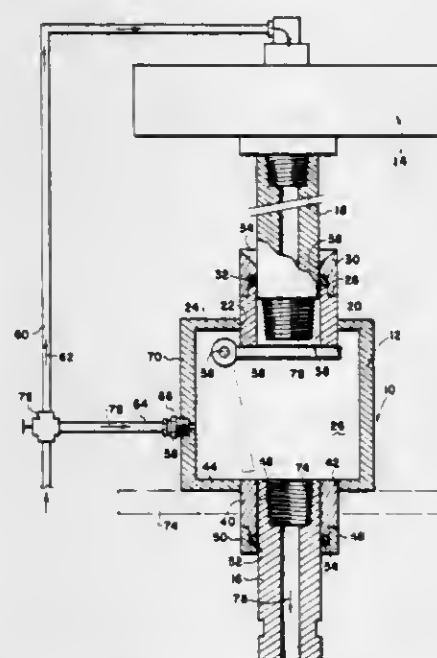
Jimmie L. Stallings, 4560 Pinto La., Claremore, Okla. 74017

Filed Aug. 25, 1980, Ser. No. 180,655

Int. Cl.³ E21B 19/00, 21/10, 33/02

U.S. Cl. 175-207

6 Claims



1. Apparatus for maintaining a continuous circulation of an air stream through a drill string during the drilling of a well bore and comprising housing means secured in the proximity of the surface of the well bore for receiving the drill string therethrough, first and second port means provided in the housing in communication with an internal chamber and for receiving the drill string therethrough, said chamber being disposed around the outer periphery of a portion of the drill string during the well drilling operation and isolating the upper end of the drill string from the atmosphere during separation of the drill string upon an interruption of the drilling operation, flapper means pivotally secured in the housing and disposed within the chamber for engagement with one of said port means in the separated position of the drill string to provide said isolation therefor, by-pass means having one end in com-

munication with the air stream and the opposite end in communication with the chamber for directing the air stream into the chamber during said separation of the drill string for direction of the air stream through the drill string during the interruption of the drilling operation, means connected with said by-pass means for selective closing thereof from said air stream whereby the air stream is directed into the drill string remotely from the housing during a continuation of the drilling operation thus providing a continuous circulation of the air stream through the drill string both during the drilling operation and during an interruption of the drilling operation.

4,315,554

SCALE

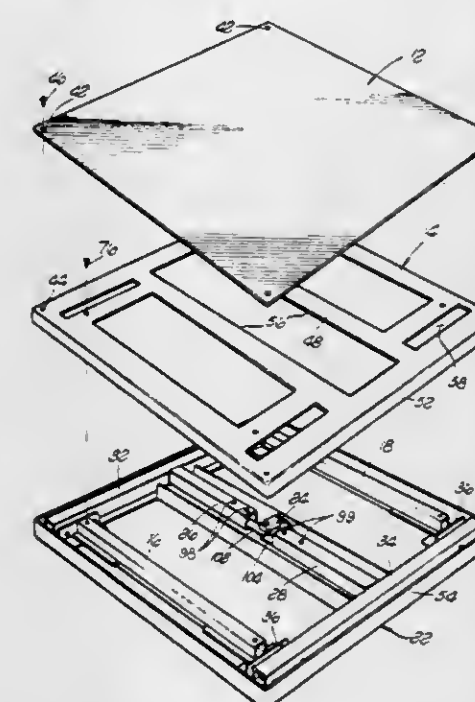
Glenn E. Williamson, 3912 La Hacienda Dr., San Bernardino, Calif. 92404

Filed Mar. 2, 1979, Ser. No. 17,171

Int. Cl.³ G01G 21/08, 23/14

U.S. Cl. 177-256

5 Claims



1. A scale comprising: an arm system movable about and fixedly secured to a fulcrum; an output detector coupled adjacent to one end of said arm system; a load structure for positioning an item to be weighed thereon; and a strain sensor fixedly connected adjacent the other end of said arm system and said load structure, said strain sensor and said fulcrum each being formed of a pad of resilient material, each pad being adhesively and permanently affixed to said arm system and said load structure adjacent surfaces.

4,315,555

ELECTRO-HYDRAULIC STEERING SYSTEM

Renaldo F. Schmitt, Bothell, Wash., assignor to Grad-Line, Inc., Woodinville, Wash.

Filed Oct. 22, 1979, Ser. No. 86,782

Int. Cl.³ B62D 5/04

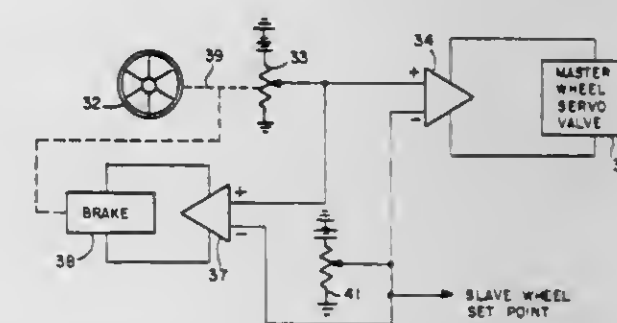
U.S. Cl. 180-140

21 Claims

1. A multi-mode steering system for a vehicle having a plurality of steerable wheels with one of said steerable wheels being a master wheel and the other of said steerable wheels being slave wheels responsive to said master wheel, comprising:

- a steering wheel;
- control means, responsive to the angular position of said steering wheel, for producing a steering voltage output indicative of the angular position of said steering wheel;
- master wheel angle indicator means for producing an output

signal indicative of the angular position of said master wheel; differential amplifier means having first and second inputs, said first input being connected to the output of said master wheel angle indicator means, said second input being connected to said control means for receiving said steering voltage output, the output of said differential amplifier means being proportional to the difference between the output signal of said master wheel angle indicator means and said steering voltage output;



means responsive to the output of said differential amplifier means for applying a braking force to said steering wheel, said braking force progressively increasing as the difference between the output signal of said master wheel angle indicator means and said steering voltage output increases, whereby said braking force controls the rate of change of said steering voltage output; steering mode select means for selecting a steering mode; and signal processing means for providing a steering signal to selected slave wheels to turn said selected slave wheels in arcs concentric with the arc of said master wheel.

4,315,556

HUB REDUCTION GEAR UNIT

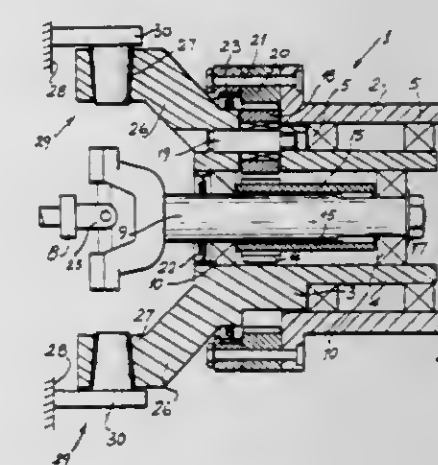
Seamus G. Timoney, Harvieston, Cunningham Rd., Dalkey, County Dublin, Ireland

Filed Feb. 28, 1980, Ser. No. 125,314

Int. Cl.³ B60K 17/30; F16H 3/44

U.S. Cl. 180-255

8 Claims



1. A hub reduction gear unit for mounting in a hub of a vehicle to transmit drive from a drive shaft to the hub comprising:

- a non-rotating epicyclic planet gear carrier of cast metal cast in a single unitary piece,
- a hub axle of cast metal cast integrally in one piece with, and projecting outwardly from, the planet gear carrier and extending into the hub for the rotatable support thereof,
- a sun gear shaft coaxial with and rotatable within the planet gear carrier,
- a sun gear fast on the sun gear shaft,
- planet gears meshing with the sun gear and rotatably mounted on the planet gear carrier,

an annulus gear meshing with the planet gears fast on and coaxial with the hub,
a mounting means on the planet gear carrier to connect the carrier to the vehicle, and
a connecting means on the sun gear shaft to connect the sun gear shaft to the drive shaft.

4,315,557

DIAPHRAGM FOR ELECTRO-ACOUSTIC TRANSDUCER
Takao Nakaya, Hamamatsu, and Akira Nakamura, Shizuoka, both of Japan, assignors to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan

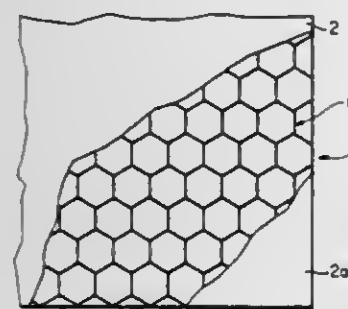
Filed May 29, 1980, Ser. No. 154,459

Claims priority, application Japan, May 31, 1979, 54-73389[U]

Int. Cl.³ G10K 13/00; B32B 3/12; H04R 7/10

U.S. Cl. 181-168

11 Claims



1. An electro-acoustic transducer diaphragm comprising:
a cellular core member formed of a metal foil and having a honeycomb structure;
a skin member disposed on and bonded to each side of said cellular core member, said skin member being composed of aromatic polyamide fibers impregnated with a set thermosetting resin; and
a bonding agent for bonding said skin member to said cellular core member.

4,315,558

BELLOWS TYPE EXHAUST TUBE

Kakuji Katayama, Ibara, Japan, assignor to Katayama Kogyo Co., Ltd., Ibara, Japan

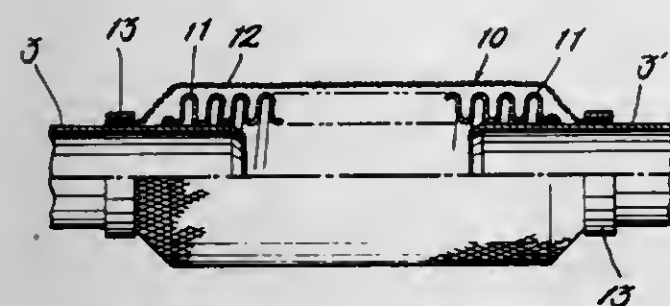
Filed Dec. 19, 1979, Ser. No. 105,039

Claims priority, application Japan, Nov. 1, 1979, 54-131749

Int. Cl.³ F01N 1/08, 7/08

U.S. Cl. 181-227

8 Claims



1. A bellows type acoustic energy attenuating exhaust tube for use in the exhaust system of a vehicular internal combustion engine comprising a spiral, multi-layered flexible bellows including a plurality of partially overlapping coaxial thin stainless steel web layers and connected at the opposite ends to communication pipes which connect said exhaust tube to the remainder of said exhaust system; means to prevent excessive expansion of said bellows surrounding said spiral, multi-layered bellows in outwardly radial spaced relationship to the bellows; and retainer rings for securing the opposed ends of said preventive means to said communication pipes.

4,315,559

MUFFLER FOR INTERNAL COMBUSTION ENGINE

Russell A. Casey, 1010 E. Thompson St., Sapulpa, Okla. 74066

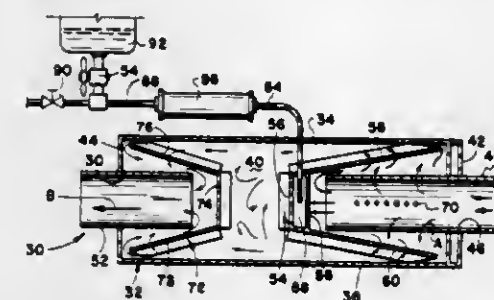
Continuation-in-part of Ser. No. 862,102, Dec. 9, 1977,

abandoned. This application Mar. 19, 1980, Ser. No. 131,746

Int. Cl.³ F01N 1/08, 3/04

U.S. Cl. 181-265

9 Claims



1. A muffler for an internal combustion engine and comprising a closed housing, inlet conduit means extending through a first end of the housing for introducing exhaust gases from the engine into the housing, outlet conduit means extending through a second end of the housing for discharge of the exhaust gases from the housing, first baffle means secured within the housing and having an imperforate plate spaced inboard of the inner end of the inlet conduit means for deflecting the flow of the exhaust gases entering the housing, outwardly diverging angular plate means extending from the imperforate plate in a direction toward the first end of the housing for creating a reversing direction of movement for the exhaust gases within the housing and providing alcove means within the housing for equalization of the pressure therein, second baffle means secured within the housing and having an imperforate plate disposed in spaced relation with respect to the inner end of the outlet conduit, outwardly diverging plate means secured to the imperforate plate and extending in a direction toward the second end of the housing for cooperation with the first diverging plate means to provide additional reversing direction of movement for the exhaust gases prior to discharge thereof from the outlet conduit means.

4,315,560

SILENCER FOR AIRCRAFT PISTON ENGINE

Philipp E. Stauch, deceased, late of Neunkirchen, Fed. Rep. of Germany; by Thea Stauch, heir, Homburger Str. 51, 6680 Neunkirchen, and by Dieter Stauch, heir, Hauptstrasse 72, 6661 Saarbrücken-Klarenthal, both of Fed. Rep. of Germany
PCT No. PCT/DE79/00124, § 371 Date Jun. 21, 1980, § 102(e)
Date Jun. 18, 1980, PCT Pub. No. WO80/00861, PCT Pub. Date May 1, 1980

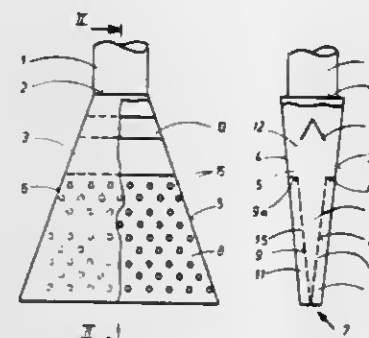
PCT Filed Oct. 22, 1979, Ser. No. 224,226

Claims priority, application Fed. Rep. of Germany, Oct. 21, 1978, 2845902

Int. Cl.³ F01N 7/20, 1/08

U.S. Cl. 181-275

8 Claims



1. Silencer for aircraft piston engines having inner perforated metal sheets and at least one tubular joining sleeve for connecting to an exhaust gas conduit comprising:

(a) a rectangular cross section with a configuration varying in the flow direction in which the forward and rearward

outer sheets associated with the long sides of the rectangle converge in the flow direction towards each other down to a slot like outlet opening and the lateral terminal sheets associated with the shorter sides of the rectangle diverge in the flow direction toward each other to the slot like outlet opening,

(b) converging perforated sleeves extending parallel to and at a distance from the converging forward and rearward outer sheets and provided with bevelled portions on the inflow side and converging to the outer sheets so that each perforated sheet forms with a bevelled portion, a forward or rearward outer sheet, and regions of the lateral diverging terminal sheets a cooling chamber which is open and terminates in the slot like outlet opening,

(c) a cooling chamber receiving the exhaust gases from the narrowing intermediate chamber between the converging perforated sheets over their holes and allowing them to escape in the region of the slot like outlet opening, wherein the exhaust gases after their deviation into the cooling chambers pass along the outer and lateral terminal sheets which are contacted by the propeller wind.

4,315,561

DRAIN PAN FOR RADIATORS AND COOLING SYSTEMS

Joshua J. Partridge, 4020 Harlan St., Emeryville, Calif. 94608

Filed Dec. 17, 1979, Ser. No. 104,009

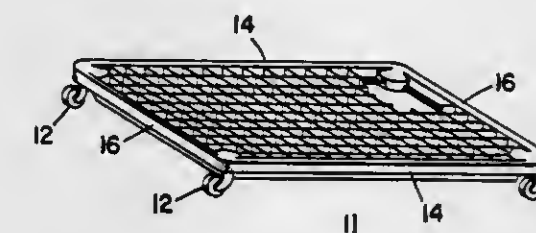
Int. Cl.³ F16N 31/00; B65D 1/24

U.S. Cl. 184-106

8 Claims

U.S. Cl. 188-73.1

5 Claims



1. A drain receptacle for receiving effluent from a vehicle, comprising a pan having a base panel, a plurality of side walls extending upwardly from the perimeter of said base panel and formed integrally therewith, said side walls extending continuously about said base panel and defining therewith an upwardly opening coffer, at least one of said side walls including a shoulder extending into said coffer and disposed in longitudinal fashion along said side wall, lattice means disposed in said coffer for attenuating and arresting wave motion in and spattering from liquid contained in said coffer, said lattice means including at least one edge impinging on and supported by said shoulder, said base panel including a plurality of corners and a plurality of upwardly extending concave wall members, each disposed at one of said corners and extending between the sidewalls converging thereat.

4,315,562

ENERGY ACCUMULATOR

Giorgio Tangorra, and Lino Magnabosco, both of Milan, Italy, assignors to Industrie Pirelli S.p.A., Milan, Italy

Filed Feb. 12, 1980, Ser. No. 120,831

Claims priority, application Italy, Feb. 23, 1979, 20449 A/79

Int. Cl.³ F03G 1/04

U.S. Cl. 185-37

3 Claims



1. A device comprising deformable members for storing

mechanical energy developed as the members are stretched and for releasing the stored energy as the members recover from the stretching, said device comprising a substantially cylindrical rigid body member having opposite ends, a rigid metallic bar extending longitudinally through the body member, at least one rubber strip attached by hinge means to each of said opposite ends, wound helicoidally about the body member and spanning the space between the points of attachment to said body member, one of said opposite ends of the said body member being rotatably mounted on said bar to wind the said rubber strip about the body member under tension.

4,315,563

DISC BRAKE FOR PREVENTING SQUEAK NOISE

Hideyuki Hayashi, Mishima, and Shigeru Okuma, Susono, both of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Continuation of Ser. No. 873,860, Jan. 31, 1978, abandoned,

which is a continuation of Ser. No. 723,953, Sep. 16, 1976,

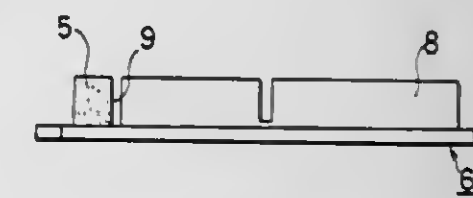
abandoned. This application Jun. 6, 1979, Ser. No. 46,193

Claims priority, application Japan, Jan. 19, 1976, 51-03414[U]

Int. Cl.³ F16D 65/40

U.S. Cl. 188-73.1

5 Claims



1. In a disc brake assembly including a substantially flat, rotatable disc having two oppositely facing flat side surfaces, two substantially flat friction pad assemblies each facing a respective one of said flat side surfaces of said disc and adapted to frictionally engage the flat side surfaces of said disc and means for urging said friction pad assemblies against said flat side surfaces of said disc, the improvement wherein said friction pad assemblies comprise a pair of spacedly opposed metal linings each one of which has an enlarged mounting surface bounded by a periphery, each said mounting surface being positioned in spaced opposition to one of said flat side surfaces of said disc, pad lining means secured to said enlarged mounting surface of each said metal lining completely within the periphery thereof and in contactable opposition to said flat side surfaces of said disc, said pad lining means including an elongated side edge positioned substantially radially with respect to the rotational axis of said disc and a dust removal member rigidly mounted directly on each said metal lining on the same mounting surface thereof as said pad lining means whereby said pad lining means and said dust removal members have contiguous surfaces in contact with said flat side surfaces of said disc, each said dust removal member being contained completely within and proximate a portion of the periphery of said metal linings, said dust removal member having a wear resistance equal to or less than that of said pad lining means and being completely supported by said mounting surface of said respective metal lining, each said dust removal member including an elongated, substantially radially oriented side edge located adjacent said side edge of said pad lining means and in spaced relation therewith so as to define a substantially radially arranged, elongated space therebetween, whereby dust is removed by said removal members from said flat side surfaces of said disc as long as said pad lining means of said friction pad assemblies engage said flat side surfaces of said disc as said disc rotates.

4,315,564

SYNCHRO-MESH TYPE GEAR TRANSMISSION

Akio Numazawa, Nagoya, and Nobuaki Katayama, Toyota, both of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

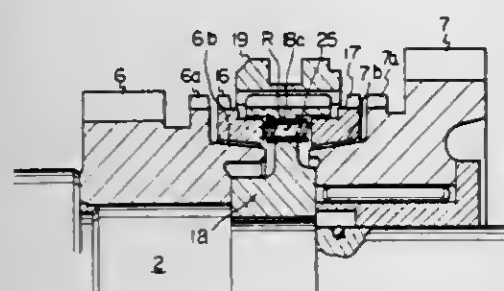
Filed Nov. 7, 1979, Ser. No. 92,218

Claims priority, application Japan, Nov. 15, 1978, 53/156044

Int. Cl.³ F16D 23/04

U.S. Cl. 192—53 F

7 Claims



1. A synchro-mesh gear transmission of the type having a clutch hub which is rigidly mounted on an output power shaft, the clutch hub being provided with axial slots in which springs are axially inserted, the springs being arranged so as to urge a synchronizer ring against a conically tapered surface of a driven shift gear, the driven shift gear being mounted on the output power shaft so as to be rotatable with respect to the output power shaft, the synchronizer ring thereby exerting a frictional resistance against rotation of the driven shift gear, the driven shift gear being selectively coupled to the clutch hub by a sleeve member which is in constant meshing engagement with the clutch hub, the transmission being characterized in that there is further provided at least one guide member means in the form of a cylindrical sleeve which is held immobile in one of the axial slots in the clutch hub, one of the springs being inserted in said guide member means, so that said guide member means supports the spring therein against deformation in response to a rotational motion of the synchronizer ring.

4,315,565

SCAVENTGE PUMP

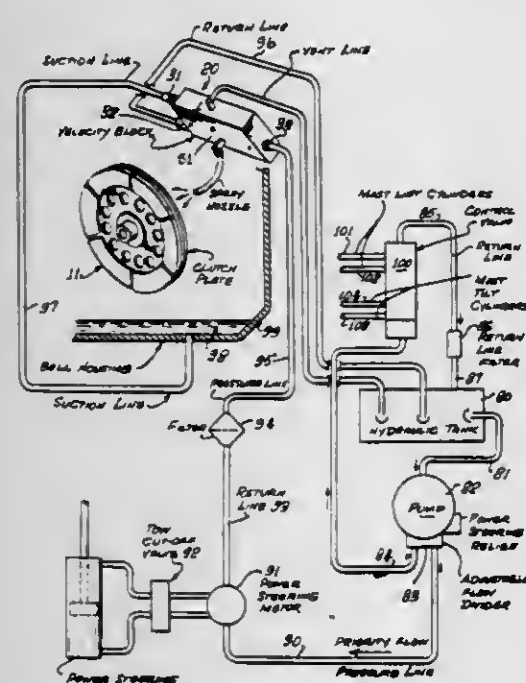
Leonard J. Low, P.O. Box 1927, Sparks, Nev. 89431

Filed Aug. 31, 1978, Ser. No. 938,637

Int. Cl.³ F16D 13/74

U.S. Cl. 192—113 B

10 Claims



1. The method for removing oil from the crankcase of a vehicle comprising: (1) passing oil from an hydraulically operated apparatus cooperative with said vehicle through a device for increasing velocity and creating suction within a chamber; (2) connecting said chamber to said crankcase in such manner

that the oil in the crankcase is drawn into the chamber by reason of the suction in the chamber; and (3) passing the oil from said chamber and said hydraulically operated apparatus into an oil reservoir.

4,315,566

END CAP ASSEMBLIES FOR CONVEYOR ROLLERS

Brian Greener, Welwyn Garden City, and Simon J. Pedder, Luton, both of England, assignors to SKF (U.K.) Limited, Bedfordshire, England

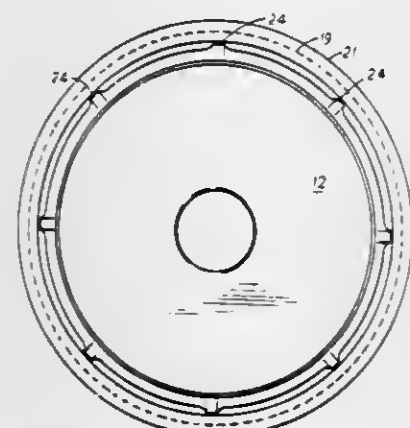
Filed Mar. 10, 1980, Ser. No. 128,892

Claims priority, application United Kingdom, Mar. 9, 1979, 08393/79

Int. Cl.³ B65G 39/09; F16C 13/02

U.S. Cl. 193—37

4 Claims



1. An end cap assembly for a roller tube of a conveyor roller, comprising a housing of plastics material and a bearing supported in said housing for rotatably mounting the roller on a fixed shaft, said housing comprising an annular frame and a resilient collar surrounding the frame, said frame having an axially extending inner wall, an axially extending outer wall, and a plurality of radial webs spaced around said frame and extending between said inner and outer walls thereof so as to provide a substantially rigid structure to said frame in which a load acting on the outer wall thereof is transmitted through said webs and distributed substantially evenly along the inner wall, said bearing being mounted as a force fit in the bore defined by said inner wall of the frame, and said collar having an end thereof integral with one end of said outer wall of the frame with the remainder of the collar spaced radially from the outer wall of the frame and movable radially inwards against its own resilient resistance to deformation into abutting contact with said outer wall of the frame, said collar being formed at the free end thereof with an outwardly projecting radial flange, whereby, upon mounting the end cap assembly in an end of a roller tube of a size to receive the collar as a close sliding fit, with the radial flange abutting the end of the roller tube, the end of the roller tube is swageable radially inwards to force the collar into abutting engagement with the outer wall of the frame so as to secure the end cap assembly firmly in the roller tube, wherein the outer surface of said outer wall of the frame is curved radially inwards in a direction away from said one end thereof over at least part of the length of said outer wall so that, when the end portion of the tube is swaged inwards to force the collar against the rigid frame, part of the collar lies along the curved outer surface of the outer wall and is deformed to the curvature thereof and the end portion of the roller tube lies along the curved collar and is deformed to the curvature thereof.

4,315,567

APPARATUS AND METHOD FOR SELECTING FROM COINS OR TOKENS

Lucien M. A. Pipaud, St Nicolas de Redon, France, assignor to Societe de Recherches et de Perfectionnements Industriels et Etablissements H. Morin-Secretan, Cachan, France

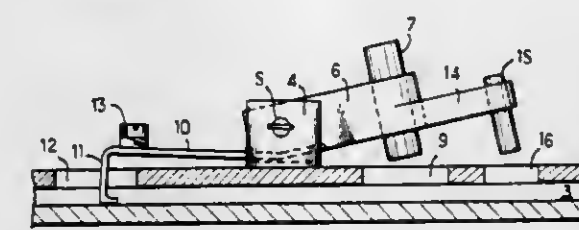
Filed Jul. 1, 1980, Ser. No. 165,047

Claims priority, application France, Jul. 13, 1979, 79 18225

Int. Cl.³ G07F 3/02

U.S. Cl. 194—101

6 Claims



1. In apparatus for rejecting from coins or tokens those whose magnetic characteristic exceeds a prescribed threshold, said apparatus comprising a path for the coins having an opening in which a first magnet engages when a magnetic coin passes along the path opposite the opening and, upstream of the first magnet, a second magnet, the improvement that the magnets are carried by an integral mounting means and are separate pole pieces and the second magnet is shaped or positioned so that the magnetic force with which it is attracted by a magnetic coin passing in front of it along the path is less than that with which the first magnet is attracted by this same coin when it passes in front of the opening.

4,315,568

MAGNETIC RAIL FOR MAGNETIC BELT CONVEYOR

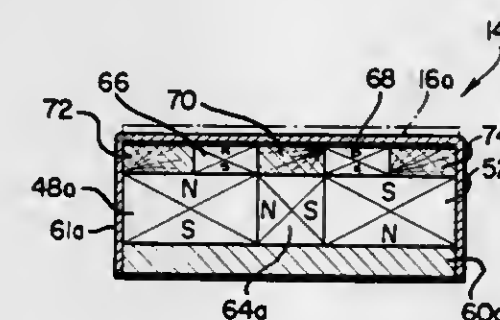
Wallace W. Mojden, Hinsdale, Ill., assignor to Fleetwood Systems, Inc., Countryside, Ill.

Filed May 2, 1980, Ser. No. 146,151

Int. Cl.³ B65G 15/58

U.S. Cl. 198—690

6 Claims



1. A magnetic rail arrangement for use in a conveyor system comprising: a first elongate permanent magnet means arranged to display north polarity to a traveling conveyor means; a second elongate permanent magnet means spaced laterally from said first permanent magnet means and arranged to display south polarity to the traveling conveyor means; and bucking magnet means disposed transversely of and interjacent to said first and second permanent magnet means for preventing flux leakage, and magnetic elements of comparatively larger magnetic moment per unit volume than the first and second magnet means, and are disposed between the traveling conveyor means and said first and second permanent magnet means the magnetic element engaged with said first and second magnet means being in surface-to-surface contact therewith and being of substantially smaller width with respect to the surface portions facing said conveyor means, and also oriented to present similar polarities to said conveyor means, thereby to concentrate the lines of magnetic flux.

4,315,569

REPLACEMENT WHEEL DISPLAY CARTON

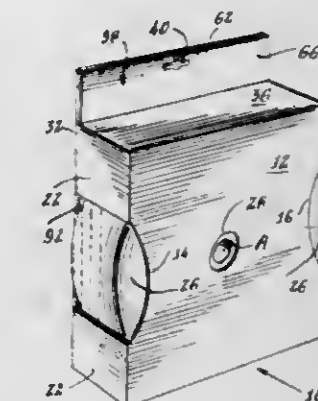
Harold R. Jaeschke, Milwaukee, Wis., assignor to Champion International Corporation, Stamford, Conn.

Filed Jul. 14, 1980, Ser. No. 167,994

Int. Cl.³ B65D 25/54, 85/06

U.S. Cl. 206—45.31

13 Claims



1. A carton construction comprising:
a front wall panel,
a rear wall panel,
a top and bottom wall panel connecting said front and rear wall panels, and
a first and second sidewall panel connected to opposite side edges, respectively, of said front wall panel,
a centrally located opening in each of said first and second sidewall panels permitting the display of an article housed within said carton construction,
each of said sidewall panels also including
a tuck end panel received within the interior of said carton adjacent to said rear wall panel to retain said article within the interior of said carton construction, and
a tuck lock flap foldably connected to opposite edges of said rear wall panel insertable into the interior of said carton construction through the opening in each of said first and second side walls to overlie one of said tuck end panels to preclude removal thereof from the interior of said carton construction.

4,315,570

TWO-COMPARTMENT CONTAINER WITH MEANS FOR DISPERSING CONTENTS OF ONE COMPARTMENT INTO THE OTHER COMPARTMENT

Jules Silver, Box 1188, Norwich, Conn. 06360, and Thomas J. Vaiculis, East Woodstock, Conn. 06244

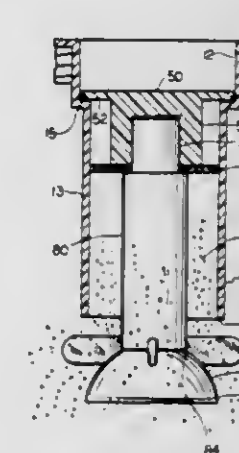
Continuation-in-part of Ser. No. 919, Jan. 4, 1979, abandoned.

This application Dec. 26, 1979, Ser. No. 107,165

Int. Cl.³ B65D 25/08

U.S. Cl. 206—221

14 Claims



1. A two-compartment container suitable for more uniformly dispersing solid components in an upper compartment

into liquid contents of a lower mixing compartment comprising:

- a lower mixing compartment having a bottom, side walls and an open top and having a volume capable of receiving and mixing the contents of the upper and lower compartments;
 - a closure means for closing the open top of the lower compartment in a liquid-tight manner;
 - an upper compartment having an upper end disposed in the closure means and communicating with an aperture in the closure means, side walls projecting from the closure means into the lower compartment, and an open lower end disposed in the lower compartment;
 - a lower flexible and slidable seal means having a downwardly disposed angular flexible skirt contacting a perimeter side wall portion of the upper compartment near the lower end thereof, said skirt having dimensions which are slightly greater than the dimensions of the corresponding inside dimension of the sidewalls of the upper compartment, whereby the skirt is slightly compressed inwardly when the seal is disposed in the upper compartment to effect a slidable liquid-tight seal between the upper compartment and the lower compartment, and said lower seal means being exitable from the open lower end of the upper compartment;
 - a mechanical linking means connected to the lower seal means and extending through the upper compartment and into the aperture in the closure means for mechanically transmitting a direct downwardly digitally powered movement to the lower slidable seal means, said downward movement being sufficient in length to exit that seal means out of the lower end of the upper compartment but not sufficient in length to allow the linking means or lower seal means to fall out of the upper compartment and into the lower compartment;
 - an upper slidable seal means disposed around the said linking means and contacting a perimeter side wall portion of the upper compartment near the upper end thereof, whereby an upper chamber for holding the contents of the upper compartment is formed between said lower and said upper seal means and the walls of the upper compartment; and
 - a positive stop means for abruptly stopping the downward movement of the mechanical linking means and, hence, the lower seal means;
- wherein the linking means may be quickly and directly digitally depressed, the lower seal means quickly exits from the lower end of the upper compartment, the contents in the chamber of the upper compartment quickly project from, and at least in part, abruptly impinge upon and deflect from the lower seal means and skirt, whereby the contents of the upper compartment are more uniformly dispersed into the contents of the lower compartment.

4,315,571

SLEEVE FOR GRAMOPHONE RECORDS

Friedrich A. Danne, Cologne, Fed. Rep. of Germany, assignor to "Octropa" B.V. Internationale Octrool Maatschappij, Rotterdam, Netherlands

Filed Jun. 9, 1978, Ser. No. 914,170
Int. Cl.³ B65D 85/30

U.S. Cl. 206-312

4 Claims



1. A sleeve for a phonograph record or the like, including: front and back spaced apart, generally parallel panels form-

ing a receptacle area therebetween for receiving said record therein, said panels including first and second spaced pairs of laterally extending opposed edge zones, each of said edge zones of said back panel including portions adjacent said receptacle area having a thickness less than the thickness of central areas of said back panel; and a pair of connecting strips respectively extending between said first and second pairs of said edge zones for inter-connecting said panels, each of said strips including a flap extending generally parallel to said panels and disposed within a portion of the corresponding edge zone in overlapping relationship to the latter, the surface of each of said flaps adjacent said receptacle area lying in the same plane as the inner surface of said back panel whereby to form a continuous surface for supporting both the center as well as the periphery of said record.

4,315,572

PERIODICAL SUPPORT AND RETRIEVAL DEVICE

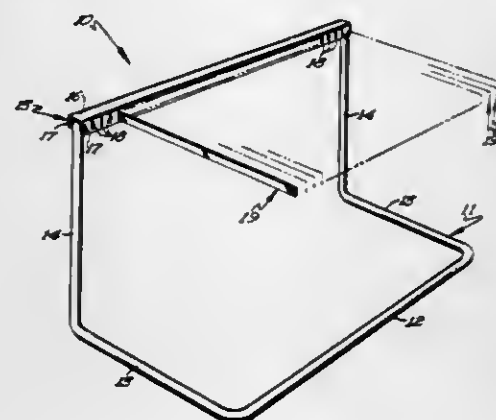
David H. Clare, Box 50, Rte. 1, Eau Galle, Wis. 54737

Filed Apr. 28, 1980, Ser. No. 144,550

Int. Cl.³ A47F 7/16

U.S. Cl. 211-45

3 Claims



1. A support and retrieval device for periodicals, such as magazines, newspapers and the like, comprising:
 - a U-shaped base including an elongate, central element having a pair of substantially elongate side elements integral therewith and projecting therefrom,
 - a pair of elongate, substantially straight vertical support elements each having one end thereof integral therewith with one of said side elements and projecting upwardly therefrom,
 - an elongate substantially straight support member having opposite ends thereof secured to the upper ends of said vertical elements, said support member having a plurality of longitudinally spaced apart vertically extending slots therein throughout the length thereof,
 - a plurality of elongate, substantially flat identical support elements each having one end thereof frictionally engaged in one of said slots in the support member and projecting therefrom, said support elements adapted to support periodicals such as magazines or newspapers therefrom and thereby permitting ready retrieval of such periodicals.

4,315,573

METHOD OF STRENGTHENING GLASS CONTAINERS AND ARTICLES SO MADE

Ronald W. Bradley; David G. Carl, both of Sylvania, and Bernard L. Keating, Toledo, all of Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio

Filed Oct. 6, 1980, Ser. No. 194,188

Int. Cl.³ A61J 9/00; A65D 23/08

U.S. Cl. 215-12 R

14 Claims

1. The method of increasing the effective strength of a soda-lime glass container for its use in heating contents comprising

the step of surrounding the heel and bearing surfaces of said glass container with a thin imperforate frangible coating of a thermoset polymeric resin having a thickness ranging from about 1 to 5 mils said coating making said container thermal shock-resistant and being non-fragment retentive upon breakage of said container.



9. A thermal shock-resistant soda-lime glass container adapted to heating contents therein comprising a hollow glass container having a wide-mouth and generally-cylindrical side-walls and a thin imperforate frangible coating of a thermoset polymeric over at least the heel and bearing surfaces of said glass container, said coating having a thickness ranging from about 1 to 5 mils said coating being rupturable and substantially non-fragment retentive upon breakage of said container.

4,315,574

CONTAINER HAVING CIRCUMFERENTIAL AND LONGITUDINAL STIFFENING CORRUGATIONS

Arnold Forny, Gwatt; Jakob Koch, Hünibach; Hans Niederer, Oberwichtach, and Otto Schmid, Hünibach, all of Switzerland, assignors to Gebr. Hoffmann AG, Switzerland

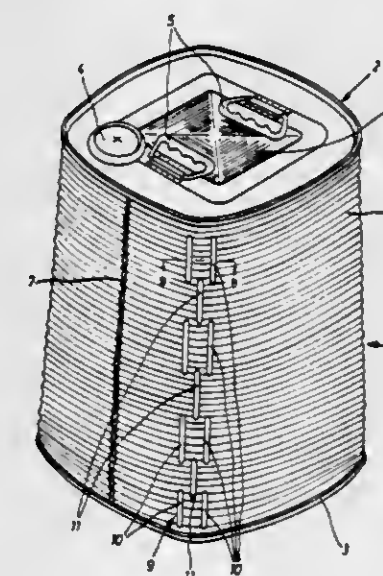
Filed Jan. 28, 1980, Ser. No. 115,891

Claims priority, application Switzerland, Feb. 1, 1979, 994/79

Int. Cl.³ B65D 8/12

U.S. Cl. 220-72

13 Claims



1. An improved container of a thin-walled material of the type having an elongated body with a longitudinal axis and a circumferentially extending wall, the body having first stiffening corrugations extending in its circumferential direction and second stiffening corrugations extending at least approximately in its longitudinal direction, the improvement comprising the first stiffening corrugations having circumferential discontinuities, said discontinuities arranged to define a longitudinal path the second stiffening corrugations longitudinally extending in said path in side by side groups staggered relative to each other in the longitudinal direction, and the second stiffening corrugations extending at spaced intervals at least along a larger part of the height of the body.

4,315,575

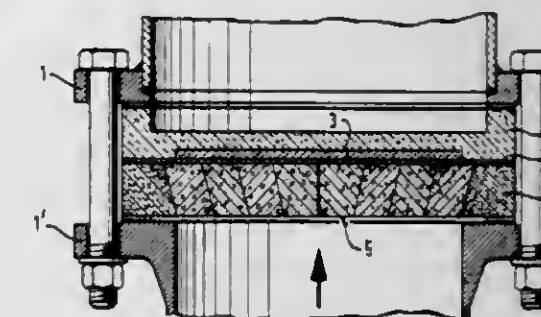
VACUUM SUPPORT FOR BURST PROTECTION DEVICE
Erwin Schwarz, Meitingen, and Adolf Swozil, Kuhlenthal, both of Fed. Rep. of Germany, assignors to Sigr Elektrographit Gesellschaft mit beschränkter Haftung, Meitingen bei Augsburg, Fed. Rep. of Germany

Filed May 28, 1980, Ser. No. 153,901

Int. Cl.³ B65D 25/00

U.S. Cl. 220-89 A

2 Claims



1. Vacuum support for a burst protection device of graphite, comprising a graphite disc formed by a multiplicity of graphite rings, each of which consists of at least two parts and has a prismatic cross section, the prism surfaces being inclined relative to the plane of the disc, with opposite prism surfaces having inclinations different from each other restricting movement of the parts in a direction away from the burst protection device.

4,315,576

CHILD RESISTANT CLOSURE CAP APPARATUS EMPLOYING FULCRUM ACTION

Joseph E. Murphy, Basking Ridge, and Frank Piceno, Jr., Minehill, both of N.J., assignors to Gilbert Plastics, Inc., Somerset, N.J.

Filed Jun. 12, 1980, Ser. No. 158,830

Int. Cl.³ B65D 41/18

U.S. Cl. 220-282

10 Claims



1. A child resistant closure cap apparatus for covering a container having a top peripheral flange surrounding the same at a substance removal end, said closure cap comprising:
 - a relatively hollow cup shaped member having a closed top surface and an opened bottom, said cup shaped member having a plurality of fulcrum members located about the inner peripheral wall of said cup member and adapted to coact with the top surface of said flange when said cap is emplaced upon said container, a plurality of undercut projections each associated with and located beneath one of said fulcrum members and positioned below said flange when said cap is emplaced with each of said undercut projections having a tapered cross section being thickest near said peripheral wall and sloping downwardly be-

neath said flange to allow said undercut projection to flex upon application of an activating force, with an additional undercut projection positioned between at least two of said fulcrum members and located in the same plane as said other projections, with said projections operating to secure said cap when emplaced upon said container, with said additional undercut member adapted to receive a activating force imparted above the same to the closed top surface of said cup member to cause at least two of said fulcrum members to respond to said force to flex and pivot said undercut projections away from said flange to enable removal of said cap from said container upon application of said force to said top surface of said cup shaped cap.

4,315,577

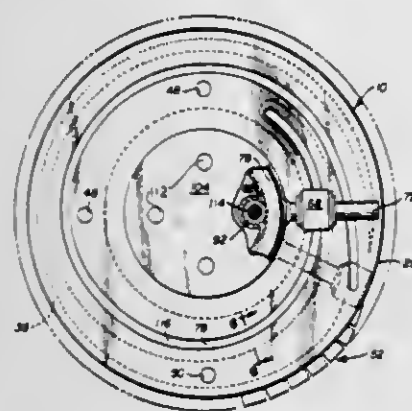
CLOSURE ASSEMBLY

Albert Bernson, Jr., Dallas, Tex.

Filed Dec. 22, 1980, Ser. No. 219,349

Int. Cl.³ B65D 45/28

U.S. Cl. 220—323



14 Claims

1. A closure assembly, comprising: a closure body adapted to extend into an opening in a structure, said closure body having a spirally disposed groove formed therein; a retaining member made to be flexible when moved through the spirally disposed groove; and means operably connected to said closure body for moving said retaining member through the groove to a position where a portion of said retaining member engages the structure, said retaining member being made of sufficient size and material to resist any shear forces provided thereto when said closure body is mounted within the opening into said structure.

4,315,578

SAFETY CLOSURE CAP WITH VENT

Clifford J. Ludwig, Jr., Southgate, Ky., assignor to The Drackett Company, Cincinnati, Ohio

Filed Sep. 17, 1980, Ser. No. 187,924

Int. Cl.³ B65D 83/10

U.S. Cl. 220—366



8 Claims

1. A safety closure cap for enclosing an orifice in a container comprised of:

- (a) a disc portion;
- (b) a retaining lip portion extending along the edges of the disc and surrounding the periphery thereof;
- (c) an annular ring portion disposed in a plane parallel to the disc and having an annular groove formed on its lower side for mating with the opening of the vessel intended to be enclosed;

- (d) a short annular wall portion which connects the annular ring with the lip of the disc;
- (e) an annular sealing skirt portion which extends generally outwardly and downwardly from the periphery of the annular ring portion and being adapted to contact the edge of said orifice in a substantially overlapping configuration;
- (f) a pull tab having a free end with upper and lower surfaces, which extends from the periphery of the annular ring;
- (g) at least one venting channel which extends across the periphery of the annular wall portion from the retaining lip portion to the outer periphery of the annular ring portion until but not past the sealing skirt portion; and
- (h) a first and second vertical gripping member, wherein said first vertical gripping member is disposed along the periphery of the free end of the pull tab on the upper surface thereof, and wherein said second vertical gripping member is disposed along the periphery of the free end of the pull tab on the lower surface thereof,

whereby said substantially overlapping configuration substantially prevents the ambient atmosphere from being in communication with the interior of the container when the pressure within the container is substantially equal to or less than that of the ambient atmosphere and whereby said skirt is flexed away from said substantially overlapping relation when the pressure in the interior exceeds a predetermined value and is released through said venting channel and through said sealing skirt into the atmosphere.

4,315,579

VENTING AND FILTERING MECHANISM FOR MILK TANK VENT

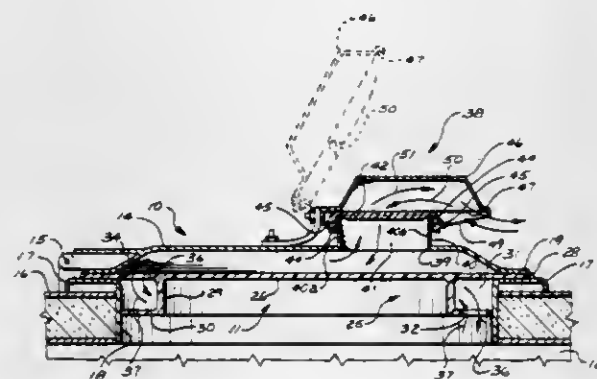
Timothy J. Martin, Jr., 1328 Pangborn Rd., Lynden, Wash. 98264

Filed Dec. 17, 1979, Ser. No. 104,091

Int. Cl.³ B65D 51/16, 51/18

U.S. Cl. 220—371

19 Claims



1. An improved closure assembly for selectively permitting and precluding access to the interior of an enclosed storage tank through an access opening formed therein while permitting freedom of air movement through the access opening so as to minimize pressure differentials between the interior and exterior of the storage tank while at the same time precluding movement of airborne contaminants therethrough, comprising, in combination: a closure member; means for securing said closure member to the storage tank in overlying relation to the access opening formed therein; means defining a vertical opening extending through said closure member; a tubular upstanding wall integral with said closure member and surrounding the vertical opening formed therein; a sheet of fluid pervious filter material removably secured to said closure member extending entirely across the opening formed therein and in face-to-face engagement with the uppermost edge of said tubular upstanding wall throughout the entire perimeter thereof; a dome-shaped cover seated on said tubular upstanding wall, said dome-shaped cover (a) projecting beyond said tubular upstanding wall on one side thereof so as to form a down-

wardly facing vent communicating between the interior of said dome-shaped cover and the exterior of the storage tank and (b) contacting said sheet of filter material on the remaining three sides of said upstanding wall for securely clamping said filter material between said upstanding wall and said dome-shaped cover on said three sides; said dome-shaped cover, downwardly facing vent, vertical opening and upstanding wall defining a tortuous flow path; and, means for pivotally securing said dome-shaped cover to said closure member so that air moving between the interior and exterior of the storage tank in response to pressure differentials therebetween is required to pass through both said tortuous path and said sheet of filter material, thereby effectively precluding ingress of contaminants into the interior of the storage tank and minimizing pressure differentials between the interior and exterior thereof.

4,315,580

HAND HELD SEED PLANTER WITH ROLLER WHEEL STRUCTURE

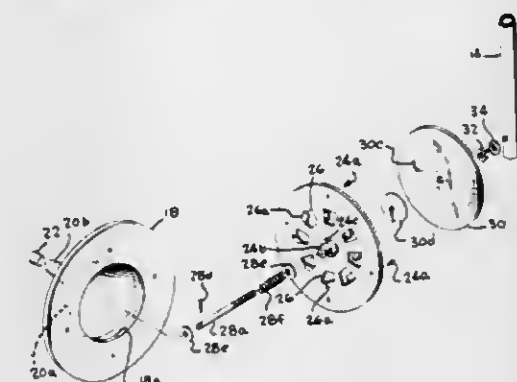
James K. Beckworth, 904 Penn Waller Rd., Savannah, Ga. 31410

Filed Aug. 15, 1980, Ser. No. 178,364

Int. Cl.³ A01C 7/02

U.S. Cl. 221—185

10 Claims



1. A row seed planter for planting seeds in a prepared furrow in home gardens and the like, comprising a ground-engaging wheel-like seed reservoir and dispenser rotatable subassembly, an elongated handle member adapted to be hand-grasped near an upper end thereof and extend upwardly and rearwardly from the rotatable subassembly and provide rotary journal support therefor, the rotatable subassembly comprising a rigid flat annular ground-engaging disc member having a large diameter center hole there-through, a seed housing shell structure encircling said axis along a circular cross-section path concentric with said axis joined to and extending from one side of said ground-engaging disc member defining a seed chamber of predetermined capacity communicating with said center hole and having a removable closure covered fill opening at an end portion thereof spaced from said disc member, a seed elevating disc fixed to the opposite side of said ground-engaging disc member from said seed chamber forming an opposite side closure wall for said center hole, and having an apertured center bushing, a horizontal center shaft rotatably journaled in said bushing and having a threaded portion projecting from said seed elevating disc through and journaled in the lower end portion of said handle member, a single apertured seed discharge disc plate concentric with said axis mounted closely adjacent said seed elevating disc on the threaded portion of said shaft and restrained against rotation relative to said handle member to locate the aperture therein as a seed discharge opening at a predetermined level above the lowermost portion of said chamber, and said seed elevating disc having a plurality of seed transfer openings therethrough bounded along trailing edges thereof by inclined lift tabs projecting into said chamber and located in circumferentially spaced relation along a circular path registering with said seed discharge opening to lift seeds from the lowermost zone of said chamber to said discharge opening for single-seed discharge therethrough at

spaced intervals along the furrow as the planter is rolled therealong.

4,315,581

HOLDER FOR ELECTROGRAPHIC DEVELOPING POWDER

Hendrikus J. J. Van Soest, and Peter M. W. Mennen, both of Helden, Netherlands, assignors to Océ-Nederland B.V., Venlo, Netherlands

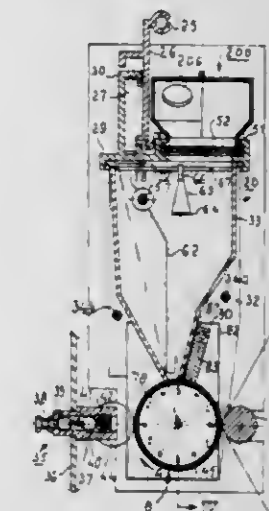
Filed Mar. 26, 1980, Ser. No. 134,190

Claims priority, application Netherlands, Mar. 27, 1979, 7902361

Int. Cl.³ B67B 7/24

U.S. Cl. 222—83

16 Claims



1. In a holder for electrographic developing powder, including a chamber for the powder having an oblong powder outlet opening closed powdertight by a membrane attached thereto, a slide valve movable between first and second positions respectively for closing off and uncovering said opening and means for positioning said holder above a developing powder reservoir of an electrographic apparatus for delivery of powder from the holder into the reservoir;

the improvement wherein said holder comprises guide means along said opening for guiding said slide valve between its said positions and said slide valve has cutting means mounted thereon near an end thereof, said cutting means being operative as said slide valve is moved from said first position to said second position to cut open along said opening a section of a membrane closing said opening.

4,315,582

UNIVERSAL SEQUENTIAL DISPENSING PUMP SYSTEM FREE OF EXTERNAL CHECK VALVES AND HAVING VENTING CAPABILITY

Lewis A. Micallef, Fort Lee, N.J., assignor to Leeds and Micallef, Fort Lee, N.J.

Filed Apr. 24, 1978, Ser. No. 899,268

Claims priority, application United Kingdom, May 2, 1977, 18367/77

Int. Cl.³ B67D 5/42

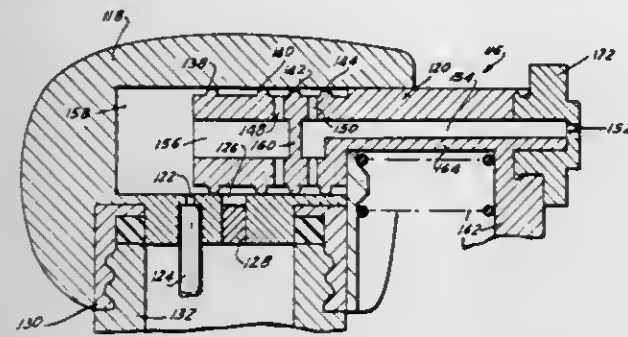
U.S. Cl. 222—148

83 Claims

1. A dispensing pump system for dispensing product from a container, the pump serving as a container closure, comprising: an outer part;

an inner part in the outer part defining a pump chamber therewith, and the parts being relatively reciprocal through a compression stroke from an extended position to an inserted position and through a suction stroke from the inserted position to the extended position; inlet port means for cooperating in communicating the container interior with the pump chamber during the suction stroke to permit product to enter into the pump chamber from the container interior solely by creating a negative pressure differential between the pump chamber relative

to the container interior to cause product to be sucked into the pump chamber;
outlet port means for product to be dispensed under pressure from the pump chamber during the compression stroke;
venting means for replacing product removed from the container interior into the pump chamber with air;
and



the inner and outer part defining cooperating surfaces for sequentially opening and closing the inlet and outlet port means during the relative reciprocation of the parts during the pumping cycle to permit product to enter the pump chamber and dispense it from the pump chamber without the necessity of external inlet and outlet check valves.

4,315,583

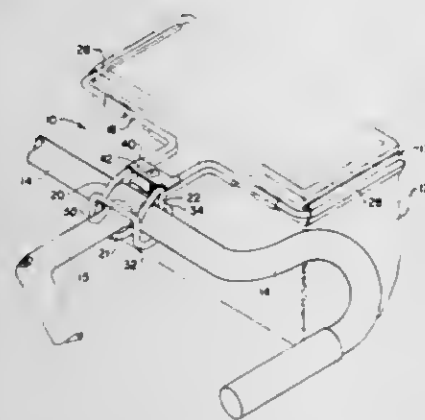
HANDLEBAR PACK SUPPORT

Edward K. Hine, Jr., Louisville, Colo., assignor to Hine-Snowbridge, Boulder, Colo.

Filed Sep. 22, 1980, Ser. No. 189,480
Int. Cl.³ B62J 7/06

U.S. Cl. 224-41

12 Claims



1. A support to secure a pack to the handlebar structure of a bicycle at the intersection of the bicycle gooseneck and handlebar, the support comprising:

first and second elongated component formed symmetrically at least at the portion adapted to engage the bicycle handlebar, each of the first and second components having a closed end, one of the components being adapted to extend over the bicycle gooseneck and under the handlebar and the other component being adapted to extend under the gooseneck and over the handlebar with the closed end of each component engaging the intersection of the handlebar and gooseneck,

means included on one of the components to engage and support a handlebar pack, and

releasable clamping means extending between the first and second components at a position forward of the handlebar engaging portions to clamp the first and second components around the handlebar and preclude rotation of the support in any direction.

4,315,584
METHOD AND A DEVICE FOR SEPARATING A PLURALITY OF LIGHT WAVEGUIDES CARRIED IN A CABLE

Friedrich Wuestner, Wolfratshausen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

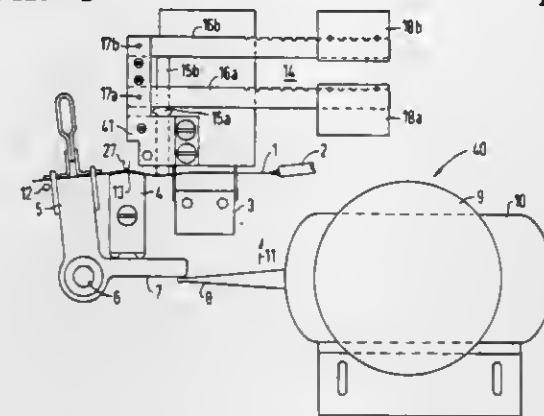
Filed May 27, 1980, Ser. No. 153,195

Claims priority, application Fed. Rep. of Germany, Jun. 21, 1979, 2925070

U.S. Cl. 225-2

Int. Cl.³ B26F 3/00

11 Claims



1. A method for separating each light waveguide of a plurality of light waveguides which are in a cable of light waveguides comprising the steps of clamping each of the light waveguides at spaced points to hold a portion of the waveguides between said points parallel to each other, positioning the light waveguides extending between the points over an anvil with each of the light waveguides being parallel to one another, applying a common tension force to each of the waveguides at the other side of the anvil, applying a vertical force to each of the waveguides at a point on one side of the anvil to apply an axial prestress to each of the waveguides extending across the anvil, and notching each of the prestressed light waveguides at a point in contact with the anvil to cause separation of each of the waveguides at its notch.

4,315,585

SHEET-FEED TRACTOR WITH ECCENTRIC CLAMPING DEVICE

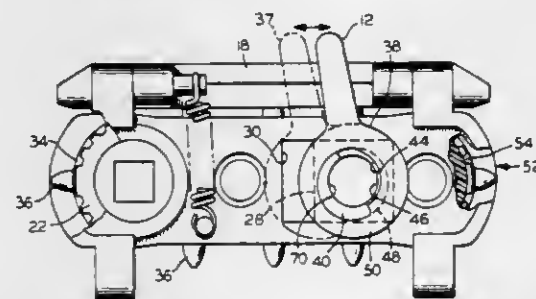
Alan F. Seitz, Harwinton, Conn., assignor to Data Motion Incorporated, Torrington, Conn.

Filed Mar. 10, 1980, Ser. No. 128,590

Int. Cl.³ B65H 17/38, 17/52

U.S. Cl. 226-74

17 Claims



1. In a sheet-feed tractor adapted to be slidably mounted on substantially parallel elongated support and drive shafts, the combination comprising:

a. a tractor body having a support-shaft opening there-through;

b. a drive sprocket rotatably mounted in said tractor body and adapted to receive the drive shaft for sliding therealong and driving thereby upon rotation of the drive shaft about its longitudinal axis;

c. an endless belt disposed about said tractor body in engage-

ment with said drive sprocket for driving thereby upon driving of said sprocket by the drive shaft, said drive belt including sheet-engagement teeth adapted for engagement of perforated sheet material and advancement thereof upon driving of said drive belt by said sprocket; and
d. clamp means mounted on said body and having a support-shaft passage aligned with said support-shaft opening in said body for slidable reception of the support shaft therein, said clamp means including first and second clamp members each having an interior wall portion, said wall portions of said clamp members defining said support-shaft passage, said first clamp member extending outwardly from said body and being nonrotatably supported thereon, said second clamp member being pivotally mounted on said first clamp member for pivoting thereabout and about a pivotal axis extending through said passage, said passage-defining wall portions on said first and second clamp members having first and second opposed shaft-clamping wall portions respectively, along a common axial length of said support-shaft passage defined thereby for a portion of their axial length, pivoting of said second clamp member on said first clamp member effecting relative movement of said shaft-clamping wall portions to reduce or increase the maximum transverse spacing therebetween diametrically of the passage defined thereby, pivoting of said second clamp member thereby clamping the support shaft between opposed portions of said clamping surfaces along said common axial length of said support-shaft passage or releasing it to permit sliding therealong if its width is within the range of transverse spacings provided by said shaft-clamping wall portions.

4,315,586

DOUBLE-ECCENTRIC LOCKING MEANS

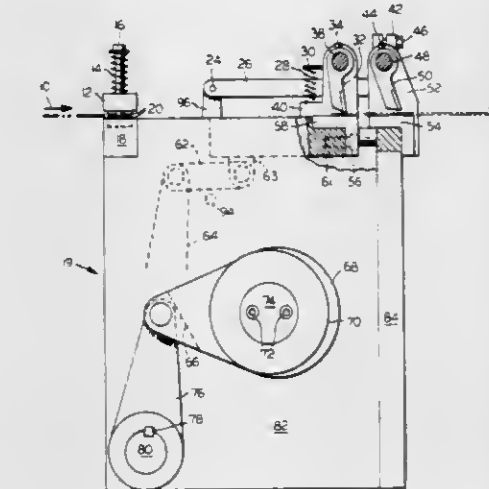
Earl W. Dolamore, Agawam, Mass., assignor to Roger L. Dalglish, Suffield, Conn., a part interest

Filed Apr. 4, 1980, Ser. No. 137,396

Int. Cl.³ B65H 17/26

U.S. Cl. 226-141

27 Claims



1. A strip-feed mechanism comprising:

a. a frame providing a feed path for strip material;

b. a gripper mechanism slidably mounted in said frame for reciprocation along said path, said gripper mechanism gripping strip material when said gripper mechanism is reciprocated in a first direction and strip material is disposed in said path, said gripper mechanism permitting the strip material to slip relative to said gripper mechanism when said gripper mechanism is reciprocated in a second direction opposite said first direction; and
c. an adjustable eccentric assembly mounted in said frame and including:

(i) drive means rotatable about a substantially horizontal axis and having a cylindrical portion whose cylinder axis is parallel to said axis of rotation, said cylindrical

portion being externally threaded along at least a portion of its axial length;

(ii) a cam member having a bore therein, the wall of said bore having an internally threaded portion threadedly engaged with said threaded portion of said cylindrical portion of said drive means, said cam member having its periphery defining a cam surface varying in radial spacing from said cylinder axis of said drive member and effecting reciprocation of said gripper mechanism upon eccentric motion of said cam surface; and

(iii) fastening means carried by one of said drive means and said cam member and clamping said drive means to said cam member to stress the threads of said engaged threaded portions, thereby increasing the static friction between said threads and tending to prevent relative rotational motion between said drive means and said cam member, rotation of said drive means thereby tending to cause rotation of said cam member and thereby reciprocation of said gripper mechanism when said cam surface varies in radial spacing from said rotational axis of said drive member.

4,315,587

POWERED ATTACHING ASSEMBLY

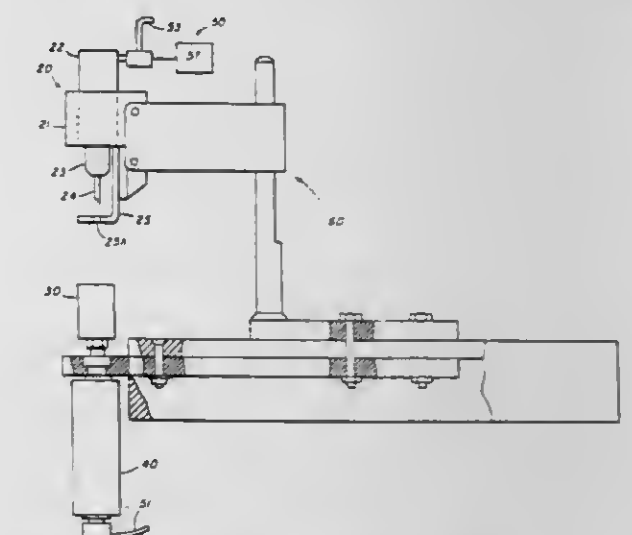
Don D. Ritter; Edwin A. Patterson, both of Gastonia, and Henry M. Pigg, Mount Holly, all of N.C., assignors to Dennison Manufacturing Company

Division of Ser. No. 412, Jan. 2, 1979, Pat. No. 4,215,807. This application Mar. 12, 1980, Ser. No. 129,790

Int. Cl.³ B65C 7/00

U.S. Cl. 227-67

6 Claims



1. Apparatus for inserting attachment members into compressible bulky material, with each attachment member including an end bar that is foldable against a filament, comprising a separately movable jaw and a clamp that are movable towards one another and said compressible bulky material,

a slotted hollow needle that is movable into the bulky material compressed between said jaw and said clamp, and means for feeding the end bar through the bore of a slotted hollow needle into said material.

4,315,588

HIGH SPEED ON-LINE STITCHER FOR SIGNATURES AND WEBS

Hans G. Faltin, 4135 Wilshire Dr., York, Pa. 17401

Filed Jan. 21, 1980, Ser. No. 113,671

Int. Cl.³ B42C 1/00

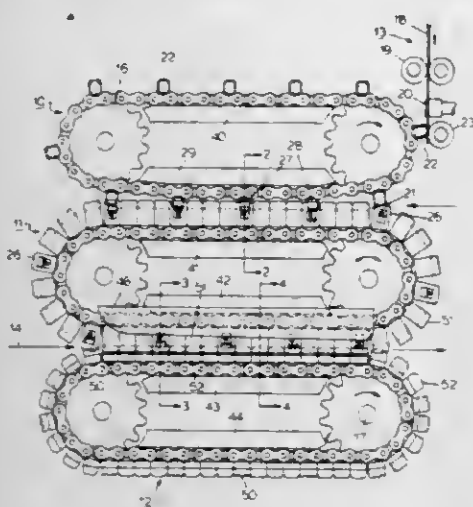
U.S. Cl. 227-81

11 Claims

1. Apparatus for stitching moving paper articles, comprising in combination:

means transporting the articles along a linear path parallel to a line along which a plurality of staples are to be entered, means transporting a plurality of U-shaped staples along the

linear path alongside the articles while passing their prongs through the articles along said line and clenching them, and means creasing the articles along a predeter-



mined crease line as they move through the linear path in which the staples are passed through the article and clenched.

4,315,589

STAPLER APPARATUS

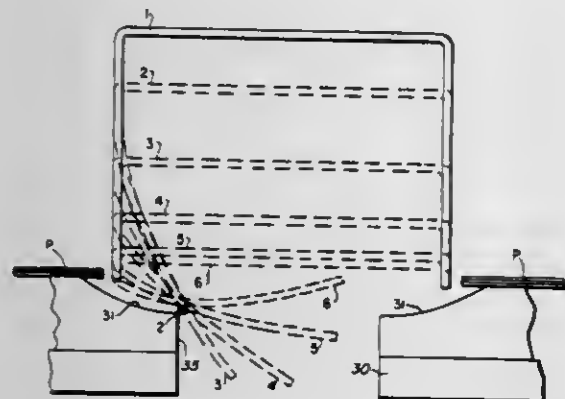
Tsai C. Soong, Penfield, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Oct. 1, 1979, Ser. No. 80,626

Int. Cl.³ B25C 5/02

U.S. Cl. 227—155

5 Claims



1. In a stapler apparatus of the passive clincher type having a base member and a staple magazine movably related toward each other during a stapling operation, means cooperating with the members for forming said members in opposite directions, the magazine member being provided at an end thereof with staple dispensing means, the base member being provided at an end thereof with an anvil member, the anvil member and the staple dispensing means being adapted to cooperate to permit individual ones of the staples to be dispensed toward and against the anvil member to perform a stapling operation when the base and magazine member are moved toward each other, and wherein the anvil member is formed with clinching grooves in generally longitudinal alignment or slightly offset for bending the legs of a staple toward each other during a stapling operation, the improvement wherein:

the anvil member is formed with a depressed area between and including the adjacent ends of the grooves, said depressed area being defined by an edge extending across each of the respective grooves said edges being positioned so that the tips of the legs of staples reach the same during staple clinching operating and extending into the opening during continuing passive clinching operation for controlling the angular bending of the legs.

4,315,590

SOLDER BATH APPARATUS

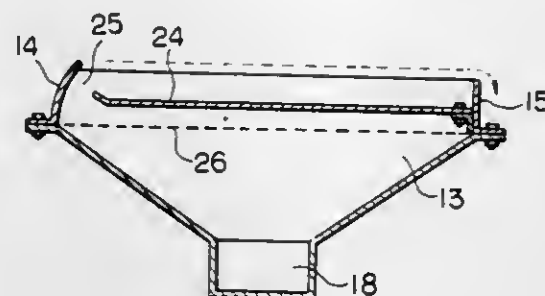
Kenshi Kondo, c/o Nihon Dennetsu Keiki Kabushiki Kaisha, No. 27-1, Shimomaruko 2-chome, Ohta-ku, Tokyo, Japan
Filed Dec. 18, 1979, Ser. No. 104,776

Claims priority, application Japan, Dec. 27, 1978, 53/177466[U]

Int. Cl.³ B23K 3/06

U.S. Cl. 228—37

5 Claims



1. A solder bath apparatus, comprising:
an outer, open-topped vessel for containing molten solder;
an inner, open-topped vessel located within said outer vessel;
a conduit member having one end connected to a bottom portion of said inner vessel and bearing at the other end a solder supply port opening into the outer vessel;
means provided within said conduit member for continuously feeding molten solder from said outer vessel to said inner vessel through said solder supply port and said conduit member;
an imperforate plate member positioned substantially horizontally adjacent to an upper portion of said inner vessel and cooperating with the sidewalls of said inner vessel to control outflow of said molten solder from the inner vessel;
an opening provided adjacent one edge of said plate member and along one sidewall of said inner vessel such that the molten solder can flow out from said inner vessel only through said opening and forms on the exterior surface of said plate member a solder layer flowing substantially in the direction away from said one sidewall towards the opposite sidewall.

4,315,591

METHOD FOR THERMO-COMPRESSION DIFFUSION BONDING A STRUCTURED COPPER STRAIN BUFFER TO EACH SIDE OF A SUBSTRATELESS SEMICONDUCTOR DEVICE WAFER

Douglas E. Houston, Ballston Lake, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 18,653, Mar. 8, 1979, abandoned. This application Nov. 28, 1980, Ser. No. 210,993

Int. Cl.³ B23K 20/14; H01L 21/58

U.S. Cl. 228—188

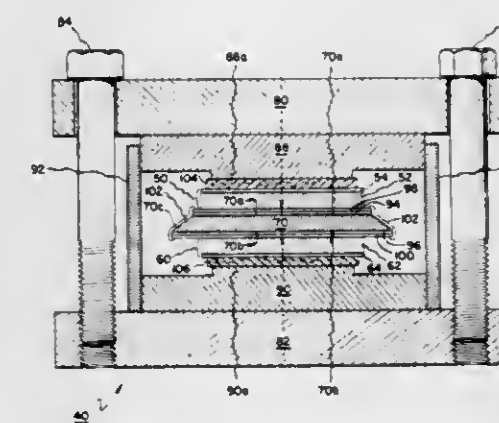
12 Claims

1. A method for thermo-compression diffusion bonding first and second structured copper strain buffers to a substrateless semiconductor device wafer including first and second major opposed surfaces of unequal lateral extents and a beveled outer edge surface, said first and second structured copper strain buffers each including a bundle of substantially parallel closely packed strands of copper of substantially equal length having one common end thereof thermo-compression diffusion bonded to a metallic sheet, respectively, said method comprising:

applying first and second metallic layers on said first and second major opposed surfaces, respectively;
applying first and second metallizations on said first and second metallic layers, respectively;
coating said beveled surface with a passivation material;
sandwiching said semiconductor device wafer between and in axial alignment with said first and second structured

copper strain buffers, each of said structured copper strain buffers having a lateral extent equal to or less than the lateral extent of the respective major surface of said semiconductor device wafer in contact therewith such that said beveled edge remains uncovered by either of said structured copper strain buffers, the common end of the copper strands of each of said first and second structured copper strain buffers opposite the respective metallic sheet thereof being positioned facing said semiconductor device wafers;

surrounding with an inert atmosphere said semiconductor device wafer and structured copper strain buffers when sandwiched together;



applying a loading force to selected portions of said first and second structured copper strain buffers to squeeze said first and second structured copper strain buffers and said semiconductor device wafer together at high pressure, the selected portion of said first structured copper strain buffer being substantially of identical geometrical size and shape as, and substantially rotationally and axially aligned with, the selected portion of said second structured copper strain buffer; and
heating said semiconductor device wafer and structured copper strain buffers at a temperature within the range of 300° C. to 400° C. while said loading force is being applied.

4,315,592

DISPOSABLE RECEPTACLE FOR EXPENDABLE ITEM

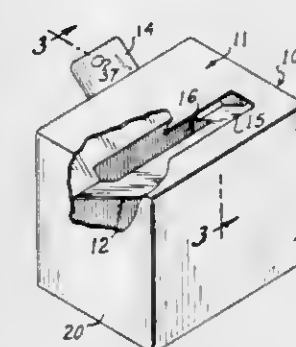
Daniel L. Smith, 943 Oak Springs Court, Stone Mountain, Ga. 30083

Filed Sep. 18, 1980, Ser. No. 188,324

Int. Cl.³ B65D 5/10, 85/00

U.S. Cl. 229—38

6 Claims



1. A receptacle for receiving expendable items, said receptacle including a container, a first baffle generally closing the top of said container and defining a first opening through said first baffle of such size and shape to receive said expendable items therethrough, a second baffle disposed below said first baffle, said second baffle defining a second opening therethrough of such size and shape to receive said expendable items, said second opening being horizontally displaced from said first opening, said first baffle and said second baffle defining a space

therebetween sufficient to allow said expendable items to pass through said first opening, between said first baffle and said second baffle, and through said second opening to be received within said container.

4,315,593

DEVICE FOR CENTRIFUGING LIQUIDS CONTAINING PARTICLES OR CELLS IN SUSPENSION

Claude Matte, Paris, France, assignor to Centre National de Transfusion Sanguine, Paris, France

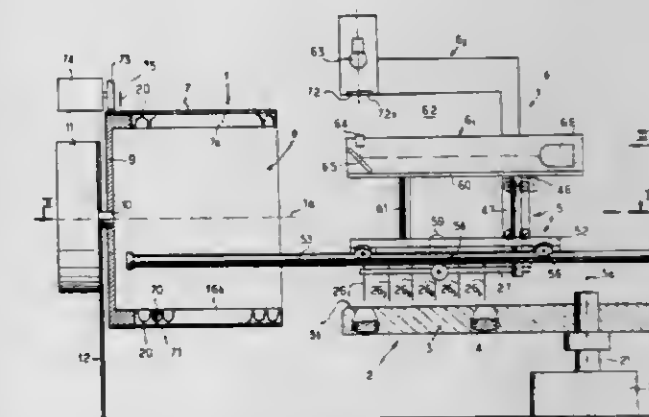
Filed Feb. 22, 1979, Ser. No. 14,092

Claims priority, application France, Mar. 1, 1978, 78 05899

Int. Cl.³ B04B 11/04

U.S. Cl. 233—21

26 Claims



1. A device for centrifuging liquid, comprising a vessel having an orifice and adapted to hold the liquid to be centrifuged, and means for rotating the vessel around an axis of rotation of the device, said vessel having a shape chosen and being made of a material chosen so as to create, in the absence of rotation of the device, forces of attraction between the liquid and the vessel which prevent the liquid from escaping from the vessel irrespective of the position of the latter, the axis of rotation of said vessel being horizontal, the orifice of said vessel facing said axis of rotation.

4,315,594

CONNECTION APPARATUS FOR A FIRE ALARM

Werner A. Niederöst, Schmerikon, Switzerland, assignor to Cerberus Ltd., Männedorf, Switzerland

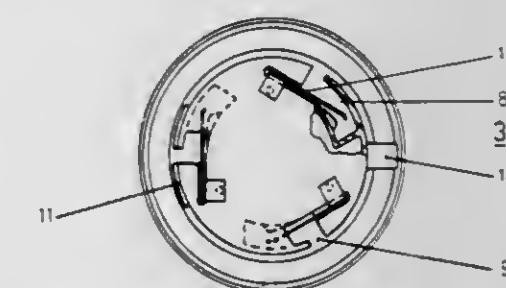
Filed Jan. 7, 1980, Ser. No. 110,006

Claims priority, application Switzerland, Jan. 23, 1979, 695/79

Int. Cl.³ G08B 17/00; H01R 13/50

U.S. Cl. 340—693

9 Claims



1. A connection apparatus for a fire alarm containing a socket portion intended to be secured to a room which is to be supervised and a fire alarm insert which can be connected with the socket portion by electrical and mechanical connection elements, the improvement which comprises:
an arrangement of at least three connection elements around the periphery of the socket portion;
an arrangement of contact springs, said contact springs being arranged in grooves arranged around the periphery of a side of the fire alarm insert confronting the socket portion;

said connection elements and said grooves coming into engagement with one another such that during a first partial rotation of the fire alarm insert there is established the mechanical connection and during a subsequent second partial rotation of the fire alarm insert, in the same directional sense, there is established the electrical connection.

4,315,595

MULTI-APARTMENT REMOTE TIME VARIABLE TEMPERATURE REGULATOR AND RECORDER

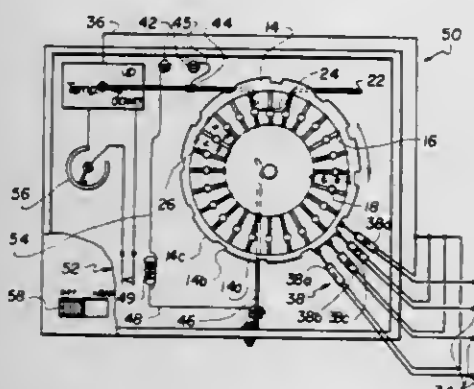
Frank C. Martucci, 360 Tom Hunter Rd., Fort Lee, N.J. 07024

Filed Nov. 15, 1979, Ser. No. 94,384

Int. Cl.³ F23N 5/20; G05D 23/00

U.S. Cl. 236—46 R

16 Claims



1. A temperature control and monitoring device for a heater of a building having a plurality of separate areas comprising: a motor having a shaft rotatable at constant speed, a disc connected to said shaft having a plurality of radially extending slots, a pin means slidable in each of said slots and positionable at a selected radial position, a temperature indicator having a shaft rotatable by a change in temperature and responsive to a temperature sensed by temperature sensing members, a plurality of temperature sensing members, each in one of the separate areas, for sensing the temperature in each of the areas respectively, connected to said temperature indicator, selector means connected between said plurality of temperature sensing members and said temperature indicator for selectively connecting one of said sensing members at a time for a predetermined time period and at predetermined intervals to said temperature indicator, a control arm connected to said temperature indicator shaft and engageable with at least one of said pin means, and circuit means connected to said control arm, said pin means and the heater for starting the heater when the temperature indicator shaft rotates to engage said control arm with said at least one pin means in response to the temperature sensed by said connected sensing member, said pin means positioned on said disc in a pattern to produce a selected temperature control for each full rotation of said motor shaft, whereby the heater is controlled in accordance with temperature sampled from the separate areas.

4,315,596

ENERGY CONSERVATION SYSTEM FOR INNS, HOTELS, AND MOTELS

Philip Johnson, Jr., Santa Ana; Luis Mendoza, Tustin, and Donald Sodaro, Santa Ana, all of Calif., assignors to Innkeepers Electronics, Inc., Santa Ana, Calif.

Filed Mar. 11, 1980, Ser. No. 129,248

Int. Cl.³ G05D 23/00; H01H 3/16

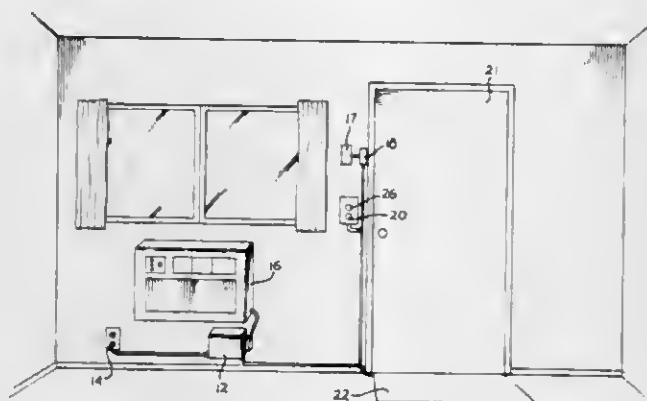
U.S. Cl. 236—94

35 Claims

1. A system for reducing the unproductive consumption of energy by equipment primarily intended to be operated during

the presence of a person or thing in the area of operation of said equipment and for preventing the recycling of said equipment in the event a person or thing is absent from the area of operation for a short period of time, said system comprising:

first input means responsive to the entrance of said area of operation being closed for providing a first input signal when said entrance is closed;
second input means responsive to a person or thing passing at least one point within the area of operation for providing a second input signal when said at least one point is passed;
first latch means responsive to said first and second input means for providing a presence-detected signal upon both of said first and second input signals being applied to said first latch means and maintaining said presence-detected signal for so long as said first input signal is applied to said first latch means, said first latch means providing an absence-detected signal upon said first input signal being



removed and maintaining said absence-detected signal until both of said first and second input signals are applied to said first latch means;
first output means for providing an enabling signal and a disabling signal, said first output means being coupled to said first latch means; and
first delay means for providing a first delay signal for a first predetermined time period starting when said first latch begins providing said absence-detected signal, said first delay means being coupled to said first latch means and said first output means;
said first output means providing said enabling signal when any of said presence-detected signal and said first delay signal is present and providing said disabling signal when none of said presence-detected signal and said first delay signal is present, said system being coupled to said equipment, said equipment being operable when said enabling signal is present and being inoperable when said disabling signal is present.

4,315,597

WATER PRE-HEATER OF A REFRIGERATION SYSTEM

Jerome Garraffa, Jr., 60 Simmons Dr., East Islip, N.Y. 11730

Filed May 2, 1977, Ser. No. 792,511

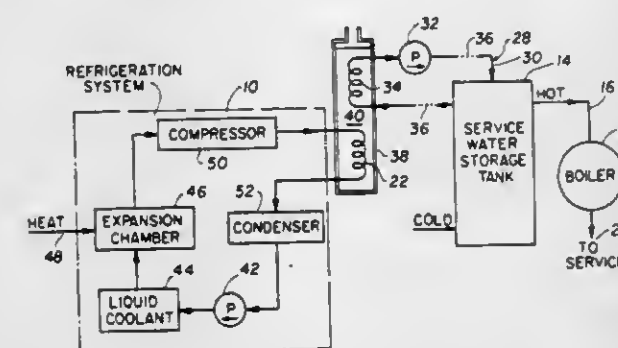
Int. Cl.³ G05D 23/00

U.S. Cl. 237—2 B

2 Claims

1. A refrigeration system advantageously used to pre-heat water without danger of contamination, comprising a condenser coil of said refrigeration system defining a sealed flow passage for the refrigerant of said system during change thereof from its vapor phase into its liquid phase and thus when it releases heat, a water storage tank at a remote location from said condenser coil containing a volume of water desirably raised to an elevated temperature preparatory to use, a boiler operatively effective to primarily heat said volume of water, a water circulation system for supplementing the heat input to said volume of water consisting of a closed conduit loop for continuously circulating the water of said stored volume, a heat exchange coil defining a sealed flow passage for said

circulating water disposed in said closed conduit loop having an operative position in adjacent relation to said condenser coil, a pump disposed in said closed conduit loop effective to produce flowing movement in said water for a selected distance so as to contribute to a remote location of said water storage tank in relation to said condenser coil, a heat exchange housing disposed in enclosing relation about said adjacently located condenser and heat exchange coils, and a heat ex-



change fluid in said heat exchange housing immersing both said condenser and heat exchange coils to thereby cause said released heat of said condenser coil to be transferred to said water circulating through said heat exchange coil, whereby said circulating water is pre-heated prior to service during its sealed confinement within said heat exchange coil by heat salvaged from said refrigerant in sealed confinement within said condenser coil.

4,315,598

HEAT EMITTER UNIT FOR A HOT WATER HEATING SYSTEM

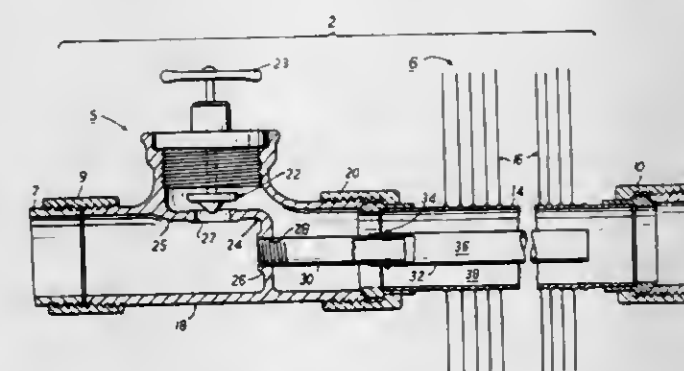
Stephen M. Madigan, Nutley, N.J., assignor to Danfoss A/S, Nordborg, Denmark

Filed Jul. 31, 1980, Ser. No. 173,985

Int. Cl.³ F24H 3/00

U.S. Cl. 237—70

3 Claims



1. A heat emitter unit for a hot water heating system, comprising, a valve section having a casing, a heat emitter section including a pipe section and fin means attached to said pipe section, means connecting said valve and pipe sections, partition means for said valve casing having a bypass opening and a valve seat opening, centrally disposed tube means forming a central passage and an annular passage, said tube means extending from said bypass opening to a point generally aligned with the downstream side of said fin means, and controllable closure means for cooperation with said valve seat opening to control the flow of fluid through said passage.

4,315,599

APPARATUS AND METHOD FOR AUTOMATICALLY WATERING VEGETATION

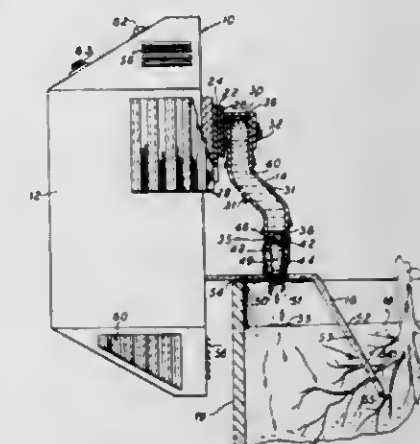
Robert P. Biancardi, 6929 Northcote, Hammond, Ind. 46324

Filed Mar. 3, 1980, Ser. No. 126,408

Int. Cl.³ A01G 25/02

U.S. Cl. 239—10

16 Claims



1. A device for providing a supply of liquid water from the ambient atmosphere comprising the combination:
a thermocouple having means forming a thermally hot side and a thermally cold side when energized with electrical current,
electrical circuitry for operably energizing said thermocouple with electric current, and
a non-corrodible, hollow condensation member containing a thermally conductive fluid and having an outer condensation surface exposed to the ambient atmosphere and being thermally connected to said cold side of said thermocouple, whereby said electrical current flows through said electrical circuitry to said thermocouple producing a cold side on said thermocouple, said coldness removing heat from said condensation member resulting in said condensation member achieving a temperature below that of the ambient dew point temperature causing water vapor in the air to condense on said condensation surface of said condensation member in sufficient amounts so as to collect into drops and gravitationally drip from said condensation member.

4,315,600

SPRAY GUN INJECTOR

Edward J. Rhoades, Troy; Edwin C. Rosenberger, Piqua, and Jerome A. Waker, Casstown, all of Ohio, assignors to Chem-Lawn Corporation, Columbus, Ohio

Filed Jan. 17, 1980, Ser. No. 112,883

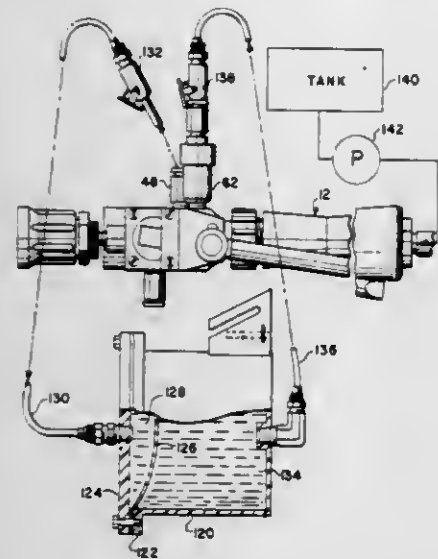
Int. Cl.³ B05B 7/28

U.S. Cl. 239—74

5 Claims

1. In combination with a spray gun including a muzzle and means for controlling the flow of a liquid through said muzzle, an injector comprising:
a main body section having a passage formed therethrough, means mounting said main body section on said gun with said passage communicating with said muzzle whereby said liquid flow through said passage is controlled by said spray gun flow control means,
a liquid-tight container,
a flexible diaphragm separating said container into first and second chambers,
first means placing said first chamber and said passage in communication with each other at a first point along said passage whereby liquid pressure in said passage is transmitted directly to said first chamber an indirectly through said diaphragm to said second chamber,
second means placing said second chamber in communication with said passage at a second point therealong spaced from said first point,

valve means controlling flow from said second chamber into said passage, said main body section includes an upper portion and a lower portion, said second means placing said second chamber in communication with said passage includes an inlet into said main body section,



an opening in said main body section at said second point along said passage, and a series of interconnecting ports in said upper and lower portions interconnecting said inlet and said opening at said second point along said passage.

4,315,601

CHEMICAL INJECTOR

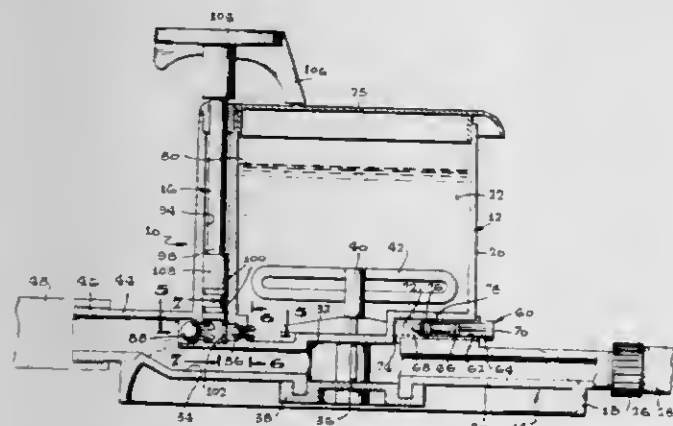
Steven A. Brooker, c/o Brooker Chemical Corp., 7633 Varna Ave., North Hollywood, Calif. 91605

Filed Aug. 4, 1980, Ser. No. 174,743

Int. Cl.³ B05B 7/04

U.S. Cl. 239—142

15 Claims



1. A chemical injector comprising:
 - a reservoir for containing a chemical-bearing liquid;
 - a water flow channel having an inlet and an outlet, with its inlet being for the connection to a supply of water under pressure and its outlet being for connection to equipment for the discharge of a liquid;
 - a Venturi tube in said water flow channel for causing a zone of reduced pressure when water flows through said water flow channel from the inlet to the outlet thereof;
 - an aspirating channel provided between said reservoir and said zone of reduced pressure for aspirating chemical-bearing liquid from said reservoir into said water flow channel, said aspirating channel having first and second check valves therein, both of said check valves permitting flow in a direction from said reservoir to said zone of reduced pressure and preventing flow in the opposite direction;
 - a cylinder bore between said check valves, a stem in said cylinder bore, a skirt on said stem, said skirt extending

across said aspirating channel and being positionable within said aspirating channel to control flow through said aspirating channel, depending on position of said stem, said stem also having a piston thereon slidably received in said cylinder bore so that motion of said stem pumps liquid from said reservoir into said zone of reduced pressure so that said stem controls aspirated flow and movement of said stem controls pump flow from said reservoir into said water flow channel.

4,315,602

ROADSIDE SPRAY APPARATUS

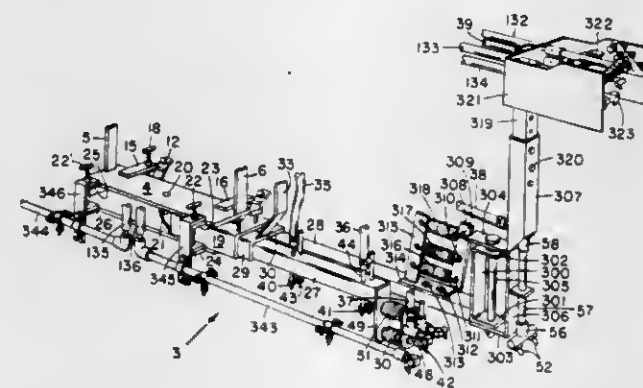
Johnny L. Kuback, and Gary D. Byrd, both of Bulverde, Tex., assignors to Cibola Manufacturing, Inc., Jourdan, Tex.

Filed Aug. 17, 1979, Ser. No. 67,552

Int. Cl.³ B05B 1/20

U.S. Cl. 239—163

1 Claim



1. A spray apparatus for roadside spraying from a moving vehicle; comprising:
 - a boom arm for pivotally mounting on the front of the vehicle to transversely position one end of the boom arm at either side of the vehicle;
 - an outer spraying means pivotally mounted at the outer end of the boom arm about a generally vertical pivot pin for pivoting of the outer spraying means in either direction upon engaging an obstacle;
 - means to normally maintain the outer spraying means in a central position and to return said outer spraying means to the central position after it is disengaged by an obstacle;
 - the means to maintain and return including a pivot arm pivotally mounted for pivoting in either direction about the pivot pin and extending past the pivot point away from the outer spraying means to act as a lever arm for the means to maintain and return the outer spraying means;
 - the means to maintain and return including a plurality of extension springs connected with the lever arm to bias the lever arm to a central position to normally maintain the boom in its central position;
 - the means to maintain and return an adjustable support connected with the plurality of extension springs and having a slidable mounting means to adjust the tension in the springs to vary the amount of force required to pivot the outer spraying means from its normal central position;
 - the boom arm is pivotally mounted at its inner end for alternately positioning the outer end of the boom arm on either side of the vehicle;
 - the outer spraying means includes a generally vertical telescoping support member supporting a plurality of spraying means; and
 - the plurality of spraying means includes plural separate sets of spraying nozzles for selectively spraying separate areas extending outwardly from the support member.

4,315,603

FUEL INJECTION VALVE

Takashi Nakajima, and Iwao Ohno, both of Higashi-Matsuyama, Japan, assignors to Diesel Kiki Co., Ltd., Tokyo, Japan

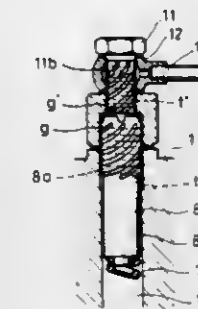
Filed Feb. 14, 1980, Ser. No. 121,523

Claims priority, application Japan, Feb. 26, 1979, 54-22873[U]

Int. Cl.³ B05B 1/32

U.S. Cl. 239—533.3

4 Claims



1. In a fuel injection valve including a needle valve, a nozzle body in which said needle valve is seated, a casing assembly holding said needle valve and said nozzle body and leakage fuel drain pipe means coupled to said casing assembly,

the improvement comprising a combination of:

a spring accommodated in said casing assembly and urging said needle valve against said nozzle body;

an adjusting threaded member having two ends, said adjusting threaded member being displaceably mounted in said casing assembly and urging at one end thereof said spring for adjustment of the setting force thereof through displacement thereof; and

a coupling threaded member engaged with said casing assembly and having two ends, one end thereof being arranged adjacent the other end of said adjusting threaded member, said coupling threaded member being adapted to connect said leakage fuel drain pipe means to said casing assembly;

said casing assembly having a threaded inner peripheral surface, and said adjusting threaded member and said coupling threaded member each having an outer peripheral surface thereof which is threaded and which is threadably engaged by said threaded inner peripheral surface of said casing assembly, said threaded outer peripheral surfaces of said adjusting threaded member and said coupling threaded member and said threaded inner peripheral surface of said casing assembly being configured such that continuous gaps are formed therebetween to act as leakage fuel passages;

said adjusting threaded member and said coupling threaded member each have said threaded outer peripheral surface thereof formed therein with at least one helical groove extending a direction opposite to the direction of formation of a screw thread formed on the same threaded peripheral surface, said helical groove having a bottom face lying more radially inward than the bottom face of said screw thread, said helical grooves comprising said continuous gaps.

4,315,604

MEAT GRINDER WITH MEANS FOR SEPARATING GRISTLE FROM THE GROUND MEAT

Richard Meyenschein, Schriesheim-Altenbach, Fed. Rep. of Germany, assignor to Christ KG, Schriesheim-Altenbach, Fed. Rep. of Germany

Filed May 5, 1980, Ser. No. 146,691

Claims priority, application Fed. Rep. of Germany, May 14, 1979, 2919321

Int. Cl.³ B02C 18/36

U.S. Cl. 241—82.5

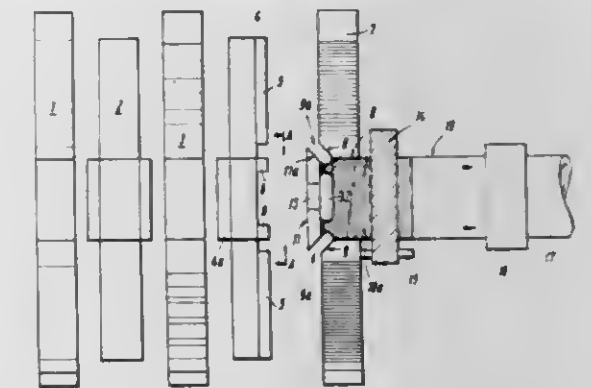
7 Claims

1. Means in a meat grinding device for separating gristle,

sinews and like tough material from the meat to be ground, which comprises the combination of

(a) an apertured discharge disc for the ground meat having an input side and an output side, the disc defining (1) an axial bore having a threaded cylindrical portion and an adjoining funnel portion outwardly tapering in the direction of the input side,

(b) rotary cutter means comprising a separating knife having a plurality of radially extending cutter blades in axial alignment with the disc, the knife including



(1) obliquely extending cutting edges adjacent the input side of the disc and arranged to convey the tough material towards the axial bore, and

(c) a separating casing including

(1) an annular threaded portion engaging the threaded cylindrical portion of the axial bore for threadably mounting the casing in the bore for axial adjustment in relation thereto, and

(2) an adjoining outwardly flaring separating head conforming to the funnel portion of the bore,

(3) the annular threaded portion defining at least one separating aperture adjacent the head.

4,315,605

HAMMER MILL ROTOR

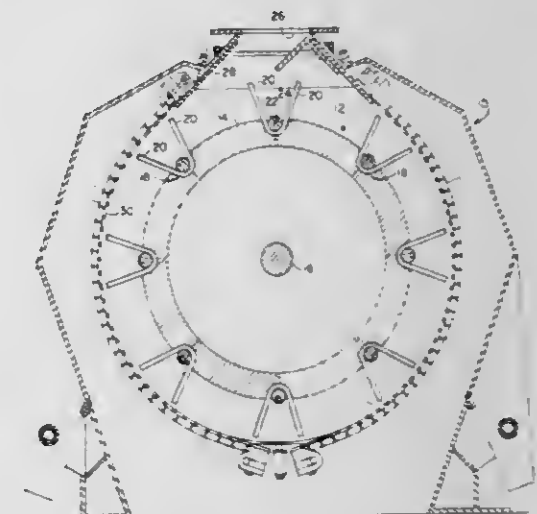
John V. Vargo, Jr., Muncy, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Filed Nov. 13, 1979, Ser. No. 93,805

Int. Cl.³ B02C 13/02

U.S. Cl. 241—192

4 Claims



1. A rotor for hammer mills comprising a rotor body and a hammer secured to said rotor body, said hammer releasably and adjustably secured to said body by a separable attachment device and said hammer being comprised essentially of flexible wire rope.

4,315,606

FISHING ROD EYE TYING DEVICE

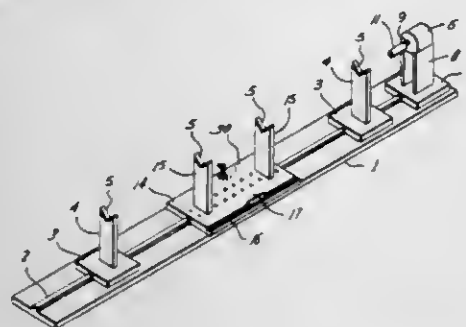
Roger S. Seiders, 12102 Cathy Dr., Houston, Tex. 77065

Filed Jan. 11, 1980, Ser. No. 111,392

Int. Cl.³ B65H 81/02

U.S. Cl. 242-7.19

6 Claims



1. In a device for tying eyes on a fishing rod, a base member, a track longitudinally mounted on said base member, central rod supporting means, a longitudinal slot for slidably receiving the track of the base member, a rod rotating means on said base member and longitudinally adjustable outside rod supports in horizontal alignment with said rotating means mounted on said base member, thread supporting means on said central rod supporting means having a tension device for maintaining tension on thread to be applied to a rod, said central rod supporting means further having a groove, and a shuttle mounted in said groove on said thread supporting means for guiding said thread as it is wound on the rod.

4,315,607

METHOD AND APPARATUS FOR OBTAINING PREDETERMINABLE AND EXACT YARN LENGTH ON CROSS-WOUND BOBBINS

Ernst Felix, Uster, Switzerland, assignor to Zellweger Uster, Ltd., Uster, Switzerland

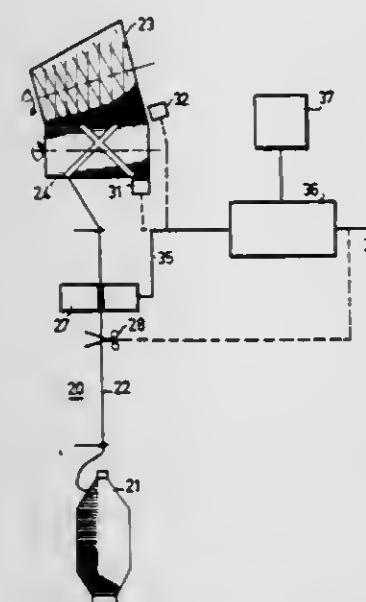
Filed Mar. 4, 1980, Ser. No. 127,058

Claims priority, application Switzerland, Apr. 10, 1979, 3413/79

Int. Cl.³ B65H 63/08

U.S. Cl. 242-36

14 Claims



1. A method of obtaining predetermined and exact yarn lengths on cross-wound bobbins during a winding process, wherein complete cops of precisely-known yarn length and also partial cops are unwound, the method comprising the steps of selecting a reference quantity (Rv) as an auxiliary quantity, which is at least approximately correlated with the yarn length (Lks) on the cross-wound bobbin; comparing for each cop the measured auxiliary quantity to the reference quantity (Rv) to determine if the cop provides the yarn lengths (Lt) of an unwound partial cop or the unwound length (Lr) of a remnant cop which is still being unwound; calculating the

yarn lengths (Lt) and (Lr) of partial and remnant cops, respectively, obtaining a total of the wound yarn lengths (Lv), (Lt) as each cop is unwound until that total equals the required yarn length (Lks) on the cross-wound bobbin, and interrupting the winding operation when a length (Lks) has been reached.

4,315,608

TAPE MANDREL

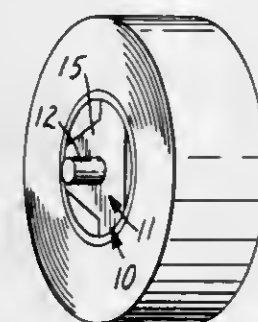
Larry A. Bettenhausen, Stillwater, Minn., assignor to Minnesota Mining & Manufacturing Company, St. Paul, Minn.

Filed Sep. 22, 1980, Ser. No. 189,082

Int. Cl.³ B65H 17/02

U.S. Cl. 242-68

3 Claims



1. A unitary molded plastic mandrel for supporting a core containing convolutely wound material comprising: two spaced parallel generally triangular end plates having opposed faces and outer end faces; a cylindrical stub shaft projecting perpendicular from the outer end face of each end plate, said shafts being axially aligned to define the axis of the mandrel, and arcuate plates defining segments of a cylinder connecting said triangular end plates at corresponding corners of said triangular end plates, said arcuate plates having outer edges parallel to the axis of the mandrel, said arcuate plates being spaced at equal radial distances from said axis and each plate having a rib extending axially along the convex surface of the arcuate plate for engaging the inner cylindrical surface of the core.

4,315,609

TARGET LOCATING AND MISSILE GUIDANCE SYSTEM

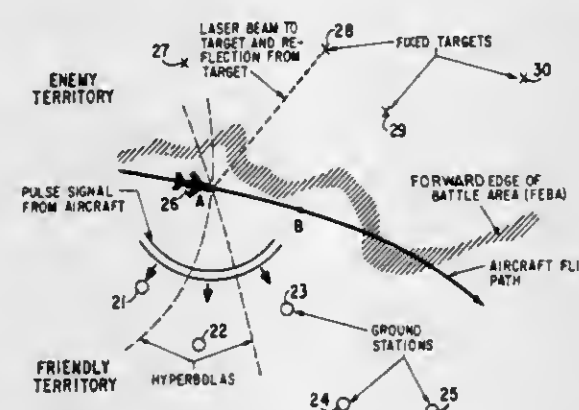
James D. McLean; Frederick C. Alpers, both of Riverside; George R. Lanning, San Diego, and Fred H. Camphausen, China Lake, all of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jun. 16, 1971, Ser. No. 154,235

Int. Cl.³ F41G 7/28

U.S. Cl. 244-3.14

13 Claims



1. In a missile guidance system for guiding one of a plurality of missiles to a surface target or targets the combination comprising:

- (a) an aircraft having target location equipment including a laser range finder, an altimeter, and a microwave pulse transmitter that are operated in synchronism for transmitting data for fixing a target location with respect to an artificial coordinate system;
- (b) a plurality of ground stations, each of which receives the microwave pulse signals from the aircraft, and supplies output signals from which the target location relative to the ground station positions can be determined based on pulse time of arrival data and the said laser ranging and altimeter data;
- (c) transmission means associated with at least one of the said ground stations for transmitting guidance information to at least one missile;
- (d) receiving, sorting, and signal processing means within said missile for receiving and extracting said guidance information from said ground station in order to direct the missile in yaw toward a point approximately above the target and then downward toward the target in pitch; and
- (e) directional information resolver circuit means for using the differences in times of arrival of pulses in order to establish the instantaneous position of the missile in terms of coordinates that constitute said artificial coordinate system.

4,315,610

OPTICAL IMAGE STABILIZING SYSTEM

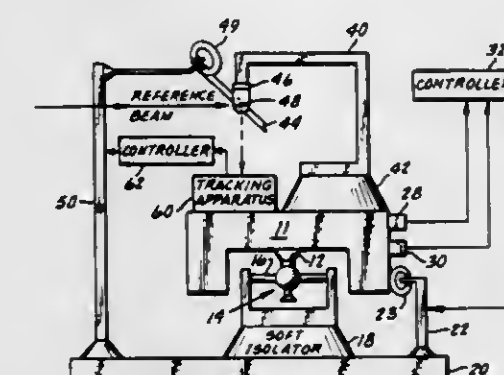
Richard M. Malueg, Glendora, Calif., assignor to McDonnell Douglas Corporation, Long Beach, Calif.

Filed Aug. 2, 1978, Ser. No. 930,142

Int. Cl.³ F41G 7/00; F42B 15/02; G06F 15/50

U.S. Cl. 244-3.16

25 Claims



1. A stabilizing system comprising:
 - a. at least one platform supported for movement relative to mechanical ground;
 - b. at least one reflector for receiving electromagnetic energy mounted on said platform; and
 - c. means for stabilizing said reflector by reference to said mechanical ground and apart from any movement of the platform.

4,315,611

DEVICE FOR SUSPENDING ARTICLES FROM A CEILING OR THE LIKE

James B. Hoop, 8127 E. 12-Apt. 2, Tulsa, Okla. 74112

Division of Ser. No. 921,893, Jul. 5, 1978, Pat. No. 4,221,355.

This application Dec. 13, 1979, Ser. No. 103,050

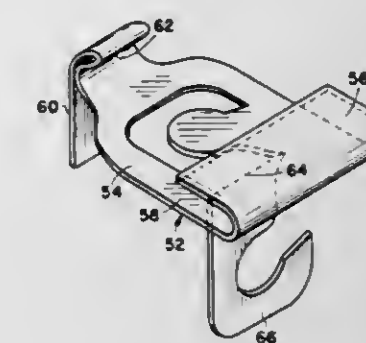
Int. Cl.³ B42F 13/00

U.S. Cl. 248-340

1 Claim

1. A device for facilitating securing of articles to a ceiling and comprising substantially flat main body means for receiving an outer surface of a ceiling channel means there-against, flange engaging means provided on the main body means for selective engagement with the ceiling channel member, hook means carried by the main body means for receiving the articles to be suspended from the ceiling, said flange engaging means comprising a flange engaging member provided at one side of the body and extending in a reverse direction in spaced substantially parallel relation thereto providing a hiatus open

for receiving one edge of the channel member therein, a yieldable hook member oppositely disposed from said flange engaging member and adapted for releasable engagement with the opposite edge of the channel member, said yieldable hook member extending in a first direction toward the flange engaging member and then in a reverse direction away from the



channel member terminating in a planar member disposed substantially perpendicular with respect to the main body means, and wherein the hook means comprises a hook-shaped member integral with the main body member and extending outwardly therefrom at substantially right angles with respect to the plane of the main body means and in an opposite direction with respect to the flange engaging means.

4,315,612

FISHING ROD EXTENDER

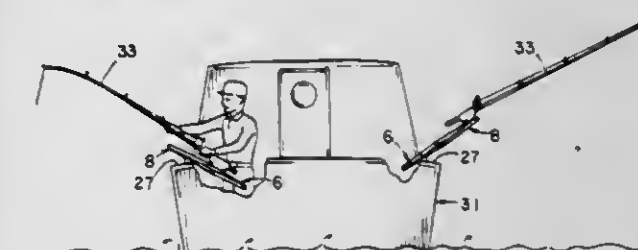
Benjamin Levine, Rte. 5, Box 1230-34, and Willis J. Belfield, P.O. Box 937, both of Sequim, Wash. 98382

Filed May 10, 1979, Ser. No. 37,817

Int. Cl.³ A01K 97/10

U.S. Cl. 248-538

3 Claims



1. A fishing rod extender to be mounted on a boat to slidably receive the handle of a fishing rod on an incline and thereafter while remaining inclined to be manipulated to move an assembly of a fishing rod, reel, line, and lure transversely both toward and away from the centerline of a boat moving the rod and reel inwardly for adjustments and/or removal, and outwardly during fishing periods, to clear the fishing line farther away from the boat, comprising:

- (a) a parallelogram linkage for securement at its bottom link to a mounting means;
- (b) a fishing rod handle slidable receiving means secured at its bottom to the top link at one end thereof of the parallelogram linkage, the extending of the parallelogram in one direction toward the centerline of the boat placing the reel and handle of the fishing rod in a convenient stable in-board position for adjustment and removal by a fisherman, and in the other direction for placement outboard in a stable fishing position, and
- (c) a mounting means secured to the bottom link of the parallelogram linkage and comprising an element having fastener receiving openings and a support engaging surface positioned at an acute angle relative to the longitudinal axis of the bottom link, and adapted to be removably secured to a boat near one side and arranged to position the bottom link of the parallelogram linkage on an incline at an upwardly directed angle, and consequently so positioning the top link of the parallelogram linkage, the fishing rod handle slidable receiving means, and any inserted

fishing rod handle and rod thereby always keeping the fishing rod in place until it is intentionally removed by the fisherman.

4,315,613 MECHANICAL HEIGHT ADJUSTMENT MECHANISM FOR CHAIRS

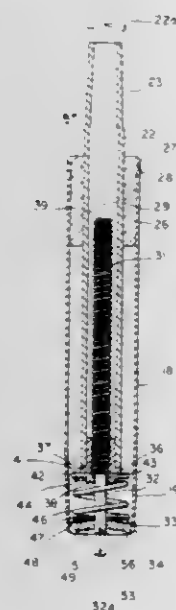
Robert H. Godwin, and Herbert E. Collignon, both of Evansville, Ind., assignors to Bliss & Laughlin, Oak Brook, Ill.

Filed Nov. 1, 1979, Ser. No. 90,339

Int. Cl.³ A47C 3/24

U.S. Cl. 248—406

8 Claims



1. A vertically adjustable spindle assembly for a chair or the like, said assembly comprising:

first column means having an end portion adapted to attachment to base means;

second column means on said first column means and having an end portion adapted to attachment to seating means;

first guide means on said first column means and guidingly engaging said second column means for guiding relative linear movement of said second column means on said first column means;

first support means on said first column means and engaging said second column means for controlling longitudinal positioning of said second column means relative to said first column means;

said first support means and second column means having linear longitudinal axes and being rotatable with respect to each other about said axes;

said first support means and second column means having cooperable screw means thereon for causing relative linear movement between said first support means and said second column means upon relative rotation therebetween, to thereby change longitudinal position of said second column means relative to said first column means, said cooperable screw means including a screw on said first support means and a nut secured in said second column means, said nut being threaded onto said screw;

first rotational stop means in a cooperating relationship with said first column means and said first support means to prevent relative rotation between said first support means and said first column means in the absence of an external compressive load on said first and second column means in a direction tending to move said end portions toward each other, whereby rotation of said second column means relative to said first column means will change longitudinal position of said second column means on said first column means;

said first support means further including a compression spring inside said first column means in a force transmitting relationship to said first and second column means

and applying a force on said first column means and through said screw to said second column means and thereby urging said first and second column means in a direction tending to move said end portions away from each other and establishing and maintaining the said cooperating relationship preventing said relative rotation.

4,315,614 CONSTANT TORQUE PIVOT ASSEMBLY

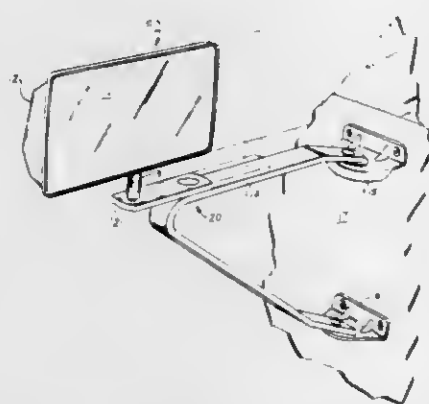
Philip D. Stegenga, and Wayne Vanden Brink, both of West Olive, Mich., assignors to Donnelly Mirrors, Inc., Holland, Mich.

Filed May 16, 1977, Ser. No. 797,023

Int. Cl.³ B60R 1/02

U.S. Cl. 248—479

3 Claims



1. A pre-assembled constant torque pivot assembly for connecting an apertured pivot arm supporting a mirror or the like to an apertured support bracket, said support bracket being adapted for coupling without modification, to either the left-hand or the right-hand side of a vehicle comprising:

a pivot axle extending through said pivot arm and support bracket apertures and retaining said pivot arm and support bracket in lap joint relationship to one another;

a first frictional washer fabricated of a noncorrosive material and mounted on said pivot axle between said pivot arm and said support bracket;

a second frictional washer mounted on said pivot axle on the other side of one of said pivot arm or support bracket, said second frictional washer being fabricated of a noncorrosive material;

a spring washer mounted on said pivot axle on the outside of said second washer from said pivot arm and support bracket and bearing directly against said second washer; and

said pivot axle having two longitudinally and rotationally fixed, nonadjustable heads; one head being at each end of a shank between said heads; said pivot arm, said support bracket, said first washer, said second washer and said spring washer being mounted on said shank; said heads being spaced sufficiently close together to retain said spring washer in compression to provide a compressive force between said two heads which is applied to said first and second washers whereby relative rotation between said pivot arm and said support bracket is resisted by a constant torque.

4,315,615 HANGER SUPPORT

Victor Scocozza, 117 E. 30th St., New York, N.Y. 10016

Filed Sep. 17, 1980, Ser. No. 188,136

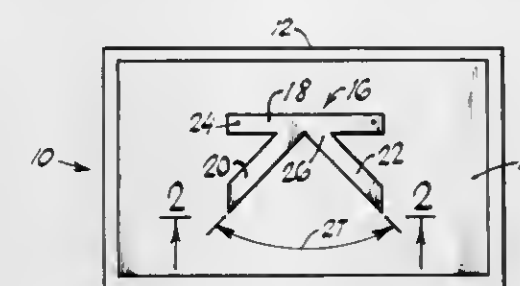
Int. Cl.³ A47G 1/16

U.S. Cl. 248—489

7 Claims

1. A hanger device to position and maintain the position of an object relative to a support structure comprising a first unit with means to attach the first unit, having the configuration of a rotated "K", to the object, the unit having a support bar and

legs extending therefrom wherein each of the legs has an overhang; and a second unit, having the configuration of a modified "V" with means for attachment to the support structure, the second unit having a plurality of legs each of which has an



extended edge which forms a channel with the remainder of the leg and support structure to respectively receive the overhang of each leg of the first unit in a complementary engagement when the second unit is attached to the support structure.

4,315,616 DUMP VALVE

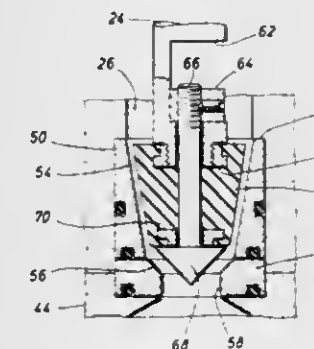
Robert H. Welker, P.O. Box 138, Sugar Land, Tex. 77478

Filed Feb. 1, 1980, Ser. No. 117,400

Int. Cl.³ F16K 1/38

U.S. Cl. 251—210

10 Claims



1. A dump valve which comprises:

(a) a valve body having an axial passage therethrough with an inlet and outlet connected to said passage, said inlet delivering dump fluid to said axial passage which flows through said outlet;

(b) valve operator means incorporating an elongate push rod positioned in said valve body and extending along said axial passage, said push rod movably received therein and supporting a movable stem;

(c) a first valve seat being removably positioned within said axial passage upstream of said outlet;

(d) hard valve means supported by said push rod for movement into contact with said valve seat for sealing said axial passage against flow between the inlet and outlet thereof, said movable stem being secured to said hard valve means;

(e) a second removable valve seat serially arranged with said first valve seat in said axial passage;

(f) soft valve means surrounding said stem and being squeezed between said hard valve means and said push rod, said soft valve means being radially expandable on application of a compressive force thereto, whereby radial expansion of said soft valve means forms sealing contact against said second valve seat;

(g) wherein said first and second valve seats are located serially in said passage to control flow through said outlet; and

(h) means retaining said first and second valve seats in fixed and removable assembly within said axial passage.

4,315,617 LINE HAULERS

William Kingston, 49 Sandymount Ave., Dublin 4, Ireland

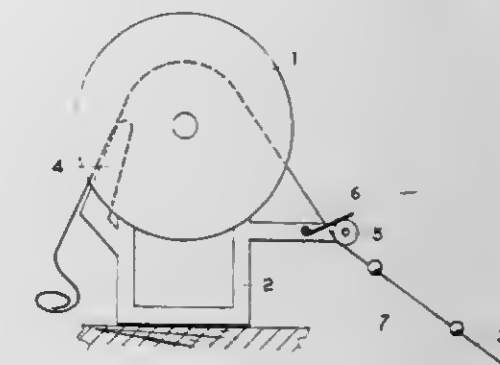
Continuation-in-part of Ser. No. 779,543, Mar. 21, 1977, abandoned, which is a continuation-in-part of Ser. No. 659,229, Feb. 19, 1976, abandoned. This application Jun. 5, 1978, Ser. No. 912,437

Claims priority, application United Kingdom, Feb. 20, 1975, 07096/75; Jun. 6, 1975, 24504/75

Int. Cl.³ A01K 73/06

U.S. Cl. 254—371

4 Claims



1. Powered line hauling means of the type wherein a line is pulled by frictional contact between rotatable V-groove surfaces, incorporating means for controlling the traction on said line, limited to automatic non-destructive means for preventing a length of said line from entering into said fractional contact, so as to break all tractive contact between said line and said surfaces, said contact-breaking means comprising a plurality of elements in sequence on said line, each of which renders said line too thick to enter into tractive contact with said V-groove surfaces, the distance between any pair of said elements being such as also to prevent any intermediate section of said line from entering into tractive contact with said groove surfaces, the number of said pairs of elements on said line being so determined that when the line immediately ahead of the leading element is at the normal point of exit from and the intermediate elements are disposed peripherally on, said hauling means, the line immediately behind the rearmost element is not in tractive contact with said hauling means.

4,315,618 MACHINE FOR SPLITTING SLABS BY OXYGEN-CUTTING

Jean Pawlowski, Pont de Steendam, France, assignor to Union Siderurgique du nord et de l'est de la France ("USINOR"), Paris, France

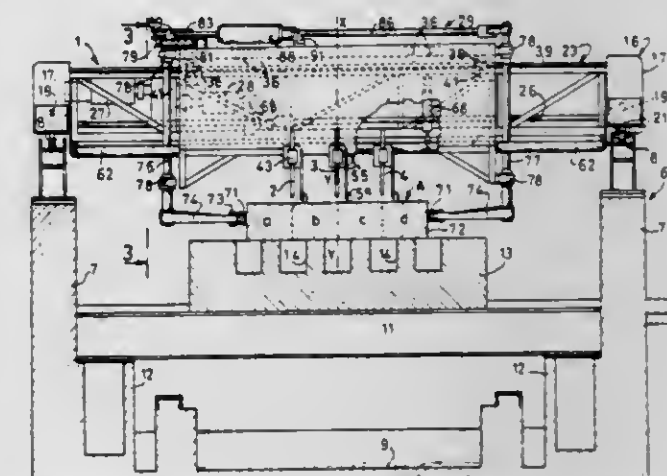
Filed Apr. 22, 1980, Ser. No. 142,842

Claims priority, application France, Apr. 27, 1979, 79 10906

Int. Cl.³ B23K 7/10

U.S. Cl. 266—69

25 Claims



1. A machine for splitting a slab, comprising a fixed support

on which support the slab lies flat, oxygen-cutting blow-pipes for cutting the slab, a bench which carries the blow-pipes and is movable in translation relative to the support in a direction corresponding to a direction in which the slab is cut, a runway carried by the bench, a carriage which is free to move in translation on the runway in a direction perpendicular to said direction of movement of the bench, self-centering means comprising two sensors cooperative with respective transversely opposed sides of the slab, the sensors being carried by the carriage, and means interconnecting the sensors whereby the sensors constantly occupy positions which are symmetrical relative to a vertical plane which coincides with a vertical reference plane of the carriage and is parallel to the slab-cutting direction.

4,315,619

PROCESS AND SYSTEM FOR RECOVERING TOP GAS FROM BLAST FURNACE OR THE LIKE

Kazumi Inoue, Shunzo Tono, and Masaaki Takahashi, all of Yokohama, Japan, assignors to Ishikawajima-Harima Iukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 16, 1980, Ser. No. 159,591

Claims priority, application Japan, Oct. 30, 1979, 54/140159 Int. Cl.³ F27B 11/12

U.S. Cl. 266—89

6 Claims

1. A process for recovering a top gas from a blast furnace comprising the steps of:

- (a) flowing the top gas from a furnace top into a top hopper through a first untreated top gas thereby equalizing the pressure in the top hopper with the pressure in said furnace;
- (b) reducing the pressure in the top hopper to a predetermined level by discharging the gas in said top hopper into a gas holder through a pressure discharge pipe means in communication with said top hopper thus dropping the pressure in said top hopper to the surrounding atmospheric pressure level;
- (c) providing a second partially treated gas conduit means and discharge pipeline means, the latter being located in a branch conduit from said second partially treated gas conduit means and communicating with said first untreated top gas conduit at the downstream side of the junction between said first and second gas conduits;
- (d) and driving pressure reduction means provided in said discharge pipeline means for secondly reducing the pressure in said top hopper to the surrounding atmospheric pressure.

4,315,620

STACK FOR THE THERMAL TREATMENT OF MATERIAL

Friedrich Megerle, and Jörg Krüger, both of Cologne, Fed. Rep. of Germany, assignors to Klockner-Humboldt-Deutz AG, Fed. Rep. of Germany

Filed Mar. 25, 1980, Ser. No. 133,906

Claims priority, application Fed. Rep. of Germany, Apr. 19, 1979, 2915771

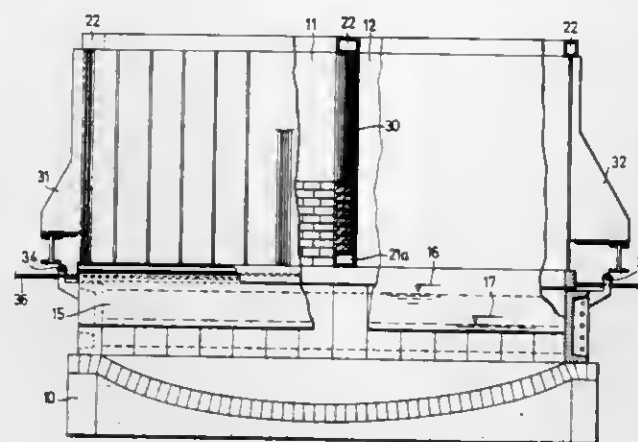
Int. Cl.³ C21B 7/10

U.S. Cl. 266—193

9 Claims

1. A wall structure for a furnace stack comprising a load-bearing lining surface having vertically spaced upper and lower manifold means horizontally enveloping a hot zone in said stack, a membrane wall comprised of a generally annular array of parallel flow pipes interconnected by intermediate wall members and extending vertically between and cooperatively connected with said upper and lower manifold means for conducting a flow of cooling fluid therethrough from one manifold means to the other, said upper and lower manifold

means having respective manifold portions projecting inwardly of said membrane wall and defining an alcove space



vertically therebetween, and insulation material mounted in said alcove space.

4,315,621

SHEET COLLATING DEFLECTOR

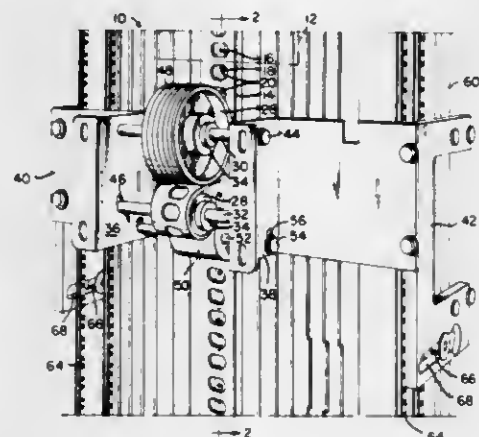
Donald L. Snellman, Seattle, Wash., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 7, 1979, Ser. No. 46,233

Int. Cl.³ B65H 29/60, 39/11

U.S. Cl. 271—296

2 Claims



1. An improved sheet collating device comprising: a column of spaced bins generally arranged along a line; moving flexible sheet conveying means having a first surface on which the sheets to be conveyed rest positioned adjacent the spaced bins for conveying the sheets to be collated in a course substantially parallel to said line; a deflector assembly operatively associated with the sheet conveying means for changing the orientation of the conveying means and thereby varying the course of the sheets, the deflector assembly including first and second rotatably mounted deflector rollers spaced from each other and having their peripheries tangent to a common deflection path defined by the conveying means, the conveying means being wound on the rollers so that the first surface of the conveying means faces toward the periphery of the first roller such that the sheet to be collated is positioned between the conveyor means and the first roller, the first surface of the conveying means facing away from the periphery of the second deflection roller to release the sheet being collated from the conveying means as the conveying means moves from the first deflection roller to the second deflection roller so as to allow the sheet being collated to move along the deflection path at an angle to the bin line; and means whereby the position of the second deflector roller is adjustably movable relative to the first deflection roller to change the conveying means orientation and thereby vary

the angle of the deflection path during normal operation relative to the bin line.

4,315,622

DETACHING DEVICE FOR SHEET MATERIAL

Hermann Idstein, Oestrich-Winkel, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

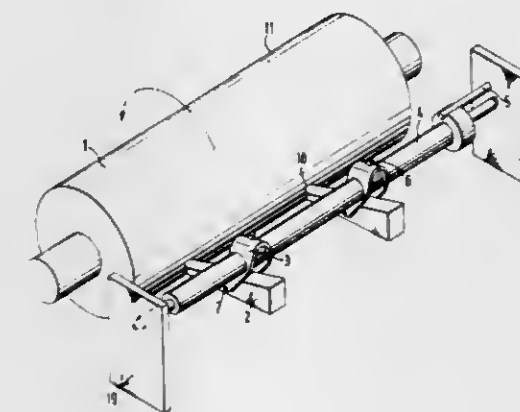
Filed Jun. 16, 1980, Ser. No. 159,515

Claims priority, application Fed. Rep. of Germany, Jun. 28, 1979, 2926085

Int. Cl.³ B65H 29/54

U.S. Cl. 271—311

6 Claims



1. A device for detaching sheet material from the surface of a roller, having a convex surface, comprising: a plurality of detachable fingers pivotably mounted relative to the roller on a carrier rod, each said detachable finger having a contact surface bearing against the surface of the roller, the contact surface having a concave shape with a curvature which matches the convex surface curvature of the roller, and further wherein each contact surface has a convex curvature in a direction transverse to the concave shape.

4,315,623

SKIPPING HOOP APPARATUS

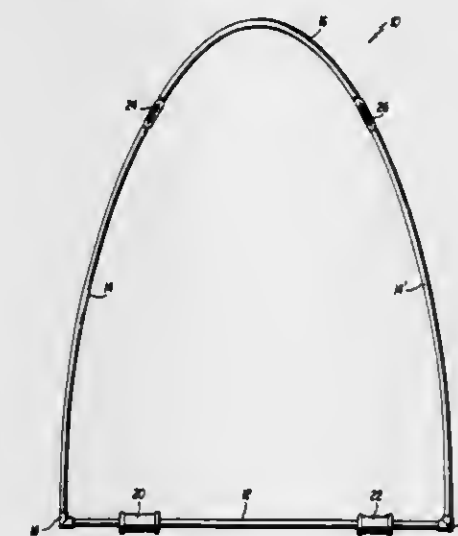
Hermas L. Granderson, P.O. Box 1263, Columbus, Miss. 39701

Filed Jan. 16, 1980, Ser. No. 112,795

Int. Cl.³ A63B 5/22

U.S. Cl. 272—74

3 Claims



1. A skipping hoop apparatus comprising: a curved hoop member comprising a pair of side members and an end member formed of segments of plastic pipe; handle means connected to said hoop side members for swinging the hoop member in a circular motion about the axis of the handle means; a tubular handgrip arranged about said handle means, said

handgrip being freely slidable along the longitudinal axis of said handle means; and noisemaker means for generating an audible signal in response to an airstream passing thereover when said hoop member is swung in said circular motion, said noisemaker means comprising a pair of vibrating reed noisemakers, each having a body member including an elongate slot therethrough and a tensioned reed element affixed in said slot, a respective body member interposed between and interconnecting the hoop end member with a respective one of the hoop side members.

4,315,624

GOLF BALL POSITION MARKER AND GROUND REPAIR TOOL

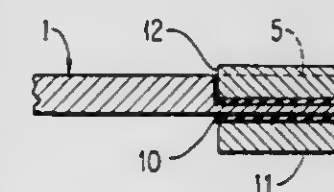
Charles E. Buckman, Summerville, S.C., assignor to Wrightman Enterprises, Inc., Summerville, S.C.

Filed Aug. 14, 1980, Ser. No. 178,143

Int. Cl.³ A63B 69/36

U.S. Cl. 273—32 A

2 Claims



1. A device for use in holding and placing a ball marker and in ground repair comprising:

- a. a ball marker structurally comprising a substantially flat bottom, a substantially flat top, and a body extending from said substantially flat bottom to said substantially flat top;
- b. a structure containing a center section;
- c. a plurality of prongs extending from said center section and operative for use in ground repair;
- d. a ball marker retaining section secured to said center section and operative to hold said ball marker comprising:
 1. a ball marker retaining area, the approximate shape and size of said ball marker and indented into said ball marker retaining section with the shoulder of said indented ball marker retaining area forming a guide for the movement of said ball marker, said ball marker retaining area being of appropriate depth so that said ball marker would extend above said structure which includes said ball marker retaining section wherein movement of an object from said center section toward said ball marker retaining section would encounter the perimeter of said ball marker causing said ball marker to slide outward from said device; and
 2. a magnet secured onto said ball marker retaining area;
- e. a second ball marker retaining area which is the side of said ball marker retaining section opposite from the side of said ball marker retaining section containing said indented ball marker retaining area; and
- f. a second magnet secured onto said second ball marker retaining area and operative to hold a second ball marker.

4,315,625

SHUFFLEBOARD CUE WITH SELECTIVELY FIXED OR SWIVELLED WEIGHTED RUNNER

Samuel H. Allen, Seminole, Fla., assignor to Allen R. Shuffleboard Company, Seminole, Fla.

Filed Dec. 15, 1978, Ser. No. 970,029

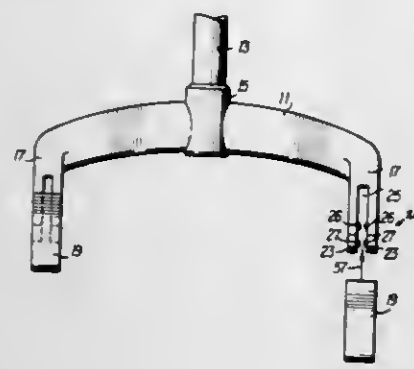
Int. Cl.³ A63B 71/00, 67/14

U.S. Cl. 273—129 L

11 Claims

1. A shuffleboard cue head for propelling a disc along a shuffleboard court comprising: a frame for mounting to a handle, said frame having forwardly extending, laterally spaced arms which carry detachable runners;

said arms including connection means for detachably affixing said runners to said frame; and



said connection means including means for attaching said runners to said frame in a first position which allows said runners to pivot or a second position which rigidly attaches said runners to said frame.

4,315,626

DEVICE FOR PRACTICING PUTTING STROKES

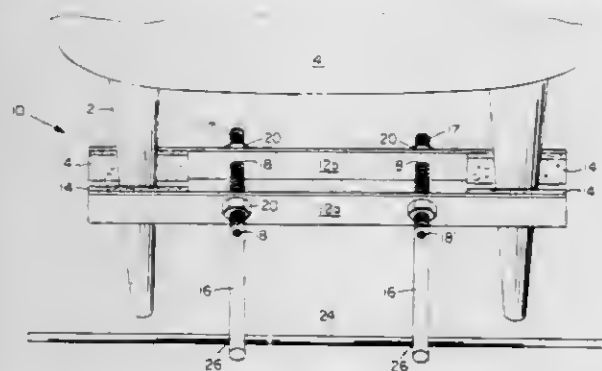
Purvis E. Hamm, P.O. Box 265, APO Miami, Fla. 34004

Filed Aug. 6, 1980, Ser. No. 175,897

Int. Cl.³ A63B 69/36

U.S. Cl. 273—186 C

2 Claims



1. A convertible, compactable, transportable, golf training device for practicing putting comprising:

- (a) a first rod and a second rod, each of said rods being $8\frac{3}{4}$ " long, each of said rods being threaded at a first end of each said rod to be received within $\frac{1}{8}$ " diameter holes, each said rod having an unthreaded hole at a second end of each said rod sufficient to accommodate a trainer having a diameter of $\frac{1}{4}$ ", and said first rod and said second rod being spaced apart $13\frac{1}{4}$ " from the outer edge of said first rod to the outer edge of said second rod in a parallel relationship;
- (b) a trainer $21\frac{1}{2}$ " long and $\frac{1}{4}$ " in diameter and being positioned through both said unthreaded hole of said first rod and said unthreaded hole of said second rod;
- (c) a first bar and a second bar, each said bar being $21\frac{1}{2}$ " long and $1\frac{3}{4}$ " wide, said first bar having a first bar hole and a second bar hole, each said bar hole being of $\frac{1}{8}$ " diameter centered within the width of said first bar, said first bar hole being located 4" from a first longitudinal end of said first bar and said second bar hole in said first bar located 4" from a second longitudinal end of said first bar, and said second bar having a third bar hole and a fourth bar hole each of $\frac{1}{8}$ " diameter, said third bar hole being centered in the width of said second bar and located 4" from a first longitudinal end of said second bar and said fourth bar hole centered in the width of said second bar and located 4" from a second longitudinal end of said second bar, said first rod being positioned through said first and third bar holes and said second rod being positioned through said second and fourth said bar holes;
- (d) at least four pads comprising a first pad, a second pad, a third pad, and a fourth pad, each said pad being 4" in length and comprised of a resilient material, said first pad

being located at said first longitudinal end of said first bar, said second pad being located at said second longitudinal end of said first bar, said third pad being located at said first longitudinal end of said second bar, and said fourth pad being located at said second longitudinal end of said second bar;

- (e) said combination being adapted for secure attachment to a chair having legs, said legs being positioned inside between said first bar and said second bar, and
- (f) nuts comprising a first nut, a second nut, a third nut, and a fourth nut, said nuts being threadable upon a threaded $\frac{1}{8}$ " diameter rod, said first nut being threaded upon said threaded end of said first rod and being located outside of said first bar, said second nut being threaded upon said threaded end of said first rod and being located outside of said second bar, said third nut being located upon said threaded end of said second rod and being located outside of said first bar, and said fourth nut being threaded upon said threaded end of said second rod and located outside of said second bar, said nuts being adapted to securely attach said golf training device to said chair.

4,315,627

GAME BOARD APPARATUS

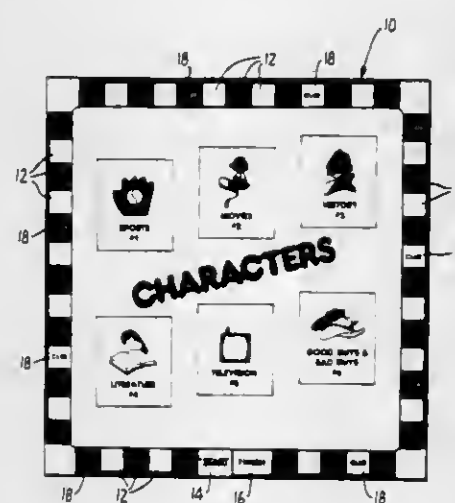
Ronald L. Schlegel, and Francine L. Schlegel, both of 3815 Elston Ave., Oakland, Calif. 94602

Filed Nov. 1, 1979, Ser. No. 90,407

Int. Cl.³ A63F 3/00

U.S. Cl. 273—249

3 Claims



1. Game Apparatus comprising:

- a board having a plurality of spaced areas defining a path delineated on the board, one of said areas representing the starting block and another of said areas representing a finish block, other of said spaced areas being designated as special areas and having characteristic indicia thereon;
- a plurality of differently identified playing pieces each of which is to be assigned to separate players;
- a plurality of cards each of which cards describes on the obverse thereof certain generally known published activities of a well known public figure, a portion of said description organized under a heading denoted by indicia corresponding to said special area indicia, whereby a further portion of said description organized under said heading is disclosed to a player whose token lands on one of said special areas, and whereby said activities permit each card relating to said public figure to be classified into one of several different categories of general activity each of said cards in a particular category having indicia on the reverse thereof common to the reverses of all said cards in that category;
- means for determining the order of play among said players and for the selection of one of said categories of general activity from said cards, said determining means comprising means for outputting indicia corresponding to the

indicia on the reverse of said cards, whereby said players are enabled to select a particular card and a card holder therefor from said players and to thereby permit said other players to determine the identity of the subject public figure of said card while at least one player is enabled to progress from said starting area to said finish block.

4,315,628

CARD GAME INVOLVING THE TOUCHING OF HUMAN BODY PARTS

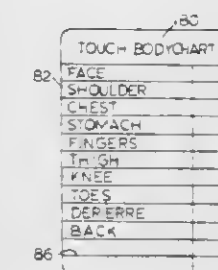
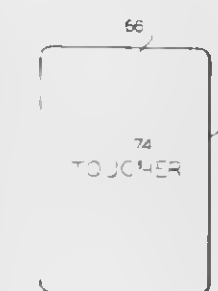
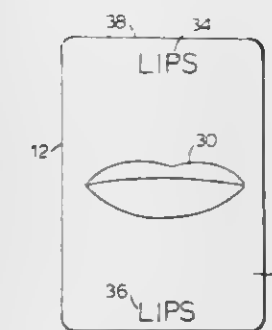
Charles M. Balash, 7909 Shalimar St., Miramar, Fla. 33023; John R. Hill, 6123 111th Ave., Tampa, Fla. 33617, and Paul A. Moore, 6019 Floravista Ave., Tampa, Fla. 33604

Filed Jun. 23, 1980, Ser. No. 113,457

Int. Cl.³ A63F 1/04

U.S. Cl. 273—296

5 Claims



1. In a game for entertainment with partners chosen by the roll of dice comprising two sets of cards, each set having
 - a back side of a certain color and design, and
 - a front side having a pictorial representation of a part of the human body, and
 each card of one of said sets of cards having inscribed on the back side thereof the word "toucher", and each card of the other of said sets of cards having inscribed on the back side thereof the word "touchee" for identification of each of said sets of cards, the pictorial representation of a part of the human body on the front side of said card having the word "toucher" inscribed on the back side thereof, being intended to specify the part of the human body to be used to touch with, and the pictorial representation of the part of the human body on the front side of the other of said sets of cards having the word "touchee" inscribed on the back side thereof being intended to specify the part of the human body to be touched, said cards in each of said sets being placed with the front sides thereof facing down for being individually picked in

sequence, and a body chart having various human body parts required to be touched for winning listed thereon, whereupon the players assume various physical positions which result in amusement as the player depicted on the back side of the card as "toucher" actually touches with that part of his body designated on the front side of said "toucher" card, that part of the body of the player depicted as "touchee" on the back side of a card selected from the "touchee" set of cards, and then scoring on said body chart according to the human body parts specifically listed on said chart as having been successfully touched.

4,315,629

BI-WING FLYING DISC

Roy L. English, 2733 SE, 31st St., Portland, Ore. 97202

Filed Sep. 25, 1978, Ser. No. 945,391

Int. Cl.³ A63H 27/00

U.S. Cl. 273—425

23 Claims



1. A flying disc comprising:

- a first outer annulus having a first outer and inner circumference, said first outer annulus defining an aerodynamic lifting surface;
- at least one inner annulus located interiorly of a cylindrical envelope defined by the inner circumference of the first annulus, said inner annulus having a second circumference smaller than said first inner circumference and defining a central opening located in a plane intermediate the elevation of the highest and lowest point of the disc for the passage of air therethrough, said inner annulus being configured such that the radially outermost edge thereof is located at an elevation above the lowest portion of said inner annulus;
- a surface of revolution located between the inner and outer annulus, said surface of revolution interconnecting the inner and outer annulus; and
- a plurality of apertures in the surface of revolution between the inner and outer annulus such that the surface of revolution defines a plurality of individual circumferentially directed rigid support means interconnecting the inner and outer annulus.

4,315,630

SEALING RING FOR SPIGOT AND SOCKET PIPE JOINT

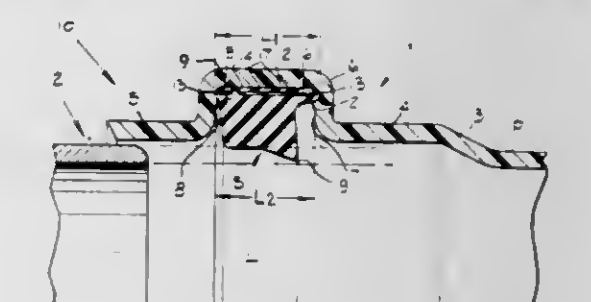
David W. French, Littleton; Robert W. Heisler, Littleton; Antonio Maldarella, Jr., Jefferson County, and Gilbert W. Vanhoy, Denver, all of Colo., assignors to Johns-Manville Corporation, Denver, Colo.

Filed May 30, 1980, Ser. No. 154,668

Int. Cl.³ F16J 15/32

U.S. Cl. 277—207 A

10 Claims



1. A socket of a spigot and socket joint for connecting a pipe to said socket, said socket having a first substantially cylindrical portion, a second substantially cylindrical portion, an in-

wardly open sealing ring groove positioned between and extending radially outwardly of said first and second cylindrical portions, said ring groove having an outer wall portion connected to said cylindrical portions by generally radially extending first and second wall portions, a sealing ring fixedly positioned within said ring groove, said sealing ring including a substantially rigid outer portion and a resilient inner portion for sealingly engaging the outer surface of said spigot, the axial distance between the inner surfaces of said first and second wall portions adjacent said outer portion of said ring being substantially greater than the axial distance between said walls adjacent said inner portion of said ring, at least for substantially the entire circumference of said ring groove.

4,315,631

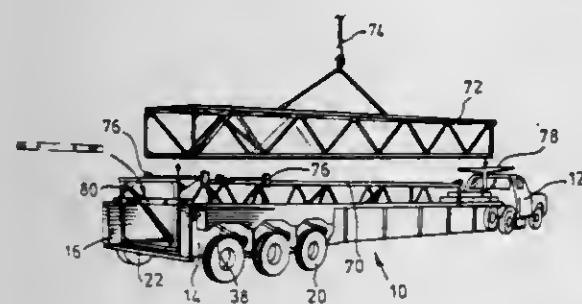
TRAILERS FOR ELONGATED LOADS

Edmond Rainville, 135 Homeside Ave., Stoney Creek, Ontario, Canada (L8G 3G9)

Filed Mar. 8, 1979, Ser. No. 18,538
Int. Cl.³ B62D 37/00

U.S. Cl. 280—6 H

9 Claims



1. A trailer for the carriage of torsionally-sensitive elongated loads comprising:

- (a) an elongated trailer frame of channel cross-section having a grouped plurality of running wheels at each side of its rear end,
- (b) mounting means independently mounting each wheel to the trailer frame comprising a stub axle for each wheel,
- (c) hydraulic piston and cylinder means for each running wheel connected between the trailer frame and the respective stub axle and permitting vertical movement of the respective wheel relative to the trailer frame by supply of operating liquid to the hydraulic piston and cylinder means and discharge of operating liquid therefrom,
- (d) pipe means for supplying operating liquid to all of the said hydraulic piston and cylinder means, and
- (e) valve means in said pipe means operable between one position in which all of the piston and cylinder means for all wheels of both grouped pluralities are connected together, whereby operating liquid fed to and discharged from one piston and cylinder means as the result of vertical movement of the respective wheel is respectively discharged from and fed to all of the other piston and cylinder means to provide an averaging effect of the movement of the said wheel among all the other wheels for reduction of the application of torsional forces to the torsionally-sensitive load, and another position in which the piston and cylinder means for all the wheels on each plurality only are connected together, the connected-together piston and cylinder means of one plurality on one side being isolated from the connected-together piston and cylinder means of the other plurality on the other side, so that the said averaging effect of the movement of any wheel is confined to the other wheels of the plurality on the same side.

4,315,632

FOLDING TWO-WHEELED HAND TRUCK

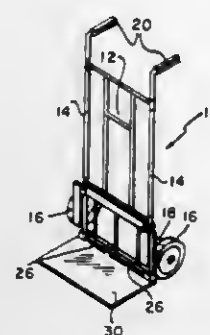
Frank E. Taylor, 1440 S. Seneca, Wichita, Kans. 67213

Filed May 27, 1980, Ser. No. 153,451

Int. Cl.³ B62B 1/04

U.S. Cl. 280—40

7 Claims



1. A hand truck comprising a frame having a longitudinal axis and generally upright in an operative or stored position; a pair of rotating bars rotatably attached to said frame and rotating about said longitudinal axis; each bar including a wheel rotatably attached thereon, a handle means attached to one end of said bars and a first gear means connected to the other end of same; a handle release and locking means attached to said frame and locking wheels and the handle means in either an outward operative position perpendicular to said frame or in a closed storing position; a support bar rotatably connected to said frame; a second gear means attached to each end of said support bar and meshing with the first gear means on each end of said pair of rotating bars; a load support means bound to said support bar in order to support a load when said wheels and handle means are in the operative position; said wheels folding out from said frame toward the eventually operative perpendicular position with respect to the frame as each handle means on each of the rotating bars is released by the handle release and locking means and rotated outwardly which simultaneously causes the first gear means on each rotating bar to engage and turn the second gear means on each end of said support bar resulting in the support bar rotating to fold out the support means to a generally perpendicular position with respect to the frame wherein each of the handle means is positioned in a locked operative position.

4,315,633

STORAGE CART FOR MUSIC STANDS

David R. Boeddeker, Medford, and Wayne V. Tenner, Bloomington, both of Minn., assignors to Wenger Corporation, Owatonna, Minn.

Filed Aug. 13, 1980, Ser. No. 178,129

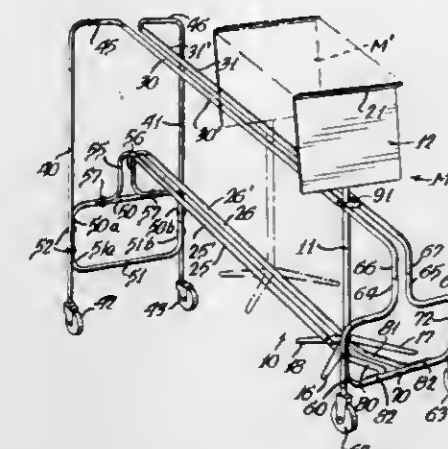
Int. Cl.³ B62B 3/10

U.S. Cl. 280—79.3

10 Claims

1. A storage cart for music stands comprising, a frame having floor-engaging rollers for cart mobility, a lower pair of spaced-apart rods extending lengthwise of the frame between the ends thereof and inclined relative thereto, an upper pair of spaced-apart rods overlying the lower pair of rods and extending lengthwise of the frame and inclined relative thereto to be in parallel relation with the lower pair of rods, said pairs of rods having the space therebetween defining a vertical storage plane which is exposed to an end of the frame at the upper ends

of said rods to permit entry of a music stand from an end of the frame into said storage plane with a column member of a stand



between the upper pair of rods and a leg of a music stand base between the lower pair of rods.

4,315,634

MUDGUARD FLAPS FOR MOTOR VEHICLES

Knut Arenhold, Westend 7, 2000 Hamburg 52, Fed. Rep. of Germany

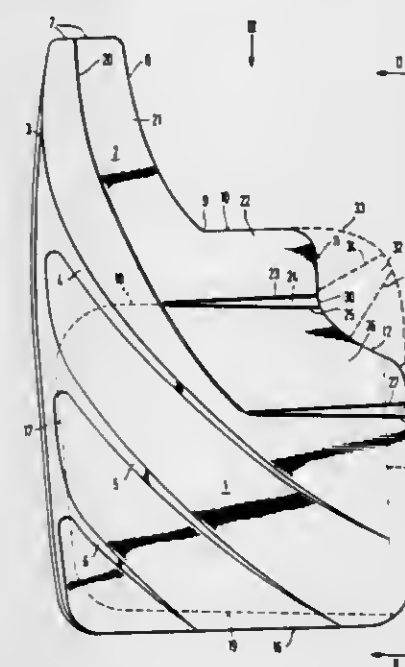
Filed Nov. 5, 1979, Ser. No. 91,531

Claims priority, application Fed. Rep. of Germany, Nov. 6, 1978, 2848089

Int. Cl.³ B62D 25/16

U.S. Cl. 280—154.5 R

13 Claims



1. In a mudguard flap for attachment directly to the fender-fold of a motor vehicle, behind a vehicle wheel said mudguard flap having a flap main body and an adapter protrusion disposed upwardly from the flap main body, said adapter protrusion having a mounting area for attaching the flap to the fender-fold and for aligning the flap to the chassis of a motor vehicle, the improvement comprising the adapter protrusion having a bending line thereon, said bending line following generally the contour of the vehicle chassis in the vicinity of the place of attachment of the mudguard flap, said mounting area being bent forwardly along said bending line and being displaced from the plane of the unbent portion of the adapter protrusion and the flap main body to provide a bent angle of inclination of from 5° to 25°, whereby when said forwardly bent out mounting area of the mudguard flap is attached to a fender-fold, the unbent portion of the adapter protrusion and the flap main body are at least generally parallel with the axis of the wheel adjacent the mudguard flap.

4,315,635

OBSTRUCTION TRAVERSING HAND TRUCK

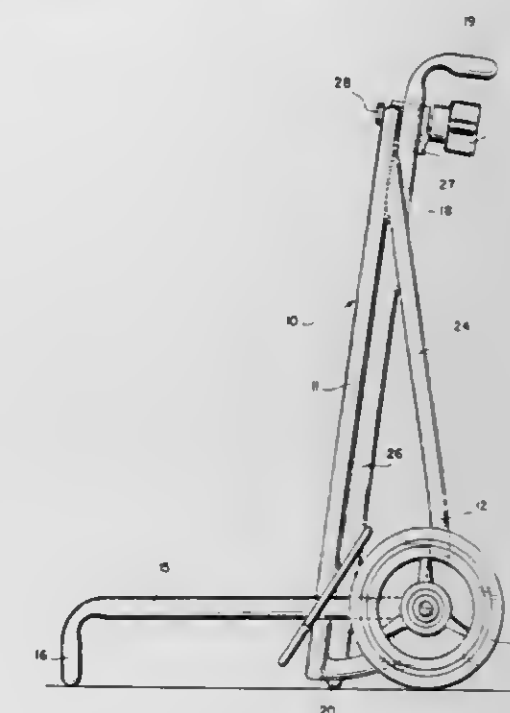
Patsy Esposito, 350 Clarkson Ave., Brooklyn, N.Y. 11226

Filed Mar. 7, 1980, Ser. No. 128,290

Int. Cl.³ B62B 1/04

U.S. Cl. 280—655

5 Claims



1. A collapsible hand truck comprising:
 - (a) a U-shaped tubular frame having first and second arms, the closed end of the U-shape being uppermost in an operative position of said hand truck;
 - (b) a first axle support affixed at top and bottom of a rear surface of said first arm;
 - (c) a second axle support affixed at top and bottom of a rear surface of said second arm;
 - (d) said first and second axle supports being substantially coextensive with said first and second arms respectively;
 - (e) an axle threaded through aligned holes in said first and second axle supports;
 - (f) first and second wheels rotatably mounted on opposed ends of said axle outboard of said first and second axle supports respectively;
 - (g) a U-shaped tubular platform having first and second aligned holes in third and fourth arms thereof, said first aligned hole being threaded on said axle between said first wheel and said first arm and said second aligned hole being threaded on said axle between said second wheel and said second arm, said U-shaped platform being hinged on said axle between an inoperative position and an operative position;
 - (h) a U-shaped tubular retractable handle having fifth and sixth arms disposed generally parallel to and behind said frame;
 - (i) first and second spaced-apart parallel bars extending between corresponding positions on said first and second arms;
 - (j) a third bar extending between corresponding positions on said first and second axle supports, said third bar being disposed generally intermediate said first and second bars and spaced rearward of said first and second bars a distance effective to permit a guiding fit on said retractable handle at least in a retracted position thereof with said first and second bars contacting a first side of said fifth and sixth arms and said third bar contacting a second opposed side of said retractable handle;
 - (k) means on said closed end of said U-shaped tubular frame for clamping said retractable handle in at least one of said retracted position and an extended position;
 - (l) said first and second axle supports each including a guide portion, each guide portion sloping to the top of its respective first and second arm; and

(m) said third bar lying completely forward of a surface defined by rearmost portions of said guide portions whereby said third bar is protected from contact with an obstruction during use of said hand truck.

4,315,636

WORKING VEHICLE

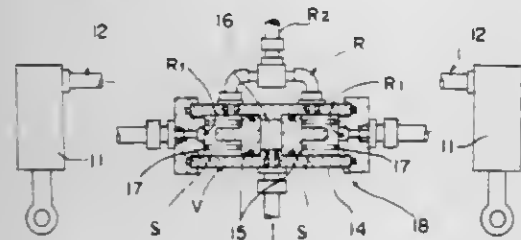
Masao Nakagawa, Sakai, Japan, assignor to Kubota, Ltd., Japan
Filed Oct. 11, 1979, Ser. No. 83,633

Claims priority, application Japan, Feb. 21, 1979, 54-19510

Int. Cl.³ B60G 17/04

U.S. Cl. 280-703

1 Claim



1. A working vehicle comprising:

a vehicle body frame;
a pair of left and right wheels oscillatable up and down in opposed relation to each other;
a pair of left and right oil cylinders mounted with respect to said body frame and said wheels to be extensible or contractable in opposed relation to each other with the up and down oscillation of said wheels relative to said body frame;
a master oil cylinder;
wheel brakes actuable by oil pressure for reducing speed of the vehicle during running and also for maintaining a parking condition of the vehicle, said wheel brakes being connected to said master cylinder;
means for actuating said master cylinder;
a piping channel interconnecting said pair of oil cylinders, said piping channel including a valve means connected with said master oil cylinder, said valve means including:
(a) a valve case; (b) a pair of oil spaces defined by said valve case on opposite sides thereof, a connecting channel establishing fluid communication between said oil spaces, an oil supply channel connected to said connecting channel for replenishing said pipe channel with oil; (c) a pair of oil passages formed in said valve case for communicating said oil spaces, respectively, with said piping channel; (d) a pair of valve elements disposed within said valve case and shiftable between positions to open and to close said oil passages, respectively; (e) a pair of springs constantly urging said valve elements toward the positions to open said oil passages, respectively; and (f) a further oil space defined by said valve case and said pair of valve elements and communicating with said master oil cylinder to urge said valve elements towards the positions to close said oil passages by oil pressure therein transmitted from said master oil cylinder;

said pair of springs having such resiliency so as to permit said pair of valve elements to close said pair of oil passages only when the oil pressure from said master cylinder exceeds a first level corresponding to maintaining the parking condition of the vehicle, but allowing said valve element to assume a position wherein said oil passages are open while the oil pressure from said motor cylinder is at a second level lower than said first level, said second level corresponding to oil pressure associated with speed reduction or nonactuation of said master cylinder, whereby said wheels are locked against oscillation only while the vehicle is in the parking condition.

4,315,637

SEAT BELT WEB GUIDE

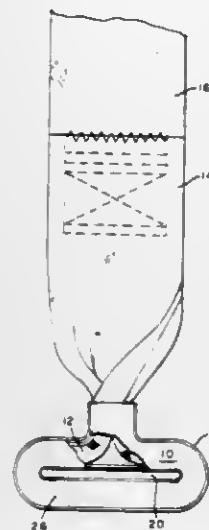
Richard L. Frantom, Richmond, Mich., assignor to Allied Corporation, Morris Township, Morris County, N.J.

Filed Mar. 24, 1980, Ser. No. 133,231

Int. Cl.³ B60R 21/10

U.S. Cl. 280-801

18 Claims



1. A web guide for permitting seat belt webbing to pass therethrough, comprising:

(a) a length of fiber containing material, said material being shaped so as to define a loop having an opening sufficiently large as to permit seat belt webbing to pass through said loop; and
(b) means in said web guide to retain said loop in an open position in the form of a substantially elongated slot for receiving said seat belt webbing therethrough.

4,315,638

TRANSFER DEVICE FOR PASSIVE VEHICLE OCCUPANT RESTRAINT BELTS

Juichiro Takada, 3-12-1 Shinmachi Setagayaku, Tokyo, Japan

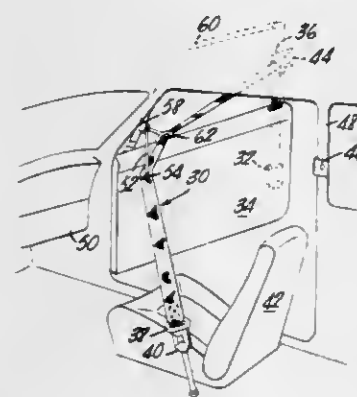
Filed Jul. 25, 1980, Ser. No. 172,278

Claims priority, application Japan, Aug. 6, 1979, 54-107668[U]

Int. Cl.³ B60R 21/10

U.S. Cl. 280-803

1 Claim



1. A passive vehicle occupant restraint belt system having a shoulder belt that leads from an anchor adjacent the lower rear inboard portion of the seat to and through a fixed guide adjacent the upper rear corner of the door and thence to a retractor on the door, a guide bar that extends from the guide forwardly along the upper part of the door and a control tape that is fastened to the belt and slidably connected to the bar such that when the door is opened, the control tape holds an intermediate part of the belt adjacent the upper part of the door, characterized in that there is a control ring on the free end of the tape which slidably receives the intermediate part of the belt, the tape thereby being formed into a loop such that when the door

is opened the fastened end of the tape loop moves away from the bar and the control ring moves toward the bar and pulls the belt closer to the door.

4,315,639

PASSIVE SEAT BELT SYSTEM

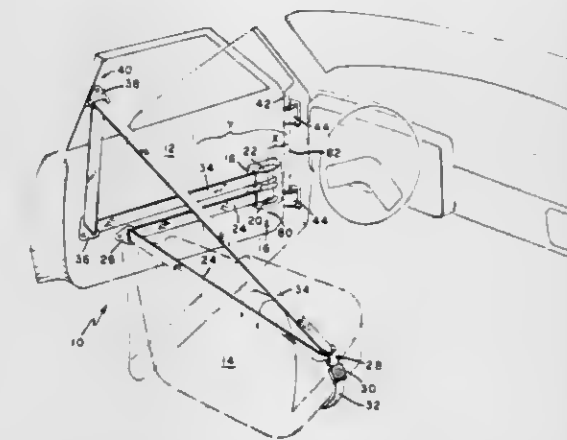
Frederick C. Booth, Birmingham; Richard L. Frantom, Richmond, and Rudy V. Thomas, Sterling Heights, all of Mich., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Filed Jul. 14, 1980, Ser. No. 168,852

Int. Cl.³ B60R 21/10

U.S. Cl. 280-803

17 Claims



1. A passive seat belt system provided in a vehicle having a door adjacent to a vehicle seat, said door having a forward end hingedly connected at a hinge point to the vehicle frame, said system comprising:

at least one retractor mechanism fixedly mounted on said door;
a seat belt restraint having one end connected to said retractor mechanism and an opposite end attached to said vehicle at a position located on the inboard side of said seat, said restraint being movable towards and away from said retractor, said restraint providing a safety restraint for an occupant seated in said seat when said door is closed; and
a sensor operatively associated with said retractor mechanism and operable upon sensing a deceleration or acceleration of said vehicle above a predetermined amount to lock said retractor mechanism and prevent motion of said restraint away from said retractor mechanism, at least said sensor being mounted at a position on said door adjacent said one end of one door, said position being located no further from the hinge point of said door than a predetermined distance at which the "g" forces associated with the opening of said door are less than said predetermined amount of deceleration or acceleration, whereby said sensor is not actuated to lock said retractor mechanism upon normal opening motion of said door.

4,315,640

PASSIVE SAFETY BELT DEVICE FOR VEHICLES
Eiji Nakazato, Ohta, Japan, assignor to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 30, 1979, Ser. No. 71,167

Claims priority, application Japan, Sep. 8, 1978, 53-110310; Sep. 8, 1978, 53-110311

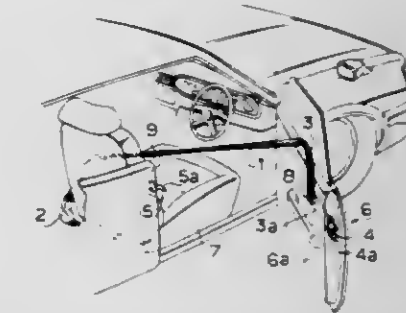
Int. Cl.³ B60R 21/10

U.S. Cl. 280-808

7 Claims

1. A passive safety belt device for a vehicle having a sashless door with a glass mounted therein, comprising
a seat having a backrest,
a retractor disposed in a lower portion of a central portion of the vehicle,
a safety belt unit comprising a seat belt and a resilient support means operatively connected together, said safety

belt unit having an inner end connected to said retractor and an outer end,
means comprising a member on said door for connecting said outer end of said safety belt unit,
said resilient support means has an uppermost portion engaging an upper outer portion of said safety belt for holding said upper outer portion of said safety belt up above the backrest of the vehicle in a normal condition,
said retractor comprising a winding means and means for locking said safety belt when an excessive impact force is exerted on the retractor,
said resilient support means having an elasticity for maintaining itself in a substantially upright position with said up-



permost portion above the backrest of the seat of the vehicle higher than a passenger's shoulder against the action of said winding means when said door is closed, whereby said safety belt extends diagonally across the passenger's body,

said door is formed with a space and an opening in an upper portion of said door, said opening communicates with said space,
said resilient support means is a tubular member inserted into said space of said door through said opening, said tubular member is secured to said door and said safety belt is inserted through said tubular member, and
said outer end of the safety belt unit constitutes an outer end of said safety belt connected to said member.

4,315,641

MULTI-LOOPED SKI-POLE STRAP

Greg S. Larsen, 10721 Keswick St., Sun Valley, Calif. 91352

Continuation of Ser. No. 19,116, Mar. 9, 1979, abandoned. This application Dec. 4, 1980, Ser. No. 212,850

Int. Cl.³ A63C 11/22

U.S. Cl. 280-822

3 Claims



1. A multi-looped, releasable ski-pole strap arranged to be releasably connected at one end to a ski pole adjacent the handle thereof, and at the opposite end to the wrist of a skier, said strap comprising:

a first elongated strap section of flexible soft material having one free attachable end and one secured end, said free end being formed to be releasably attached along said first

elongated strap section to define a first loop of said multi-loops to be secured around said ski pole;
 a second elongated strap section of flexible soft material having one free attachable end and one secured end, said free end being formed to be releasably attached along said first elongated strap section to define a second loop of said multi-loops to be secured around said wrist;
 an elastic stretchable material interposed between said first and second strap sections, and interconnecting each secured end of said first and second strap sections, to form a predetermined length thereof;
 a first releasable fastening means provided on said first strap section, whereby said first loop is formed;
 a second releasable adjustable fastening means under force provided between said first strap section and said second strap section, whereby said second loop is formed; and wherein said elastic stretchable material forms part of said second loop to allow said second loop to be expanded without disconnecting said second releasably adjustable fastening means.

4,315,642

INTEGRALLY MOLDED COVERS AND SPINES FOR LOOSELEAF BOOKS

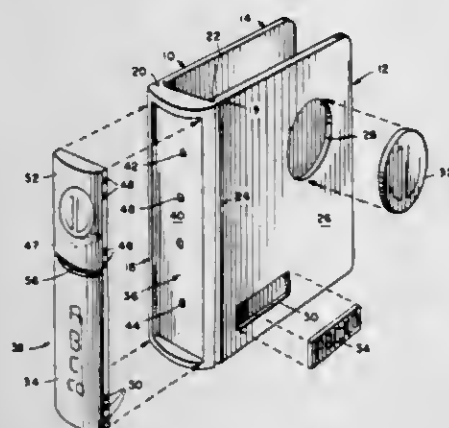
Dominic R. Errichiello, 389 Meadowlark Rd., Bloomington, Ill. 60108

Filed Aug. 6, 1979, Ser. No. 63,863

Int. Cl.³ B42F 13/40

U.S. Cl. 281—33

5 Claims



1. An integrally molded book constructed of a plastic material, said book comprising:
 a spine having front and rear cover panels hingedly mounted on opposite, longitudinal edges thereof;
 a longitudinal cavity molded into the rear, outwardly-directed face of said spine; and
 a spine insert matingly fitted in said spine cavity, said spine being subdivided by an integrally molded, transverse hinge into an upper segment which is securely fitted in said spine cavity and an outwardly-rotatable lower segment adapted to serve in its outwardly rotated position as an easel-like stand for the book wherein said transverse hinge is a V-notch formed horizontally in said spine insert, the walls of said V-notch being disposed at an angle of about 20 to 40 degrees relative to each other, whereby abutment of said walls upon the outward rotation of said lower insert segment limits said outward rotation to an arc of about the combination of said angles.

4,315,643 HEAT-SENSITIVE TRANSFER ELEMENT

Yukio Tokunaga, Yokosuka; Kiyoshi Sugiyama, Zushi, and Tadao Seto, Matsudo, all of Japan, assignors to Nippon Telegraph & Telephone Public Corp., Tokyo and Fuji Kagakushi Kogyo Co., Ltd., Osaka, both of Japan

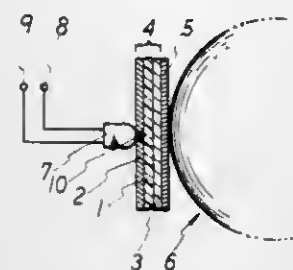
Filed May 23, 1980, Ser. No. 152,769

Claims priority, application Japan, Nov. 26, 1979, 54-153506

Int. Cl.³ B41L 1/20; B32B 7/02, 9/06

U.S. Cl. 282—27.5

7 Claims



1. A heat-sensitive transfer element comprising a foundation having a thickness of 20 to 60 μ , density of 0.75 to 1.3 g/cm³ and in which the back surface has a Bekk smoothness of 60 to 20000 seconds, a thermal color-developing layer provided on the front surface of said foundation, and a hot-melt ink layer having a coating weight of 1 to 15 g/m² and a heat conductivity of 4×10^{-4} to 15×10^{-4} cal./sec. cm. °C. provided on the back surface; the hot-melt ink layer including a heat-conductive material powder which has a heat conductivity of 6.0×10^{-4} to 25.0×10^{-4} cal./sec. cm. °C., and a solid wax which has a penetration of 10 to 30 at 25° C. as a binder material, and having a viscosity of 20 to 200 cP at 100° C.

4,315,644

MULTISHELL PIPE BEND

Walter Jansing, Bergisch Gladbach, Fed. Rep. of Germany, assignor to Interatom Internationale Atomreaktorbau GmbH, Bergisch Gladbach, Fed. Rep. of Germany

PCT No. PCT/DE79/00015, § 371 Date Oct. 23, 1979, § 102(e)

Date Oct. 18, 1979, PCT Pub. No. WO79/00650, PCT Pub.

Date Sep. 6, 1979

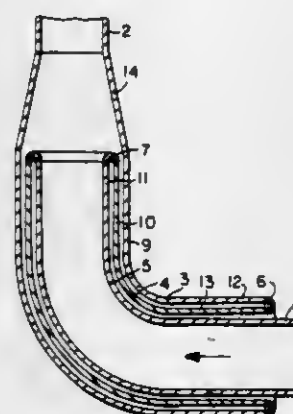
PCT Filed Feb. 12, 1979, Ser. No. 175,209

Claims priority, application Fed. Rep. of Germany, Feb. 23, 1978, 2807773; Nov. 6, 1978, 2848111

Int. Cl.³ F16L 51/04

U.S. Cl. 285—179

5 Claims



1. Bend connection for pipelines and vessels, comprising a first and a second pipeline, a multiplicity of coaxial spaced-apart pipe bends disposed within each other, said pipe bends including at least an outer, an inner, and at least one middle pipe bend each having ends, one of said ends of said outer pipe bend being integral with said second pipeline, one of said ends of said inner pipe bend being integral with said first pipeline, and half torus-shaped connecting pieces connecting one of said ends of said at least one middle pipe bend to the next inner pipe

bend and connecting the other of said ends of said at least one middle pipe bend to the next outer pipe bend.

4,315,645

RUG HOOKING STAND

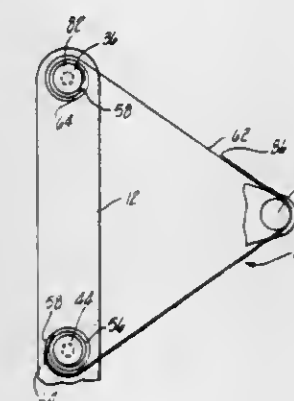
Billy B. Knox, 306 Labian Dr., Flushing, Mich. 48433

Filed Dec. 10, 1979, Ser. No. 101,911

Int. Cl.³ D04G 3/02

U.S. Cl. 289—18.1

7 Claims



1. A stand for holding an elongated pattern sheet having opposing edges, said stand comprising:
 a pair of spaced and vertically extending upright supports each upright support having one end adapted to be supported by a ground surface;
 a first elongated roller disposed between and rotatably secured to said upright supports;
 a second elongated roller disposed between and rotatably secured to said upright supports so that said second roller is substantially parallel to said first roller and at a position spaced downwardly from said first roller, said second roller being positioned upwardly from said one ends of said upright supports;
 an elongated rod secured to said upright supports so that said rod is substantially parallel to said rollers and at a position spaced laterally forwardly from both said first and second rollers;
 means for detachably securing one edge of said pattern sheet to the other roller so that said sheet extends over and partially around said rod;
 manually operated means for locking said first roller against rotation at an infinitely variably selected rotational position of the first roller;
 manually operated means for locking said second roller against rotation at an infinitely variably selected rotational position of the second roller;
 wherein one roller forms a supply roller around which the pattern sheet is adapted to be coiled while the other roller forms a takeup roller around which the pattern sheet is adapted to be coiled; and
 wherein said elongated rod and said second roller are spaced upwardly from said one end of said upright supports so that said pattern sheet extending between said rod and said second roller is spaced above the ground surface by an amount greater than a normal knee height of a seated person wherein each detachable securing means comprises a flexible attachment sheet fixedly secured along one edge to its respective roller and having a plurality of hooks secured to its opposite edge for engaging an edge of the pattern sheet, and wherein each attachment sheet has a width between its edges to enable said attachment sheet to be coiled around its respective roller.

4,315,646

DOOR HOLDER FOR CONSTRUCTION VEHICLES AND THE LIKE

Charles P. McReynolds, Aurora, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US80/00054, § 371 Date Jan. 21, 1980, § 102(e)

Date Jan. 21, 1980, PCT Pub. No. WO81/02179, PCT Pub.

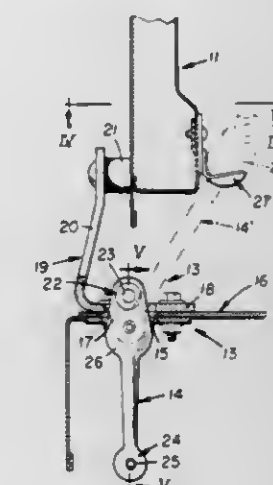
Date Aug. 6, 1981

PCT Filed Jan. 21, 1980, Ser. No. 142,933

Int. Cl.³ E05C 5/00

U.S. Cl. 292—68

9 Claims



1. In a vehicle (10) having a door (11) pivotally mounted thereon for movement between closed and open positions, a platform (16) disposed beneath said door when said door is in its open position, and door holding means (13) for holding said door in its open position, the improvement comprising said door holding means, including latch means (14) for moving between retracted and extended positions on said vehicle and hook means (27) for releasably engaging said latch means when said door is in its open position and said latch means is in its extended position, said latch means being mounted on said platform, said hook means being secured on said door and further including an upstanding bracket (19) secured on said platform, adjacent to said latch means, having a stop (21) secured thereon to engage an external side of said door when said door is in its open position.

4,315,647

BOLT MECHANISM AND METHOD OF MAKING SAME

Herbert Wilzig, 606 N. 5th St., Montebello, Calif. 90640, and

Charles J. Schuessler, 1340 E. Ruddock, Covina, Calif. 91722

Filed Sep. 18, 1979, Ser. No. 76,737

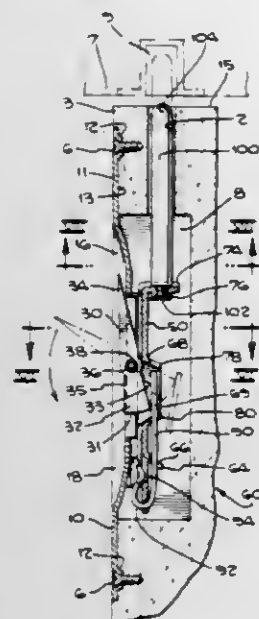
Int. Cl.³ E05C 1/06

U.S. Cl. 292—143

18 Claims

1. A flush bolt adapted for flush mounting on a door and operation between an engaged position with a securing surface and a disengaged position which comprises:
 a faceplate;
 a latch sled;
 means for mounting said faceplate on said door;
 integral tracks positioned longitudinally along said faceplate and extending upwardly and outwardly from said faceplate for slidably engaging longitudinally positioned channels integrally associated with said latch sled wherein said channels extend downwardly and inwardly to accomplish said slidable engagement with said tracks;

means for slidably moving said latch sled to the engaged or disengaged position; and



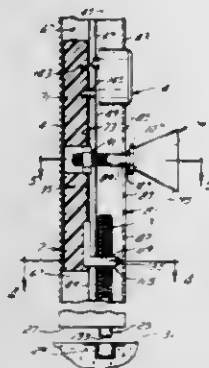
means for biasing said moving means to the engaged or disengaged position.

4,315,648 LOCK BOLT

Henri M. R. Labelle, 50 Westmooreland Ave., Cornwall, Ontario, Canada

Filed Oct. 26, 1979, Ser. No. 88,640
Int. Cl.³ E05C 1/10

U.S. Cl. 292—150



1. A closure having a tubular frame member therein; a locking bolt mechanism mounted on the tubular frame member; the locking bolt mechanism including: guide means adapted to be mounted for longitudinal sliding movement within the tubular frame member, a lock bolt extending longitudinally within the tubular member, one end of the lock bolt mounted to the guide means, the other end projecting from the closure, the mounted lock bolt adjustable longitudinally relative to the guide means, manipulating means for moving the lock bolt between locked and unlocked positions, the manipulating means projecting from the guide means through a longitudinally extending slot in a wall of the tubular frame member, means for locking the one end of the lock bolt to the guide means after the lock bolt has been longitudinally adjusted to a desired position relative to the guide means, the locking means positioned to be accessible through the slot in at least one position of the lock bolt.

4,315,649 SECURING DEVICE FOR DOORS OR THE LIKE IN VEHICLES

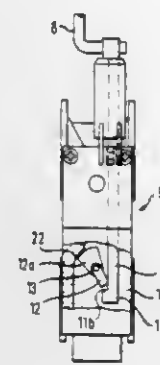
Manfred Lutz, Schweinfurt, Fed. Rep. of Germany, assignor to Fichtel & Sachs AG, Schweinfurt, Fed. Rep. of Germany
Filed Oct. 23, 1979, Ser. No. 87,544

Claims priority, application Fed. Rep. of Germany, Nov. 2, 1978, 2847589

Int. Cl.³ E05C 13/06

U.S. Cl. 292—201

15 Claims



1. A securing device for a vehicle locking mechanism comprising an actuating member which can be moved between a locked position and an unlocked position by way of a key inserted in the mechanism from outside the vehicle; said member having a first stop face thereon facing in the direction of movement of said member from said locked position to said unlocked position, a locking element arranged to be movable to a position confronting said first stop face when said actuating member is in said locked position, first electromagnetic driving means including a driven member for moving said locking element, said locking element being coupled to said driven member, and circuit means coupled to said first driving means and said locking mechanism for energizing said first driving means in response to operation of said key.

4,315,650 MECHANICAL HAND AMUSEMENT DEVICE

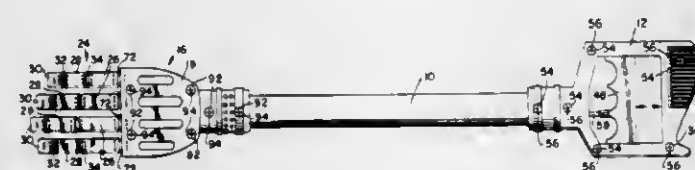
Kanji Yoshida, Tokyo, Japan, assignor to Tomy Corporation, Carson, Calif.

Continuation of Ser. No. 959,225, Nov. 9, 1978, Pat. No. 4,208,830. This application Mar. 26, 1980, Ser. No. 134,119
The portion of the term of this patent subsequent to Jun. 24, 1997, has been disclaimed.

Int. Cl.³ A47F 13/06

U.S. Cl. 294—19 R

15 Claims



1. An amusement device comprising:
a tubular arm;
a grip member movably mounted at one end of the said arm;
a hand member mounted at the other end of said arm, said hand member having at least one movable digit having a plurality of hollow segments joined by first flexible hinges;
a flexible strap corresponding to each said at least one movable digit, said strap being fixed to the terminal segment of said at least one movable digit and extending through the remaining segments; and
means connecting said grip and the strap corresponding to each said at least one movable digit for curling said at least one movable digit when said grip is squeezed, said means additionally restoring said grip member and said at least one movable digit to their former positions when said grip

member is no longer squeezed, wherein said means comprises
a rod connected to said grip member and extending through said tubular arm into said hand member,
a displaceable member linearly movable within said hand member, said displaceable member being attached to said rod and to the strap corresponding to each said at least one movable digit, and
spring means disposed between said arm and said displaceable member for biasing said displaceable member away from said arm.

4,315,651 COUPLING FOR QUICK ATTACHMENT TO PLATE-LIKE STRUCTURE

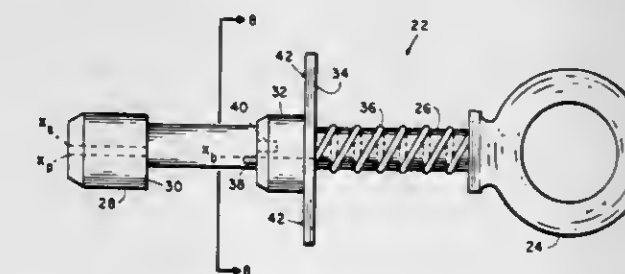
Donald L. Endicott, Jr.; James M. Walton, and Robert L. Wernli, all of San Diego, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 3, 1980, Ser. No. 137,026

Int. Cl.³ B63C 7/16; B66C 1/34

U.S. Cl. 294—83 R

14 Claims



1. Apparatus for coupling a selected force to a plate-like structure, there being a circular hole of selected diameter through said structure, said apparatus comprising:
a bearing element means for traversing said structure from a first side of said structure to a second side of said structure, flange means comprising a flange for abutting said first side of said structure, and a bushing which is fixably joined to said flange for insertion into said hole;
shaft means which traverses said flange means and the bushing, the traversal of the bushing being eccentric thereto, and which has an end fixably joined to said bearing element means for positioning said bearing element means in a concentric relationship with said bushing when the shaft means is rotated in the bushing to a first position and for positioning said bearing element means in an eccentric relationship with said bushing when the shaft means is rotated in the bushing to a second position;
the shaft means and bushing having locking means for maintaining said bearing element means and said bushing in said eccentric relationship when the shaft means is rotated to said second position; and
spring means biasing the bearing element means toward the bushing for activating said locking means when the shaft means is rotated to said second position; and
means for coupling said selected force to said shaft means.

4,315,652 ANGLE CONTROL MECHANISM FOR GRAPPLE

Robert D. Barwise, Bovey, Minn., assignor to Robil Company, Minneapolis, Minn.

Filed May 1, 1980, Ser. No. 145,421

Int. Cl.³ B66C 1/10

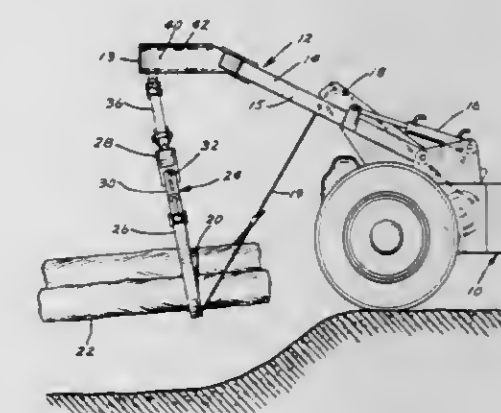
U.S. Cl. 294—86 R

4 Claims

1. In a load handling device having a longitudinally extending boom and a grapple assembly lying substantially in a single vertical plane and depending from a boom point portion of said boom, a grapple assembly angle control and support mechanism to support the grapple assembly from the boom point portion and to control the angular relationship of the plane of the grapple assembly with respect to a vertical plane including

the longitudinal axis of said boom, said angle control and support mechanism including:

- A. a generally horizontal base plate constituted as an integral part of the boom point portion of said boom, said base plate being provided with an opening therethrough;
- B. bushing means integral with said base plate and extending upwardly therefrom in encircling relationship to said base plate opening;
- C. a flat wear plate encircling said bushing means and supported on an upper surface of said base plate;
- D. a grapple assembly rotator shaft rotatably mounted in said bushing means and extending above said bushing means and below said base plate;
- E. a rotator shaft operator arm extending radially outwardly from said rotator shaft and having an upper portion integrally attached to said rotator shaft above said bushing means, an intermediate portion encompassing said bushing means, and a lower base portion positioned to be in bearing relationship to said wear plate;
- F. a double acting linear actuator operably connected between said boom and an outer end portion of said rotator shaft operator arm;
- G. means to selectively lengthen and shorten said actuator;
- H. connector means connecting a lower end portion of said rotator shaft to an upper portion of said grapple assembly; said connector means being operative to cause said grapple



ple assembly to rotate on a vertical axis responsive to rotation of said rotator shaft;

- I. wherein said linear actuator is constituted as a hydraulic motor having a cylinder, a piston rod, and a piston dividing said cylinder into first and second motor chambers; and
- J. wherein said means to selectively lengthen and shorten said actuator includes:
 - (1) a hydraulic pump having inlet and outlet ports,
 - (2) a hydraulic valve having a body and movable valve means within said body,
 - (3) conduits open from each of said first and second motor chambers and from said pump inlet and outlet ports into said valve body,
 - (4) said valve means being movable between a first position wherein said first motor chamber is open to said pump outlet port and said second motor chamber is open to said pump inlet port, a second position wherein said first motor chamber is open to said pump inlet port and said second motor chamber is open to said pump outlet port, and a third position wherein said pump outlet port is open to said pump inlet port and said first and second motor chambers are open to each other and to said pump inlet and outlet ports, and
 - (5) valve control means to move said valve between said first, second and third positions.

4,315,653

TRUCK ASSEMBLY

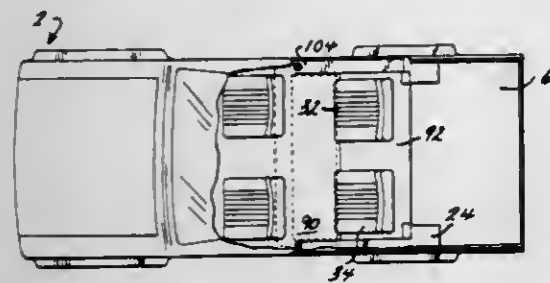
Darel L. Sparling, 24311 Lakeview La., El Toro, Calif. 92680

Filed Sep. 4, 1979, Ser. No. 72,014

Int. Cl.³ B60N 1/00

U.S. Cl. 296—63

23 Claims



1. In a truck vehicle having a forward cab portion with a front floor and an open truck bed with vertical sides extending over and forming rear wheel wells that extend above the horizontal support surface of the truck bed, the improvement comprising:

an aperture cut across the entire original truck bed and extending between the rear wheel wells and the cab front floor;

an auxiliary floor member permanently mounted to cover the aperture in the truck bed and secured to the cab front floor to provide a substantially horizontal support surface complimentary to the front floor and lower than the original truck bed, the outer peripheral dimensions of the floor member complementing the size of the aperture cut, and at least one seat member mounted above the auxiliary floor member on the truck bed at a sufficient height to permit an occupant's feet to rest, in a sitting position on the horizontal support surface.

4,315,654

BABY BOTTLE FEEDER

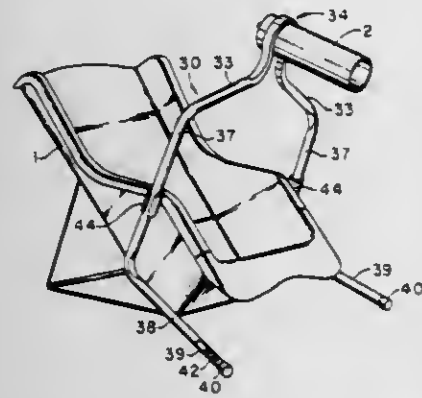
John A. Crook, Glen Rd., R.R. #1, Williamstown, Ontario, Canada (K0C 2J0)

Filed May 2, 1980, Ser. No. 146,074

Int. Cl.³ A47C 9/14

U.S. Cl. 297—188

8 Claims



1. A support means for a nursing bottle adapted to be secured to an infant seat and the like, comprising a length of resilient tubing including

(a) a generally U-shaped portion, the bight portion of which takes the general configuration of an oarlock and is formed of a part of said resilient tubing which is flattened; said bight portion being adapted to slidably receive and firmly hold a nursing bottle in a plane perpendicular to that of said U-shaped portion;

(b) two substantially parallel legs extending downwardly from said U-shaped portion and being continuous therewith, said legs being curved forwardly, the lower portion of said legs extending in a plane substantially perpendicular to the plane of the upper portion of said legs and said

U-shaped portion, said legs terminating in a pair of foot portions equipped with counterbalance weights; said legs being adapted to be removably and pivotally secured to an infant seat.

4,315,655

HUNTER'S SEAT AND SLING

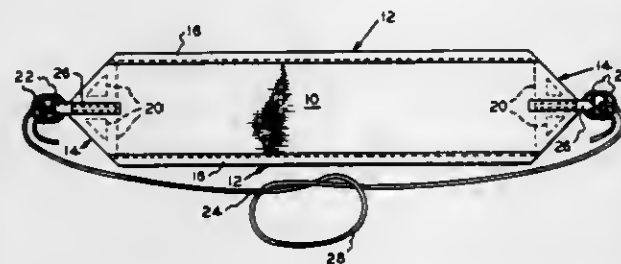
Edward I. Machnik, 3505 E. Michigan Ave., Jackson, Mich. 49201

Filed Oct. 31, 1979, Ser. No. 89,882

Int. Cl.³ A45F 4/00

U.S. Cl. 297—118

1 Claim



1. A combination hunter's seat and hauling sling characterized by its flexibility and ability to be concisely folded, comprising, in combination, an elongated, flexible, fabric band member having a length at least four times its width and having lateral edges and ends, the material of the ends of said band member being folded over on itself to define an apex at each end of double layers of band material centrally located between the band member lateral edges, a strap affixed to each apex of double layered band material defining a loop extending beyond the associated apex, adjustable holding means defined upon each end of said band member comprising a pair of rings loosely mounted within each strap loop, and a flexible cord adjustable associated with each pair of rings and looped therethrough wherein the location of attachment of said cord to said rings may be adjusted.

4,315,656

METHOD FOR REDUCING POROSITY OF RUBBLIZED OIL SHALE

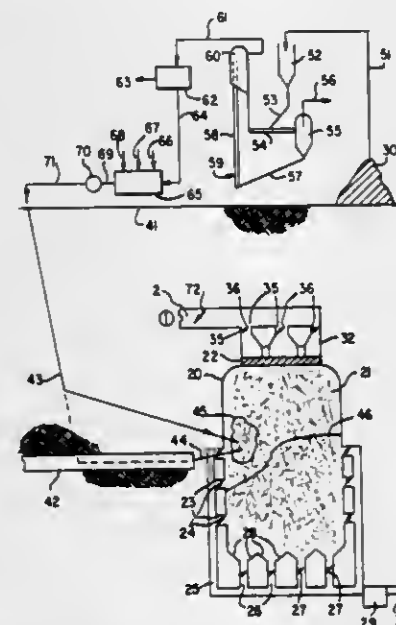
Robert D. Hall, Wheaton, Ill., assignor to Standard Oil Company (Indiana), Chicago, Ill.

Filed Mar. 24, 1980, Ser. No. 133,148

Int. Cl.³ E21C 41/10; E21B 43/247

U.S. Cl. 299—1

7 Claims



1. An improved method for enhancing the recovery of shale oil from underground in situ retorting of a rubblized mass of oil shale, comprising the steps of:

locating a porous zone in an underground retort containing a rubblized mass of oil shale before said mass has been completely retorted;

introducing a grout slurry of water and spent oil shale containing less than 0.2% by weight carbon to said porous zone before retorting is completed to substantially minimize the porosity of said zone.

4,315,657

GAS SEAL FOR AN IN SITU OIL SHALE RETORT AND METHOD OF FORMING THERMAL BARRIER

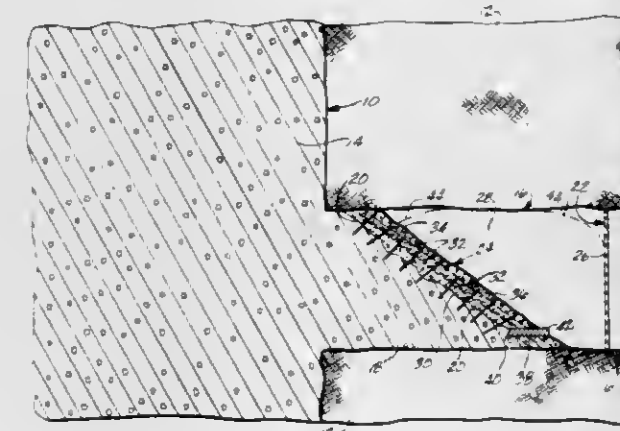
Robert S. Burton, III, Mesa, Colo., assignor to Occidental Oil Shale, Inc., Grand Junction, Colo.

Filed Mar. 17, 1980, Ser. No. 131,398

Int. Cl.³ E21C 41/10; E21D 11/10

U.S. Cl. 299—2

30 Claims



1. A means for sealing an access drift excavated in a subterranean formation containing oil shale, the access drift being adjacent an in situ oil shale retort and in gas communication with a fragmented permeable mass of formation particles containing oil shale in the in situ oil shale retort, the drift containing a rubble pile of formation particles having a face approximately at the angle of repose of fragmented formation, the means comprising:

(a) a layer of heat insulating material disposed on the face of the rubble pile of formation particles; and

(b) a gas-tight bulkhead placed across such an access drift, said gas-tight bulkhead spaced apart from the rubble pile forming a void space in the access drift between the gas-tight bulkhead and the layer of heat insulating material.

27. A method for thermally protecting a gas-tight bulkhead in an access drift adjacent an in situ oil shale retort containing a fragmented permeable mass of formation particles containing oil shale through which a combustion zone is advanced, comprising the step of:

(a) applying a sufficient layer of thermal insulating material on the face of a rubble pile of formation particles in the drift for maintaining the temperature of the walls of the drift in a void space between the layer of insulating material and the bulkhead below the temperature of thermal sloughing of such walls.

4,315,658

MINING EQUIPMENT

Albert G. French, Willington, and Derek J. Brooks, Ashby-de-la-Zouche, both of England, assignors to Coal Industry (Patents) Limited, London, England

Filed Apr. 16, 1980, Ser. No. 140,751

Claims priority, application United Kingdom, May 25, 1979, 18342/79

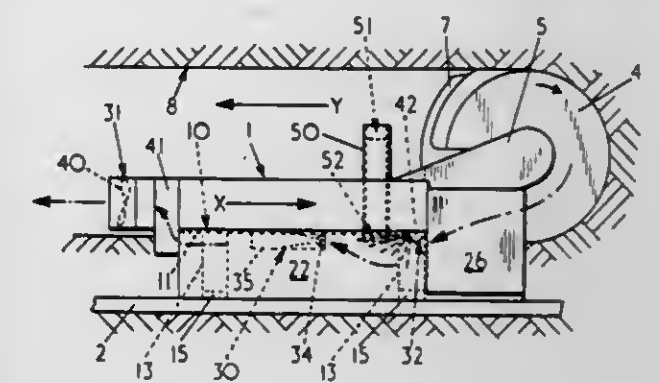
Int. Cl.³ E21C 35/22

U.S. Cl. 299—43

12 Claims

1. Mining equipment adapted for repeated traversing to and fro adjacent to a conveyor arrangable along a working face in an underground mine, the mining equipment comprising a mining machine bridge structure adapted to bridge over the conveyor, means which, in use, enable at least a portion of the

bridge structure to traverse along a path spaced from the conveyor, and an airborne dust guide curtain means extending along and downwardly from opposed side portions of the bridge structure along a major portion of its length and down-



wardly towards opposed sides of the conveyor to define side walls of an open ended passage extending longitudinally beneath the bridge structure, the curtain means being arranged to negotiate undulations in the conveyor.

4,315,659

VEHICULAR ANTI-SKID BRAKE DEVICE

Tsutomu Hayashi, Houya; Hidehiko Inoue, Ooi, and Makoto Sato, Kamifukuoka, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

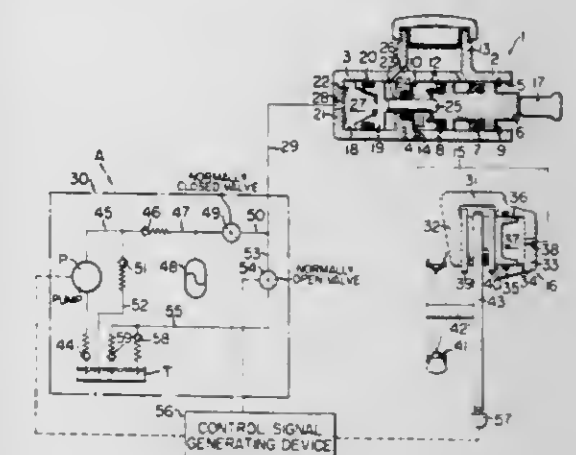
Filed Mar. 24, 1980, Ser. No. 133,400

Claims priority, application Japan, Mar. 30, 1979, 54-37986; Mar. 30, 1979, 54-37987

Int. Cl.³ B60T 8/02

U.S. Cl. 303—116

2 Claims



1. An anti-skid brake device comprising brake oil pressure generating means including a brake oil pressure generating cylinder for generating brake oil pressure in accordance with a braking operation input and a control oil pressure cylinder responsive to the brake oil pressure to be actuated to restrain generation of brake oil pressure by said brake oil pressure generating cylinder when said brake oil pressure is transmitted; braking force applying means for applying a braking force to wheels in response to brake oil pressure generated by said brake oil pressure generating cylinder; and control oil pressure generating means for immediately actuating said control oil pressure cylinder so as to restrain generation of the brake oil pressure by said brake oil pressure generating cylinder against said braking operation input when the braking force of said braking force applying means to the wheels is excessive, said control oil pressure generating means comprising a first oil passage system for communicating a pump as a control oil pressure generating source with said control oil pressure cylinder and a second oil passage system for communicating said control oil pressure cylinder with an oil tank, said second oil passage system having a normally open valve disposed in the

midst thereof, said valve being normally placed in open state but placed in closed state when the braking force to the wheels is excessive, and a pair of unidirectional valves for allowing flow of control oil only in a reverse direction to each other and being interposed in parallel between said normally open control valve and said oil tank.

4,315,660

AERODYNAMIC MULTIPLE-WEDGE RESILIENT BEARING

Joachim Glienicke, Karlsruhe, Fed. Rep. of Germany, assignor to Tmaschinen Forschungsvereinigung Verbrennungskraftmaschinen, Frankfurt, Fed. Rep. of Germany

Filed Mar. 10, 1980, Ser. No. 129,007

Claims priority, application Fed. Rep. of Germany, Mar. 14, 1979, 2909973

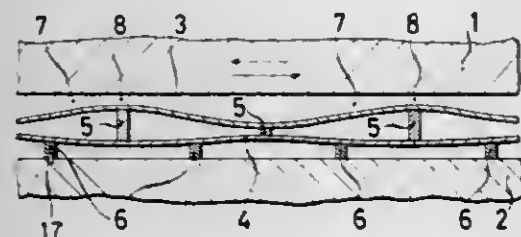
Int. Cl.³ F16C 32/06

U.S. Cl. 308—9

8 Claims

U.S. Cl. 339—97 C

12 Claims



1. An aerodynamic multiple wedge resilient bearing comprising: two bearing members; and means for resiliently supporting the two bearing members for movement relative to each other and for damping the relative movement of the bearing members comprising two superposed continuous foils and means mounting the superposed foils to one bearing member to form a clearance between the surface of the other bearing member and a bearing surface of one foil having a plurality of wedge-like constrictions and receptive of a gaseous lubricant therein, the mounting means including a plurality of spaced apart first ribs connecting the one bearing member to the other foil and a plurality of spaced apart second ribs connecting the two foils, wherein the first and second ribs are disposed alternately and perpendicular to the direction of the relative movement of the two bearing members to produce said wedge-like constrictions.

4,315,661

DRAWER SLIDE

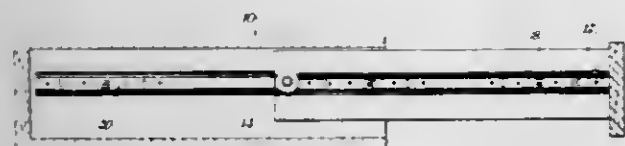
Seymour A. Kessler, 2851 NE. 183rd St., North Miami Beach, Fla. 33160

Filed Dec. 12, 1979, Ser. No. 102,965

Int. Cl.³ A47B 88/04; F16C 21/00

U.S. Cl. 312—330 R

3 Claims



1. A slide assembly comprising: two mating members including a first member connectable to a moveable furniture item and a second member connectable to an adjacent non movable furniture item supporting the movable furniture item by said slide assembly and said second member directly interconnectable and solely connected to said first member, each of said members including, a main portion positioned vertically and having an upper edge and lower edge, and an upper flange portion projecting outwardly toward the other mating member, said main portion including outwardly projecting wheel guide means,

one rotatable wheel positioned vertically, a hub connected to said main portion, said wheel moveably connected to said hub with a circumference extending beyond the edge of said main portion, said wheel guide means for limiting the side movement of the wheels by contacting the sides of said wheel, said wheel guide means sized and positioned to engage the side of the wheels, whereby said wheel is held in position between said first member and said second member.

4,315,662

UNDERCARPET WIRING SYSTEM INSTALLATION KIT

William S. Greenwood, Nutley; Ted L. C. Kuo, Fanwood, and Raymond F. Piasecki, Leonardo, all of N.J., assignors to Thomas & Betts Corporation, Raritan, N.J.

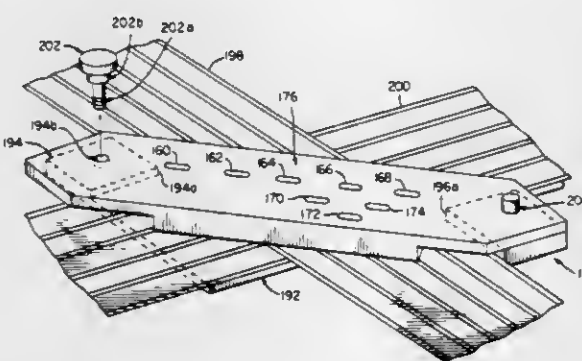
Filed May 25, 1979, Ser. No. 42,539

Int. Cl.³ H01R 11/20, 4/24

8 Claims

U.S. Cl. 339—97 C

12 Claims



1. A kit of parts for use in the installation of a wiring system, comprising:

- (a) flat electrical cable having a plurality of elongate conductors disposed in an electrically insulative casing and having an electrically conductive shield displacably overlying said casing and electrically connected to one of said conductors; and
- (b) connection means adapted for receiving first and second such cables in mutually overlapping shield-displaced relation and providing for predetermined mutual alignment thereof, said connection means limiting connection of conductors of said first cable to conductors of said second cable to preselected zones of the plurality of zones available for making connection therebetween; and
- (c) means for identifying for connection use less than all of said preselected zones.

4,315,663

MULTIPLE POSITION BRUSH CONNECTOR

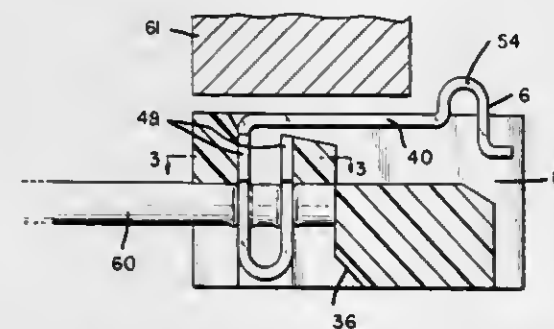
Billy E. Olsson, New Cumberland, Pa., assignor to AMP, Inc., Harrisburg, Pa.

Filed Mar. 10, 1980, Ser. No. 128,775

Int. Cl.³ H01R 13/00

U.S. Cl. 339—97 P

8 Claims



cavity extending downwardly into a top surface thereof, one end of each said cavity extending through said housing to a bottom housing surface;

at least one profiled contact member seated within said one housing cavity and having a downwardly deflectable horizontal spring arm projecting along said one cavity substantially in the plane of said top housing surface, and rearward conductor engaging means depending from a rearward end of said spring arm into said one end of said cavity,

said one end of said cavity comprising an upper constructed passageway defined by opposing interior housing surfaces, and an elongate counterchannel opening to and extending parallel with said bottom housing surface and dimensioned to closely receive one of said conductors laterally therein, parallel of said bottom housing surface.

4,315,664

MODULAR JACK

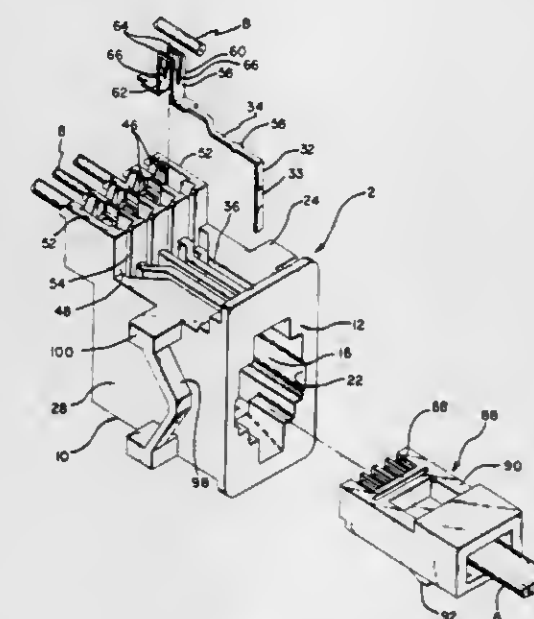
Donald W. K. Hughes, Mechanicsburg, and Ronald W. Myers, Landisburg, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed May 5, 1980, Ser. No. 146,808

Int. Cl.³ H01R 4/24, 13/514

U.S. Cl. 339—176 M

4 Claims



said adjacent external sidewall extends beyond said rearward end and forms a ledge which overhangs said rearward end, a plurality equal to the number of said conductors, of open top stalls on said ledge, said stalls having front and rear stall sidewalls which face forwardly and rearwardly of said housing, each of said rear stall sidewalls having a wire admitting slot therein, said intermediate portions of said conductors extending into said stalls, each of said conductors having an upstanding plate-like means in its respective stall, each plate-like means having a wire-receiving slot means therein which is receptive to a wire upon movement of said wire laterally of its axis and into said wire-receiving means and into the associated wire-admitting slot means whereby, wires can be connected to said conductors by supporting a downwardly facing surface of said ledge on a supporting anvil, locating said wires in alignment with said wire-receiving slot means, and moving said wires laterally of their axes, into said stalls, and into said wire-receiving slot means.

4,315,665

COMPOSITE OPTICAL ELEMENT HAVING CONTROLLABLE LIGHT TRANSMISSION AND REFLECTION CHARACTERISTICS

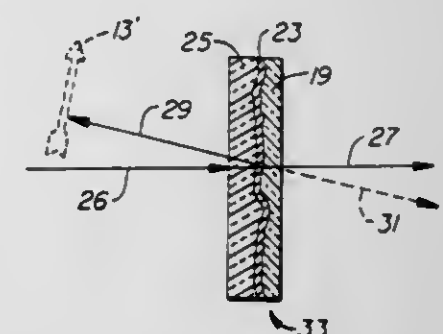
Kenneth A. Haines, San Jose, Calif., assignor to Eidetic Images, Inc., Santa Clara, Calif.

Filed Sep. 7, 1979, Ser. No. 73,511

Int. Cl.³ G03H 1/02

U.S. Cl. 350—3,61

13 Claims



8. A composite optical structure having different transmissive and reflective characteristics, comprising:

- a substrate layer having surface variations on one side thereof and a substantially smooth surface on the other side thereof, said surface variations containing information of a light diffraction pattern,
- an overcoat layer of material on said surface variation side of the substrate that smooths out said variations and having a thickness such that the composite structure is substantially uniform in thickness, the refractive indices of the substrate and coating materials being substantially the same, whereby light transmitted through said composite structure is substantially undiffracted and unrefracted by the surface variations of the substrate, and
- a thin layer of material of substantially uniform thickness and held between the substrate and coating in a manner to conform to the surface variations of the substrate, said thin layer of material characterized by partially reflecting light incident on the composite structure, thereby to reflect a light pattern that is formed by the surface relief pattern of the substrate.

4,315,666

COUPLED COMMUNICATIONS FIBERS

John W. Hicks, Jr., P.O. Box 345, Southbridge, Mass. 01550

Filed Mar. 19, 1979, Ser. No. 21,868

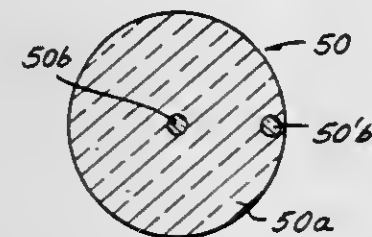
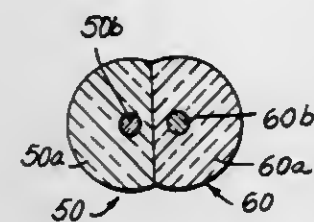
Int. Cl.³ G02B 5/172

U.S. Cl. 350—96.15

45 Claims

1. A coupling device for coupling light intelligence between fiber optic elements, comprising a first elongated fiber optic transmission element, a second elongated fiber optic transmission element, each fiber optic transmission element having ends, being single mode, being rotationally non-symmetric to provide means for enhanced, efficient, evanescent wave cou-

pling in a selected portion of the periphery thereof to couple light intelligence from said first element to said second element



and including a core of relatively high index of refraction and a cladding of relatively low index of refraction.

4,315,667

FIBER FOR OPTICAL TRANSMISSION HAVING SINGLE CRYSTAL CORE

Yukio Nakagome, Yokohama, and Yoshioori Mimura, Tokyo, both of Japan, assignors to Kokusai Denshin Denwa Kabushiki Kaisha, Japan

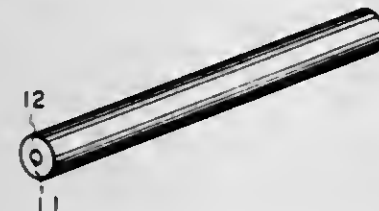
Filed Mar. 9, 1979, Ser. No. 19,168

Claims priority, application Japan, Mar. 20, 1978, 53-32123

Int. Cl.³ G02B 5/172

U.S. Cl. 350—96.34

10 Claims



1. A fiber for optical transmission, including a drawn single crystal core for propagating light formed by drawing a crystal melt through a nozzle to form a single crystal of an ionic substance except positive ions having no closed cell electronic structure and positive ions of strong covalency, and said drawn single crystal core of an ionic substance having a very low transmission loss at wavelengths in the infrared regions.

4,315,668

PERMEATION BARRIER FOR DISPLAY CELLS

Siegfried Aftergut, Erwin C. Buschmann, and Kenneth Q. Lao, all of Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Continuation of Ser. No. 17,043, Mar. 2, 1979, abandoned. This application Nov. 14, 1980, Ser. No. 207,009

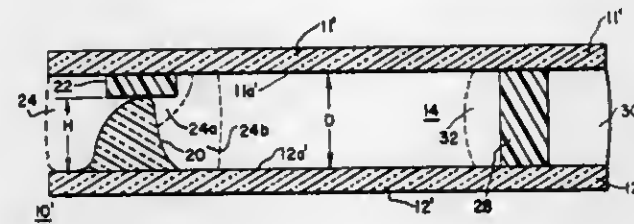
Int. Cl.³ G02F 1/13

U.S. Cl. 350—343

4 Claims

1. A cell for containing a material, comprising: first and second substrates each having a surface maintained in spaced-apart relationship with the surface of the remaining substrate; a first barrier of an inorganic material, said first barrier being fabricated upon and adhering only to the surface of said first substrate and extending toward said second substrate at least partially but less than completely across the distance separating the facing surfaces of said first and sec-

ond substrates, inwardly of and substantially continually about the periphery of said substrates; said first barrier and said first and second substrates defining the cavity of said cell; a quantity of material contained within said cell; and



a second barrier extending between the surface of said second substrate facing said first substrate and that portion of said first barrier closes to said second substrate, said second barrier formed on an organic material; the inorganic material of said first barrier having a low rate of permeation to vapors harmful to the material in said cavity.

4,315,669

WIDE-ANGLE ZOOM LENS SYSTEM

Toru Fujii, Hino, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

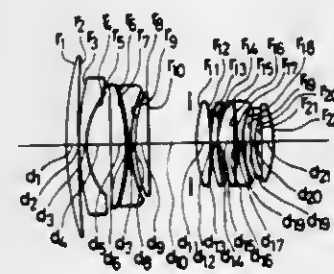
Filed Feb. 8, 1980, Ser. No. 119,848

Claims priority, application Japan, Feb. 23, 1979, 54-20313

Int. Cl.³ G02B 15/16

U.S. Cl. 350—426

3 Claims



1. A wide-angle zoom lens system comprising a front lens group having negative refractive power, a rear lens group having positive refractive power and an aperture stop arranged between said front and rear lens groups, said front lens group comprising a first positive meniscus lens element having a convex surface on the object side, a second negative meniscus lens element having a strongly concave surface on the image side, a third positive meniscus lens element having a concave surface on the object side, a fourth biconcave lens element and a fifth biconvex lens element, and said rear lens group comprising a sixth biconvex lens element, a seventh positive meniscus lens element, an eighth positive meniscus lens element, a ninth biconcave lens element, a tenth negative meniscus lens element having a concave surface on the image side and an eleventh biconvex lens element, said lens system being so adapted as to change the focal length of the entire lens system as a whole by changing said airspace reserved between said front and rear lens groups and satisfy the conditions enumerated below:

$$2.5 < |f_1/f_F| < 5.0 \quad (1)$$

$$0.7 < |f_2/f_F| < 0.8 \quad (2)$$

$$0.8 < |f_5/f_F| < 0.95 \quad (3)$$

$$n_4 - n_3 > 0.13 \quad (4)$$

$$r_5 < 0 \quad (5)$$

$$0.4 < f_{678}/f_R < 0.6 \quad (6)$$

$$0.4 < |f_9/f_R| < 0.7 \quad (7)$$

$$1.3 < |f_{10}/f_R| < 1.7 \quad (8)$$

wherein the reference symbols f_1 , f_2 , f_5 , f_9 and f_{10} represent focal lengths of said first, second, fifth, ninth and tenth lens elements respectively; the reference symbol f_{678} designates total focal length of said sixth, seventh and eighth lens elements as a whole, the reference symbol f_F denotes focal length of said front lens group as a whole, the reference symbol f_R represents total focal length of said rear lens group as a whole, the reference symbol r_5 designates radius of curvature on the object side surface of said third lens element, and the reference symbols n_3 and n_4 denote refractive indices of said third and fourth lens elements respectively.

4,315,670

ZOOM LENS BARREL WITH SINGLE OPERATING RING

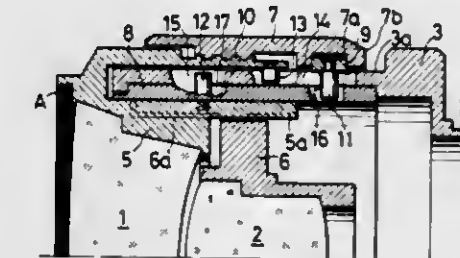
Masaharu Shigoku, Osaka, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Nov. 7, 1979, Ser. No. 91,946

Int. Cl.³ G02B 15/18, 7/04

U.S. Cl. 350—429

10 Claims



1. A lens barrel which is provided with an optical system having at least two movable lens groups, the first of the movable lens groups being movable for both focusing and zooming, the lens barrel comprising:

a stationary cylinder having an imaginary central axis there-through;

an operating ring supported by the cylinder for both axial movement and rotation about the central axis of the cylinder, the operating ring being adapted to be rotated for focusing and to be axially moved for zooming;

a first movable frame having an attachment mounting portion at its front end and having means for holding the first movable lens group at its inner portion;

axial guide means provided between the first movable frame and the cylinder for permitting only axial movement of the first movable frame;

a focusing mechanism having a single helicoid provided between the operating ring and the first movable frame, the helicoid and the axial guide means cooperating for axially shifting the first movable frame in response to the rotation of the operating ring and for causing the first movable frame to follow the axial movement of the operating ring;

a second movable frame holding a lens group other than the first lens group;

a zoom ring supported by the cylinder capable of only axial movement;

a cam member supported by the cylinder for rotation about the axis of the cylinder;

first engaging means for engaging the zoom ring with the cam member for rotating the cam member in response to the axial movement of the zoom ring;

second engaging means for engaging the cam member with the second movable frame for axially shifting the second movable member in response to the rotation of the cam member; and

wherein one of the zoom ring and the operating ring has a circumferential groove and the other of the zoom ring and

the operating ring has an engaging portion engaging the circumferential groove, the zoom ring being coupled with the operating ring through the engagement between the engaging portion and the circumferential groove such that the zoom ring follows only the axial movement of the operating ring.

4,315,671

LENTICULATED LENS

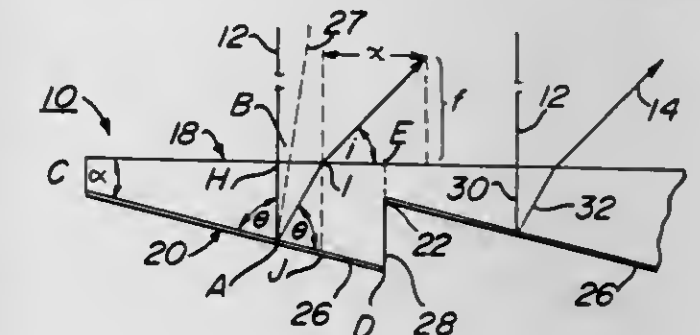
Jesse C. Bunch, 816 Easley St., Silver Spring, Md. 20910

Filed Oct. 3, 1977, Ser. No. 838,729

Int. Cl.³ G02B 3/08

U.S. Cl. 350—451

23 Claims



1. A radiation concentrating lens for concentrating incident radiation to a positive focus, comprising:

(a) a substantially planar frontal surface being at least partially radiation transmissive for passage of said incident radiation therethrough; and,

(b) at least two substantially planar inclined rear surfaces of said lens, each of said rear surfaces having non-parallel envelope contours with respect to said frontal surface, said non-parallel envelope contours being inclined each with respect to the other for concentrating said incident radiation to said positive focus, said incident radiation passing through said frontal surface being substantially devoid of refraction prior to reflection on said inclined rear surfaces.

4,315,672

COMBINABLE APPARATUS FOR EXAMINATION OF THE EYE

Ortwin Müller, Königsbronn, and Victor Stopar, Oberkochen, both of Fed. Rep. of Germany, assignors to Carl Zeiss-Stiftung, Oberkochen, Fed. Rep. of Germany

Continuation of Ser. No. 777,514, Mar. 14, 1977, abandoned.

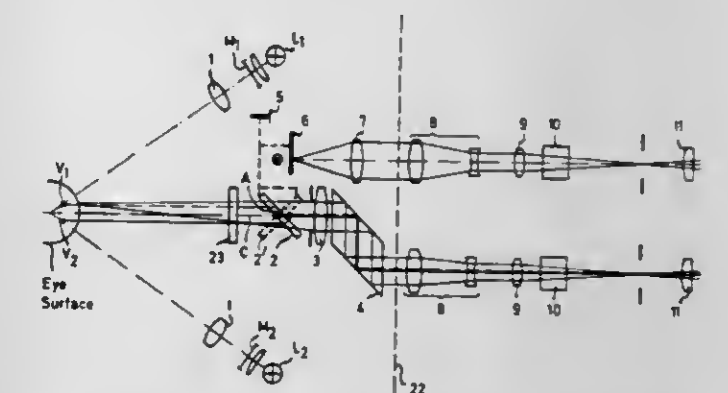
This application Jul. 9, 1979, Ser. No. 55,511

Claims priority, application Fed. Rep. of Germany, Apr. 2, 1976, 2614273

Int. Cl.³ A61B 3/10

U.S. Cl. 351—13

4 Claims



1. An ophthalmometer module as an article of manufacture for use with a binocular-microscope module having two telescope systems with a predetermined spacing between the axes

of said systems; said ophthalmometer module comprising ophthalmometer components, including an objective and an adjustable doubling device on an optical axis adapted for alignment with an eye to be examined, two mire-projecting systems symmetrically positioned and diametrically opposed with respect to said axis for concurrent direction at the eye to be examined, said ophthalmometer module including an axis-offsetting prism between its objective and the telescope systems, the axis-offsetting extent of said prism being half the spacing between axes of the telescope systems, and the orientation being such as to align the offset axis of said prism with one of the telescope axes when the said optical axis is aligned midway between the telescope axes.

4,315,673

PROGRESSIVE POWER OPHTHALMIC LENS

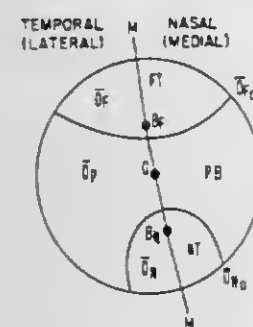
Günther Guilino, Munich, and Rudolf Barth, Höbenkirchen, both of Fed. Rep. of Germany, assignors to Optische Werke G. Rodenstock, Munich, Fed. Rep. of Germany
Continuation of Ser. No. 27,813, Apr. 6, 1979, abandoned. This application May 5, 1980, Ser. No. 147,267

Claims priority, application Fed. Rep. of Germany, Apr. 6, 1978, 2814916

Int. Cl.³ G02C 7/06

U.S. Cl. 351—169

20 Claims



1. A lens for eyeglasses, comprising a surface having an upper distance vision portion FT containing a far reference point B_F and given average distance-vision portion surface refractive powers \bar{D}_F , said surface having a lower near-vision portion NT containing a near reference point B_N given average near-vision surface refractive powers \bar{D}_N , said surface having a progression region PB located between said distance portion FT and said near portion NT with average surface refractive powers \bar{D}_P which effect a smooth transition from said distance portion FT to said near portion NT, said surface being divided into a temporal portion and a nasal portion by a principal meridian M which forms an umbilical point line, characterized in that said surface fits the following equation in a cylindrical system of coordinates (y, ρ, ϕ) :

$$\rho(\phi, y) = \sum_{n=0}^{\infty} a_n(y) \cos [n k(y) \phi]$$

wherein all $a_n(y)$ are chosen such that

$\rho(0, y)$ is an umbilical point line and describes the curve $f(y)$ of the principal meridian M,

$k(y)$ is a function which monotonously ascends, preferably in the range of 3 to 10 from said near portion NT to said distance portion FT or is a number which is constant, preferably in the range of 3 to 10, over the entire surface, and the curve of the curvature of said principal meridian M

$$F(y) = \frac{f'(y)}{(1 + f'^2(y))^{3/2}}$$

fits the equation

$$F(y) = A[1 - (1 + e^{-c(y+d)})^{-m}]$$

wherein

$$A = D_N - \bar{D}_F$$

and the numbers c, d, m are chosen so that said far reference point B_F is located above a center point O of said surface, so that, above the far reference point B_F , the average surface power \bar{D}_F along said principal meridian M is constant up to ± 0.25 diopters, so that said near reference point B_N is located below said center point O of said surface, and so that, below said near reference point B_N , the average surface power \bar{D}_N along said principal meridian M is constant up to ± 0.25 diopters.

4,315,674

FOCAL POINT DETECTING SYSTEM

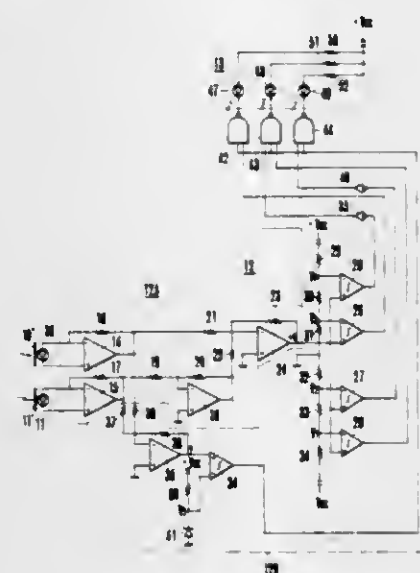
Kazuya Hosoe, Macbida; Nobubiko Shinoda, Tokyo; Minoru Fukuda, Yokohama; Takasbi Kawabata, Kamakura; Takao Kinoshita, Tokyo, and Tadasbi Ito, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed May 19, 1980, Ser. No. 150,959

Claims priority, application Japan, May 23, 1979, 54-63371

Int. Cl.³ G03B 7/08; G01J 1/20; G03B 17/20

U.S. Cl. 354—25

8 Claims



1. A device for detecting the focusing condition of an image forming optical system arranged to be focused on an object, comprising:

- focus detecting circuit means for producing an electrical output which varies with change in the focusing condition of said image forming optical system to be focused on said object;
- three display elements arranged to display the focusing condition of said image forming optical system to be focused on the object; and
- display control circuit means for controlling the display by said three display elements on the basis of the electrical output of said focus detecting circuit means, said display control circuit means being arranged to actuate a first of said three display elements when the image forming optical system is focused onto a distance closer than said object, to actuate the first and a second of the elements when the optical system is focused onto a distance slightly closer than said object, to actuate the third of the elements when the optical system is focused onto a distance beyond said object and to actuate the second and third of the elements when the optical system is focused onto a distance slightly beyond said object.

4,315,675

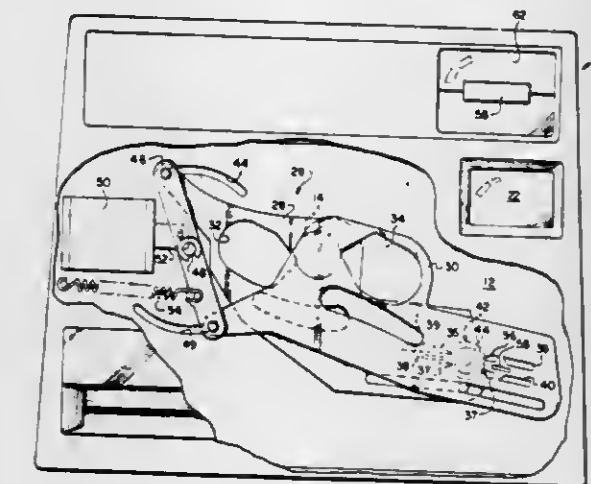
METHOD AND APPARATUS FOR SELECTIVELY POSITIONING SPECTRAL FILTER

Bruce K. Johnson, Andover, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Continuation-in-part of Ser. No. 108,546, Dec. 31, 1979, abandoned. This application Jun. 3, 1980, Ser. No. 156,198
Int. Cl.³ G03B 7/14

U.S. Cl. 354—26

21 Claims



18. In a photographic apparatus having means for directing image forming light rays from a scene along a given path to a photographic film material mounted at a given focal plane, means for evaluating radiation from said scene during an evaluation period, means for unblocking and blocking said path, and means responsive to said evaluation means for controlling said unblocking means to define an exposure interval, the improvement wherein said evaluating means includes:

means responsive to operation of said unblocking and blocking means for automatically substantially precluding evaluation of selected spectral frequencies during at least one portion of the operation of said unblocking and blocking means while substantially permitting evaluation of said selected frequencies during at least another portion of the operation of said unblocking and blocking means.

4,315,676

CAMERA WITH AUTO RANGING FOCUSING AND FLASH FIRE CONTROL

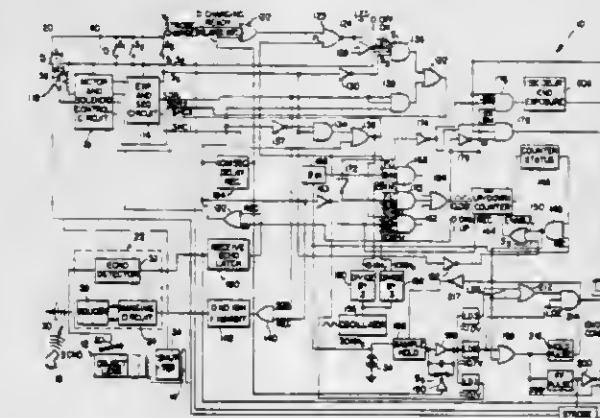
Arthur G. LaRocque, Belmont; George D. Whiteside, Lexington, and Bruce K. Johnson, Andover, all of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Continuation-in-part of Ser. No. 960,062, Mar. 13, 1978, Pat. No. 4,192,587. This application Mar. 5, 1979, Ser. No. 17,425

Int. Cl.³ G03B 7/08, 3/10

U.S. Cl. 354—27

3 Claims



1. A camera for use with a source of artificial illumination comprising:

means for defining a film exposure plane; sonic ranging means for providing an output signal upon receipt of an echo from a subject to be photographed indicative of an elapsed time period corresponding di-

rectly to the distance between said camera and the subject to be photographed; an objective lens arrangement;

means for mounting said objective lens arrangement for displacement between a plurality of different focal positions, said objective lens arrangement being adapted to focus an image of any subject located at a different distance from said camera within a given range of distances at the film exposure plane of said camera at each of its said focal positions;

means for displacing said objective lens arrangement through said plurality of focal positions and for stopping said objective lens arrangement in response to said output signal from said ranging means at a focal position at which said objective lens arrangement would focus an image of the photographic subject at said film exposure plane;

means for controlling a photographic exposure interval including a shutter blade mechanism and means for mounting said shutter blade mechanism for displacement between at least one arrangement wherein it blocks scene light from reaching the focal plane and another arrangement wherein it defines a maximum size aperture, said blade mechanism serving to define a range of progressively increasing sized apertures for admitting scene light to said film exposure plane as it moves from its said scene light blocking arrangement toward its said scene light admitting arrangement; and

circuit timing means responsive to said output signal from said ranging means for providing a flash fire signal to initiate the energization of the source of artificial illumination at an instant subsequent to the initiation of the exposure interval specifically timed to coincide with the instant at which said shutter blade mechanism defines and exposure aperture corresponding to the camera-to-subject distance, said exposure control means also comprising means for detecting and integrating scene light in correspondence with the scene light admitted to said film exposure plane during said exposure interval, means for automatically terminating said exposure interval upon the detection and integration of a quantity of scene light admitted to said film exposure plane corresponding to a select proportion of a select film exposure value and means responsive to said flash fire signal for controlling said scene light detecting and integrating means to discount the artificial illumination provided by the source of artificial illumination such that said select proportion of said select film exposure value is directly attributable to ambient scene light while the remaining proportion of said select film exposure value is directly attributable to artificial scene light provided by the source of artificial illumination.

4,315,677

CALIBRATION ARRANGEMENT FOR EXPOSURE CONTROL SYSTEM

Bruce K. Johnson, Andover, and George D. Whiteside, Lexington, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Jul. 3, 1980, Ser. No. 165,510

Int. Cl.³ G03B 7/08

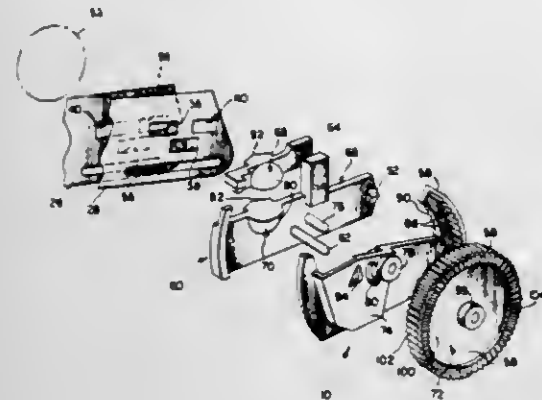
U.S. Cl. 354—49

10 Claims

1. In a photographic camera having scene light evaluating means for controlling a camera shutter to provide an appropriate exposure of given film material, the evaluating means including photoresponsive regions having different photoresponsive characteristics, and means for adjusting the intensity of scene radiation incident upon said regions for calibrating said evaluating means to provide a predetermined response for given scene light conditions, the improvement wherein:

said adjusting means includes first means movable into radiation intercepting relation with respect to both said regions to substantially precisely adjust an output of one of said regions while also coarsely adjusting an output of the

other of said regions under a given scene light condition, and second means movable into radiation intercepting



relation with respect to only said other region to, in combination with said first means, substantially precisely adjust the output of said other of said regions.

4,315,678

ELECTRICAL SHUTTER OF ELECTROMAGNETIC RELEASE TYPE FOR CAMERA HAVING ADJUSTABLE DELAY CIRCUIT FOR ADJUSTING THE PRECISION OF THE ELECTRICAL SHUTTER

Katsuhiko Tsunefuji, Hachioji, Japan, assignor to Olympus Optical Company Ltd., Tokyo, Japan

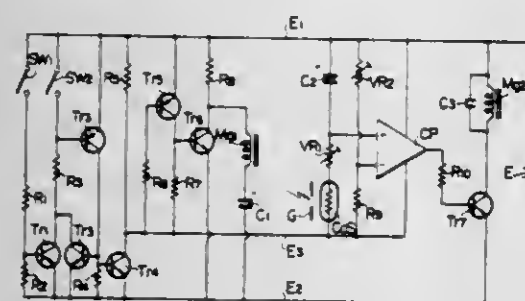
Continuation of Ser. No. 25,876, Apr. 2, 1979, abandoned, which is a division of Ser. No. 934,480, Aug. 17, 1978, Pat. No. 4,183,646. This application Feb. 6, 1981, Ser. No. 231,950

Claims priority, application Japan, Nov. 15, 1977, 52/153240

Int. Cl.³ G03B 7/083

U.S. Cl. 354—51

7 Claims



1. An electrical shutter of the electromagnetic release type for a camera comprising a charging member responsive to a film winding operation by rotating about a shaft to charge a prime mover spring which is used to drive the shutter, said shutter actuated by a shutter release and having a plurality of shutter blades, a shutter drive member adapted to rotate through substantially one revolution in response to an electromagnetic release to open and close the shutter blades, a locating member for maintaining the shutter drive member at rest at its start position, and an electrical shutter circuit including a shutter release electromagnet for opening the shutter which includes a permanent magnet and also including another control electromagnet which controls the closing operation of the shutter, the circuit automatically controlling a period of time during which the shutter blades are maintained open as a result of the rotation of the shutter drive member, the circuit including a time constant circuit which determines an exposure period of the shutter and commences operation when said shutter release is actuated and before said shutter opens, and means for slightly delaying the timing of energization of the control electromagnet for closing the shutter to compensate for a time lag involved with the operation of the release electromagnet for opening the shutter.

4,315,679

ADAPTER DEVICE

Zenzo Nakamura, Urawa, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

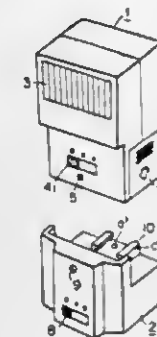
Filed Sep. 27, 1979, Ser. No. 79,598

Claims priority, application Japan, Dec. 25, 1978, 53-163545; Apr. 28, 1979, 54-57153[U]; Apr. 28, 1979, 54-57154[U]; Apr. 28, 1979, 54-57155[U]; Apr. 28, 1979, 54-57156[U]

Int. Cl.³ G03B 15/05, 17/18

U.S. Cl. 354—128

3 Claims



1. An adapter device for use with a flash device and providing, through display means in a camera, a display for confirmation of light emission operation, comprising:

- (a) terminal means connectable with a flash circuit in the flash device for receiving a light emission signal generated upon flashlight emission operation of a flash tube;
- (b) signal forming circuit means connected to said terminal means and forming a confirmation signal in response to the light emission signal; and
- (c) terminal means for transmitting the confirmation signal to said display means in the camera.

4,315,680

AUTOMATIC CAMERA

Norman R. Gunderson, Pasadena, Calif., assignor to American Electronics, Inc., Fullerton, Calif.

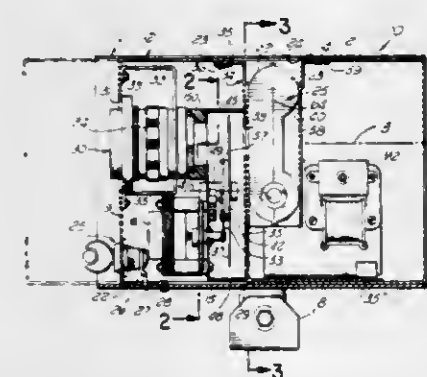
Division of Ser. No. 884,160, Mar. 7, 1978, Pat. No. 4,222,650.

This application Apr. 21, 1980, Ser. No. 142,391

Int. Cl.³ G03B 17/04

U.S. Cl. 354—195

6 Claims



1. A camera, comprising in combination:

- an outer housing having at least one open end and containing a wall portion;
- an inner housing containing photographic means, slidably mounted within the outer housing for movement relative thereto between an active position and a loading position, said inner housing including a wall portion;
- a compartment in said inner housing for receiving a magazine containing film and having an open end;
- a first passageway contained in said wall portion of the inner housing in communication with the open end of said compartment, which is of a size to pass a film magazine through; and

a second passageway in the wall portion of the outer housing of a size complimentary to that of said first passageway, said passageways being arranged in the walls of the respective housings whereby they are in alignment when the inner housing is in the loading position and are out of alignment when the inner housing is in the active position.

4,315,681

CAMERA WITH LENS DISC STOPPING SYSTEM

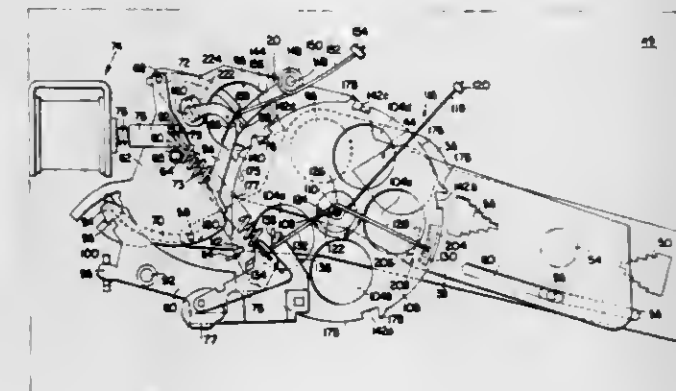
Kenneth J. Launie, Stoneham, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Jan. 2, 1981, Ser. No. 222,012

Int. Cl.³ G03B 13/20; F16H 53/00

U.S. Cl. 354—197

5 Claims



1. A camera including an automatic lens focusing system for automatically focusing image forming light rays from a photographic subject at a camera film plane, said camera comprising: means for generating and transmitting a sonic ranging signal and for providing an indication upon detection of an echo signal reflected from a photographic subject at an elapsed time, subsequent to transmission of said ranging signal, indicative of camera-to-subject distance;

a plurality of discrete lens elements each having a different focal length;

a disc for holding said plurality of lens elements in circumferentially spaced apart relation to each other for rotation about a center axis of said disc, rotation of said disc from an initial position operating to sequentially move each of said lens elements into position to focus an image onto the film plane of a photographic subject within a corresponding different camera-to-subject distance range, said disc including a peripheral section having a plurality of open outer end tang receiving notches therein extending generally inwardly from an outer edge portion of said peripheral section and being disposed in circumferentially spaced apart relation to each other, each of said notches being arranged in predetermined angular relation to a corresponding one of said lens elements and also being configured to include a leading side cam surface set at a cam angle with negative rake with respect to a radial line passing through an outer tip of said leading side cam surface, an oppositely spaced trailing side cam surface set at a cam angle with positive rake and extending further out in the radial direction than said leading side cam surface, a bottom surface, and a generally concave transition ramp surface extending between a lower portion of said trailing side cam surface and said bottom surface, said outer edge portion being at a constant radial distance from said axis between notches except in the vicinity of the outer ends of said trailing side cam surfaces where it protrudes outwardly to accommodate the extended portion of said trailing side cam surface;

means for effecting rotation of said disc away from said initial position so that each lens element reaches said focusing position at a time subsequent to the provision of a correlated echo signal indicating that the next lens element approaching the focusing position is appropriate for the corresponding camera-to-subject distance range;

means for biasing said disc for rotation back toward said initial position; and

means responsive to the provision of the correlated echo signal indication for stopping rotation of said disc to locate said corresponding lens element at said focusing position, said stopping means including a pawl mounted for pivotal motion toward and away from said peripheral section of said disc and having a tang configured to be releasably received in any one of said disc notches to stop disc rotation and inhibit further rotation until it is removed from said notch, said tang including a leading side surface having a positive rake angle that is greater than the cam angle of said trailing side cam surface of said notch, a trailing side surface having a negative rake angle that is greater than the cam angle of said leading side cam surface and a concave bottom surface, having a radius of curvature that is smaller than the radius of curvature of said disc outer edge portion between notches, joining the lower ends of said tang leading and trailing side surfaces and cooperating therewith to define leading and trailing end tang cam follower tips, the span between said leading and trailing tips being narrower than the width of said notch opening, said pawl being locatable at an initial disengaged position wherein said tang is spaced outwardly from said outer edge portion to allow rotation of said disc therepast and in response to said echo signal indication being actuable to pivot toward said disc so that at least one of said leading and trailing end tips engages said outer edge portion of said disc between adjacent notches ahead of an approaching one of said notches and rides therealong whereby said disc lens pawl is maintained in a stabilized condition due to the constant radius of said outer edge portion until said leading end tip of said tang is engaged by said extended portion of said trailing side cam surface of said approaching notch whereupon in response to further disc rotation toward said focusing position said leading end tip follows said trailing side cam surface and then said concave ramp section to effect camming action of said tang down into said notch to initiate stopping of disc rotation, said trailing end tip of said tang and said leading side cam surface also acting to cam said tang into said notch when engaged due to oscillating action of said disc responsive to abrupt disc deceleration when said tang enters said notch, said disc biasing means serving to bias said disc back toward said initial position to hold said leading side cam surface of said notch in contact with said trailing end tip of said tang located therein to accurately position said disc and thereby locate said corresponding lens element at said focusing position.

4,315,682

XEROGRAPHIC TONER FIXING STATION

Remo E. Parzanlci, Longmont, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 28, 1980, Ser. No. 182,153

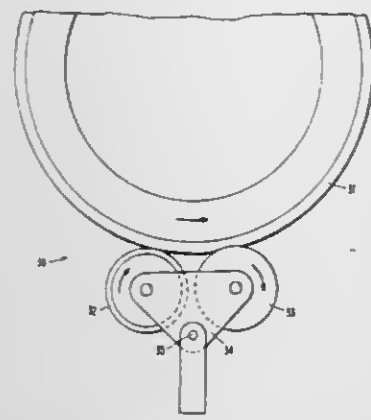
Int. Cl.³ G03G 15/00

U.S. Cl. 355—3 FU

11 Claims

11. An apparatus for applying tension to at least a portion of a sheet being advanced along a paper path comprising: first, second and third rotatably mounted rollers; and means for rotating said rollers to advance said sheet; said first and second rollers being positioned in peripheral engagement for forming a first nip to receive a sheet from the paper path, and said first and third rollers being positioned in peripheral engagement for forming a second nip to receive sheets from said first nip; said rollers further being positioned so that an advancing sheet enters said second nip before leaving said first nip; said second roller having a lower peripheral speed than the

peripheral speed of said third roller whereby tension is applied to the sheet as it passes over the portion of the



surface of said first roller between said first and second nips.

4,315,683

CAM YOKE FOR ELECTROPHOTOCOPIER RECIPROCATING CARRIAGE

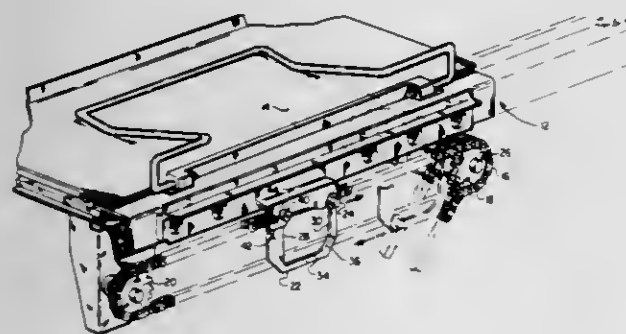
Roderick N. Schmaling, Brookfield Center, and Warren E. Olson, New Canaan, both of Conn., assignors to Pitney Bowes Inc., Stamford, Conn.

Filed Sep. 2, 1980, Ser. No. 183,517

Int. Cl.³ G03G 15/28; F16H 19/06

U.S. Cl. 355—8

4 Claims



1. In an electrophotocopying machine having a reciprocating carriage driven by a constant speed chain having a drive pin coupled thereto, the improvement comprising a camming yoke fixedly connected to said reciprocating carriage and disposed in a plane parallel to the plane of the constant speed chain, said camming yoke having an opening therein to receive said drive pin, said opening being defined at its top and bottom by extended, substantially horizontal camming surfaces and at its sides by substantially vertical camming surfaces.

4,315,684

COPYING METHOD AND APPARATUS

Susumu Sugiura, Yamato, and Tadashi Sato, Kokubunji, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 17, 1979, Ser. No. 30,856

Claims priority, application Japan, Apr. 23, 1978, 53/48004

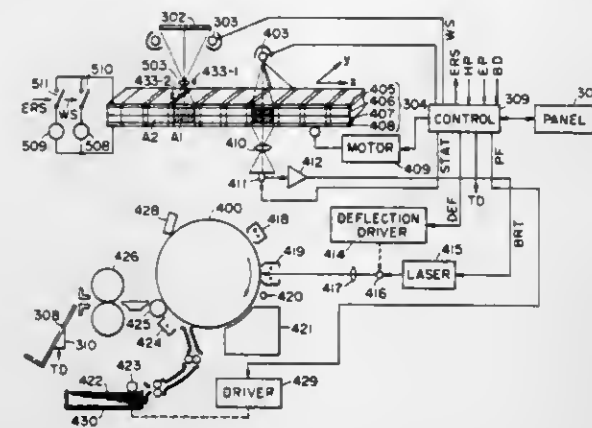
Int. Cl.³ G03G 15/00

U.S. Cl. 355—14 R

24 Claims

19. Copying apparatus comprising:
means for setting an original document in a predetermined position for copying;
a memory;
memorizing means for causing a plurality of original document images to be stored in different areas of said memory, said memorizing means including first input means for initiating memorizing operations;
second input means for selecting one of the areas of said memory;
means for reading out the original image from said memory and printing the read out image on a copy medium, said

read out and printing means including third input means for initiating printing operations; and
means for controlling said read out and printing means in response to said first, second and third instruction input



means so as to read out, after the memorizing operation of said first input means, the document image stored in an area of said memory which is selected by said second input means, and to print out the image on the copy medium in response to said third input means.

4,315,685

IMAGE FORMING APPARATUS

Tsuneaki Inuzuka, Machida; Koichi Murakami, Tokyo; Kenji Kurita, Mitaka, and Hisashi Sakamaki, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

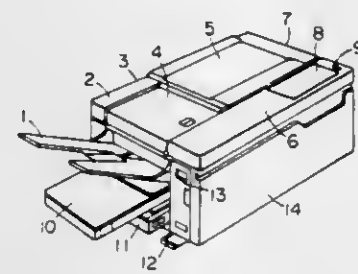
Filed Aug. 21, 1979, Ser. No. 68,483

Claims priority, application Japan, Aug. 24, 1978, 53-103044; Aug. 24, 1978, 53-103048; Aug. 24, 1978, 53-103050; Aug. 31, 1978, 53-106736; Sep. 1, 1978, 53-107094

Int. Cl.³ G03G 15/00

U.S. Cl. 355—14 R

30 Claims



6. An image forming apparatus comprising:
means for forming an image on a rotary member,
means for transferring a formed image onto a transfer member,
means for uniformizing the surface condition of said rotary member,
switch means for connecting a power source to the apparatus, and
control means which, when said switch means is turned off before a completion of image formation and transference, stops the rotary member after making it rotate further for a predetermined period of time while keeping said uniformizing means in operation.

4,315,686

EXPOSURE CONTROLS FOR PHOTOGRAPHIC COPY MACHINES

Berthold Fergg, Taufkirchen; Wilhelm Nitsch, München, and Mathias Pflugbeil, Baldham, all of Fed. Rep. of Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

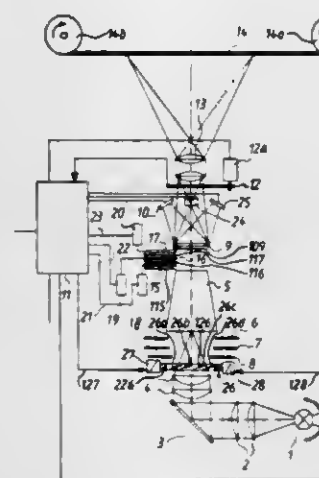
Filed Mar. 24, 1980, Ser. No. 132,811

Claims priority, application Fed. Rep. of Germany, Mar. 23, 1979, 2911523

Int. Cl.³ G03B 27/80

U.S. Cl. 355—38

6 Claims



1. In a machine for making photographic copies of color originals on photosensitive copying material, wherein the original is supported in a predetermined plane extending across the path of light from a light source to the copying material, wherein the duration of exposure of the copying material to copying light in several colors is selected by an automatic exposure control system, wherein a light intensity weakening device controls the intensity of light traveling in said path, and wherein an adjusting device adjusts the light intensity weakening device in dependency on the density of the original, the combination of normally closed shutter means interposed between said plane and the copying material; means for opening said shutter means for the duration of exposure as determined by the automatic exposure control system; and means for delaying the operation of said opening means for a predetermined interval of time whenever the weakening device is being adjusted by the adjusting means.

4,315,687

APPARATUS FOR COPYING FROM PLURAL SHEETLIKE ORIGINALS

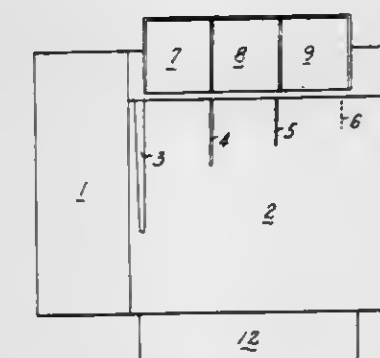
Theo P. C. Breuers, and Johannes P. Hanegraaf, both of Venlo, Netherlands, assignors to Océ-Nederland B.V., Venlo, Netherlands

Filed Feb. 19, 1980, Ser. No. 122,119

Int. Cl.³ G03B 27/62

U.S. Cl. 355—75

9 Claims



1. Apparatus for copying plural sheetlike originals simultaneously comprising, in a photocopier including an exposure plate and means for producing on a sheet of receiving material

a copy of sheetlike material exposed in copying position on said plate, a positioning surface on which a plurality of similarly sized sheetlike originals can be laid parallel to each other, means to abut and align the respective leading edges of such originals laid on said surface to a position making them ready to be copied, and transport means for feeding such originals so laid ready from said surface to said copying position for exposure and afterward away from said plate, said positioning surface having at least two distinct areas for separately receiving the originals and having thereon for each of said surface areas an arrest located at one side of the surface area, and at relatively the same side thereof as the arrest for each other of said surface areas, so that such plural originals respectively laid ready in said areas with respective lateral edges of the originals placed against the related arrests will be fed by said transport means to respective exact copying positions over said exposure plate.

4,315,688

ELECTRO-OPTICAL SENSOR SYSTEMS FOR THREAD AND HOLE INSPECTION

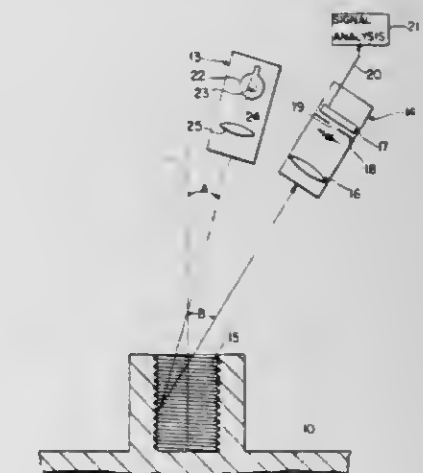
Timothy R. Pryor, Tecumseh, Canada, assignor to Diffracto Ltd., Windsor, Canada

Filed Aug. 8, 1979, Ser. No. 64,867

Int. Cl.³ G01B 11/22; 11/04

U.S. Cl. 356—73

33 Claims



1. Apparatus for inspecting threaded objects comprising:
light source means for illuminating threads of a threaded object;
lens means for forming an image of at least a portion of the threads of a threaded object illuminated by said light source means;
means for detecting said image, said detecting means comprising a light sensitive member having a light sensitive area sufficiently small to resolve the individual threads in the image of the threads of an illuminated threaded object, said light sensitive member having an output signal responsive to light incident on said light sensitive area; and
means for analyzing said output signal to determine the quality of the threads of the threaded object.

4,315,689

SHOT SIMULATOR USING LASER LIGHT FOR SIMULATING GUIDED MISSILES

Wilfried Goda, Tinsdaler Kirchweg 229, 2000 Hamburg 56, Fed. Rep. of Germany

Filed Oct. 24, 1979, Ser. No. 87,735

Claims priority, application Fed. Rep. of Germany, Oct. 27, 1978, 2846962

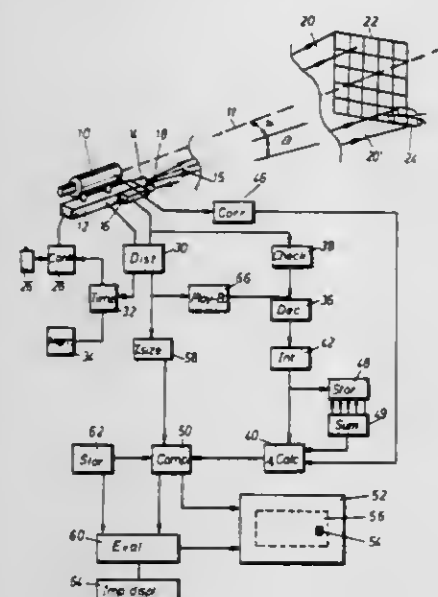
Int. Cl.³ G01B 11/26; F41F 27/00; F41G 3/26

U.S. Cl. 356—141

7 Claims

1. A shot simulator using laser light for simulating the shooting of sight guided missiles, comprising
a sight for tracking a target.

a laser transmitter coupled to the sight for emitting laser light beams having different angular deviations from the line of sight and being characterized by different pulse codes;
a receiver for receiving laser light reflected from said target, a decoder coupled to said receiver for decoding said pulse code of the reflected light and providing an output indicative of the momentary angular deviation of the target from said line of sight,
comparing means for comparing said momentary angular target deviation with stored maximum admissible deviation limits,



means coupled to the trigger of the simulated weapon for continuously repeating said emission of the laser light, said decoding of the reflected light and said comparison of the angular target deviation over a measurement period corresponding to the time of flight of the simulated missile, hit indicating means,
and control means for said hit indicating means coupled to said comparing means and being responsive to the result of said comparison obtained during at least part of said measurement period,
so as to produce a hit indication only if said angular deviations have been within said stored limits during a sufficient portion of the total measurement period.

4,315,690

ARRANGEMENT FOR LOCATING RADIATING SOURCES

Roger Trocellier, and Jean C. Reymond, both of Paris, France, assignors to Thomson-CSF, Paris, France

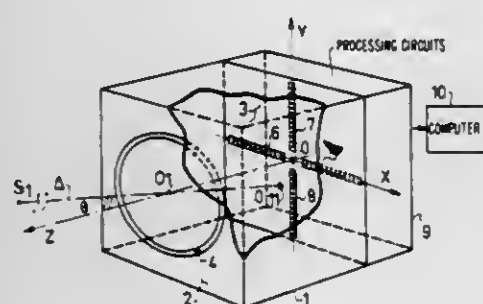
Filed Feb. 22, 1980, Ser. No. 123,816

Claims priority, application France, Feb. 27, 1979, 79 05004

Int. Cl.³ G01B 11/26

U.S. Cl. 356—152

9 Claims



1. A sensor system for the location of radiation sources, comprising:
a housing provided with a front face forming an optical mask for admitting radiation from a source solely along transparent zones which define at least one circular shape, the transmitted radiation being consequently confined within

a cone which has the source as its vertex and said circular shape as a section, said housing carrying a plurality of linear arrays of photosensitive elements disposed in an inner plane within said housing parallel to said optical mask to intercept at least three points of the projected circle corresponding to the said circular shape;
circuit means for processing the signals detected by said linear arrays and for identifying the positions of elements sensitized by the radiation transmitted through the optical mask; and
ancillary means for computing from photosensitive-element position identifications the coordinates of the said points and to deduce therefrom the coordinates of the center of the projected circle and consequently the angular location of the source.

4,315,691

CAM AND FOLLOWER ARRANGEMENT

Charles V. Perkins, Cambridge, and John R. Firth, Silverstone, both of England, assignors to Pye Electronic Products Limited, Cambridge, England

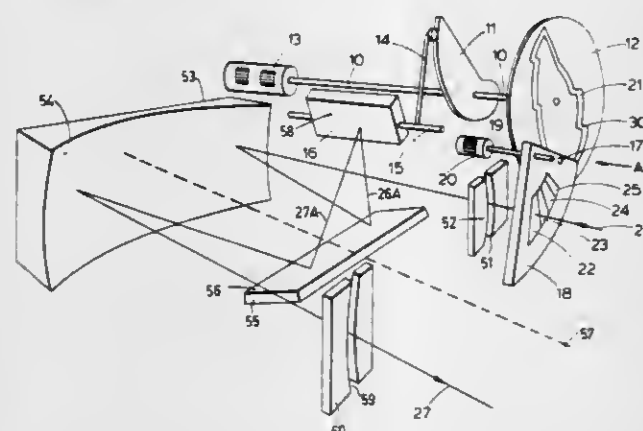
Filed Feb. 26, 1980, Ser. No. 124,881

Claims priority, application United Kingdom, Mar. 2, 1979, 07535/79; Mar. 5, 1979, 07615/79

Int. Cl.³ G01J 3/12; F16H 53/06; G02B 7/00

U.S. Cl. 356—331

8 Claims



7. A monochromator comprising, means for passing a beam of light through the monochromator, a device supporting a plurality of optical elements, and means for driving said device to position a selected one of said optical elements in the path of a light beam, and wherein said driving means comprises, a rotatable member supporting a cam having a surface that includes a track formed by walls with the track having at least one abrupt transition therein, a cam follower in engagement with the track, means including a direct current motor operative in a stalled condition for mechanically biasing the cam follower against one or the other of the walls of the track dependent upon the direction of rotation of the rotatable member, and means for controlling the polarity of the energizing voltage applied to the motor as a function of the direction of rotation of the rotatable member.

4,315,692

MASK ALIGNMENT FOR SEMICONDUCTOR PROCESSING

Rudolf A. H. Heinecke, Harlow, and David J. Moule, Saffron Walden, both of England, assignors to International Standard Electric Corporation, New York, N.Y.

Continuation of Ser. No. 23,925, Mar. 26, 1979, abandoned. This application Oct. 29, 1980, Ser. No. 201,945

Claims priority, application United Kingdom, May 16, 1978, 19779/78

Int. Cl.³ G01B 11/00; G03B 27/64

U.S. Cl. 356—399

3 Claims

1. An apparatus for facilitating alignment of a flexible mask

4,315,694

CARRIER FOR PRINT ELEMENT AND RIBBON CARTRIDGES

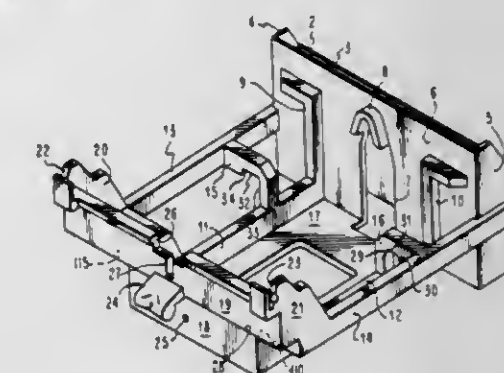
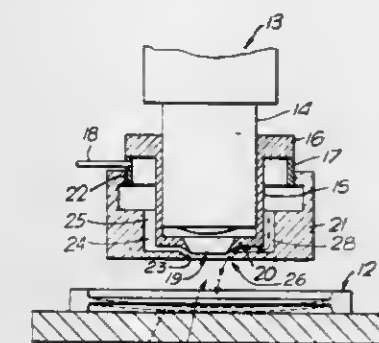
Adolph B. Habich, and Ronald E. Hunt, both of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 29, 1979, Ser. No. 53,649

Int. Cl.³ B41J 1/30

U.S. Cl. 400—144.2

10 Claims



member has an opening into which the tubular member protrudes so as to define an orifice, the orifice being concentric with an objective lens of the microscope when the apparatus is fitted thereto, and in which the orifice is so dimensioned as to produce a gas stream creating a region of sufficient energy density to deform that portion of the mask disposed between the microscope objective and the process wafer into local soft contact with the semiconductor process wafer.

4,315,693

OPTICAL STRAPDOWN INERTIA SYSTEM

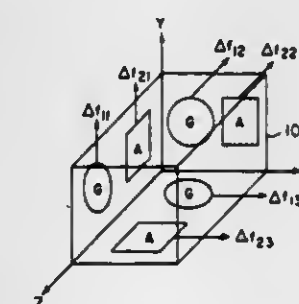
Clifford G. Walker, 915 Weatherly Rd., Huntsville, Ala. 35803

Filed Dec. 31, 1979, Ser. No. 108,972

Int. Cl.³ G01B 9/02

U.S. Cl. 356—350

7 Claims



1. An optical strapdown inertial guidance system including:
a. A vehicle having a gyro and an accelerometer respectively mounted in three mutually perpendicular intersecting planes to sense acceleration components in each plane;
b. Said gyro including a passive ring Fabry-Perot interferometer, and, a single frequency laser source to measure the difference in clockwise and counter clockwise lengths of the cavity caused by inertial rotation, electronic the cavity to resonance.
c. Said accelerometers comprising a single frequency laser source, a resonant cavity having a birefringent material therein, a proof mass carried by said birefringent material, a first polarizer for polarizing the laser beam, means disposed between said cavity and said polarizer for changing the optical frequency of the laser beam, focusing means for focusing the output laser beam from said cavity, detector means for receiving said output laser beam, feedback circuit means connected to said photo detector means and said SAW to vary the frequency of said laser beam.

4,315,695

INERTIA PEN WITH SLIDABLE SLEEVE

Antonio M. Alves dos Santos, and Helena Maria B. Alves dos Santos, both of Ferao Alvares do Oriente, 4-2' Dto., Lisbon, Portugal (1700)

Filed Nov. 16, 1979, Ser. No. 94,759

Claims priority, application Portugal, Nov. 20, 1978, 68804

Int. Cl.³ B43K 23/00, 27/00, 24/00

U.S. Cl. 401—99

3 Claims



1. An inertia pen comprising a hollow tubular shaped housing having at least one reduced tapered end, a tubular marking element removably and coaxially mounted within said tubular housing and having a marking tip on one end extending through said tapered end of said tubular housing in spaced coaxial relationship therewith, and an inertia mechanism comprising a tubular mass-calibrated sleeve member slidably and

coaxially mounted within said tubular housing between said housing and said marking element, said sleeve member having a tip shielding portion extending through said tapered end of said housing surrounding said marking tip of said marking element, said sleeve member being axially movable between an outer non-marking position wherein said shield portion completely encloses said marking tip and an inner marking position wherein said shield portion is retracted to expose said marking tip, a spring means within said tubular housing interposed between said housing and said sleeve member to resiliently urge said sleeve member into the retracted position, guide means for guiding said sleeve member between said marking and non-marking positions, and stop means to releasably retain said sleeve member in said non-marking position so that said sleeve member may be operated by an impulse on said housing to selectively be moved into said marking or non-marking position.

4,315,696

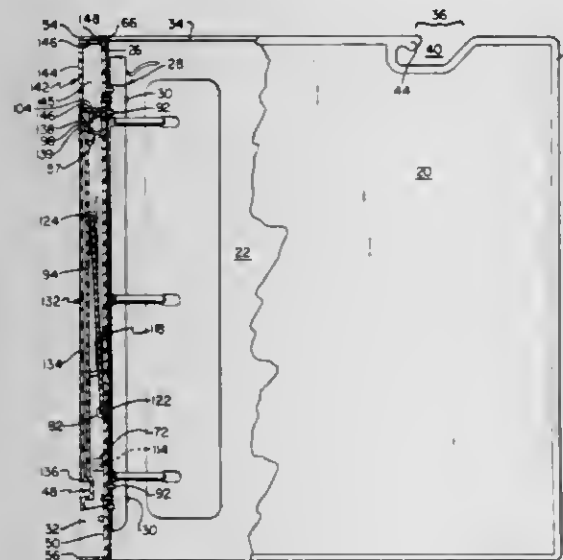
EASEL-STYLE SUSPENSION BINDER

Albert G. Ermanski, Auburn, and David M. Wright, Shrewsbury, both of Mass., assignors to Wright Line Inc., Worcester, Mass.

Filed Apr. 18, 1980, Ser. No. 141,273
Int. Cl.³ B42F 13/00; B42D 3/18

U.S. Cl. 402—70

11 Claims



1. In a loose-leaf binder of the type having a rigid spine provided with a multiple ring device for releasably securing thereto appropriately punched stationery items and further having a pair of stiff covers of rectangular form hinged to said spine so as to be rotatable about a pair of parallel axes between a first closed position wherein said covers are in opposing and confronting relationship with one another and a second open position wherein said covers form an obtuse angle with one another, the improvement comprising:

a pair of congruent hook-shaped indentations in corresponding single edges of said covers, said single edges being normal to said axes and said indentations being so disposed along said single edges as to fall opposite one another when said stiff covers are in said first closed position, said indentations further defining a hook portion and an opening, with said hook portions being between said openings and said spine, said indentations being situated eccentrically along said single edges so as to be remote from said spine;

a retractable jack hinged to said spine about an axis normal to said parallel axes so as to be movable between a retracted position parallel to said parallel axes and an extended position making an angle with a plane parallel to said parallel axes, said jack being of substantially rectangular form and being provided with a transparent label-holding cover, and said spine being of substantially rectangular open box-like construction dimensioned to accept said jack when said jack is in said retracted position so as to

expose a view substantially only said transparent label holding cover of said jack;

a lock, comprised of a lock means on said spine and a lock pin on said jack which may be engaged with one another to secure said jack in said retracted position; and
a locking brace movably secured to said jack and said spine to secure said jack in said extended position;
whereby when said jack is in said extended position and said binders are in said second open position, said binder may be supported on a surface by said jack, one end of said spine, and at least one of said covers with said spine inclined to said surface and said hooks remote therefrom.

4,315,697

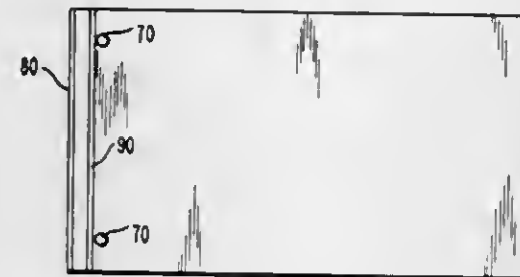
CORE FOR A MODULAR FISCAL YEAR ACCOUNT BOOK

Louis Horowitz, 100 Kings Point Dr., Apt. # 1610, North Miami Beach, Fla. 33160

Continuation-in-part of Ser. No. 28,525, Apr. 9, 1979, abandoned. This application Mar. 14, 1980, Ser. No. 130,317
Int. Cl.³ B42D 5/00, 12/02

U.S. Cl. 402—79

3 Claims



1. A core for a modular fiscal period account book comprising:

a multiplicity of sheets having a row of apertures disposed proximate one edge of each of said sheets,
a strip of thermo-setting adhesive disposed on at least one side of each of said sheets, intermediate the said apertures and the said one edge, and
a strip of pressure-sensitive adhesive disposed on at least one side of each of said sheets, proximate said row of apertures for releasably bonding said multiplicity of sheets together.

4,315,698

COUPLING SLEEVE

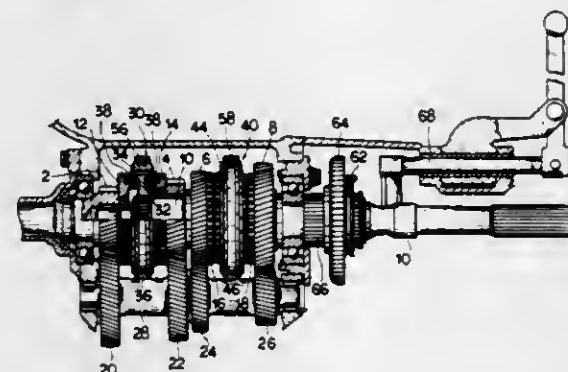
Kotei Takahashi, Tokyo; Teruo Endo, Fujisawa; Masayuki Kawaguchi, Tokyo, and Kenichi Sakamoto, Fujisawa, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Oct. 12, 1979, Ser. No. 84,145

Claims priority, application Japan, Nov. 8, 1978, 53-138151
Int. Cl.³ F16B 7/06; F16C 11/00; F16G 11/12; F16B 7/10

U.S. Cl. 403—59

8 Claims



1. A rotatable coupling sleeve movable axially along a support with movement of a shifter fork engaged over a relatively small surface area thereof with said coupling sleeve, said coupling sleeve having substantially its entire portion contacting said shifter fork covered with wear-resistive material having high self-lubricating and antiwear properties.

4,315,699

MULTIWEDGE CONNECTOR

George E. Lusk, Woodstock, Ill., assignor to Joslyn Mfg. and Supply Co., Chicago, Ill.

Filed May 12, 1975, Ser. No. 576,731

Int. Cl.³ H01B 17/02; F16B 2/00

U.S. Cl. 403—361

76 Claims



1. An end fitting having component parts capable of being assembled for providing an attachment to an elongated member comprising

a plurality of collets adapted to be positioned about said member and having a corresponding plurality of uninterrupted interior surfaces adapted to be spaced from said member,

elongated means adapted to be positioned about said member for receiving and retaining said plurality of collets about and spaced from said member in a serially disposed, coaxially aligned condition within said elongated receiving and retaining means and along the longitudinal axis of said member,

means adapted to be disposed between said plurality of collets and said member for filling substantially all of the spaces or voids between said member and said interior surfaces of said plurality of collets to thereby affix said end fitting to said member and

means adapted to coat said interior surface for avoiding the development of a bond between said interior surface and said filling means.

4,315,700

IMPLEMENT FOR APPLYING SEALANT TO ASPHALT PAVEMENT OR THE LIKE

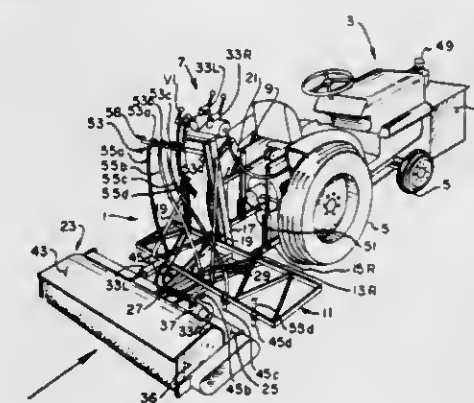
Raymond W. Heiligt, 1012 Palmer La., Imperial, Mo. 63052; Donald G. Heiligt, 4696 Four Ridge Rd., House Springs, Mo. 63051, and Donald R. Heiligt, R.R. 2, Box 1101, Barnhard, Mo. 63012

Filed Feb. 23, 1979, Ser. No. 14,416

Int. Cl.³ E01C 19/16

U.S. Cl. 404—111

10 Claims



1. An implement or attachment for a tractor or other prime mover for the application of a liquid sealant to a pavement

surface, said tractor having a 3-point hitch selectively movable between a raised and a lowered position for in turn raising and lowering said implement between a raised retracted position in which the implement is clear of the pavement surface and a lowered operative position, said implement having a frame adapted to be coupled to said tractor by means of said 3-point hitch, said frame extending generally transversely of the direction of travel of said tractor, a plurality of spray tubes spaced transversely along said frame for application of said liquid sealant to said pavement surface, a tank for holding a supply of said liquid sealant, a pump, conduit means interconnecting said tank, pump, and spray tubes for spraying of said liquid sealant under pressure onto said pavement surface, and a brush trailing said spray tubes rotatably driven about a horizontal axis and being engageable with said pavement surface for uniformly spreading said liquid sealant on said pavement surface and for forcing said sealing into cracks or voids in said pavement surface.

4,315,701

SHUTTERING FOR ERECTING A CONCRETE TUNNEL LINING

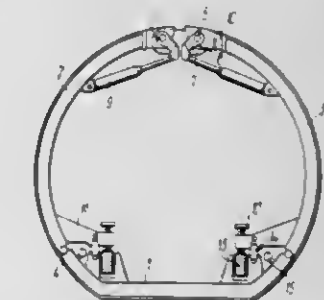
Valentin A. Ivanov, ulitsa Konstantinova, 4, kv. 25; Vladimir A. Khodosh, ulitsa Malaya Pirogovskaya, 27, korpus 1, kv. 11; Igor S. Ostrovsky, Otkrytoe shosse, 24, korpus 2, kv. 35; Mikhail Y. Shenkman, Otkrytoe shosse, 24, korpus 5g, kv. 37; Jury A. Koshelev, Ruzheiny pereulok, 4, kv. 123; Sergei N. Vlasov, Rizhsky proezd, 9, kv. 126, all of Moscow; Budu P. Pachulia, ulitsa Pavlova, 8a, kv. 4, Tbilisi, and Isosif D. Y. Fishman, ulitsa Mashinostroitelei, 13, kv. 20, Donetskaya oblast, Yasinovatskaya, all of U.S.S.R.

Continuation of Ser. No. 963,843, Nov. 27, 1978, This application Dec. 12, 1980, Ser. No. 215,736

Claims priority, application U.S.S.R., Jan. 6, 1978, 2565689
Int. Cl.³ E21D 11/00, 5/12

U.S. Cl. 405—150

2 Claims



1. Shuttering for erecting a concrete tunnel lining, comprising: vault segments and a base segment which are pivotally interconnected and define a closed outline; a drive mechanism for stripping said segments off the tunnel lining; said drive mechanism mounted at the upper ends of said vault segments for rotation by a drive and comprising two parallel rotatably disposed shafts having cylindrical eccentrics which shafts are located at the upper ends of said vault segments and are interconnected by means of a connecting link having cylindrical holes at the ends thereof, said cylindrical eccentrics being mounted for rotation in said cylindrical holes in said link such that rotation of said shafts causes the vault segments to close inwardly.

4,315,702

METHOD FOR ALIGNING TWO PIPELINE ENDS AND APPARATUS FOR CARRYING OUT THE METHOD

Per J. Moe, Nesbru; Helge Carling, and Leif H. Eriksen, both of Oslo, all of Norway, assignors to Odd Berg, Tromsø, Norway
Continuation of Ser. No. 903,216, May 5, 1978, abandoned. This application Nov. 13, 1979, Ser. No. 93,877

Claims priority, application Norway, May 9, 1977, 771626
Int. Cl.³ F16L 1/00

U.S. Cl. 405—170

12 Claims

1. In a method for aligning two pipeline sections submerged in the sea by using a frame open towards the bottom of the sea.

which frame is brought into position in the area of the pipe section ends and which for each pipe end is equipped with a set of holding/fulcrum means displaceable relative to the frame for coming into engagement with the pipe ends, a first holding/fulcrum means in each set functioning as a restraining force for the respective pipe end, and a second holding/fulcrum means being operable for displacement and alignment of the pipe end, comprising displacing and aligning the pipe ends by



the holding/fulcrum means and at the same time allowing the frame to be displaced relative to the sea bottom and the pipe ends, by engaging the holding/fulcrum means with the pipe ends and applying a force to align the pipe ends, and utilizing the restraining forces which are produced by said alignment force for displacing the frame relative to the sea bottom and the pipe ends, so that the frame and the pipe ends can adopt a relative position whilst forming a finished aligned pipeline curve having as large a radius of curvature as possible.

4,315,703

SEALING METHOD USING LATEX-REINFORCED POLYURETHANE SEWER SEALING COMPOSITION

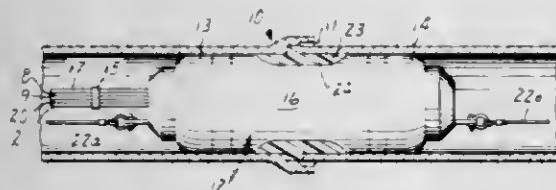
Alton J. Gasper, Minneapolis, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Filed Jun. 25, 1979, Ser. No. 51,878

Int. Cl.³ C08G 18/12, 18/14; E02B 3/16; E02D 3/12

U.S. Cl. 405—264

7 Claims



1. A method of sealing water-bearing or water-holding structures to prevent or inhibit leakage into or from said structures, comprising:

(A) substantially simultaneously applying at the locus of said leakage

(1) a fluid mixture comprising water-soluble polyurethane prepolymer having terminal isocyanate groups formed by reacting

(i) polyether polyol having at least two terminal hydroxyl groups and a number average molecular weight between about 3,000 and 20,000 and having random ethylene oxide units and higher alkylene oxide units in a mole ratio of ethylene oxide to higher alkylene oxide of 1:1 to 4:1, wherein said higher alkylene oxide is selected from a group consisting of propylene oxide, butylene oxide, pentylene oxide, hexylene oxide and mixtures thereof, and

(ii) sufficient polyisocyanate compound having at least two terminal isocyanate groups to provide an NCO:OH ratio of about 5:1 to about 1.05:1;

(2) sufficient aqueous polymeric latex containing particulate polymeric material having an average particle size in the range of about 0.01 to about 10 microns to provide a weight ratio of prepolymer to polymeric material in latex form of about 100:1 to 1:1; and

(3) sufficient water to provide a weight ratio of water to prepolymer on the order of 5:1 to 20:1 and to provide a viscous mass having a viscosity in the range of about 5 to about 1,000 cps when measured with a Brookfield RVT Viscometer at 25° C. using a standard No. 3 spindle and rotated at 20 rpm

(B) permitting the components to react.

4,315,704

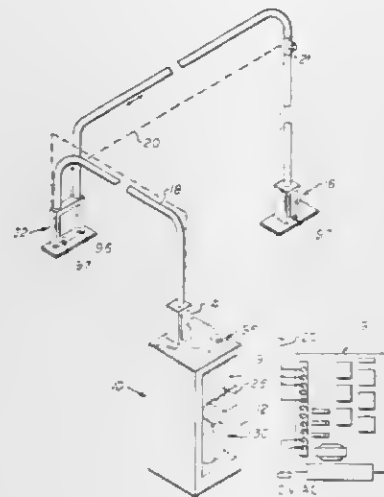
SINGLE LINE PNEUMATIC TUBE SYSTEM

Charles K. Kelley, and William W. Jones, both of Houston, Tex., assignors to Charles K. Kelley and Sons Inc., Houston, Tex. Division of Ser. No. 38,168, May 11, 1979, Pat. No. 4,251,169, which is a continuation of Ser. No. 876,112, Feb. 3, 1978, Pat. No. 4,189,261. This application Oct. 8, 1980, Ser. No. 195,153

Int. Cl.³ B65G 51/32

U.S. Cl. 406—12

7 Claims



1. A single line, pressure-vacuum pneumatic tube system comprising:

a central station having a terminal to dispatch or receive a carrier, pressure-vacuum power means providing pressure and vacuum, means selectively connecting the power means to the terminal to provide pressure or vacuum to the terminal, means energizing the power means and the selectively connecting means;

an end station having a terminal to receive or dispatch a carrier;

at least one intermediate station having a terminal to receive or dispatch a carrier;

a single line of tubing connecting the terminal of the central station with the terminal of the intermediate station;

a single line of tubing connecting the terminal of the intermediate station to the terminal of the end station;

the intermediate station provided with means to energize the power means and selectively connecting means to provide vacuum to the system whereby a carrier may be dispatched toward the central station and means to energize the power means and selectively connecting means to provide pressure to the system whereby a carrier may be dispatched toward the end station; and

the end station provided with means to energize the power means and selectively connecting means to provide vacuum to the system whereby a carrier may be dispatched toward the intermediate terminal;

the intermediate terminal comprising a housing having a roof provided with two spaced ports, each port having a guide portion extending downward into the housing and terminating above the bottom of the intermediate terminal, so that air will flow around the carrier positioned in the housing, the upper end of the guide portion having a cylindrical portion extending downward into the intermediate terminal to facilitate insertion of the carrier for transmission, the intermediate terminal receiving and transmitting carriers in either direction.

4,315,705

APPARATUS FOR HANDLING AND TREATING WAFERS

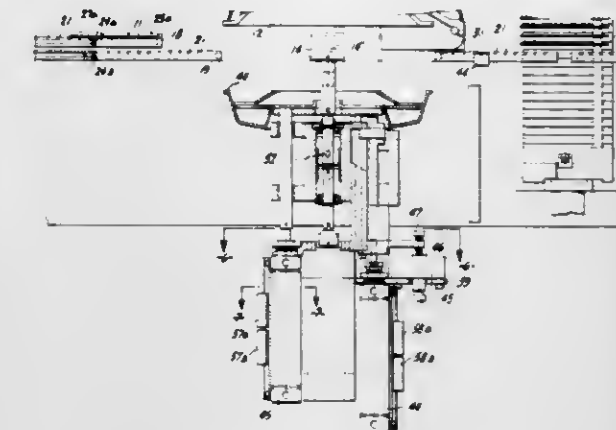
Alan G. Flint, Los Gatos, Calif., assignor to GCA Corporation, Bedford, Mass.

Filed Mar. 18, 1977, Ser. No. 779,075

Int. Cl.³ B65G 51/02

U.S. Cl. 406—73

5 Claims



1. A wafer processing system including a processor for treating wafers which are automatically sequenced through said processor said processor having means for retaining each of said wafers during treatment said system comprising: a shuttle with back and forth movement having an upper slide and a lower slide the upper slide being spaced from the top of the lower slide a parallel distance greater than a wafer thickness, said upper slide having wafer positioning means for locating a wafer on said retaining means; send track means for supplying wafers to said processor and receive track means for receiving treated wafers, said send track means being coplanar with the top of said upper slide and said receive track means coplanar with the top of said lower slide; means for moving said shuttle to place said upper slide in close proximity to said send track means, to place said lower slide in close proximity to said receive track means, and to position a wafer on said upper slide in proximity to said retaining means; and means for moving said retaining means in a direction perpendicular to said shuttle movement, to up, down and strip positions where said up position is above the top of said upper slide, the down position is substantially even with said parallel space between slides and said strip position is below the top of said lower slide.

4,315,706

HOLDER ASSEMBLY FOR AN INDEXABLE INSERT FOR USE IN A CUTTING TOOL

Donald S. Erkfriz, Clarkston, Mich., assignor to General Electric Company, Columbus, Ohio

Filed Apr. 7, 1980, Ser. No. 137,998

Int. Cl.³ B26D 1/12, 1/00

U.S. Cl. 407—101

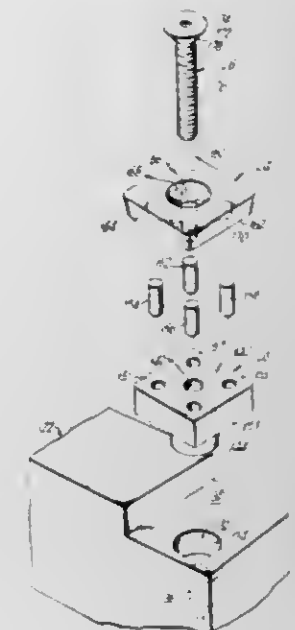
5 Claims

1. In a metal cutting tool having an elongated body, a holder assembly including a cutting insert, said holder assembly comprising:

a support member secured to said cutting tool, said support member including a platform and having a central aperture disposed normal to the plane of said platform, said platform including a first interlocking means comprising four longitudinally extending keys, each having a generally cylindrical configuration;

a generally planar cutting insert having a central aperture disposed normal to the planar surfaces thereof, with one planar surface of said insert disposed in abutting relationship with said platform of said support member such that said apertures are in register, and with the planar surface of said insert which is abutting said platform further including a second interlocking means, said second interlocking means being interengaged with said first interlocking means of said platform, said second interlocking means comprising a receiving groove which is cross-shaped in

cross section, said keys and receiving groove being symmetrically arranged such that said insert may be indexed; and screw means extending through said apertures for holding said cutting insert in abutting relationship with said platform.



form of said support member, whereby said first and second interlocking means remain interengaged and function to restrict the unwanted rotational movement of said insert about the axis of said screw means during use of the cutting tool.

4,315,707

VEHICLE LOAD SUPPORTING ARRANGEMENT

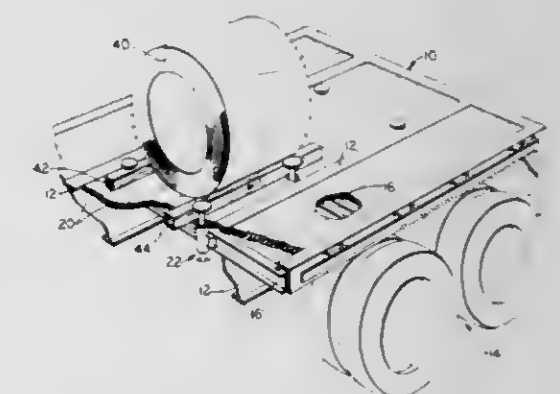
James L. Fernbach, 3882 Struble Rd., Cincinnati, Ohio 45247

Filed Mar. 3, 1980, Ser. No. 126,655

Int. Cl.³ B60P 7/12; B61D 3/16, 45/00

U.S. Cl. 410—47

8 Claims



1. The combination of a vehicle including a frame having a plurality of beams, a supporting surface on the beams, and spaced timbers mounted on the supporting surface with a plurality of back-up assemblies, each of the back-up assemblies including an upright support member mounted on one of the beams, an upright sliding member slidably mounted on the support member for up and down sliding movement, and an integral cap plate at an upper end of the sliding member for movement between a lowered and a raised position, the sliding member engaging a side of one of the timbers mounted on the supporting surface to hold the timber in a load supporting position with the cap plate resting on the timber, a load being adapted to engage the other side of the timber to hold the timber against the sliding member.

4,315,708

POSITIVELY LOCKING TOGGLE

Heinrich Liebig, Wormser Str. 23, 6102 Pfungstadt, Fed. Rep. of Germany

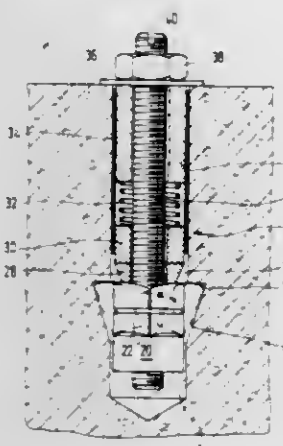
Filed Feb. 20, 1980, Ser. No. 122,868

Claims priority, application Fed. Rep. of Germany, Feb. 22, 1979, 2906914

Int. Cl.³ F16B 13/06

U.S. Cl. 411—65

15 Claims



1. A toggle for form-locking placement in a bore having an orifice and a radial circumferential undercut surface, said toggle having a toggle body introducible into the bore and corresponding substantially to the diameter of the bore, locking elements mounted on said toggle body and having ends pointing outwardly towards the bore orifice, said ends being rockable from a retracted position located within the diameter of the bore to an outspread, locking position in which they project radially at least partially beyond the diameter of the toggle body and catch lockingly on the undercut surface of the bore, means for holding said locking elements in retracted position until at least partial insertion of the elements into the bore, said toggle body being a bottom piece of relatively short length disposed on the bore-internal end of an elongated fastening bolt, on which bottom piece the bore-internal ends of locking elements, closed together to form a relatively thick-walled cylindrical sleeve surrounding the fastening bolt, are seated, said fastening bolt bearing means threaded onto the fastening bolt and having a component conically tapering towards the bore interior and engaging between the ends of the locking elements pointing towards the bore orifice, said component, upon a displacement of the bottom piece towards the bore orifice, rocking the outwardly pointing ends of the locking elements positively radially outwardly, and at least one sleeve and a coil spring, both disposed between said means threaded onto said bolt and said component and disposed for longitudinal displacement on the fastening bolt, means for placing said coil spring under bias by axial compression, and means for releasing said spring after at least partial introduction of the toggle into the bore.

4,315,709

APPARATUS FOR TRANSPORTING THE MALE ENDS OF THREADED TUBING, PIPE, OR THE LIKE

Jonathan F. Gulick, Philadelphia, Pa., assignor to Cities Service Company, Tulsa, Okla.

Filed Mar. 17, 1980, Ser. No. 130,649

Int. Cl.³ E21B 19/14

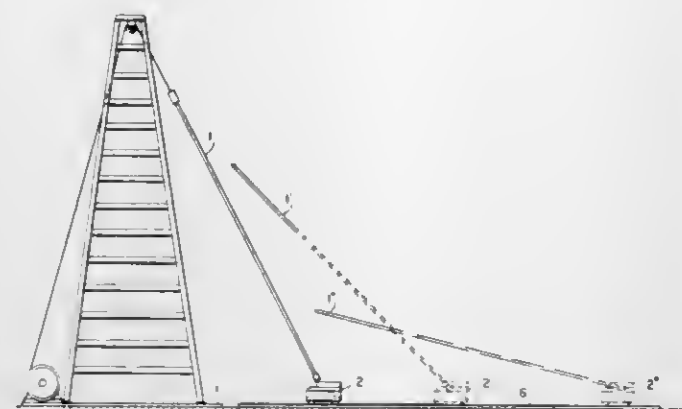
U.S. Cl. 414—22

5 Claims

4. An apparatus for protecting the threaded male end of tubing, pipe, casing, or the like, in drilling for subterranean substances, while displacing said tubing, pipe, casing, or the like, to or from a generally vertical posture in a drill hole to or from a horizontal placement for storage of same, said apparatus comprising a trough means superimposed on a base supported by rolling means, and wherein

(a) said trough means includes a pair of slanting side walls, a

back wall and a front wall attached to said slanting side walls, said front wall having a structure defining a semi circular aperture which accepts said tubing, pipe, casing, or the like, and means are included in said trough which engage with said male end and prevent movement during transport thereof, and



(b) said base means is supported by at least two rolling means, rotatably secured to said base and said trough is closer to one of said rolling means than the other said rolling means, and said rolling means are adapted to permit rolling of said apparatus along a storage floor or along a layer of previously stored tubing, pipe, casing, or the like.

4,315,710

COLLATING DEVICE FOR FLAT GOODS, PARTICULARLY CARDS

Jean-Marie de Somer, Turnhout, Belgium, assignor to Carta Mundi, Turnhout, Belgium

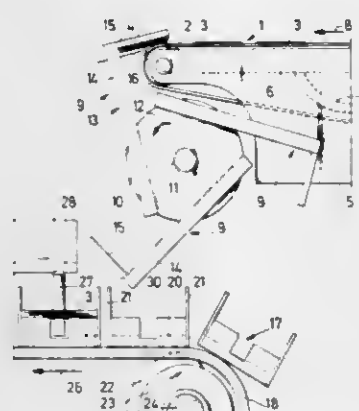
Filed Nov. 2, 1979, Ser. No. 90,707

Claims priority, application Belgium, Nov. 3, 1978, 871738

Int. Cl.³ B65G 57/30; B65H 31/30

U.S. Cl. 414—47

27 Claims



1. A collating device for flat goods, particularly cards, comprising:

an endless conveyor with at least one conveying strip for bearing said goods, said flat goods being fed along the top side of said conveying strip;

at least one collecting member mounted facing a discharge end of said endless conveying strip to collect said goods leaving said conveying strip to be collated, said at least one collecting member having a first portion, said first portion at least during the collecting of goods, being a stop therefor, and a second portion connected transversely to said first portion and positioned relative to said top side of said conveying strip at an angle to the movement direction of said top side, said second portion having a free end which is spaced apart from said top side leaving a gap between said top side and said free end, said goods fed on said top side passing through said gap and striking said second portion and tilting about an axis transverse to the movement of said conveying strip;

4,315,712

LOADING METHOD AND DEVICE FOR FEEDING WASTE-FILLED CONTAINERS INTO A ROTARY INCINERATOR

Werner Seglias, Erlenbach, Switzerland, assignor to Von Roll AG, Gerlafinger, Switzerland

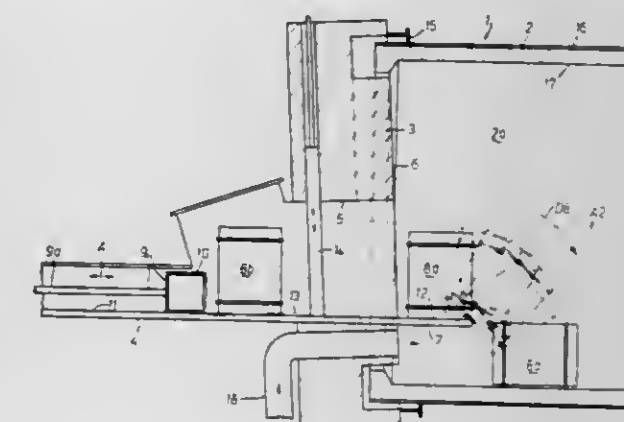
Filed Oct. 10, 1979, Ser. No. 83,283

Claims priority, application Switzerland, Oct. 13, 1978, 10673/78

Int. Cl.³ F23K 3/00

U.S. Cl. 414—149

16 Claims



1. A loading method for feeding waste-filled containers into a rotary incinerator, said method comprising the steps of: placing a waste-filled, open topped container on a slide; feeding the waste-filled container along the slide through a loading opening in an end wall of the incinerator; positioning the waste-filled container on a loading and dumping platform projecting into a drum of the rotary incinerator; allowing the waste-filled container to stand on the loading and dumping platform exposed to heat within the drum for a predetermined loading time interval; and tipping the waste-filled container off the loading and dumping platform onto a floor of the drum at the end of the predetermined loading time interval.

3. A loading device for feeding open-topped, waste-filled containers into a rotary incinerator, said incinerator comprising a stationary end wall, a stationary inner wall, a rotary drum, and a loading opening through said end wall and said inner wall to said drum, wherein the improvement comprises: a loading and dumping platform projecting from the stationary inner wall and extending sufficiently far into the rotary drum above a drum lower wall as to encounter intense heat within said drum; slide means merging with said loading and dumping platform at the stationary end wall; and reciprocating means in contact with said slide means for feeding waste-filled containers sequentially onto the loading and dumping platform, for allowing each waste-filled container to stand on the loading and dumping platform exposed to heat within the drum for a predetermined loading time interval, and for tipping each waste-filled container from the loading and dumping platform and onto a floor of the drum after passage of the predetermined loading time interval.

4,315,713

APPARATUS FOR GENERATING ENERGY FROM A FLOWING MEDIUM

Matthijs W. Verplanke, C.10 Zachariaspolder, IJzendijke (Zee-land), Netherlands

Filed Sep. 21, 1979, Ser. No. 77,540

Claims priority, application Netherlands, Sep. 27, 1978, 7809790

Int. Cl.³ F03D 3/04

U.S. Cl. 415—2 R

6 Claims

1. Apparatus for generating energy from a flowing medium.

4,315,711

TILTING SUPPORT PACKING APPARATUS

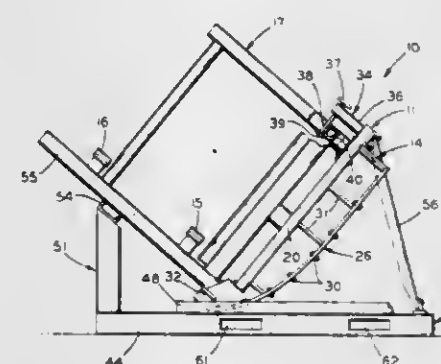
Joseph G. Koscho, Modesto, Calif., assignor to Libbey-Owens-Ford Company, Toledo, Ohio

Filed Dec. 7, 1979, Ser. No. 101,122

Int. Cl.³ B65G 57/28

U.S. Cl. 414—97

10 Claims



1. A portable, manually rockable packing stand for carrying and tilting a sheet article shipping container between an upright transporting attitude and an inclined container packing attitude, comprising:

a. a base frame adapted to rest upon a supporting surface and including means by which said base frame can be engaged for lifting and transporting said packing stand;

b. a pair of spaced-apart, parallel track members affixed to said base frame;

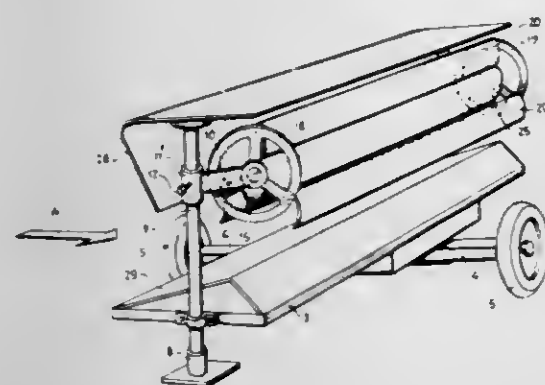
c. a rectangularly shaped rockable frame carried by said base frame and including means for receiving the supporting legs of said shipping container, said rockable frame receiving said shipping container in an upright loading/unloading position and being manually movable between said upright position and a container packing position;

d. a pair of spaced-apart curved rocker members affixed to the underside of said rockable frame, each of said rocker members riding on a corresponding one of said parallel track members;

e. cooperating means on said track and rocker members confining said rocker members to rolling linear movement along said track members; and

f. said rocker members being configured to provide a shifting fulcrum point remaining substantially beneath the center of gravity of said rockable frame and shipping container carried thereon as they are tilted whereby said rockable frame and shipping container are capable of being manually moved back and forth between said loading/unloading position and said packing position.

comprising a frame, a rotatable rotor supported on the frame, the rotor being comprised of two spaced apart, parallel wheels, oblong blades being suspended between the wheels, connection elements supporting and suspending the blades between the wheels and rotatably mounting the blades to the wheels, each wheel having a respective axis of rotation and the axis of



rotation of each wheel making an acute angle (α) with a connection line between the centers of the wheels, each blade covers a corresponding angle with the part of the respective connection element that is rotatably mounted in the wheels, so that the blades maintain a fixed position relative to the frame during the rotation of the rotor, and a cover partially screening off the rotor from the flowing medium.

4,315,714

ROTARY COMPRESSORS

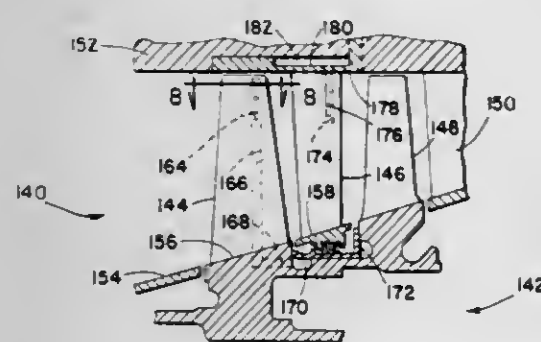
John T. Exley, Milford; Charles Kuintzle, Jr., Monroe, and David L. Tate, Stratford, all of Conn., assignors to Avco Corporation, Stratford, Conn.

Division of Ser. No. 795,058, May 9, 1977, Pat. No. 4,164,845, and a continuation-in-part of Ser. No. 515,115, Oct. 16, 1974, abandoned. This application Dec. 18, 1978, Ser. No. 970,416

Int. Cl.³ F04D 29/54

U.S. Cl. 415—207

3 Claims



1. A compressor stage for pressurizing compressible fluids in a gas turbine engine comprising:

a bladed axial flow impeller, said impeller comprising: a plurality of equally spaced blades mounted about the circumference of a rotor and extending radially outward therefrom, said impeller mounted for rotation within a cylindrical impeller shroud, each of said blades forming a passageway for the axial flow of fluid in conjunction with its adjacent blades;

a flow equalizing system for stabilizing the flow of fluid through the passageways formed by the blades comprising: slots constructed in the outer portion of each blade along a line of equal pressure within the compressor and extending into the blade to communicate with radially inward extending channels constructed within each blade, and a closed manifold chamber constructed within the rotor to interconnect each channel thereby by forming a closed flow system interconnecting each blade passageway.

4,315,715

DIFFUSER FOR FLUID IMPELLING DEVICE

Fumio Nishiguchi, Yokohama; Masataka Ueno, and Masanobu Kimura, both of Yokosuka, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

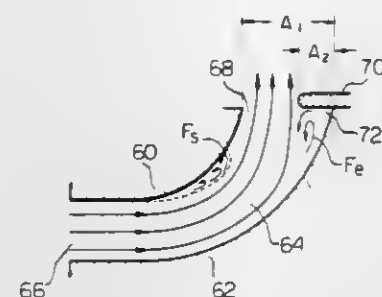
Filed Jun. 8, 1979, Ser. No. 46,992

Claims priority, application Japan, Jul. 26, 1978, 53-101775[U]

Int. Cl.³ F01D 9/00

U.S. Cl. 415—207

6 Claims



1. A diffuser for a fluid impelling device, comprising: outer and inner casing members radially spaced apart from each other and forming therebetween a diffuser chamber having a gas inlet end open axially and a gas outlet end open circumferentially, said diffuser chamber being of annular cross-section increasing toward said gas outlet end and gradually enlarging with curvature toward said gas outlet end; and flow throttling means for throttling said diffuser chamber at said gas outlet end, said flow throttling means including a ring-shaped baffle element secured to said inner casing member and circumferentially extending along said gas outlet end;

in which the cross-sectional area of said diffuser chamber at the throttled gas outlet end of the diffuser chamber is about two to three times larger than the cross-sectional area of the diffuser chamber at said gas inlet end.

4,315,716

SUCTION CONTROL VALVE

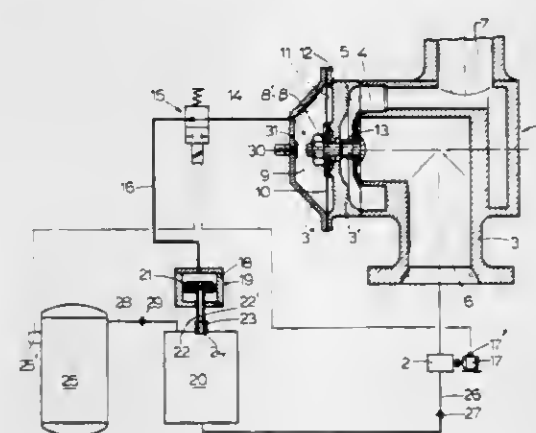
Pieter A. de Backer, Grouw, Netherlands, assignor to de Backer's Compressoren B.V., Netherlands

Filed Dec. 5, 1979, Ser. No. 100,546

Int. Cl.³ F04B 49/08

U.S. Cl. 417—27

7 Claims



1. A suction control valve adapted to be connected to the suction side of a compressor and comprising a valve housing, in which a valve seat is formed, which co-operates with a valve body which, in its opened position, brings the suction side of the compressor into open communication with the atmosphere, said valve body being attached to a valve stem which, in its longitudinal direction, is slidably guided in the valve housing for the displacement of the valve body from the closed position to the open position, and vice versa, while a continuous bore in the valve stem is at one end in open communication with the

suction side of the compressor, and opens at the other end into a diaphragm chamber, which is located on the side of a diaphragm facing away from the valve body, which diaphragm is fixed to the valve stem, while the diaphragm chamber is connected to a conduit, which accommodates a stop valve.

4,315,717

EVACUATION SYSTEM WITH PRECONDENSER

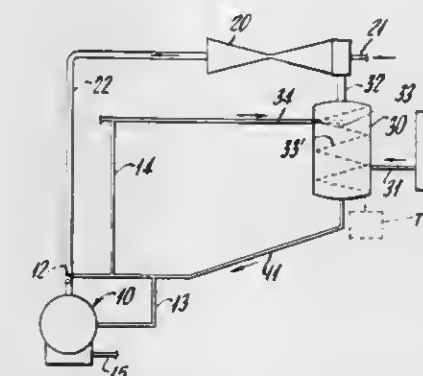
Stephen J. King, Clearwater, Fla., assignor to The Nash Engineering Company, Norwalk, Conn.

Filed Nov. 19, 1979, Ser. No. 95,760

Int. Cl.³ F04C 19/00

U.S. Cl. 417—69

10 Claims



1. In a system for evacuating process fluid having liquid and gaseous phases and in which there is provided a liquid ring pump having a seal liquid inlet and suction and discharge portions and forming a second stage of the system, a jet diffuser having inlet and outlet portions and forming a first stage of the system, the outlet portion of the jet diffuser communicating with the suction portion of the liquid ring pump via a diffuser-to-pump conduit, a supply conduit communicating with and feeding motivating fluid to the inlet portion of the jet diffuser, separating means for separating out and condensing the liquid phase of the process fluid being evacuated and for separating out the gaseous phase of the process fluid being evacuated, said separating means having a process fluid inlet, a gaseous phase outlet and a liquid phase outlet, the gaseous phase outlet communicating with the inlet of the jet diffuser via a separator-to-diffuser conduit, the liquid phase outlet of the separator communicating with the suction portion of the liquid ring pump via a separator-to-pump conduit; the improvement in which the supply conduit communicating with and feeding motivating fluid to the inlet of the jet diffuser communicates with and supplies atmospheric air to the diffuser; the improvement further comprising a liquid supply external to the system communicating with the liquid ring pump seal liquid inlet and delivering cooling liquid to the separator via a liquid supply-to-separator conduit which terminates within the separator in a spray nozzle; and wherein the separator-to-pump conduit terminates at the suction portion of the pump in a spray nozzle.

4,315,718

PERISTALTIC PUMP AND BEARING ARRANGEMENT THEREFOR

Lawrence R. Hogan, Lake Villa, Ill., assignor to Cole-Parmer Instrument Company, Chicago, Ill.

Filed Sep. 17, 1979, Ser. No. 76,387

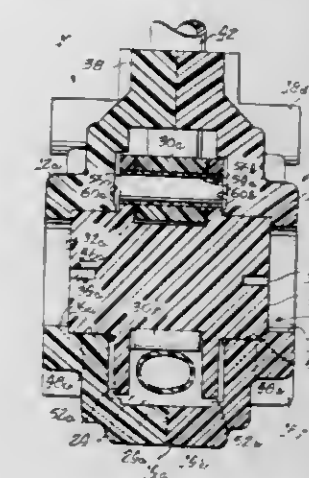
Int. Cl.³ F04B 43/12, 45/08

U.S. Cl. 417—477

7 Claims

1. In a peristaltic pump which includes a housing having an internal chamber defined in part by a reaction surface, a rotor rotatably supported by said housing within said chamber, said rotor including a pair of longitudinally spaced radial flanges, and at least one compression surface supported by and between said flanges for rotation with said rotor, said rotor and reaction surface being cooperative upon rotation of said rotor to effect a peristaltic pumping action on a compressible fluid flow tube when disposed between said rotor and said reaction surface; the improvement wherein said compression surface is defined

by a compression roller having a cylindrical longitudinal bore therethrough, and including a tubular cylindrical noncompressible support shaft received through said bore in direct supporting relation with said roller so as to enable rotation of said roller on said support shaft, said support shaft having a relatively high heat transfer coefficient and having open oppo-



4,315,719

NON-LUBRICATED ROTARY PUMP WITH DISCHARGE THROUGH END HEADS

Hiroshi Sakamaki, Utsunomiya; Toshiyuki Maeda, Ageo; Fumihiro Ushijima, Toyota, and Tadashi Saitou, Toyota, all of Japan, assignors to Nippon Piston Ring Co., Ltd., Tokyo and Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi, both of, Japan

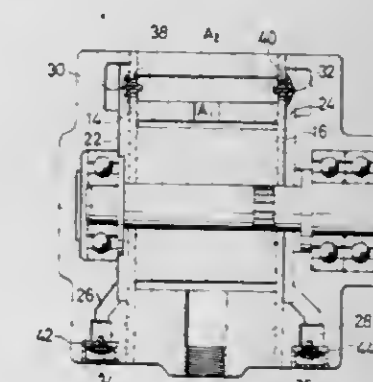
Filed Oct. 12, 1979, Ser. No. 84,206

Claims priority, application Japan, Oct. 26, 1978, 53-147624[U]

Int. Cl.³ F04C 27/00

U.S. Cl. 418—15

9 Claims



1. A rotary fluid pump of a non-lubrication type comprising: a stator housing having a generally cylindrical cavity extending therethrough, a pair of fixed recessed end heads assembled at opposite ends of the housing to form a pump cavity with said stator housing, a drive shaft journaled in said end heads and extending eccentrically into the interior of the pump cavity, a rotor mounted on said drive shaft within the pump cavity, a pair of resilient sealing plates individually disposed between ends of said stator housing and said end heads and dividing said pump cavity into a pair of end chambers defined by said recessed end heads and said plates and an intermediate rotor chamber defined by said plates, a plurality of vanes slidably disposed in an equal plurality of grooves radially formed in the rotor, outlet port means in said housing for completing a fluid

communication path between said rotor chamber and at least one discharge hole formed at a lower portion of at least one of said end chambers whereby fluid passage, under the outlet pressure of the pump, is provided through said rotor chamber, said outlet port means, said end chamber and said discharge hole to discharge fluid, containing wear particles from the vanes, to the atmosphere.

4,315,720

APPARATUS FOR PRODUCING SPHERICAL PARTICLES AND FIBERS WITH A SPECIALLY FIXED SIZE FROM MELTS

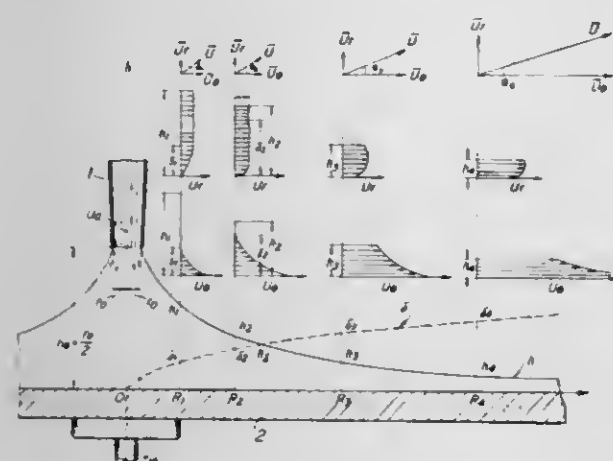
Setsuo Ueda, Chigasaki; Takashi Yasuda, Aichi; Tokuyoshi Yamada, Nagoya, and Shigeki Kobayashi, Tokai, all of Japan, assignors to Itoh Metal Abrasive Co., Ltd., Aichi and Sato Technical Research Laboratory Ltd., Kanagawa, both of Japan

Division of Ser. No. 69,851, Aug. 27, 1979. This application Mar. 5, 1980, Ser. No. 127,495

Claims priority, application Japan, Aug. 29, 1978, 53-104430 Int. Cl.³ B22F 9/00

U.S. Cl. 425—8

7 Claims



1. An apparatus for producing uniform sized spherical particles or fibers from a melt, comprising a solidification chamber of substantially cylindrical shape with a tundish disposed on a top portion of said chamber for maintaining a fixed head of the melt therein, a conduit fitted in the bottom of said tundish and having an outlet opening, a rotating disk having a flat refractory surface with a diameter between 50 and 200 mm disposed within said chamber at a fixed distance h_0 from said outlet opening of said conduit, said conduit for introducing said melt onto said disk, said conduit having an outer opening with a radius r_0 of 3 to 30 mm, whereby said distance h_0 is maintained within a range of $(r_0/2)$ to $(r_0/2) + 2$ mm, a driving apparatus for rotating said disk at a high rotational speed in the range of 3000 to 30,000 rpm, and means having an annular opening for emitting or receiving a gas to or from said chamber at the level of said disk forming gas streams in a direction opposite the direction of linear streams formed on said disk.

4,315,721

FIBROUS WEB STRUCTURE AND ITS MANUFACTURE

Wayne P. Sorenson, Appleton, Wis., assignor to American Can Company, Greenwich, Conn.

Division of Ser. No. 58,902, Jul. 19, 1979, abandoned. This application Sep. 25, 1980, Ser. No. 190,580

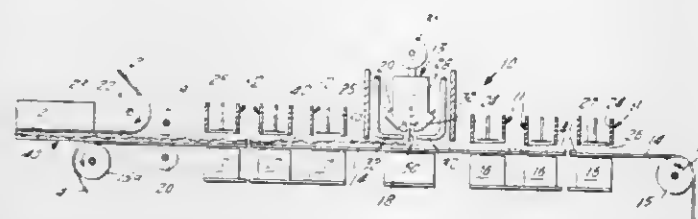
Int. Cl.³ B28B 5/00

U.S. Cl. 425—81.1

3 Claims

1. Apparatus for forming a plural layer fibrous web structure on a linearly movable forming wire, comprising: first and second sets of fiber distributors of the air-lay type disposed above said forming wire; and a melt blowing die positioned intermediate said sets of distributors, said first set of fiber distributors being positioned and operative to lay down on said forming wire a first layer of fibers, said melt blowing die being positioned and operative to lay down on said first layer an

intermediate layer of filamentary fibers longer than said fibers of said first layer, and said second set of fiber distributors being positioned and operative to lay down on said intermediate



layer of filamentary fibers a second layer of fibers corresponding to the fibers of said first layer, in formation of said plural layer fibrous web structure.

4,315,722

APPARATUS FOR FORMING A MAT FOR MAKING PARTICLEBOARD

Werner Ufermann, Bernried, Fed. Rep. of Germany, assignor to G. Siempelkamp GmbH & Co., Krefeld, Fed. Rep. of Germany

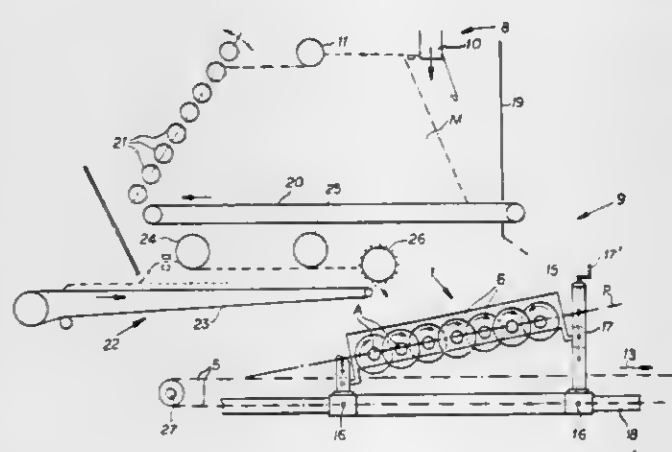
Filed Nov. 29, 1979, Ser. No. 98,507

Claims priority, application Fed. Rep. of Germany, Nov. 30, 1978, 2851779

Int. Cl.³ B29J 1/00

U.S. Cl. 425—83.1

3 Claims



1. An apparatus for forming a mat of elongated mainly wood particles, said apparatus comprising:

- a conveyor having a horizontal and horizontally displaceable transport surface;
- a spreading head having an array of parallel interdigitated disks forming longitudinally elongated spaces and rotatable about coplanar axes above said conveyor;
- means for continuously displacing said transport surface in a longitudinal transport direction generally perpendicular to said axes, said transport surface having relative to said direction and underneath said array of disks an upstream portion and a downstream portion;
- means for feeding elongated mainly wood particles onto said array of disks to orient the particles parallel to said direction while rotating said disks to deposit said particles onto said conveyor as a mat having underneath said array a generally planar upper mat surface forming with said conveyor a deposition angle; and
- support means for orienting the plane of said axes at an acute angle to said upper mat surface with said array so much closer to said upper surface at its said upstream portion than at its said downstream portion that particles fall through a relatively short distance and are deposited on said surface of said conveyor generally parallel to said direction underneath said upstream portion and fall through a relatively long distance and are deposited generally randomly underneath said downstream portion.

4,315,723

DEVICE FOR MOLDING INFORMATION-CARRYING DISKS

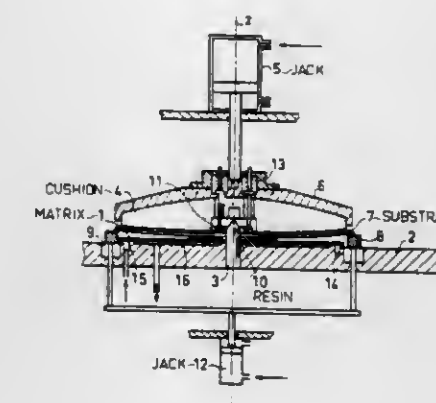
Robert Antoine; Claude Bricot, and Gerard Robin, all of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Sep. 4, 1980, Ser. No. 184,167

Claims priority, application France, Sep. 6, 1979, 79 22300 Int. Cl.³ B29C 27/00; B24D 17/00

U.S. Cl. 425—110

13 Claims



1. A device for molding disks carrying information in the form of surface microreliefs and formed from a substrate disk and a layer of resin carrying the microreliefs, making use of the spreading out of a fillet of fluid resin between an etched matrix disk and the substrate disk, comprising means for depositing this resin fillet in the center of one of the disks, spreading means for applying the flexible second disk against the resin, this second disk being first of all curved then progressively flattened against the first one while pushing back the resin towards the periphery, and means for hardening the resin layer thus formed between the two disks, comprising furthermore support means in the form of a ring having a diameter greater than that of the first disk, the second disk having a diameter at least equal to that of the ring, these means being movable in the direction Z perpendicular to the plane of the first disk, so as to form a support for the periphery of the second disk and to give it its curved shape then to back away progressively as the second disk is applied against the first one, and finally to allow separation of the disks after hardening of the resin; the spreading means comprising a deformable resilient cushion having a bearing face with a convex shape in the absence of compression, situated on the side opposite the first disk with respect to the second and movable in direction Z so as to exert a progressive thrust on the second disk, beginning in the zone of the resin fillet then extending towards the periphery as the support means back away, this cushion being solid with a central annulus having a diameter less than that of the ring of resin exerting a nipping effect at the center of the disk and cooperating with the support means so as to ensure the relative positioning of the two disks during the whole of the spreading phase.

4,315,724

PROCESS AND MACHINE FOR MULTI-COLOR INJECTION MOLDING

Fumio Taoka; Norimichi Tanno, and Hideo Watanabe, all of Tokyo, Japan, assignors to Kamaya Kagaku Kogyo Co., Ltd., Tokyo, Japan

Division of Ser. No. 105,263, Dec. 19, 1979. This application Aug. 4, 1980, Ser. No. 175,330

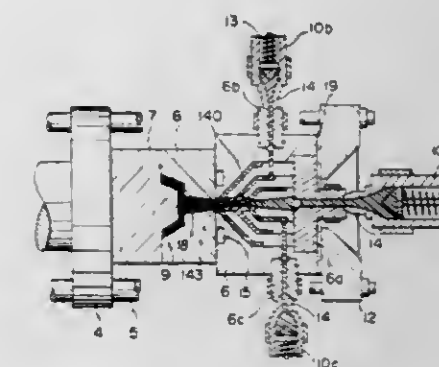
Int. Cl.³ B27F 1/10

U.S. Cl. 425—130

8 Claims

1. A multi-color injection molding machine comprising: at least three injection units for injecting three different molten resins; a molten resin mixing manifold around which said at least three injection units are disposed, said molten resin mixing manifold having resin passages communicated through the medium of check valves with respective nozzles of

respective injection units, and a temperature at said molten resin mixing manifold being controllable; an arranging chamber removably built in said molten resin mixing manifold and having a gathered resin channel at which said respective resin passages join each other; a stationary mold attached to said molten resin mixing manifold and having resin passages communicated with said gathered resin channel of said arranging chamber;



a movable mold adapted to reciprocate in an opposed relation to said stationary mold and having a cavity adapted to communicate with the resin passages in said arranging chamber when mated with said stationary mold; and an injection control means for controlling the sequences of injection of molten resins from said at least three injection units individually and independently but under precise correlative control.

4,315,725

JIG FOR ORIENTATION-BLOW MOLDING PIECE

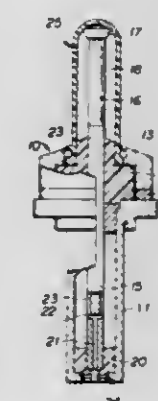
Yataro Yoshino, Tokyo, Japan, assignor to Yoshino Kogyosho Co., Ltd., Tokyo, Japan

Filed Jun. 17, 1980, Ser. No. 160,382

Claims priority, application Japan, Jul. 10, 1979, 54-87318 Int. Cl.³ B29C 17/07; F29B 9/06

U.S. Cl. 425—174.4

5 Claims



1. A device for heating an injection molded resin piece having a neck, prior to biaxial orientation blow molding, comprising:

- a rotary turntable;
- a cover disposed above and spaced from said turntable;
- a jig disposed at the periphery of said turntable, comprising: a neck support for holding the piece in neck portion downward position;
- a mandrel disposed beneath said neck support;
- an elevationally reciprocally movable core shaft inserted in said mandrel and extending through said neck support for longitudinally orienting the piece, having a blow-molding air-passage;
- a heat-insulating layer coated on the outer periphery of said core shaft;
- a plurality of infrared or far infrared ray heating elements disposed inside said cover in the vicinity of the periphery of the turntable, said insulating layer comprising

material which will cause heating of the interior of the piece held by said jig due to heating of said insulating layer by special wavelength rays of said heating elements upon irradiation of said heating elements.

4,315,726

DISTRIBUTING DEVICE FOR MACHINES FOR INJECTION MOLDING OF THERMOPLASTIC PARTS WITH SOLID SKIN AND CELLULAR CORE

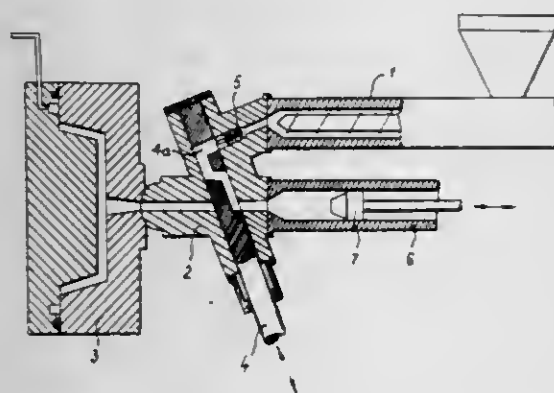
Stefan G. Semerdjiev, and Nikolay T. Popov, both of Sofia, Bulgaria, assignors to Institute po Metaloznanie i Tehnologia na Metalite, Sofia, Bulgaria

Filed Apr. 30, 1980, Ser. No. 145,233

Int. Cl.³ B29D 27/00

U.S. Cl. 425-560

1 Claim



1. An injection molding apparatus for the production of thermoplastic bodies having a continuous skin and a cellular core, said apparatus comprising:

a mold having the shape of a body to be produced and provided with a mold cavity formed with an inlet for foamable synthetic resin material;

a plasticating unit including a worm and worm cylinder for preparation of said synthetic resin material, said plasticating unit having an outlet spaced from said mold;

an accumulating cylinder laterally spaced from and parallel to the cylinder of said plasticating unit and provided with a piston; and

a distributing device disposed between said plasticating unit, said accumulating cylinder and said mold, said distributing device comprising:

a distributing body formed with a channel inclined to the axes of said cylinders,

means forming a first passage communicating with said inlet and open at one side of said channel,

means forming a second passage communicating with said outlet of said plasticating unit and opening at a side of said channel opposite said one side,

a third passage communicating with said accumulating cylinder and opening at said opposite side of said channel,

a two-position slider shiftable in said channel and formed with a generally U-shaped passage having respective arms communicating with said second and third passages in one position of said slider in which said slider blocks said first passage, said U-shaped passage having a right region communicating with said first passage when one of said arms communicates with said third passage in a second position of said slider blocking said second passage, and

a check valve in said second passage blocking flow of synthetic resin material through said second passage toward said plasticating unit.

4,315,727

ROTARY BALL LOCK

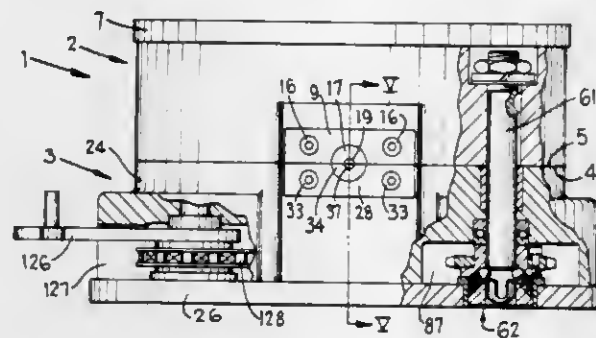
John W. Black, Hickory Corners, Mich., assignor to Pemco-Kalamazoo, Inc., Kalamazoo, Mich.

Filed Nov. 14, 1980, Ser. No. 206,806

Int. Cl.³ B29F 1/03

U.S. Cl. 425-563

9 Claims



1. In combination with a mold having two mold parts movable between an open position remote from each other and a closed position sealingly contacting each other, a mold locking mechanism for securely clamping said parts together in said closed position comprising:

a cylindrical tie rod extending between said mold parts and supported on one said mold part by first mounting means, the radially outer surface of said rod having at least one longitudinally extending guide groove and having at least one lock groove intersecting each guide groove at substantially a right angle, said rod having a ramp surface in said grooves at each said intersection thereof and a first bearing surface in each said lock groove adjacent each said ramp surface;

a lock element supported on said other mold part by second mounting means and having a cylindrical opening therein coaxially aligned with and of slightly larger diameter than said tie rod, the surface of said opening having at least one substantially hemispherical projection extending radially inwardly and having thereon a second bearing surface; and

drive means for effecting relative rotation between said tie rod and lock element about the common axis of said rod and said opening;

whereby as said mold parts move to said closed position, said tie rod is axially slidably received in said lock element opening, each said hemispherical projection is slidably received within a said guide groove and is positioned at a said intersection of said guide and lock grooves when said mold parts reach said closed position, and said relative rotation of said tie rod and lock element by said drive means causes said second bearing surfaces on said projections to contact and be guided by said ramp surfaces onto said first bearing surfaces in said lock grooves, thereby effecting said secure clamping together of said mold parts in said closed position.

4,315,728

ADJUSTABLE SLIDE SHOE FOR DIE CARRIER PLATE OF INJECTION MOLDING MACHINE

Karl Hehl, Arthur-Hehl-Strasse 32, 7298 Lossburg 1, Fed. Rep. of Germany

Filed Oct. 27, 1980, Ser. No. 201,344

Claims priority, application Fed. Rep. of Germany, Oct. 25, 1979, 2943118; Feb. 20, 1980, 3006230; Aug. 5, 1980, 3029597

Int. Cl.³ B29F 1/00

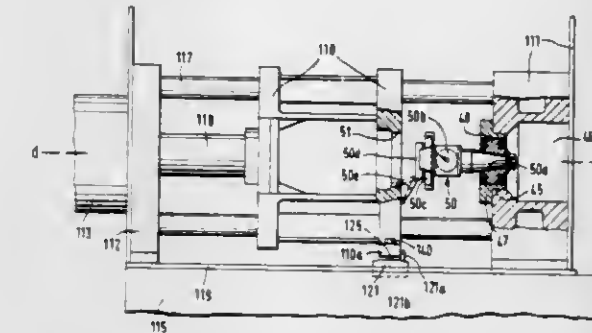
U.S. Cl. 425-589

12 Claims

1. In an injection molding machine in which a machine base has mounted on it a die closing unit with a substantially horizontally oriented movement axis and, as part thereof, carries a stationary die carrier member to which is attached a stationary portion of an injection molding die, a movable die carrier member carrying a movable portion of said die, and a set of

spaced tie rods which extend parallel to said movement axis, reaching axially through the movable die carrier member so as to position and guide the latter, the combination therewith of an adjustable supporting arrangement for the movable die carrier member comprising in combination:

two fixed guide rails which are arranged on the machine base in parallel alignment with the tie rods of the die closing unit, below and on opposite sides of the movement axis of the latter, the guide rails having substantially horizontal guide tracks on their upper sides and substantially vertical guide tracks on their inner sides;



two slide shoes which are attached to the movable die carrier member in such a way that they engage the guide rails, each slide shoe having vertical and horizontal guide faces in contact with the corresponding guide tracks of the rails;

means for adjustably clamping the slide shoes to the movable die carrier member; and

means for threadingly lowering each slide shoe in relation to the movable die carrier member, so as to make it possible to transfer from the tie rods to the horizontal guide tracks of the guide rails at least a substantial portion of the weight of the movable die carrier member and attached die portion.

4,315,729

GAS BURNER

Eiichi Tanaka, Yamatokoriyama, and Noboru Ishibashi, Nabari, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

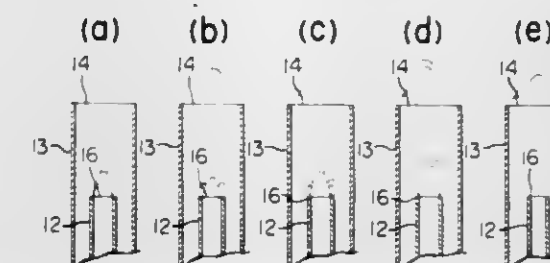
Filed Feb. 26, 1979, Ser. No. 15,150

Claims priority, application Japan, Mar. 2, 1978, 53-24287; Mar. 2, 1978, 53-24288; Mar. 2, 1978, 53-24289; Mar. 2, 1978, 53-24291; Aug. 24, 1978, 53-103716

Int. Cl.³ F23N 5/00

U.S. Cl. 431-75

10 Claims



1. An improved pilot gas burner of the Smithell type, comprising:

an inner tube having an inlet end for receiving a mixture of combustible gas and primary air, and an open end comprising a primary flame cone mouth having a predetermined cross-sectional area;

an outer tube surrounding and coaxial with said inner tube adjacent and extending beyond said primary flame cone mouth thereof, said outer tube having (i) an auxiliary air inlet port in the wall thereof at a position between said inlet end and primary flame cone mouth of said inner tube, and (ii) an open end adjacent said primary flame cone

mouth comprising a secondary flame cone mouth having a given cross-sectional area;

the ratio between said given area of said secondary flame cone mouth and said predetermined area of said primary flame cone mouth being in the range of 2.12 to 25; and means for controlling the flow rates of said combustible gas, primary air and secondary air so that (i) primary and secondary flame cones may be sustained at said primary and secondary flame cone mouths respectively, (ii) the equivalent ratio respecting said combustible gas and primary air is in the range of 1.1 to 2.0, and (iii) the gradient of boundary velocity gradient of said combustible gas is in the range of 700 to 4,000 sec.⁻¹

4,315,730

BURNER CONTROL SYSTEM

Kenneth Watson, Croydon, England, assignor to Telegan Limited, Croydon, England

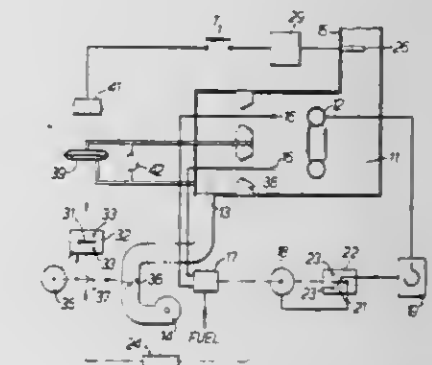
Filed Feb. 11, 1980, Ser. No. 120,130

Claims priority, application United Kingdom, Feb. 9, 1979, 4595/79

Int. Cl.³ F23H 5/00

U.S. Cl. 431-76

5 Claims



1. A control system for a burner having: separate controls for the fuel supply and for the supply of combustion air, means for controlling the separate controls in response respectively to a demand or output signal and to an air supply signal, means interconnecting the separate controls, and means responsive to excessive oxygen in the exhaust gases for distorting the air supply signal, the control system further including a burner register and pressure lines wherein said pressure lines extend from either side of the register for providing the air supply signal, the system further including a motor driven valve, said motor driven valve interconnecting the pressure lines; and means for driving the valve motor in dependence on the oxygen level in the exhaust gas.

4,315,731

ELONGATED IGNITING DEVICE

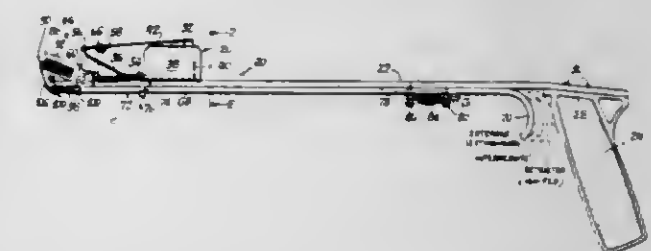
Robert W. Moore, 449 E. Altgeld Ave., Glendale Heights, Ill. 60137

Filed Mar. 10, 1981, Ser. No. 242,362

Int. Cl.³ F23Q 1/04

U.S. Cl. 431-254

12 Claims



1. An elongated igniting device for a conventional cigarette lighter having a head end with a rotatable flint wheel adjacent a movable valve actuator controlling flow of fuel through a valve to an outlet port, said device comprising:

an elongated shank;
 a handgrip on one end portion of said shank;
 holding means on the opposite end portion of said shank for releasably retaining the cigarette lighter with the head end facing away from the hand grip;
 an actuator rod guided for reciprocable movement parallel to said shank, said rod having an outer extension beyond the head end of the lighter and being movable between extended and retracted mode conditions relative to the lighter head end;
 spring means biasing said actuator rod toward its said extended mode condition;
 trigger means adjacent the hand grip and connected to the actuator rod, effective in response to pull on the trigger, to move said actuator rod to said retracted mode condition against the bias of said spring; and
 igniting means supported on said outer extension in position to engage and rotate the rim of said flint wheel and depress said valve actuator to ignite the lighter in response to movement of the actuator rod to its said retracted mode condition.

4,315,732

WELDING APPARATUS

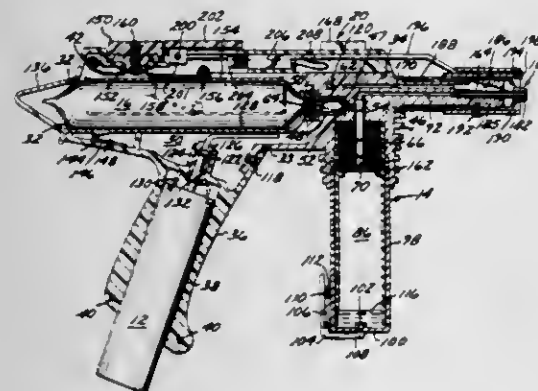
Francis W. Rowbottom, Santa Barbara; Nathan L. Skinner; John O. Niswonger, both of Goleta, and Milt Wadler, Santa Barbara, all of Calif., assignors to JJNR Corporation, Los Angeles, Calif.

Filed Dec. 26, 1979, Ser. No. 106,395

Int. Cl.³ F23D 13/04

U.S. Cl. 431-344

21 Claims



1. In welding apparatus including a fuel container for liquefied gas, oxygen generating means, a burner nozzle, and flow control means for conveying a controlled amount of gas and oxygen from said container and said oxygen generating means to said burner nozzle for combustion, an improved oxygen generating means comprising:

a reactor containing catalyst means for decomposing an oxygen generating compound to produce oxygen and water and concurrently release heat;
 supply means for supplying a controlled volume of an aqueous solution of said oxygen generating compound to said reactor for contacting said catalyst means;
 condenser means coupled to said reactor to receive and cool the oxygen and water heated by the catalytic decomposition of said oxygen generating compound, and including a collection chamber for receiving the cooled oxygen and water; and
 evaporator means for conveying oxygen and any entrained water from said collection chamber to said flow control means, said evaporation means being in thermal association with said reactor for heating and vaporizing said entrained water in the oxygen.

4,315,733 PHOTOFLASH LAMP WITH LOOSE POWDER COMPOSITION AND METHOD OF MAKING

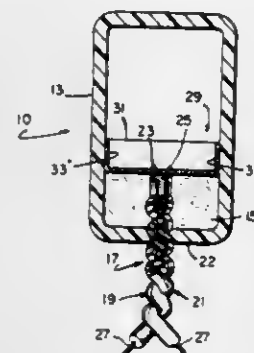
Andre C. Bouchard, Peabody, and George J. English, Reading, both of Mass., assignors to GTE Products Corporation, Stamford, Conn.

Filed Nov. 21, 1979, Ser. No. 96,605

Int. Cl.³ F21K 5/02

U.S. Cl. 431-362

15 Claims



1. A miniature photoflash lamp comprising:
 a light-transmitting envelope;
 a flash-producing composition in loose powder form positioned at a predetermined location within said envelope in contact with the internal walls thereof for providing a substantially localized, highly intense flash of light upon ignition thereof, said flash-producing composition including a quantity of powdered oxidizer;
 ignition means secured within a wall or end portion of said envelope for igniting said flash-producing composition; and
 means for retaining said flash-producing composition at said predetermined location within said envelope, said means located within said envelope and frictionally engaging the internal walls of said envelope with only the frictional force necessary to retain said composition at said location prior to ignition thereof and for being removed from said location during ignition of said composition.

4,315,734

METHOD AND APPARATUS FOR DRYING AND PULVERIZING COAL

Hubert Ramesohl, Bergisch Gladbach, and Horst Herchenbach, Troisdorf, both of Fed. Rep. of Germany, assignors to Klöckner-Humboldt-Deutz AG, Fed. Rep. of Germany

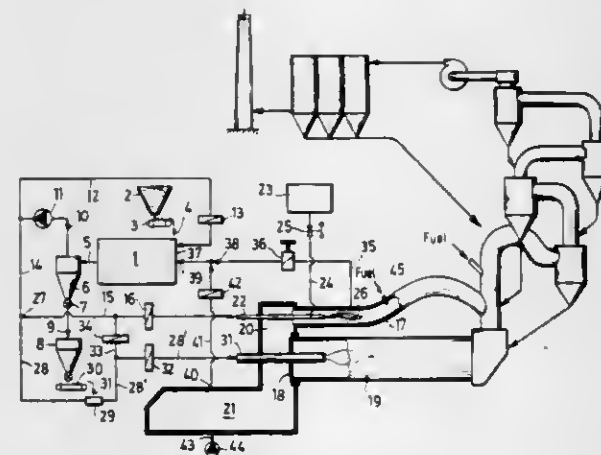
Filed Jul. 31, 1980, Ser. No. 174,131

Claims priority, application Fed. Rep. of Germany, Aug. 1, 1979, 2931214

Int. Cl.³ E27B 15/00

U.S. Cl. 432-14

13 Claims



1. In a method for drying and pulverizing coal for use in a cement making process including a pre-heating step, a calcin-

ing step, a sintering step in a rotary kiln, and a cooling step, wherein air heated in said cooling step is returned into said calcining step through a tertiary air conduit, the improvement which comprises:
 grinding the coal, and
 directing at least a part of the dust-laden air from said grinding into said tertiary air conduit.

4,315,735

PROCESS FOR CALCINING MINERAL RAW MATERIALS IN A UNIFLOW REGENERATIVE SHAFT FURNACE

Erwin Füssl, Zurich, and Karl Scheibenreif, Adliswil, both of Switzerland, assignors to Maerz Ofenbau AG, Zurich, Switzerland

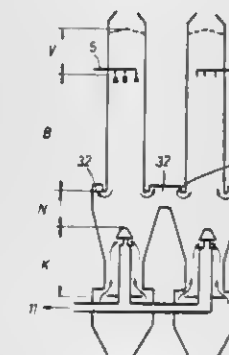
Filed Oct. 22, 1979, Ser. No. 87,308

Claims priority, application Switzerland, Dec. 29, 1978, 13294/78

Int. Cl.³ C22B 26/20; F27D 3/22, 23/00; C01F 11/06

U.S. Cl. 432-25

6 Claims



1. In a process for calcining raw materials, such as limestone, dolomite or magnesite, in a uniflow regenerative shaft furnace having at least two shafts alternately operated one as a calcining shaft and the other as a counterflow shaft, said shafts extending in a generally juxtaposed vertical orientation each defining a bottom with a cooling zone proximate said bottom wherein simultaneous cooling of calcined lime with cooling air is effected in said cooling zones of said shafts, said furnace including transfer duct means located above said cooling zones connecting said shafts in flow communication with each other, the improvement comprising that cooling air is introduced simultaneously at the bottom of both said shafts into said cooling zone, that heated cooling air is removed at the upper termination of said cooling zones from both shafts, that flue gases are conveyed from the one of said shafts operating as a calcining shaft to the other of said shafts operating as a counterflow shaft through said transfer duct means, and that the composition of the flue gases conveyed through said transfer duct means and the amount of cooling air removed from said cooling zones is such that a net reducing atmosphere is maintained throughout the counterflow shaft above the cooling zone.

4,315,736

PIVOTAL SWING-OUT FUSER ASSEMBLY FOR COPYING APPARATUS

Günther Schnall, Eching; Klaus Aldenhoven, Unterpfaffenhofen, and Hanns Blöchl, Unterhaching, all of Fed. Rep. of Germany, assignors to AGFA-Gevaert AG, Leverkusen, Fed. Rep. of Germany

Filed Oct. 25, 1977, Ser. No. 845,453

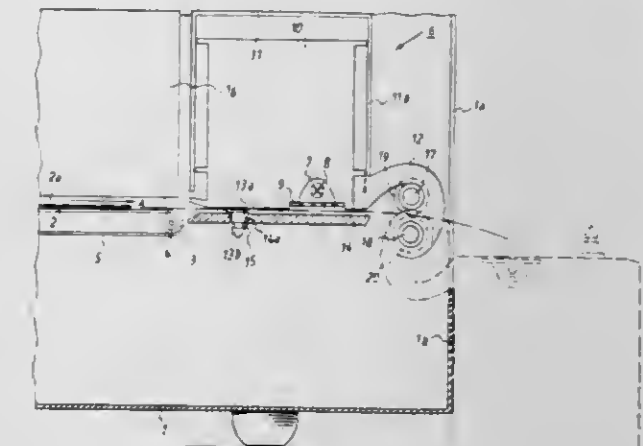
Claims priority, application Fed. Rep. of Germany, Oct. 28, 1976, 2649018

Int. Cl.³ H05B 1/00; F27B 9/28

U.S. Cl. 432-59

1 Claim

1. In a copying apparatus having a housing and wherein a copy sheet bearing a toner image moves in a path past a heater of a fuser assembly to fix said image, the improvement comprising pivot means defining on said housing a spatially fixed pivot axis; and means between said pivot means and said fuser



said means for pivoting includes at least one arm connected between said fuser assembly and said pivot, said apparatus further comprising at least one transport roller for said sheet downstream on said path from said fuser assembly in said operative position thereof, said roller being rotatable about said pivot axis and constituting said pivot.

4,315,737

BASE FOR A KILN CAR

John Elliott; Malcolm G. Bell, and William J. Lovatt, all of Stoke on Trent, England, assignors to Acme Marls Limited, Hanley, England

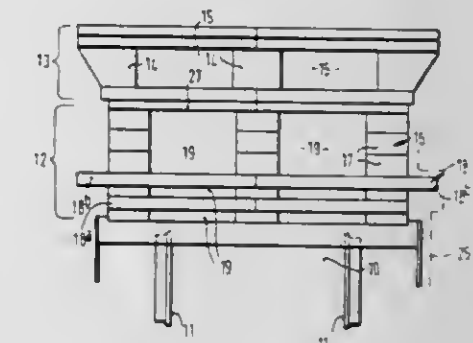
Filed Aug. 8, 1980, Ser. No. 176,295

Claims priority, application United Kingdom, Aug. 14, 1979, 28274/79

Int. Cl.³ F27D 3/12, 5/00

U.S. Cl. 432-241

11 Claims



1. A kiln car base adapted to be directly mounted on a wheeled metal trolley, comprising a plurality of load bearing, thermally insulating upright pillars, each pillar comprising a plurality of vertically stacked pillar elements of load bearing, thermally insulating ceramic material, each pillar having one or more vertically extending locating means; a plurality of ceramic baffle walls engaging and retained in upright positions by said locating means between at least the peripherally disposed ones of said pillars to define one or more central compartments; one or more horizontally disposed ceramic bats disposed between pillar elements of said pillars and having portions thereof extending peripherally outwardly of said pillars to provide a heat seal, and a low thermal mass insulating material in the or each central compartment.

4,315,738

SUPPORT ELEMENT, UPRIGHT SUPPORT AND SUPPORT STRUCTURE FOR SUPPORTING ARTICLES DURING KILN FIRING

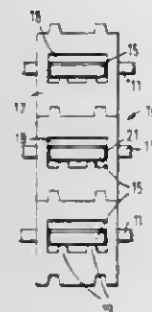
William J. Lovatt, Stoke on Trent, England, assignor to Acme Marls Limited, England

Filed Apr. 21, 1980, Ser. No. 142,245

Claims priority, application European Pat. Off., Apr. 14, 1980, 80102003.3

Int. Cl.³ F27D 5/00

U.S. Cl. 432—258



1. A support element for a support structure including refractory cranks or shelves for supporting articles during kiln firing, the element being capable of being stacked generally vertically with other elements to form an upright support and having a transverse aperture which extends completely therethrough to receive a portion of a crank or shelf, extends generally horizontally when the element is in use, has dimensions greater than the portion to be supported therein, and is partially defined by a lower border which defines a plurality of small, localized contact points located so that when such a portion is positioned to extend loosely through the aperture, the portion is supported on the contact points so that kiln gases can flow through the aperture and around the portion.

4,315,739

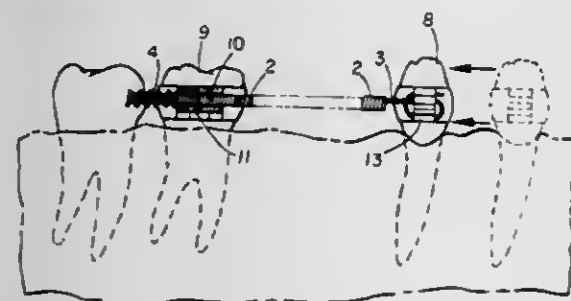
SPRING TENSIONING DEVICE AND METHOD

Steve B. Cain, 11006 N.W. 58, Kansas City, Mo. 64152
Continuation-in-part of Ser. No. 796,987, May 16, 1977, Pat. No. 4,199,865. This application Dec. 19, 1979, Ser. No. 105,286
The portion of the term of this patent subsequent to Apr. 29, 1997, has been disclaimed.

Int. Cl.³ A61C 3/00

U.S. Cl. 433—21

18 Claims



1. A unitary tension producing article of manufacture for exerting a tension force between two objects, one of said objects being provided with a stop for said article, said article comprising:
tension spring means;
means for coupling one end of said spring means with one of said objects;
anchor means comprising an integral extension of said spring means and extending in at least partially overlying relationship to said tension spring means,
said anchor means being biased against said stop by said spring means and characterized by being resiliently yield-

able under the influence of said spring means while holding the other end of said spring means and deformable when the force exerted by said spring means exceeds a predetermined value thereby causing said anchor means to move past said stop and release said spring means from said other object.

4,315,740

APPARATUS FOR MOUNTING DENTAL CASTS

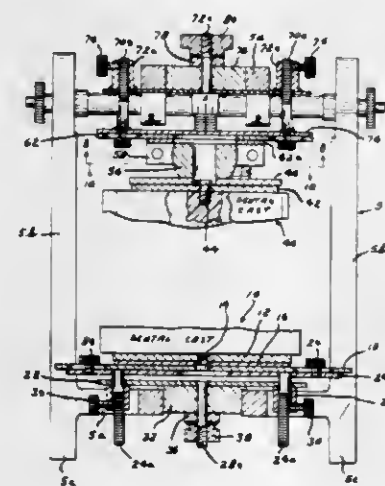
Roger W. Mercer, 1340 Arlington Dr., Fairborn, Ohio 45324, and Louis E. Hay, 847 Woodhill Rd., Dayton, Ohio 45431

Filed Apr. 18, 1977, Ser. No. 788,236

Int. Cl.³ A61C 11/00

U.S. Cl. 433—63

1 Claim



1. In combination, a dental articulator mounting matched upper and lower dental casts having a threaded aperture in the base of each of said dental casts, said combination comprising:

- (a) an articulator body having a base element, at least one vertical element extending upward from said base element, and a normally horizontal leaf element pivotally supported at the upper end of said vertical element to be superimposed with said base element;
- (b) a first mounting jig supported by the base element of said articulator body, said first mounting jig having an upward extending screw member;
- (c) a lower dental cast having a threaded aperture in the base of said lower dental cast, the screw member of said first mounting jig engaging the threaded aperture in the base and mounting said lower dental cast onto the base element of said articulator body;
- (d) an upper dental cast having a threaded aperture in the base of said upper dental cast; and,
- (e) a second mounting jig supported by the leaf element of said articulator body, said second mounting jig having a vertically adjustable screw member extending downward and engaging the threaded aperture in said upper dental cast and mounting said upper dental cast onto said second mounting jig.

4,315,741

HAND-OPERATED INSTRUMENT FOR DENTAL CARE OR TOOTH TREATMENT

Ernst Reichl, Munich, Fed. Rep. of Germany, assignor to Bosch-Siemens Hausgeräte GmbH, Stuttgart, Fed. Rep. of Germany
Filed Jan. 11, 1980, Ser. No. 111,327

Claims priority, application Fed. Rep. of Germany, Jan. 12, 1979, 2901136

Int. Cl.³ A61C 3/06

U.S. Cl. 433—82

5 Claims

1. Hand-operated instrument for dental care or tooth treatment having an electric drive, comprising a hand-grip portion, a slender instrument neck portion having one end integral with said hand-grip portion and a free end, a drive motor of the

4,315,743

SYRINGES FOR INJECTING PASTY PRODUCTS

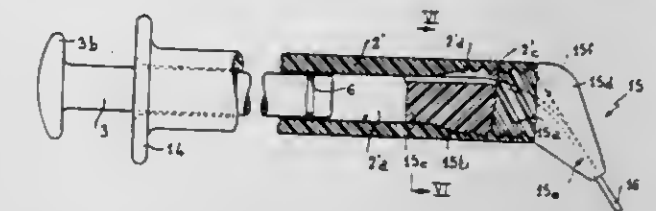
Jean-Louis Brugirard, Le Clos - Saint Maurice sur Dargoire, 69440 Mornant, France

Filed Mar. 24, 1980, Ser. No. 132,753

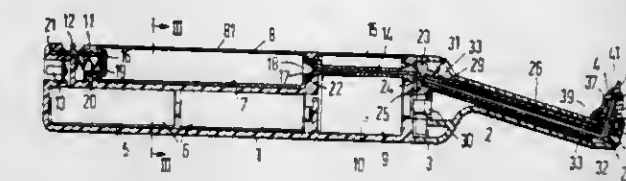
Int. Cl.³ A61C 5/04

U.S. Cl. 433—90

6 Claims



electric drive and a fluid reservoir disposed in said hand-grip portion, a working implement integral with said free end of said neck portion, means including a fluid duct at least partially disposed in said neck portion for supplying fluid from said reservoir to said working implement, means including drive elements at least partially disposed in said neck portion and being driven by said drive motor for driving said working implement, said drive elements including a tubular drive shaft,



and said fluid duct being disposed in said tubular drive shaft, an implement coupling for coupling said working implement to said free end of said neck portion, and a miter gear formed of two gears connecting said implement coupling to said drive shaft, said fluid duct being tubular in shape and said drive shaft being rotatably supported on said fluid duct, and said fluid duct having a bend formed therein which forms a bearing for both gears of said miter gear at said implement coupling.

1. A dental syringe for ejecting a pasty material, comprising:
 - (a) a hollow body having an axial bore therethrough the bore being open at one end and being internally threaded at its other end;
 - (b) a plunger extending into the body through its open end and slideable in the bore;
 - (c) a stopper having a threaded part cooperatively receivable in the threaded end of the bore, the stopper having a head extending therefrom and the head having a channel extending through it at an oblique angle to the axis of the bore and the channel communicating with the bore in the body;
 - (d) a flexible tube removably inserted in the channel and sealed thereto, the tube having a portion extending from the channel beyond the head; and
 - (e) said stopper further comprising a longitudinal notch extending along the side of the threaded part of the stopper parallel to the axis of the bore and extending into said oblique channel and shaped to receive said flexible tube, the notch distorting the tube against the bore and wedging it in place when the stopper is screwed into the bore.

4,315,742

VIBRATORY DEVICE HAVING TOOL ASSEMBLY WITH FLUID TRANSPORT MEANS

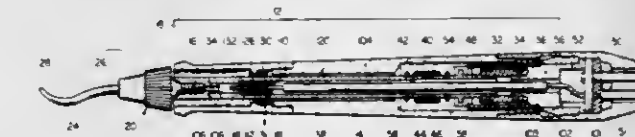
John E. Nash, Downingtown, and Arthur A. Knopp, Chalfont, both of Pa., assignors to Syntex (U.S.A.) Inc., Palo Alto, Calif.

Filed Nov. 5, 1979, Ser. No. 91,012

Int. Cl.³ A61C 1/10, 1/12, 1/07, 17/02

U.S. Cl. 433—86

22 Claims



1. A work tool assembly for a vibratory device comprising:
 - a hollow body having a first end and a second end, said first end being adapted for detachable connection to a vibratory device and having a first orifice therein, said second end of said body having a second orifice therein;
 - a tube having a first end and a second end, said tube extending continuously from said first end of said body to said second end of said body, said second end of said tube terminating substantially adjacent to the second end of said body, said first end of said tube being located within said first orifice and terminating flush with said first end of said body; and
 - a work tool having a first end and a second end, said first end of said tool being adapted for insertion into said second orifice of said body within said second orifice, said tool having a groove on the outer surface thereof extending from said first end of said tool to a position intermediate said first and second ends of said tool and outwardly of said second end of said body, a portion of said tube lying within said groove between said tool and said body, thereby establishing a continuous fluid path from said first end of said body to said second end of said body to convey fluid into said groove and in contact with the outer surface of said tool whereby the fluid is transferred along the outer surface of said tool to said second end of said tool.

4,315,744

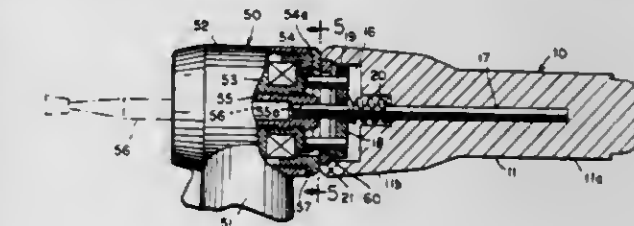
CHUCK WRENCH FOR DENTAL HANDPIECES

Thomas W. Albert, 131 E. McClelland, Bartlett, Ill. 60103
Filed Jan. 3, 1980, Ser. No. 109,395

Int. Cl.³ A61C 7/08

U.S. Cl. 433—126

19 Claims



1. A chuck wrench for dental handpieces comprising an elongated wrench body having a longitudinal axis of rotation and being dimensioned to be gripped between a user's fingers for one-handed rotation; a rigid shaft of non-circular cross section secured to said body and extending from one end thereof along said axis of rotation; at least one lug pin disposed alongside said shaft in spaced parallel relation therewith; means supporting said pin with respect to said body for rotational movement between retracted and extended positions; stop means provided by said body for limiting movement of said pin in said extended position; and spring means urging said pin into said extended position and frictionally engaging both said pin-supporting means and said body to provide limited frictional clutching resistance to independent relative rotation of said pin-supporting means and said body about said axis; said shaft extending a substantial distance beyond said pin when said pin is in its extended position.

4,315,745

DENTAL ELEVATOR

Seitaro Murata, 32-4, Matsuyama 1-chome, Naha-shi, Okinawa-ken, Japan

Filed Nov. 17, 1980, Ser. No. 207,573

Claims priority, application Japan, Nov. 20, 1979, 54-161477[U]

Int. Cl.³ A61C 3/00

U.S. Cl. 433-141

4 Claims



1. Dental elevator comprising a holder portion, a stem portion and a beak portion,

the improvement is characterized in that

- (i) said holder portion, said stem portion and said beak portion being constructed as a substantially straight and integral elongated bar,
- (ii) said beak portion having one longitudinal side flattened like a chisel surface and the other longitudinal side rounded, said flattened side extending to the terminating end of said beak portion,
- (iii) said beak portion having a thickness and a width narrowed gradually toward said terminating end of said beak portion, and
- (iv) said beak portion being with a V-shaped notch opening onto said terminating end with the apex of the V being spaced from said terminating end and the legs of the V ending at said terminating end, whereby said notch is engageable with the root of a tooth being extracted to prevent slipping of the dental elevator on said root during extraction.

4,315,746

HORIZONTAL BEAM WIDTH INTEGRATOR

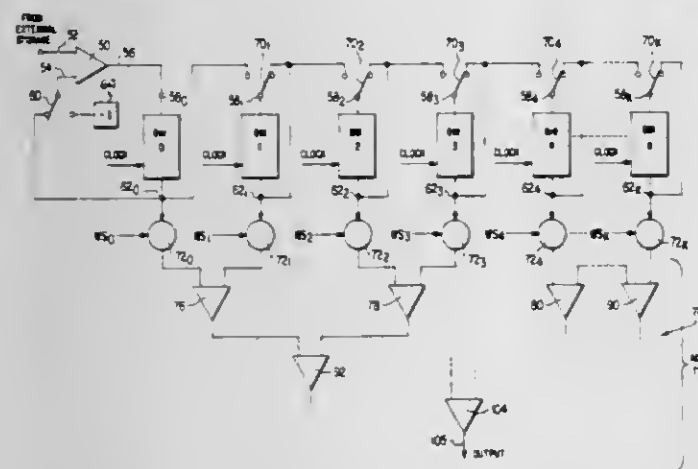
Arthur J. Heidrich, South Daytona, Fla., assignor to General Electric Company, Syracuse, N.Y.

Filed Jun. 2, 1980, Ser. No. 155,310

Int. Cl.³ G09B 9/00

U.S. Cl. 434-2

26 Claims



1. Apparatus for integrating externally stored data signals adapted to simulate echoes produced by successive radial sweeps of a radar beam while traversing a predetermined azimuth angle, respective portions of the total area illuminated by said beam during each sweep providing contributions to the echo from said area, each of said echo contributions varying

for successive sweeps as a function respectively of the beam gain profile and of the beam position relative to the corresponding area portion, respective ones of said echo contributions being simulated as a plurality of said data signals in digital, logarithmic form each representative of the echo intensity at a discrete beam range of the corresponding illuminated area portion;

said apparatus comprising:

means for successively receiving said simulated data signals from external storage;

means for accumulating said received data signals during periodically repeating cycles, said accumulating means providing a lumped data signal in logarithmic form for each discrete beam range, the lumped data signals accumulated upon completion of each of said cycles being jointly representative of a group of lumped echo contributions, the number of echo contributions in said group being determined substantially by the duration of each cycle as a selected multiple of the sweep period;

a plurality of storage bins jointly capable of storing the data signals of a complete echo;

means for loading successive ones of said groups of lumped echo contributions into separate ones of said bins during successive cycles;

means for applying a weighting factor to said groups of lumped echo contributions in said bins to correct for variations due to said beam gain profile, each of said last-recited means including separate means connected to each bin for numerically adding a separate, externally derived, average weighting signal to each of the lumped data signals received from the connected bin; and

means for combining the gain profile-corrected groups of lumped echo contributions by successive pairing; whereby digital output signals in logarithmic form are provided at the output of said combining means which simulate the echo produced by each sweep of said beam.

4,315,747

HOMOLINEAR COMPOSITE EQUAL-AREA WORLD PROJECTIONS

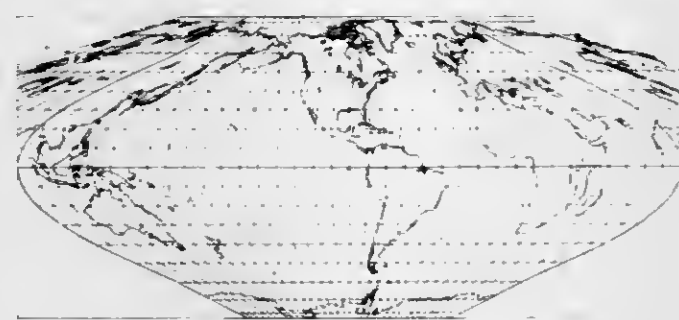
F. Webster McBryde, 10100 Falls Rd., Potomac, Md. 20854

Filed Jun. 29, 1977, Ser. No. 811,318

Int. Cl.³ G09B 29/00

U.S. Cl. 434-150

2 Claims



1. An equal-area homolinear composite world map having parallels of latitude parallel to the equator and comprising an equatorial map section and polar map sections, said equatorial map section being the equatorial portion of a fusiform equal-area world map, having a graticule prepared according to first mapping equations, said polar map sections being the polar map sections of a flat-polar area world map having a graticule prepared according to second mapping equations, said equatorial section and said polar sections being joined along parallels which, using the same linear mapping scale, are of equal length, and said second mapping equations being derived solely by modifying said first mapping equations of said fusiform map so that the poles of the graticule of said flat-polar map are linear rather than pointed.

4,315,748

ALPHABETIC DEVICE

Jorge Frascara; Walter Jungkind; Carol J. Ladan, and Thomas M. Nelson, all of Edmonton, Canada, assignors to The Governors of the University of Alberta, Canada

Filed Mar. 22, 1979, Ser. No. 22,806

Int. Cl.³ G09B 1/40, 1/34

U.S. Cl. 434-159

1 Claim



1. An alphabetic device to be used in an initial reading process comprising:

a substrate comprising at least one of paper, metal, plastic, and wood having reproduced on it a plurality of letters of a traditional written language, each letter being reproduced within the confines of a zone, said zone being reproduced on said substrate and being made up of components selected from dots, dashes, and lines arranged in regular arrays, and each zone being distinct from each other zone and unique to the letter confined therein, whereby the zone provides an additional visual discrimination cue to aid in letter recognition.

4,315,749

NON JAMMING REVERSIBLE JET NOZZLE

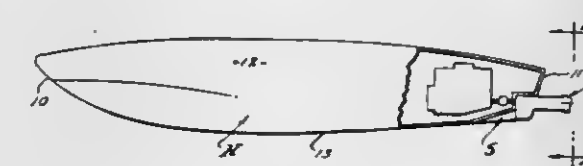
Kenneth R. Baker, Woodland Hills, and Robert T. DeVault, Simi Valley, both of Calif., assignors to Maritec Corporation, Los Angeles, Calif.

Filed Aug. 27, 1979, Ser. No. 69,740

Int. Cl.³ B63H 11/00

U.S. Cl. 440-42

10 Claims



1. A reversible hydrojet drive unit for boat propulsion and including,

a water pump housing terminating in a horizontal rearwardly opening exit flow passage having top and bottom and side walls parallel to a propulsion axis,

a prime mover driven impeller operable in said housing to deliver propulsion water rearwardly from said exit flow passage,

a steering nozzle embracing the exit flow passage and with top and side walls forming continuations of said top and side walls of said exit flow passage and having a depending forwardly recurved skirt and rotatable on a vertically disposed axis upon trunions projecting from the said pump

housing immediate to the rearwardly opening exit flow passage thereof,

the said steering nozzle having a central vertically disposed rudder vane depending from the top wall thereof and with its leading edge coincidental with the said vertically disposed axis to steer and to reduce turbulence,

and a reverse gate having a shiftable door to open and to close the nozzle for forward redirection of propulsion water by said recurved skirt.

4,315,750

SPROCKET CHAIN

Yoshinori Kawashima, Sakado, and Yuji Hashimoto, Tokyo, both of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

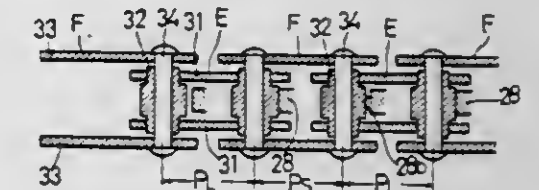
Filed Jan. 29, 1980, Ser. No. 116,455

Claims priority, application Japan, Feb. 7, 1979, 54-13021

Int. Cl.³ F16H 7/06, 55/30

U.S. Cl. 474-153

7 Claims



1. In combination: a sprocket having equally spaced teeth, a chain for cooperation with the sprocket, having a series of alternating pairs of inner links and outer links, each inner link being longer than the tooth pitch of the sprocket, each outer link being shorter than said tooth pitch by the same amount, and each pair of links being adapted to receive a sprocket tooth between them.

4,315,751

POSITIVE DRIVE SYSTEM

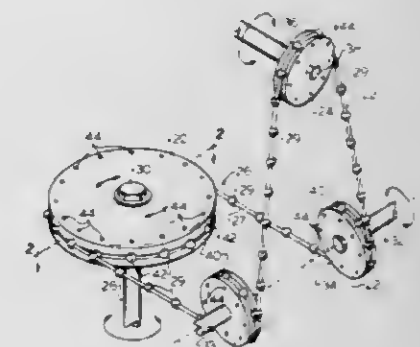
Rene A. Conrad, 215 Olive Hill La., Woodside, Calif. 94062

Continuation-in-part of Ser. No. 845,929, Oct. 27, 1977, Pat. No. 4,214,488. This application Nov. 26, 1979, Ser. No. 97,132

Int. Cl.³ F16G 1/28

U.S. Cl. 474-154

11 Claims



1. A positive circular drive system for rotatably coupling a drive means to a driven means, comprising:

a drive sheave having a groove formed around its curved surface and a plurality of cylindrically shaped pockets formed along said groove means, the axes of symmetry of said pockets lying along radials of said drive sheave, said pockets being separated from adjacent pockets by a distance defining the pitch of the sheave and having a depth beneath the bottom of said groove greater than one-half of the cylindrical diameter thereof;

means for driving said first sheave;

a first drive cable disposed to engage said sheave and including,

a single length of flexible multistrand cable, said cable being coined so as to have a substantially smooth outer

surface with an outside diameter less than the width of said groove;
 a plurality of nodules each consisting of a mass of material formed into a regular, geometric spherical solid having a diameter slightly less than the diameter of said pockets, said nodules being attached to said cable in regular, spaced apart disposition, the distance between adjacent nodules being substantially equal to the pitch of said sheaves, such that at any point in time a plurality of adjacent nodules engage a corresponding plurality of adjacent pockets on said sheave; and
 means linking said drive cable to said driven means, whereby motion of said drive sheave is transferred to said driven means by said drive cable.

4,315,752

MANUFACTURE OF H-DIVIDERS

Lenard E. Moen, 7914 Michigan Ave., Whittier, Calif. 90602
 Division of Ser. No. 910,198, May 30, 1978, Pat. No. 4,220,076.
 This application Jun. 9, 1980, Ser. No. 157,325

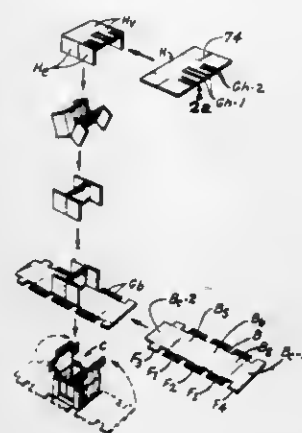
Int. Cl.³ B31B 1/44; B31D 3/04

U.S. Cl. 493-171

15 Claims

1. In a machine for forming a paperboard or the like H-divider from a flat blank having a pair of foldable divider

panels, each of which is joined at its opposite ends to a pair of foldable end panels, the improvement comprising:
 stationary split mandrel means defining a rectangular prismatic structure with an unobstructed entry into a gap of



said mandrel means for the reception therein of a folded pair of divider panels of a blank.

said mandrel means also defining surfaces for the pressing thereagainst of each of the folded end panels of the divider.

CHEMICAL

4,315,753

ELECTROCHEMICAL APPARATUS FOR SIMULTANEOUSLY MONITORING TWO GASES

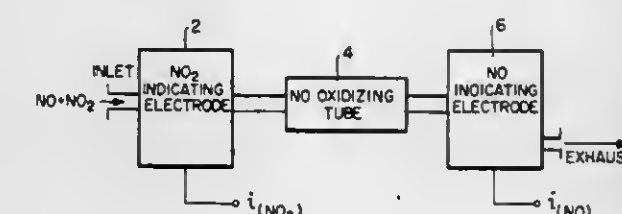
Stanley Bruckenstein, Williamsville, and John A. Kosek, Buffalo, both of N.Y., assignors to The United States of America as represented by the Secretary of the Interior, Washington, D.C.

Filed Aug. 14, 1980, Ser. No. 177,978

Int. Cl.³ G01N 27/30, 27/40, 27/52

U.S. Cl. 23-232 E

43 Claims



30. A method for simultaneously monitoring the presence of first and second members of a family of oxygen-containing gases in a sample of gas, said method comprising the steps of:

- electroreducing at least a portion of the first member in the sample to derive a first electrical signal while forming a first gas mixture comprising electroreduction products, unreduced first member and second member;
- oxidizing the second member in said first gas mixture to convert all of the second member present in said first gas mixture to the first member to form a second gas mixture;
- electroreducing at least a portion of the first member and in said second gas mixture to derive a second electrical signal; and
- electronically processing said first and second electrical signals to generate first and second output signals respectively representative of the amount of the first and second members present in the sample.

4,315,754

FLOW INJECTION ANALYSIS WITH INTERMITTENT FLOW

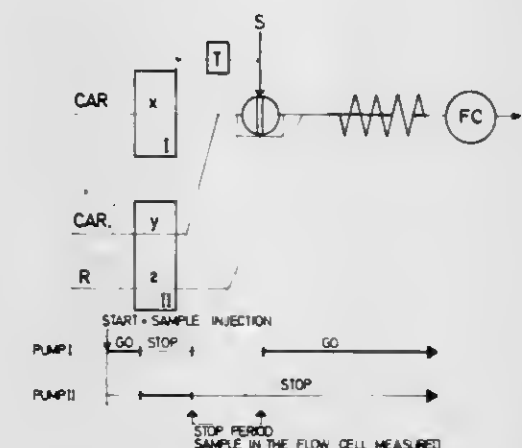
Jaromir Ruzicka, Copenhagen, and Elo H. Hansen, Lyngby, both of Denmark, assignors to Bifok AB, Sollentuna, Sweden

Filed Aug. 28, 1979, Ser. No. 70,658

Int. Cl.³ G01N 35/08, 33/14, 33/66

U.S. Cl. 23-230 R

7 Claims



1. A method of analyzing a material within a flowing liquid carrier, comprising the steps of:

- forming an entirely liquid flowing carrier stream;
- injecting a discrete, well-defined liquid sample portion into said carrier;
- introducing at least one reagent in the form of a liquid to said sample portion by intermittently activating separate pumps disposed to transport said carrier and said reagent respectively at pre-programmed timed intervals, activation of said pumps being controlled by the step of injecting said sample portion; and
- conducting the combination of said sample and said reagent

4,315,755

HYDROCARBON OILS CONTAINING 1 TO 10 PERCENT EMULSIFIED WATER AND EMULSIFIERS THEREFOR

Karl M. E. Hellsten, Ödsmål; Inger G. Johansson, Svanesund, and Birgit T. G. Karlsson, Stenungsund, all of Sweden, assignors to Berol Kemi A.B., Stenungsund, Sweden

Filed Jun. 30, 1980, Ser. No. 164,101

Claims priority, application Sweden, Jun. 29, 1979, 7905716

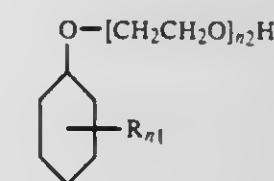
Int. Cl.³ C10L 1/32

U.S. Cl. 44-51

11 Claims

1. A hydrocarbon oil containing 1 to 10% emulsified water comprising:

- a nonionic surface-active ethylene oxide adduct having the general formula:



in which:

n₁ = 1 to 5;

n₂ = a number selected to give a polyethylene glycol chain in a weight percent within the range from about 50 to about 60% by weight of the adduct; and

R = alkyl of from about one to about twenty-four carbon atoms, the alkylphenyl group having from about twelve to about thirty carbon atoms; and

(b) the calcium salt of dodecylbenzene sulphonic acid; the weight ratio nonionic surface-active ethylene oxide adduct to calcium salt of dodecyl benzene sulphonic acid being within the range from about 80:20 to about 40:60.

4,315,756

OIL-SOLUBLE AZO DYE WITH N-SUBSTITUTED β-NAPHTHYLAMINE AS COUPLING COMPONENT

Georg Zeidler, Limburgerhof; Johannes Dehnert; Guenter Hansen, both of Ludwigshafen, and Guenther Riedel, Heidelberg-Wieblingen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

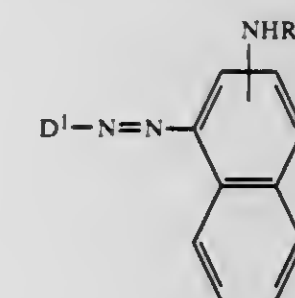
Filed Dec. 5, 1974, Ser. No. 529,900

Int. Cl.³ C10L 1/10, 1/22; C09B 35/02, 33/02

U.S. Cl. 44-59

13 Claims

1. A compound of the formula



wherein:

D¹ is phenylazophenyl or tolylazotolyl; and

R³ is n-hexyl, n-octyl, 3,5,5-trimethylhexyl, tridecyl, β-ethylhexoxypropyl, cyclohexyl, benzyl or phenylethyl.

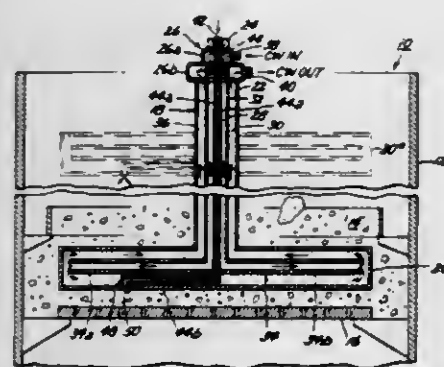
4,315,757

COAL GASIFICATION APPARATUS

Donald E. Woodmansee, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.
Division of Ser. No. 70,637, Aug. 27, 1979, Pat. No. 4,257,782.
This application Jul. 14, 1980, Ser. No. 168,013
Int. Cl.³ C10J 3/32

U.S. Cl. 48—71

3 Claims



1. An apparatus for fixed-bed pressure gasification of coal comprising:
a closed housing;
a grate disposed near the bottom of said housing for supporting a coal bed charge within said housing;
means for introducing steam and oxidant into said housing near the bottom thereof;
a stirrer having a shaft and a rabble arm mounted thereon for rotation thereof through said coal bed, said stirrer having closed conduit means for conducting a flow of coolant through said shaft and said rabble arm without discharge of any coolant into said bed; and
means for conducting a separate flow of hydrocarbon through said shaft in indirect heat exchange relationship with and substantially surrounded by said coolant flow, said hydrocarbon conducting means having means for discharging cooled hydrocarbon into the interior of said bed.

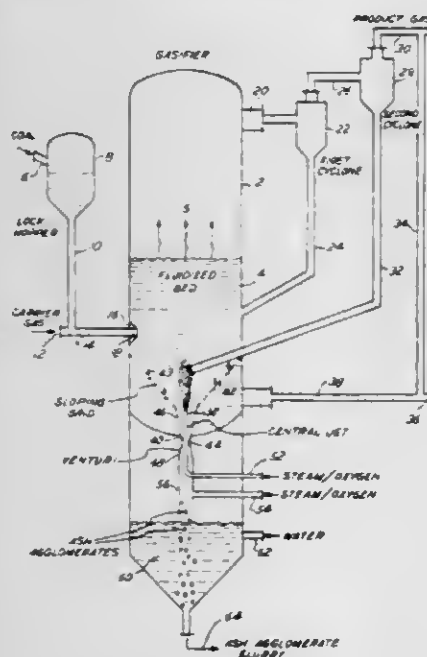
4,315,758

PROCESS FOR THE PRODUCTION OF FUEL GAS FROM COAL

Jitendra G. Patel, Bolingbrook; William A. Sandstrom, Chicago, and Paul B. Tarman, Elmhurst, all of Ill., assignors to Institute of Gas Technology, Chicago, Ill.
Filed Oct. 18, 1979, Ser. No. 85,934
Int. Cl.³ C10J 3/54

U.S. Cl. 48—197 R

7 Claims



1. In a process for the conversion of a solid, agglomerating

hydrocarbonaceous solid to a more valuable gaseous product wherein (i) an oxygen containing gas in admixture with steam is contacted with the solid at elevated temperatures in a fluidized bed gasification reaction zone, (ii) ash is agglomerated in the bottom portion of the reaction zone, and (iii) the ash is selectively separated from the fluidized bed by withdrawing the ash from the bottom portion of the reaction zone through a withdrawal nozzle having a constricted central opening wherein the ash agglomerates have a tendency to occlude the nozzle and the central opening thereof, the improvement which comprises (a) passing an oxygen containing gas into the nozzle, through a separate conduit concentrically positioned within the nozzle, the discharge end of the conduit being positioned substantially above the constricted central opening, said oxygen containing gas passing through the separate conduit having an oxygen concentration of about 30-75% by volume, (b) passing an additional gaseous fluid upward into the fluidized bed through the withdrawal nozzle and past the outside of the separate conduit, said additional gaseous fluid having an oxygen concentration less than the oxygen concentration in the gas passing through the separate conduit, said nozzle being positioned below the fluidized bed and being concentrically surrounded by a fluid distribution and support grid, and (c) passing an additional gaseous fluid substantially free of oxygen through the fluid distribution and support grid, said oxygen containing gas, said additional gaseous fluid passing through said nozzle, and said additional gaseous fluid passing through said grid providing a superficial gas velocity of at least 2 ft/sec. through the fluidized bed.

4,315,759

ADSORPTION PROCESS PRODUCING CHRONOLOGICALLY CONSTANT AMOUNT OF A RESIDUAL GAS

Christian Benkmann, Munich, Fed. Rep. of Germany, assignor to Linde Aktiengesellschaft, Holtriageleskreuth, Fed. Rep. of Germany

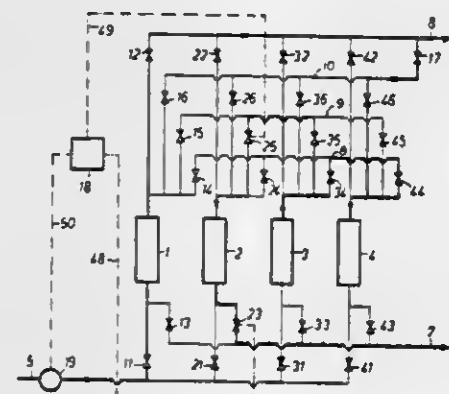
Filed Jul. 23, 1980, Ser. No. 171,519

Claims priority, application Fed. Rep. of Germany, Jul. 28, 1979, 2930782

Int. Cl.³ B01D 53/04

U.S. Cl. 55—18

15 Claims



1. In a process for the adsorptive purification or fractionation of a gaseous mixture with several cyclically reversible adsorbers, by adsorbing at least one gaseous component of the gaseous mixture in the adsorbers, each of the adsorbers passing, with chronological displacement, through respectively substantially identical switching cycles, each switching cycle comprising an adsorption phase, at least one expansion phase, a purging phase operated with a purging gas and at least one pressure build-up phase, wherein the at least one expansion phase and the purging phase each produce gas fractions enriched in the at least one gaseous component, the sum total of the gas fractions comprising a residual gas stream, the improvement wherein the volume or mass of the residual gas stream is maintained chronologically substantially constant by regulating the respective volume streams and/or mass streams of the gas fractions obtained during the at least one expansion

phase and the volume streams or mass streams of the purging gas introduced into the adsorber during the purging phase.

15. In an apparatus for the adsorptive purification or fractionation of a gaseous mixture, the apparatus including at least three interconnected adsorbers for adsorbing at least one gaseous component of the gaseous mixture, and each adsorber adapted to operate in identical switching cycles comprised of an adsorption phase, at least one expansion phase, a purging phase, and at least one pressure build-up phase, the adsorbers arranged for operation in a chronologically cyclically displaced manner with respect to each other, whereby the adsorbers are adapted to produce gas fractions enriched in the at least one gaseous component during the respective at least one expansion phase and the purging phase thereof, the sum total of the gaseous fractions produced by the at least three adsorbers comprising a residual gas stream, the adsorbers having respective outlets for releasing the gaseous fractions with the outlets connecting into one outlet line for passing the residual gas stream therethrough, and lines interconnecting the adsorbers with each other for passing gas released from one adsorber during the at least one expansion phase thereof to another adsorber as the purge gas therefor, the improvement comprising:

sensing means operatively associated with an inlet to said adsorbing apparatus for sensing and measuring the quantity of gaseous mixture entering said adsorbing apparatus; a plurality of respective first outlet valve means having variable stroke opening characteristics for controlling volume or mass streams flowing therethrough, each outlet valve means of said plurality of outlet valve means arranged in the outlet of each of said at least three adsorbers through which said gas fractions are removed; a plurality of second valve means having variable stroke opening characteristics for controlling volume or mass streams flowing therethrough, a respective second valve means of said plurality of second valve means arranged in each of one of the lines interconnecting each of said at least three adsorbers with each other for controlling the flow of a purge gas stream produced during the at least one expansion phase of one of the at least three adsorbers to another of the at least three adsorbers; and control means connected to said sensing means for receiving a signal corresponding to the sensed and measured quantity of gaseous mixture entering the apparatus, and respectively connected to each one of said respective first outlet valve means and to each one of said second valve means for transmitting a signal thereto, said signal corresponding to said sensed quantity of gaseous mixture entering the apparatus for individually varying the stroke openings of all the variable stroke opening valves to thereby maintain a substantially chronologically constant volume or mass residual gas stream.

4,315,760

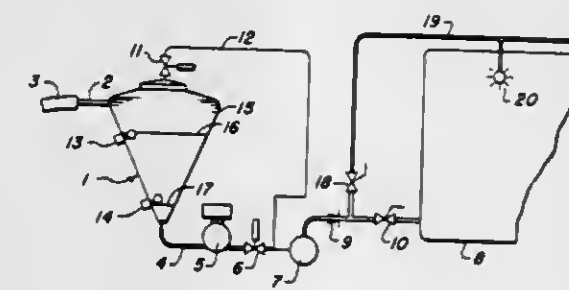
METHOD AND APPARATUS FOR DEGASING, DURING TRANSPORTATION, A CONFINED VOLUME OF LIQUID TO BE MEASURED

Jan D. blj de Leij, Veensluis 24-30, Heerenveen, Netherlands
Filed Jan. 17, 1980, Ser. No. 112,909

Int. Cl.³ B01D 19/00

U.S. Cl. 55—46

5 Claims



1. A method of degassing a confined volume of a liquid to be

measured during the transportation of the liquid from a liquid supply vessel to a liquid storage vessel by means of apparatus including a gas separation vessel, a liquid volume meter, a fluid vacuum pump, a first valve selectively connecting the suction side of the pump to the bottom of the gas separation vessel, a second valve selectively connecting the suction side of the pump to the top of the gas separation vessel, a first switch responsive to a first liquid level in the gas separation vessel and a second switch responsive to a higher second liquid level in the gas separation vessel, said method comprising the steps of: supplying liquid from the liquid supply vessel to the gas separation vessel until the liquid supply vessel is empty; operating the vacuum pump; opening the second valve in response to the first liquid level being detected by the first switch to permit withdrawal of gas from the gas separation vessel by the vacuum pump; closing the first valve in response to the first liquid level being detected by the first switch to permit the liquid level in the gas separation vessel to rise; closing the second valve in response to the second liquid level being detected by the second switch to prevent the withdrawal of gas from the gas separation vessel by the vacuum pump; opening the first valve in response to the second liquid level being detected by the second switch to permit withdrawal of liquid from the gas separation vessel to the liquid storage vessel through the volume meter by the vacuum pump; reclosing the second valve in response to detection by the second switch of the level of the liquid in the gas separation vessel falling from the second liquid level to a point between the second liquid level and the first liquid level; and reopening the first valve when the second valve is reclosed.

2. Apparatus for degassing a confined volume of liquid to be measured during the transportation of the liquid from a supply vessel to a liquid storage vessel, said apparatus comprising: a gas separation vessel having a top and a bottom; means providing fluid communication between said supply vessel and said gas separation vessel; a liquid discharge conduit providing liquid communication between said bottom of said gas separation vessel and said liquid storage vessel; means disposed in said liquid discharge conduit for measuring the volume of liquid passing therethrough; a gas discharge conduit providing gas communication with said top of said gas separation vessel; a continuously operating fluid vacuum pump connected on the suction side thereof to said liquid discharge conduit and to said gas discharge conduit; a first valve disposed in said liquid discharge conduit between said vacuum pump and said gas separation vessel and adapted to be selectively opened to permit said vacuum pump to withdraw liquid from said gas separation vessel to said liquid storage vessel through said liquid discharge conduit and to be selectively closed to prevent the flow of liquid from said gas separation vessel through said liquid discharge conduit; a second valve disposed in said gas discharge conduit between said gas separation vessel and said vacuum pump and adapted to be selectively opened to permit said vacuum pump to withdraw gas from said gas separation vessel through said gas discharge conduit and selectively closed to prevent the flow of gas from said gas separation vessel through said gas discharge conduit; a first level switch responsive to a first liquid level in said gas separation vessel and being operative to open said second valve and to close said first valve when the level of the liquid falls to said first liquid level; and a second level switch responsive to a second liquid level higher than said first liquid level in said gas separation vessel, said second level switch being operative to open said first valve and to close said second valve when the

level of the liquid rises to said second liquid level and to open said second valve and close said first valve when the level of the liquid falls to a point between said second liquid level and said first liquid level from said second liquid level.

4,315,761

METHOD FOR BINDING AND CLEARING ANIMAL WASTE PRODUCTS

Karl I. Larsson, Hevigsgatan 6, 702 25 Orebro, and Per A. H. Jakobsson, Blombergsvagen 24M, 720 30 Orebro, both of Sweden

Filed Nov. 15, 1979, Ser. No. 76,566

Claims priority, application Sweden, Oct. 10, 1978, 7810566
Int. Cl.³ C05F 3/00

U.S. Cl. 71-21

2 Claims

1. In the treatment of animal excrement and urine with an animal litter in an amount sufficient to bind and clear said excrement and urine, the improvement which comprises using as said animal litter, grains of porous calcium hydrosilicate in the form of foamed or aerated concrete, said grains having a size between 0.5 mm and 10 mm.

4,315,762

USE OF ALUMINUM TRIS(O-ETHYL PHOSPHONATE) AS AN AMMONIUM NITRIFICATION COMPOUND

Thomas O. Evrard, Little Rock, Ark., assignor to Olin Corporation, New Haven, Conn.

Filed May 12, 1980, Ser. No. 148,848

Int. Cl.³ C05G 3/08

U.S. Cl. 71-27

6 Claims

1. A method for inhibiting the nitrification of ammonium-nitrogen in soil which comprises treating the soil with an effective nitrification-inhibiting amount of aluminum tris(O-ethyl phosphonate).

4,315,763

HIGH ANALYSIS LIQUID FERTILIZERS

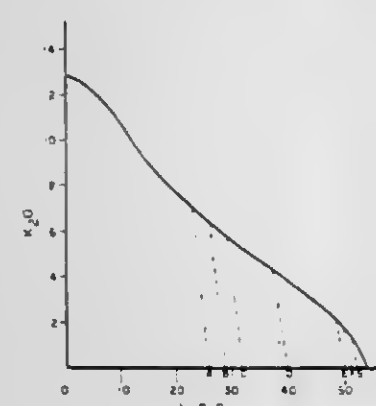
Jerry H. Stoller, Bunkerhill, Tex., and Harold A. Hartung, Collingswood, N.J., assignors to Stoller Enterprises, Inc., Houston, Tex.

Continuation-in-part of Ser. No. 954,733, Oct. 30, 1978, abandoned. This application Feb. 7, 1980, Ser. No. 119,429

Int. Cl.³ C05C 9/00

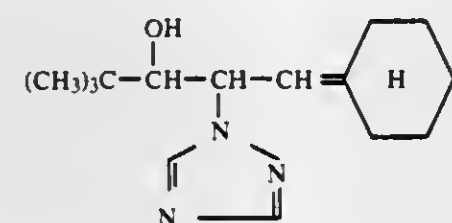
U.S. Cl. 71-29

31 Claims



1. A high analysis, non-ammoniated, liquid fertilizer which is the reaction product of urea and phosphoric acid or a mixture of phosphoric acid and sulfuric acid, and characterized as a clear liquid, which does not salt out at 0° C., has a pH of less than 4 and has an analysis of N and P₂O₅ and K₂O totaling at least 25 weight percent of the fertilizer in the ranges of >0 to 30 wt. % N, 5 to 50 wt. % P₂O₅ and 0 to 12 wt. % K₂O.

2.2-dimethyl-6-phenyl-4-(1,2,4-triazol-1-yl)-5-hepten-3-ol of the formula



or an acid addition salt or metal salt complex thereof.

4. A fungicidal or plant-growth-regulating composition containing as active ingredient a fungicidally or plant growth regulating effective amount of a compound, acid addition salt or metal salt complex according to claim 1 in admixture with a diluent.

4,315,765

TRIALKYL SULFONIUM SALTS OF N-PHOSPHONOMETHYLGLYCINE AND THEIR USE AS PLANT GROWTH REGULATORS AND HERBICIDES

George B. Large, Orinda, Calif., assignor to Stauffer Chemical Company, Westport, Conn.

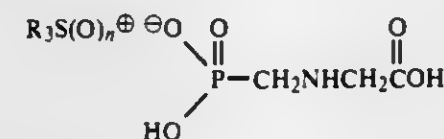
Filed Dec. 4, 1980, Ser. No. 212,921

Int. Cl.³ C07F 9/38; A01N 31/00, 57/20

U.S. Cl. 71-87

15 Claims

1. A compound having the formula



in which R represents C₁-C₃ alkyl and n is zero or one.

7. A method of regulating the natural growth or development of plants which comprises applying to said plants a biologically active composition comprising (a) an effective, plant-regulating, non-lethal amount of a compound having the formula

4,315,764

1-ALLYLTRIAZOLE DERIVATIVES, PROCESSES FOR THEIR PREPARATION AND THEIR USE AS PLANT PROTECTION AGENTS

Wolf Reiser; Wilfried Draber; Karl H. Büchel, all of Wuppertal; Klaus Lürssen, Bergisch-Gladbach; Paul-Ernst Frohberger, Leverkusen, and Volker Paul, Solingen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Feb. 4, 1980, Ser. No. 118,335

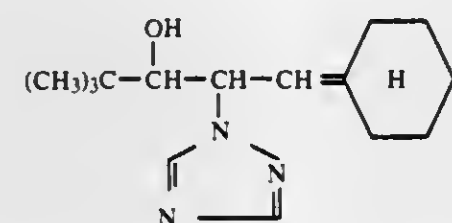
Claims priority, application Fed. Rep. of Germany, Feb. 16, 1979, 2905981

Int. Cl.³ A01N 43/64; C07D 249/08

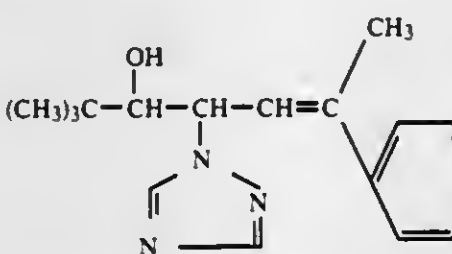
U.S. Cl. 71-76

7 Claims

1. A compound selected from the group consisting of 1-cyclohexylidene-4,4-dimethyl-2-(1,2,4-triazol-1-yl)-pentan-3-ol of the formula

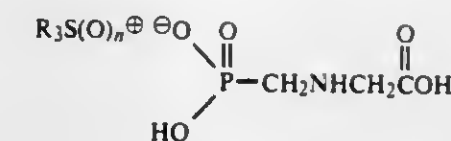


2.2-dimethyl-6-phenyl-4-(1,2,4-triazol-1-yl)-5-hepten-3-ol of the formula



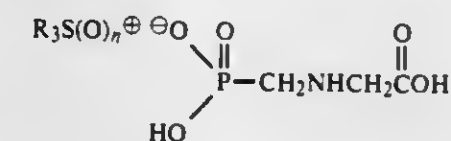
or an acid addition salt or metal salt complex thereof.

4. A fungicidal or plant-growth-regulating composition containing as active ingredient a fungicidally or plant growth regulating effective amount of a compound, acid addition salt or metal salt complex according to claim 1 in admixture with a diluent.



in which R represents C₁-C₃ alkyl and n is zero or one, and (b) an inert diluent carrier.

13. A method of controlling undesirable vegetation comprising applying to the vegetation in postemergent state an herbicidal composition comprising an herbicidally effective amount of a compound having the formula



in which R represents C₁-C₃ alkyl and n is zero or one, and an inert diluent carrier.

4,315,766

4H-3,1-BENZOXAZINE DERIVATIVES

Gerhard Hamprecht, Weinheim, and Bruno Wuerzer, Otterstadt, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Apr. 8, 1980, Ser. No. 138,414

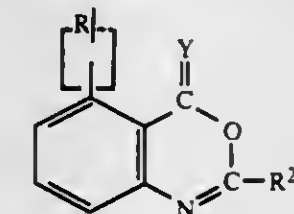
Claims priority, application Fed. Rep. of Germany, Apr. 12, 1979, 2914915

Int. Cl.³ A01N 43/86; C07D 265/22

U.S. Cl. 71-88

10 Claims

1. 4H-3,1-Benzoxazine derivatives of the formula



where

Y is oxygen or sulfur, Ar(R⁶)_n, Ar denoting phenyl, R⁶ denoting haloalkoxy or haloalkylmercapto, each of 1 to 4 carbon atoms, and n being 1 or 2.

6. A process for combating unwanted plant growth, wherein the plants or the soil are treated with a herbicidally effective amount of a 4H-3,1-benzoxazine derivative of the formula I as claimed in claim 1.

4,315,767

TRIAZOLONE HERBICIDES

Anthony D. Wolf, Newark, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

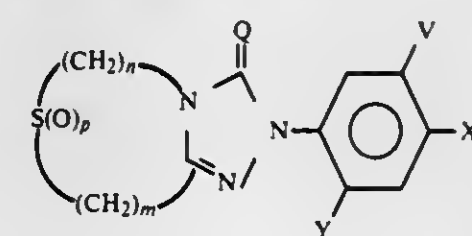
Division of Ser. No. 926,120, Jul. 19, 1978, Pat. No. 4,214,891, which is a division of Ser. No. 823,204, Aug. 9, 1977, Pat. No. 4,139,364. This application Dec. 14, 1979, Ser. No. 103,958

Int. Cl.³ A01N 43/02; C07D 513/00, 513/02

U.S. Cl. 71-91

13 Claims

1. A compound of the formula



where

V is hydrogen, fluorine, chlorine, bromine, methyl or OR where R is alkyl of 1-4 carbon atoms;

X is hydrogen, fluorine, chlorine, bromine, cyano, methyl, methoxy, or nitro;

Y is hydrogen, fluorine, chlorine, bromine, or methyl;

m is 0, 1, 2, 3, or 4;

n is 1, 2, 3 or 4;

Q is oxygen or sulfur; and

p is 0, 1 or 2

with the proviso that

(1) n+m=2, 3, or 4; and

(2) if n+m=2 or 4, then Y, X is other than hydrogen.

6. A composition for the control of undesirable vegetation consisting essentially of a compound of claim 1 and at least one of (a) a surface-active agent and (b) a solid or liquid inert diluent.

4,315,768

OXIMECARBAMATE DERIVATIVES, AND THEIR PRODUCTION AND USE

Yoshiaki Kosuge, Takarazuka; Ryo Yoshida, Kawanishi; Seizo Sumida, Nishinomiya; Hirofumi Oshita, Takarazuka; Soji Otsuki, Toyonaka, and Katsuzo Kamoshita, Osaka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

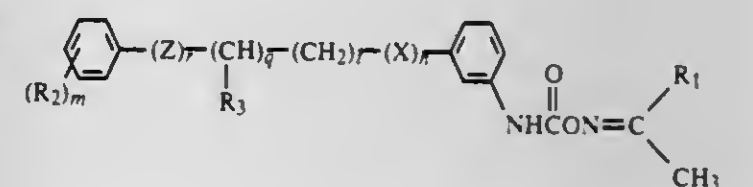
Filed Aug. 13, 1979, Ser. No. 65,838

Claims priority, application Japan, Aug. 25, 1978, 53/104127
Int. Cl.³ C07C 131/00; A01N 33/24

U.S. Cl. 71-98

9 Claims

1. A compound of the formula:



wherein R₁ is methyl, R₂ is lower alkyl, lower alkoxy, methylthio, halogen or trifluoromethyl, R₃ is hydrogen, methyl or ethyl, X and Z are each oxygen or sulfur, m is an integer of 0 to 5 when R₂ is fluorine only or an integer of 0 to 3 when any R₂ is other than fluorine, R₂ being same or different in case of m being an integer of 2 or 3, n and r are each an integer of 0 to 1 but when one of them is zero, the other is not zero, q is an integer of 0 or 1 and t is an integer of 0 to 4.

8. A herbicidal composition which comprises as an active ingredient a herbicidally effective amount of the compound according to claim 1 and a carrier therefor.

9. A method of selectively combating weeds in cultivation of soybean, cotton, sugar beet, rice or wheat, which comprises applying a herbicidally effective amount of the compound according to claim 1 to the area wherein the soybean, cotton, sugar beet, rice or wheat is cultivated.

4,315,769

HERBICIDALDIURETHANES AND THEIR USE

Gerhard Boroschewski, and Friedrich Arndt, both of Berlin, Fed. Rep. of Germany, assignors to Sebering AG, Berlin and Bergkamen, Fed. Rep. of Germany

Continuation of Ser. No. 610,909, Sep. 5, 1975, abandoned, which is a continuation of Ser. No. 444,409, Feb. 21, 1974, abandoned. This application Nov. 21, 1979, Ser. No. 96,576

Claims priority, application Fed. Rep. of Germany, Mar. 1, 1973, 2310649

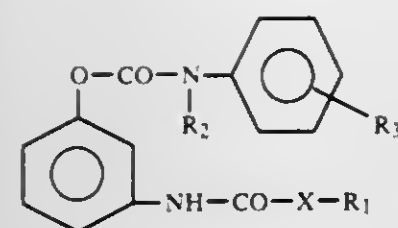
The portion of the term of this patent subsequent to Aug. 14, 1996, has been disclaimed.

Int. Cl.³ A01N 37/44

U.S. Cl. 71-111

8 Claims

1. A method of controlling weeds in a crop of cotton, comprising the step of applying to said weeds and to said crop an effective amount of a herbicidal compound of the formula



wherein

R₁ is methyl or ethyl;
R₂ is propyl, butyl, isobutyl, or benzyl;
R₃ is hydrogen, methyl, ethyl, or methoxy and
X is oxygen.

4,315,770

DISPERSION STRENGTHENED METALS

Anil V. Nadkarni, Mentor, Ohio, assignor to SCM Corporation, New York, N.Y.

Filed May 2, 1980, Ser. No. 146,140
Int. Cl.³ B22F 9/00

U.S. Cl. 75—0.5 BC

10 Claims

1. In a process for dispersion-strengthening atomized alloy particles having an average particle size less than about 300 microns by internally oxidizing said alloy particles, the improvement comprising:

providing atomized alloy particles being substantially free of oxide surface film whereby said alloy is internally oxidized without obstruction of the oxide surface film.

4,315,771

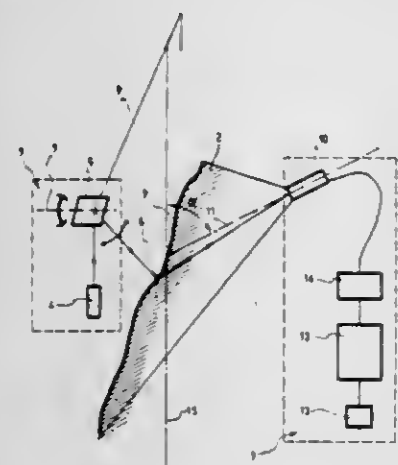
PROCESS TO CONTINUOUSLY DETERMINE THE PROFILE OF A CHARGE FED INTO A BLAST FURNACE
Jean-Paul Bobillon, Metz, France, assignor to Institut de Recherches de la Siderurgie Francaise, Saint-Germain-en-Laye, France

Filed Jan. 30, 1980, Ser. No. 116,802

Claims priority, application France, Jan. 31, 1979, 79 02830
Int. Cl.³ C21B 7/24

U.S. Cl. 75—41

4 Claims



1. A process to continuously determine by optical means the profile of a charge fed into a blast furnace, comprising the steps of sweeping the surface of said charge in a plane intersecting the surface with a beam of light so as to produce at the intersection of said plane with the surface a luminous trace; observing said luminous trace from a point outside said sweeping plane; and determining on the basis of the data defining the sweeping plane, the observation point and the direction of observation with respect to the plane the true position of the points constituting said luminous trace.

4,315,772
PROCESS FOR STEEL PRODUCTION AND CONVERTER FOR CARRYING OUT THE PROCESS

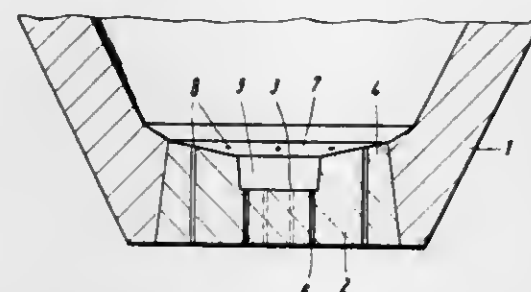
Manfred Chitil, Krefeld-Bockum, and Paul G. Mantey, Sulzbach-Rosenberg, both of Fed. Rep. of Germany, assignors to Klöckner-Werke AG, Duisburg, Fed. Rep. of Germany

Filed Mar. 12, 1980, Ser. No. 129,731

Claims priority, application Fed. Rep. of Germany, Mar. 15, 1979, 2910103; Nov. 22, 1979, 2947078; Dec. 11, 1979, 2949717
Int. Cl.³ C21C 5/48

U.S. Cl. 75—52

16 Claims



1. A two-step process for the production of steel using a converter and a quantity of charge material such as iron scrap, iron sponge, or other essentially iron carriers, wherein a column of the charge material is inserted in solid form into the converter having a plurality of nozzles lying in the bottom area thereof at upper and lower levels, a sump being formed in said bottom area into which said lower level nozzles extend, first step of the process comprising forming a molten bath at said bottom area by least partly melting the charge material by the combustion of fuel in the presence of oxygen moving in a counter current with the use of said higher level nozzles and which are operated as fuel-oxygen burners, the level of said molten bath lying above said lower level nozzles, the second step of the process comprising feeding finely distributed carbon and oxygen into said molten bath within said sump respectively through at least one and through at least another of said lower level nozzles, whereby the residue quantity of the charge material is melted and thereby the entire molten charge is overheated.

4,315,773

DESULFURIZATION MIXTURE AND PROCESS FOR DESULFURIZING PIG IRON

Alfred Freissmuth, Trostberg; Werner Gmöbling, Hufschlag, and Heinrich Rock, Trostberg, all of Fed. Rep. of Germany, assignors to SKW Trostberg Aktiengesellschaft, Trostberg, Fed. Rep. of Germany

Filed Nov. 27, 1979, Ser. No. 97,858

Int. Cl.³ C21C 7/02

U.S. Cl. 75—58

10 Claims

1. A process which comprises desulfurizing pig iron with a mixture of calcium carbide, a gas-evolving component, and about 2 to 20 pbw, based on the total weight of the mixture, of fluorspar.

4,315,774

METHOD OF SAFELY INJECTING OXYGEN REACTIVE MATERIALS INTO A SUBMERGED OXYGEN GAS STREAM

Guy Savard, Westmount, and Robert G. H. Lee, Montreal, both of Canada, assignors to Canadian Liquid Air Ltd. and Air Liquide Canada Ltée., both of Montreal, Canada

Filed Oct. 6, 1980, Ser. No. 194,621

Claims priority, application Canada, Oct. 31, 1979, 338906
Int. Cl.³ C22B 23/02, 15/06

U.S. Cl. 75—74

10 Claims

1. A method of smelting metal in a bath of the molten metal comprising injecting oxygen into said molten metal in a stream adjacent to a stream of a protective fluid, said stream of protec-

tive fluid surrounding said stream of oxygen and conveying an ore of said metal, said ore being reactive with oxygen, in a particulate form into said molten metal in said stream of protective fluid.

4,315,775

CONTINUOUS MELTING AND REFINING OF SECONDARY AND/OR BLISTER COPPER

Robert R. Odle, Harvey, La.; Milton E. Berry; William W. Branson; William R. Barson; Daniel B. Cofer, and Roy Richards, all of Carrollton, Ga., assignors to Southwire Company, Carrollton, Ga.

Filed Nov. 28, 1979, Ser. No. 98,000

Int. Cl.³ C22B 15/14

U.S. Cl. 75—76

22 Claims



1. An improved process for continuously refining secondary and blister copper to produce and continuously cast anode grade copper of the type including the successive steps of melting, oxidizing, slagging, then reducing the copper, thereby removing impurities therefrom;

wherein the improvement comprises the separate steps of:

- continuously melting copper containing impurities in a vertical shaft furnace, converting some of the impurities to initial slags and adjusting the oxygen content of the molten copper to about 0.1% therein, to produce a substantially continuous stream of molten copper containing impurities and slags;
- flowing said stream into a first slag vessel, located between said shaft furnace and a subsequent holding furnace skimming initial slag from the surface of the molten copper stream while in said slag vessel as said stream drains from the shaft furnace towards a holding furnace;
- flowing said stream into a first holding furnace and controlling the temperature and flow of molten copper while in the holding furnace;
- directing the molten copper stream from the holding furnace into an oxidation vessel;
- continuously oxidizing the molten copper and the impurities forming slag suspended in the flowing stream of oxidized copper;
- continuously transferring the stream of oxidized molten copper and the slag having the impurities from the oxidation vessel to a second slag vessel;
- reducing the flow rate of said stream in said second slag vessel so that suspended slag particles float towards the surface of the molten copper stream, separating said stream into an upper layer containing mostly molten slag and a lower layer containing mostly molten copper, then skimming said upper layer of slag from the copper surface thereby removing most impurities from the flowing stream of oxidized copper;

- flowing the oxygen rich molten copper stream into a reduction vessel;
- continuously injecting small bubbles of ammonia into the bottom of said reduction vessel, and allowing said ammonia to react with oxygen rich molten copper stream, thereby reducing the oxygen content of the copper;
- collecting a supply of refined molten copper in a second holding vessel while regulating the temperature and flow rate of molten copper from said vessel;
- supplying the refined molten copper to a casting ladle; and
- casting the refined molten copper into molds to form solid products.

4,315,776

METHOD OF PRODUCING LIGHT GAGE METALLIC STRIP MATERIAL

Richard K. Fittler, Gibsonia, Pa., assignor to Allegheny Ludlum Steel Corporation, Pittsburgh, Pa.

Filed Aug. 23, 1979, Ser. No. 69,010

Int. Cl.³ B22F 3/14, 3/16, 3/24, 5/00

U.S. Cl. 75—208 R

12 Claims

11. An improved method of producing a coil of light gage metallic strip material comprising the steps of:

- disposing a powder mixture of high temperature alloy into a cylindrical carbon steel container and around the periphery of a cylindrical carbon steel mandrel centrally disposed inside the container with respect to the longitudinal axis of the container, said mandrel having its end portions adapted for mounting onto a rotating mechanism, compressing the powder mixture in the container about the mandrel into at least an 85% dense compact cylindrical billet having homogeneous structure, grain size and chemical composition, said billet being integrally compressed into engagement with the mandrel and the container to form a composite cylindrical article, mounting the end portions of the mandrel in the composite article onto a rotating mechanism, rotating the cylindrical article about its longitudinal axis by engaging the rotating mechanism, peeling a continuous light gage layer from the exterior surface of the rotating article by advancing a cutting edge of a cutting tool into subsurface contact with the exterior surface of the rotating article along the full longitudinal extent of the exterior surface of the rotating article, whereby the container is removed as an initially peeled layer, and continuing peeling until an integral layer of carbon steel is peeled from the mandrel.

4,315,777

METAL MASS ADAPTED FOR INTERNAL OXIDATION TO GENERATE DISPERSION STRENGTHENING

Anil V. Nadkarni, Mentor; Warren J. Haws, Berea, and Charles L. Whitman, Bay Village, all of Ohio, assignors to SCM Corporation, New York, N.Y.

Filed Aug. 7, 1979, Ser. No. 64,371

Int. Cl.³ B22F 3/00

U.S. Cl. 75—232

9 Claims

1. A process for dispersion strengthening metal by internal oxidation, comprising:

- forming a substantially uniform coherent mass of alloy and oxidant, wherein said alloy comprises a matrix metal having a negative free energy of oxide formation at 25° C. of 0 to 70 kilocalories per gram atom of oxygen and a solute metal having a negative free energy of oxide formation exceeding that of said matrix metal by at least about 60 kilocalories per gram atom of oxygen at 25° C., and said oxidant being a heat-reducible metal oxide having a negative free energy of oxide formation at 25° C. less than the negative free energy of oxide formation of the solute metal for oxidizing the solute metal to a solute metal oxide; and

oxidizing said solute metal under internal oxidation conditions to dispersion strengthen said coherent mass.

4,315,778

FLUX COMPOSITION FOR CERAMIC COLOR, CONTAINING NO HARMFUL HEAVY METAL

Kimitoshi Ueno, 1-17-9, Nishi Mizuhodai, Fujimishi, Saitamaken, and Toshio Yoshida, 3928, Fujikubo, Miyoshimachi, Irumagun, Saitamaken, both of Japan

Filed Apr. 7, 1980, Ser. No. 137,956

Claims priority, application Japan, Jul. 5, 1979, 54-84450

Int. Cl.³ C09D 5/34; C03C 3/22

U.S. Cl. 106—19

1 Claim

1. A flux composition for ceramic color containing no heavy metal and comprising 30 to 45% by weight of SiO₂, 0 to 5% by weight of TiO₂, 4 to 10% by weight of ZrO₂, 13 to 18% by weight of B₂O₃, 18 to 23% by weight of ZnO, 0 to 3% by weight of CaO, 12 to 15% by weight of the total of two or three kinds of R₂O selected from Na₂O, K₂O and Li₂O, 4 to 10% by weight of fluorine and 0 to 5% by weight of tin oxide.

4,315,779

NON-ADHESIVE GEL COMPOSITIONS FOR STABILIZING DENTURES

Allen Heyd, Norwalk, Conn., and Nutan B. Shah, New Rochelle, N.Y., assignors to Richardson-Vicks Inc., Wilton, Conn.

Filed Oct. 1, 1979, Ser. No. 80,583

Int. Cl.³ A61C 13/22; C08L 1/28, 5/00, 5/04

U.S. Cl. 106—35

8 Claims

1. A substantially non-adhesive gel composition for improving the adaptation of dentures to the oral cavity of the wearer thereof, comprising about 1 to about 10% by weight of a hydrophilic cellulose polymer, an alginate or xanthan gum, from about 5 to about 40% by weight of a demulcent selected from the group consisting of glycerine, sorbitol and propylene glycol and from about 50 to about 95% by weight water.

4,315,780

METHOD FOR CLEANING FIREARMS

Anthony P. Rupp, Stamford, Conn.; Salvatore Intrieri, Jr., Mount Kisco, and Arthur H. Walkley, IV, Bedford Hills, both of N.Y., assignors to Belltown, Ltd., Stamford, Conn.

Filed Aug. 4, 1980, Ser. No. 174,803

Int. Cl.³ B08B 7/00

U.S. Cl. 134—7

4 Claims

1. A method for removing lead and carbon deposits from the interior portions and cylinder faces of firearms which comprises applying thereto a liquid composition impregnated into an absorbent web, said composition consisting essentially of from about 45 to about 55 weight percent of aluminum oxide, from about 40 to about 50 weight percent of a hydrocarbon oil boiling in the range of about 150 degrees to 350 degrees centigrade, from about 3.5 to about 4.5 weight percent of lemon oil, and from 0.5 to about 1.5 weight percent of ammonium chloride.

4,315,781

METHOD OF CONTROLLING MOSFET THRESHOLD VOLTAGE WITH SELF-ALIGNING CHANNEL STOP

Richard C. Henderson, Westlake Village, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Apr. 23, 1980, Ser. No. 142,902

Int. Cl.³ H01L 21/263, 29/78, 27/04

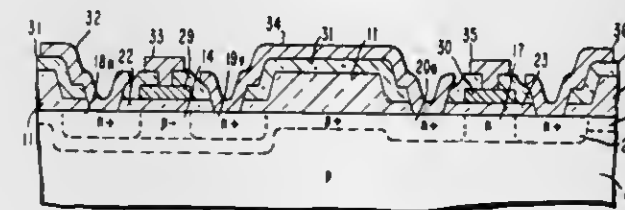
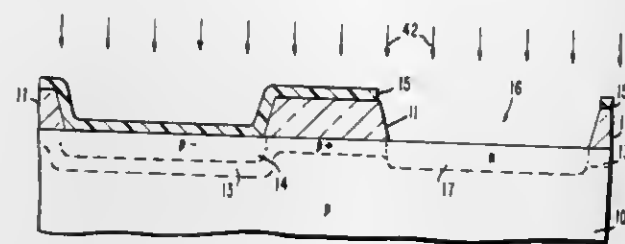
U.S. Cl. 148—1.5

12 Claims

1. A method of setting threshold voltage of enhancement mode MOSFET devices formed on a semiconductor substrate doped with atoms of a first conductivity type which includes forming source, drain and gate regions in at least one portion of said substrate and making electrical connections to said regions, wherein the improvement comprises setting threshold voltage prior to forming said regions by adjusting the difference between two implantations of atoms of different conduc-

tivity type into said at least one portion by a process which comprises:

- forming a dielectric film covering portions of a surface of said substrate, which forms a semiconductor/dielectric interface, the exposed portions comprising said regions to be formed;
- implanting into said substrate atoms of the same conductivity type as said first conductivity type under conditions such that said atoms evidence a peak distribution in said substrate just beneath said semiconductor/dielectric interface; and



tivity type as said first conductivity type under conditions such that said atoms evidence a peak distribution in said substrate just beneath said semiconductor/dielectric interface; and

- implanting into said substrate atoms of a second conductivity type under conditions such that essentially no atoms of said second conductivity type penetrate said dielectric film.

4,315,782

METHOD OF MAKING SEMICONDUCTOR DEVICE WITH PASSIVATED RECTIFYING JUNCTIONS HAVING HYDROGENATED AMORPHOUS REGIONS

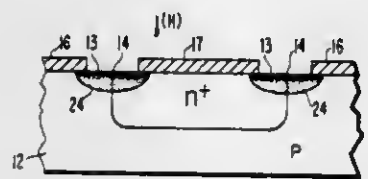
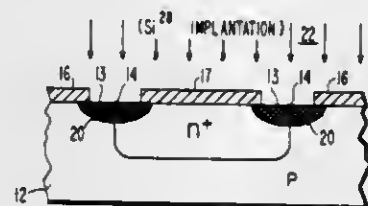
Ming L. Tarrg, Mercerville, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Jul. 21, 1980, Ser. No. 170,813

Int. Cl.³ H01L 21/265, 21/26

U.S. Cl. 148—1.5

12 Claims



1. A method for providing a semiconductor device having a rectifying junction disposed in a crystalline region of the device portion with a passivated surface over the junction comprising the steps of:

- depositing metal over the surface of the device;
- removing the metal defined by a photolithographically deposited resist from the surface portions of the device to expose the rectifying junction;
- converting the region adjacent said surface of the rectifying junction into an amorphous layer of graded crystallinity; and
- exposing the amorphous layer to atomic hydrogen

whereby an integral layer of hydrogenated amorphous semiconductor material is formed adjacent the crystalline region.

4,315,783

METHOD OF PRODUCING NON-AGEING COLD ROLLED STEEL STRIP WITH EXCELLENT DEEP-DRAWABILITY BY CONTINUOUS HEAT TREATMENT

Osamu Akisue; Teruaki Yamada, both of Himeji; Munetsugu Matsuo, Kawasaki, and Norimasa Uehara, Kimitsu, all of Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

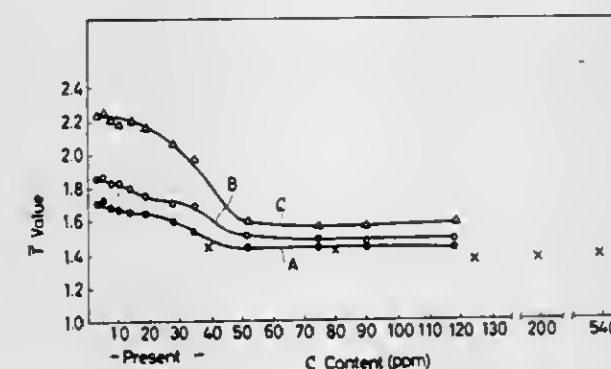
Filed Oct. 17, 1979, Ser. No. 85,512

Claims priority, application Japan, Oct. 21, 1978, 53-129071

Int. Cl.³ C21D 8/04

U.S. Cl. 148—12 C

6 Claims



1. A method for producing a non-ageing high workability, cold rolled steel strip having excellent deep-drawability by a continuous heat treatment, which comprises continuously hot rolling an Al-killed steel containing 0.0010 to 0.0035% C, not larger than 0.45% Mn, nitrogen in an amount not over 0.005%, 0.015 to 0.090% sol. Al from a temperature range where Al and N are completely in solid solution, coiling the hot rolled strip at a temperature not lower than 580° C., cold rolling the strip, rapidly heating the cold rolled strip, holding the strip at a soaking temperature ranging from 680° C. to 900° C. for a short time and cooling the strip, and in which the steel produced has a T value of at least 1.5, an ageing index of not over 3 kg/mm², and simultaneously the characteristic that no secondary work cracking is caused to occur.

4,315,784

WATER-IN-OIL EMULSION EXPLOSIVE COMPOSITION WITH IMIDAZOLINE DERIVATIVE EMULSIFIER

Katsuhide Hattori; Yoshiaki Fukatsu, and Masao Takahashi, all of Aichi, Japan, assignors to Nippon Oil and Fats Company, Limited, Tokyo, Japan

Filed Nov. 27, 1979, Ser. No. 97,677

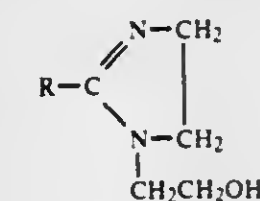
Claims priority, application Japan, Nov. 30, 1978, 53-148438

Int. Cl.³ C06B 45/00

U.S. Cl. 149—2

7 Claims

1. A water-in-oil emulsion explosive composition consisting of (a) ammonium nitrate or a mixture of ammonium nitrate with at least one other inorganic oxidizer salt, (b) water, (c) an oil and/or wax, (d) an emulsifier of 1-hydroxyethyl-2-imidazoline derivative represented by the following general formula



wherein R represents an alkyl or alkenyl group having 10-26

4,315,785

PROPELLANT CHARGE WITH REDUCED MUZZLE SMOKE AND FLASH CHARACTERISTICS

Bruce W. Brodman, Stroudsburg, Pa.; Michael P. Devine, Sparta, N.J., and Stuart Schwartz, Indianapolis, Ind., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Apr. 9, 1980, Ser. No. 138,946

Int. Cl.³ C06B 45/10, 45/00

U.S. Cl. 149—19.8

12 Claims

1. A weapon propellant composition comprising a double based extruded propellant having homogeneously incorporated therein a microencapsulated organic coolant additive having thermal characteristics such that the microencapsulated coolant will survive the propellant flame zone intact and decompose down barrel to cool gases exiting the barrel and thus eliminate secondary muzzle flash while not adversely affecting propellant burning rates.

4,315,786

SOLID PROPELLANT HYDROGEN GENERATOR

William D. English, Orange, and William M. Chew, Yorba Linda, both of Calif., assignors to TRW Inc., Redondo Beach, Calif.

Filed Jun. 24, 1980, Ser. No. 162,551

Int. Cl.³ C06B 43/00

U.S. Cl. 149—22

11 Claims

1. A solid composition capable of producing hydrogen or deuterium which comprises, in combination, at least one borane reactant containing bound hydrogen or deuterium and a metallic reactant comprised of at least two particulate metals capable of entering into an exothermic reaction to form an intermetallic compound, said metallic reactant being present in a quantity sufficient to initiate and sustain, on reaction to form the intermetallic compound, simultaneous decomposition of said borane reactant to yield hydrogen or deuterium.

4,315,787

WATER-IN-OIL EMULSION EXPLOSIVE COMPOSITION

Katsuhide Hattori; Yoshiaki Fukatsu, and Masao Takahashi, all of Chita, Japan, assignors to Nippon Oil and Fats Co. Ltd., Tokyo, Japan

Filed Mar. 31, 1980, Ser. No. 135,231

Claims priority, application Japan, Apr. 9, 1979, 54/42005

Int. Cl.³ C06B 45/00

U.S. Cl. 149—2

7 Claims

1. A water-in-oil emulsion explosive composition consisting essentially of (a) ammonium nitrate or a mixture of ammonium nitrate and at least one inorganic oxidizer salt, (b) water, (c) at least one member of the group consisting of oil and wax, (d) at least one emulsifier of the group consisting of potassium octadecylsulfonate and sodium N-methyl-N-alkyl(beef tallow)-taurate, (e) at least one of the group consisting of bubbles generated from a chemical foaming agent and hollow microspheres.

4,315,788

METHOD OF PRODUCING ENDLESS DRIVE BELTS

Hans Menell, Hanover, Fed. Rep. of Germany, assignor to Continental Gummi-Werke Aktiengesellschaft, Hanover, Fed. Rep. of Germany

Filed Dec. 11, 1979, Ser. No. 102,385

Claims priority, application Fed. Rep. of Germany, Dec. 22, 1978, 2856622

Int. Cl.³ B29H 7/22; F16G 1/28

U.S. Cl. 156—85

1 Claim

1. A method of producing a plurality of endless rubber drive

belts configured as V-belts or groove belts wherein each belt has continuous longitudinal ribs extending only around the inner periphery thereof and longitudinally extending reinforcing strands of synthetic polymers extending therein, said method employing a winding drum for initially building up a raw belt structure and an external mold for curing the built-up raw belt structure, said external mold having a large inner diameter substantially equal to the finished belt diameter and a smaller inner diameter, said method comprising the steps of:

- constructing a raw belt structure, which is subsequently separated into the plurality of belts, said raw belt structure having an outer diameter greater than the small inner diameter of the external mold, said raw belt structure being constructed by building up the raw belt structure on the drum in reverse layer sequence from the outside toward the inside;
- removing the raw belt structure from the drum;
- heating the raw belt structure to reduce the diameter of the raw belt structure by shrinking the raw belt structure and the reinforcing strands therein until the outer diameter of the raw belt structure substantially corresponds to the smaller inner diameter of the external mold;
- placing the raw belt structure in the external mold;
- expanding the raw belt structure within the external mold to an outside diameter corresponding to the large inner diameter which is essentially the original outer diameter of the raw belt structure;
- vulcanizing the raw belt structure within the external mold to produce a vulcanized belt structure;
- cooling the vulcanized belt structure to fix the belt dimensions;
- stripping the vulcanized belt structure from the mold;
- dividing the vulcanized belt structure into a plurality of separate belts, and
- turning the belts right-side-in from the inside-out configuration for subsequent use.

4,315,789

METHOD OF TRANSFERRING MAT FROM A FORMING SURFACE STATION TO A BONDING STATION

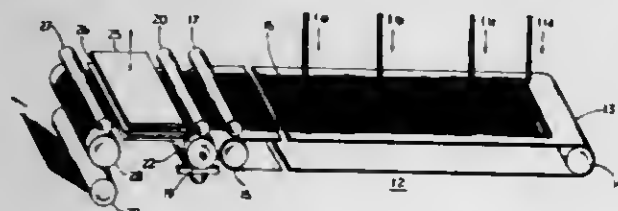
Richard R. Tongel, Pittsburgh, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Jan. 13, 1980, Ser. No. 159,087

Int. Cl.³ B65H 17/20

U.S. Cl. 156—181

4 Claims



1. A method of transferring unbonded continuous strand mat from a moving mat forming surface to a bonding station comprising feeding the mat to the end of the moving forming surface, passing the mat from the forming surface to a rotating feed roller positioned in front of a bonding station, providing an endless belt over the surface of said feed roller, said belt hanging loosely from the roller surface, exerting sufficient pressure on the roller surface through the belt to cause the belt to rotate with the roller and moving the mat across the belt and associated roller to the bonding station.

4,315,790

DECORATION OF FLEXIBLE SUBSTRATES

Ian D. Rattee, Leeds, and Edward J. Lewis, Hipperholme, Nr. Halifax, both of England, assignors to Decor Innovations Limited, London, England

Filed Mar. 7, 1980, Ser. No. 128,086

Claims priority, application United Kingdom, Mar. 7, 1979, 08103/79

Int. Cl.³ B32B 3/18; B41M 3/12; B44C 1/16

U.S. Cl. 156—230

10 Claims

1. A decoration material comprising a flexible support having thereon a transferable layer which under the influence of heat and pressure is capable of being transferred from the support to the material to be decorated and which comprises a dye or pigment, a film-forming polymer, a crosslinking agent capable on curing of rendering the film-forming polymer insoluble and a thermally activatable catalyst for promoting the crosslinking reaction, the catalyst comprising

- (a) the salt of one or more acid groups having a pKa in aqueous solution at 20° C. of at most 3.50 with an organic amine which is volatile or unstable at the temperature of the crosslinking reaction, has a pKa greater than 9.4, and a molecular weight greater than 60, and
- (b) the salt of one or more acid groups having a pKa in aqueous solution at 20° C. of 3.75 or more with an organic amine as defined under (a).

4,315,791

METHOD AND APPARATUS FOR PERFORMING HOT AIR WELDING OF THERMOPLASTIC RESIN PARTS

Masami Ishii, Toyota; Nobuharu Kato, Nagoya, and Mikio Hota, Toyota, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

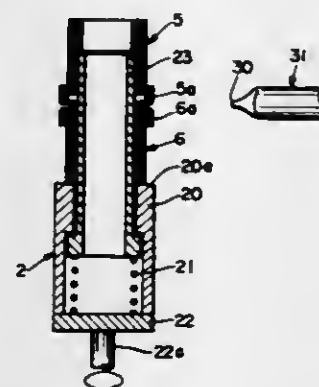
Filed Mar. 31, 1980, Ser. No. 136,050

Claims priority, application Japan, Apr. 19, 1979, 54-48386

Int. Cl.³ B32B 31/00, 31/12; B65C 19/00

U.S. Cl. 156—304.2

3 Claims



1. An apparatus for welding a pair of thermoplastic resin parts along their peripheral surfaces comprising means for holding said parts with their peripheral surfaces opposed to each other, said parts holding means including a rotatable cylinder provided with an end face for supporting one of said parts, and a guide member having a portion projecting from said end face of said cylinder and axially movable with respect to said cylinder, said guide member having an end face on said projecting portion for supporting the other of said parts, spring means disposed between the cylinder and the guide member for normally biasing said guide member end face in a direction away from said cylinder and allowing said guide member to move in another direction opposite thereto, said parts having their peripheral surfaces normally spaced from each other under the bias of said spring means and being engageable when said guide member is moved in said opposite direction, means for rotating the holding means so that the parts supported thereon are also rotated, hot air nozzle means for blowing hot air toward the peripheral surfaces of said parts when said surfaces are spaced from each other, said nozzle means being movable between an operative position where hot air is di-

4,315,794

DEVICE FOR THE QUICK SPLICING OF PAPER WEBS

Angelo Palmieri, Zola Predosa, Italy, assignor to Carte & Montanari S.p.A., Bologna, Italy

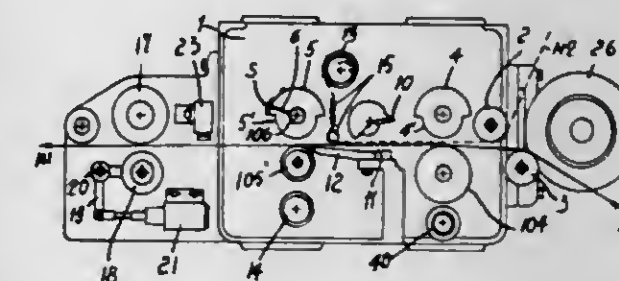
Filed Apr. 3, 1980, Ser. No. 136,751

Claims priority, application Italy, Apr. 3, 1979, 12536 A/79

Int. Cl.³ B31F 5/06

U.S. Cl. 156—504

6 Claims



METHOD OF PRODUCING A BOND BETWEEN TWO SURFACES

Hugo Böttcher, Hanover, Fed. Rep. of Germany, assignor to J. H. Bence GmbH, Hanover, Fed. Rep. of Germany

Filed May 3, 1979, Ser. No. 35,577

Claims priority, application Fed. Rep. of Germany, May 5, 1978, 2819576

Int. Cl.³ C09J 5/00, 7/00

U.S. Cl. 156—306.6

6 Claims

1. A method of bonding a surface formed at least partially of polypropylene to a surface formed of a dissimilar plastic material which does not readily bond to polypropylene; said method comprising adhesively laminating a polypropylene fiber textile web to said dissimilar plastic material surface with an adhesive which has good adhesion to said dissimilar plastic material and which penetrates the polypropylene fiber web and encloses some of the polypropylene fibers to firmly anchor the textile web to the dissimilar plastic material; and thereafter heating the laminated fiber web and the polypropylene surface to a temperature above the plasticizing temperature of the polypropylene surface and pressing the laminated polypropylene fiber web in contact with the polypropylene surface to bond the laminated fiber web and dissimilar plastic material to the polypropylene surface.

4,315,793

APPARATUS FOR IMPLANTING POCKETS

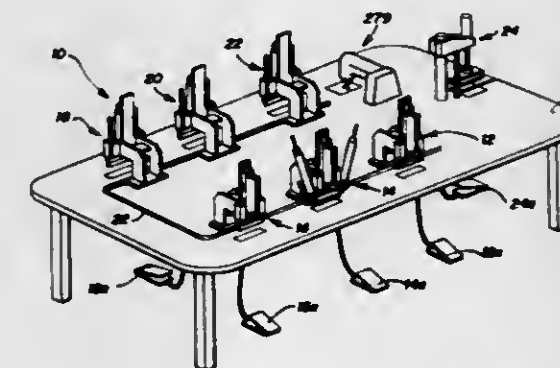
Joseph W. A. Off, Irving, and Judson H. Early, Dallas, both of Tex., assignors to Haggard Company, Dallas, Tex.

Continuation of Ser. No. 16,404, Mar. 1, 1979, abandoned. This application Aug. 7, 1980, Ser. No. 175,936

Int. Cl.³ B32B 31/00

U.S. Cl. 156—443

15 Claims



1. Apparatus for integrating a pocket bag into a garment panel to form a pocket, which comprises: means for releasably holding the pocket bag and garment panel in predetermined relationship for transport together; means for adhesively interconnecting the pocket bag and the garment panel; means for forming a slit through the pocket bag and garment panel at the adhesive connection therebetween; means for folding back and securing the edges of the slit to form a pocket slot through the pocket bag and garment panel; and means for securing a peripheral portion of the pocket bag to close the pocket.

4,315,795

HIGH SPEED DECORATION

Robert M. Jodrey, Westboro, and Kenneth Young, Groton, both of Mass., assignors to Dennison Manufacturing Company, Framingham, Mass.

Division of Ser. No. 915,025, Jan. 12, 1978, Pat. No. 4,253,904.

This application Aug. 7, 1980, Ser. No. 176,152

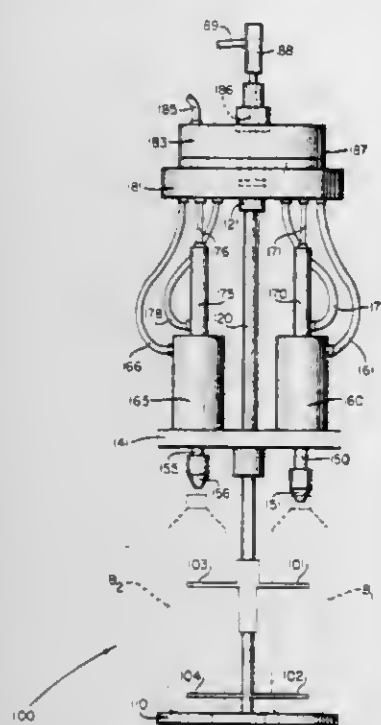
Int. Cl.³ B44C 31/00; B65D 5/00; B32B 31/00

U.S. Cl. 156—542

2 Claims

1. An improved label carrier strip transport for a heat transfer labelling machine of the type in which the label carrier strip is fed at a basic speed to a first shuttle roll which is mounted on one end of a shuttle slide, past a labelling site, to a second shuttle roll at the other end of the shuttle slide, and thence to a takeup point, and in which the basic speed of the label carrier strip is modified at the labelling site by reciprocating the shuttle slide using a periodically rotating cam which is mechanically coupled to the shuttle slide, wherein the improvement comprises the use of a conjugate cam for said periodically rotating cam, said conjugate cam acting to increase the basic

speed of the label carrier strip during the greater part of the cam rotation period, and to decrease the basic speed of the



label carrier strip during the balance of the cam rotation period.

4,315,796

CRYSTAL GROWTH OF COMPOUND SEMICONDUCTOR MIXED CRYSTALS UNDER CONTROLLED VAPOR PRESSURE

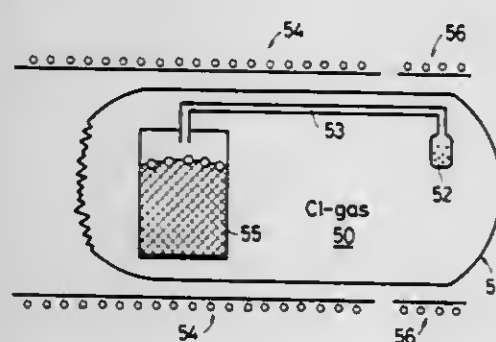
Jun-ichi Nishizawa, Sendai, Japan, assignor to Zaidan Hojin Handotai Kenkyu Shinkokai, Sendai, Japan

Continuation-in-part of Ser. No. 806,836, Jun. 15, 1977, abandoned. This application May 31, 1979, Ser. No. 44,214

Claims priority, application Japan, Mar. 10, 1978, 51-101417 Int. Cl.³ C30B 25/02

U.S. Cl. 156-614

23 Claims



1. In a solution growth method for producing compound semiconductor mixed crystals in one or more crucibles each containing a solution of a source material and a solid source material which is disposed in contact with the solution which solution is thermally controlled to establish a temperature difference between a high temperature portion and a low temperature portion of said solution in each said crucible such that said high and low temperature are respectively maintained constant, and in which a mixed crystal is deposited on an appropriate substrate disposed at said low temperature portion in each crucible, the improvement comprising:

- positioning said substrate on a slider which can be slidably brought into contact with said solution at said low temperature portion;
- positioning said crucibles in line and supplying at least two of said crucibles from the same pressure source;
- applying to said solution a controlled vapor pressure of each of at least two volatile elements having a relatively higher vapor pressure from a pressure source provided separately from the crucible and a furnace for the crucible

through a thin tube, wherein the vapor pressures of said at least two volatile elements are independently controlled through their respective thin tubes;

- supplying each such crucible with the volatile element at a pressure optimum for conducting successive epitaxial growth under a controlled vapor pressure; and
- growing an epitaxial layer on said substrate positioned on said slider at said low temperature portion, while retaining said source material on said solution throughout the growth; wherein the pressure applied to said solution is selected for each such volatile element such that said application of vapor pressure enables growth of a mixed crystal having the same composition as said source material, thereby establishing a substantially steady state of the solution during growth and thereby providing an optimum performance of a predetermined physical property of said mixed crystal.

4,315,797

CHEMICAL PIPE CUTTER WITH EXPONENTIAL SPACING BETWEEN REACTANT STAGES

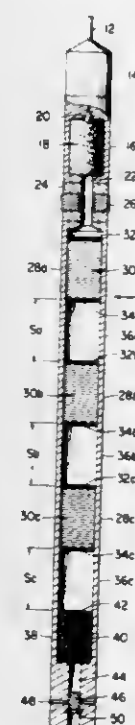
James M. Peppers, Houston, Tex., assignor to Gearhart Industries, Inc., Fort Worth, Tex.

Filed Jun. 2, 1980, Ser. No. 155,542

Int. Cl.³ C23F 1/02; E21B 29/02

U.S. Cl. 156-654

6 Claims



1. In an improved method of cutting material by expelling a jet stream of liquid chemical reactant into forceful flowing connection and chemical reaction with a designated area of said material, the steps comprising:

- applying a continuing force to a designated first stage mass of said reactant to move said first mass through a first linear distance to accelerate said first mass and thereby provide said first mass with kinetic energy;
- causing said first mass to encounter and join with a second stage mass of chemical reactant to form an aggregate mass with said aggregate mass then moving at a velocity attained by the kinetic energy of said first mass as applied to said aggregate mass and at a rate of acceleration generated by the continued application of said force to said aggregate mass through a second linear distance less than said first linear distance;
- causing said aggregate mass to encounter and join with a third stage mass of chemical reactant to form an enlarged aggregate mass with said enlarged aggregate mass then moving at a velocity attained by the kinetic energy of said aggregate mass as applied to said enlarged aggregate and at a rate of acceleration generated by the continued application of said force to said enlarged aggregate mass;

- passing said enlarged aggregate mass through a medium adapted to heat the reactant of said enlarged aggregate mass to a substantially elevated temperature; and
- directing the flow of said enlarged aggregate mass as heated as a jet stream into flowing connection with said material.

4,315,798

DECAY RESISTANT SHEET MATERIAL WITH RETAINED FLEXIBILITY

Warren J. Bodendorf, Montgomery, Mass., assignor to Texon Inc., South Hadley, Mass.

Filed Aug. 13, 1980, Ser. No. 177,778

Int. Cl.³ D21H 5/22

U.S. Cl. 162-161

5 Claims

1. In a synthetic sheet material resistant to decay by fungus and other microbial organisms and which includes a uniform distribution of fibers and metal-quinolinolate within a binder; the improvement comprising said binder being an acrylic elastomeric binder in a sufficient amount to retard the flexural degradation of said sheet material upon aging.

5. A process for manufacturing a synthetic fibrous sheet material which is resistant to decay according to a papermaking technique including:

- providing a furnish of a fibrous slurry, metal-quinolinolate and a cationic polymer;
- forming said furnish into a web;
- saturating said web with an acrylic elastomeric binder; and
- drying said web to form a fibrous sheet.

4,315,799

ADJUSTABLE DECKLE

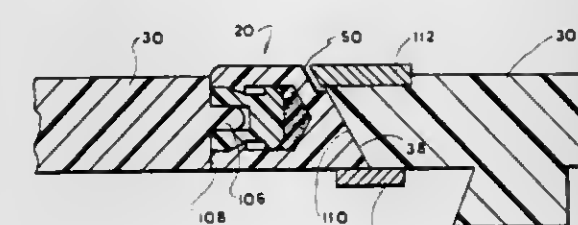
Mitchell C. Turek, Suffield, Conn., and H. Gary Garab, Glens Falls, N.Y., assignors to Albany International Corp., Menands, N.Y.

Filed Feb. 15, 1980, Ser. No. 122,234

Int. Cl.³ D21F 1/48

U.S. Cl. 162-353

12 Claims



1. An adjustable deckle positioned between the ends of adjacent wear surfaces of a vacuum of a papermaking machine, said deckle facilitate prevention of loss of vacuum applied to the wear surfaces in operation of the machinery, said deckle comprising: an elongated member insertable between two adjacent wear surfaces and having a pair of opposing elongated front and rear faces, a pair of elongated top and bottom faces and a pair of end faces, the front face having a configuration conforming with the configuration of an adjacent edge of one wear surface, the rear face having a recess therein, a shiftable element mounted in the recess by engagement between surfaces of the element and surfaces of the member and having a portion exposed through an opening in the rear face of the elongated member, and means on the exposed portion of the element to mate with an adjacent edge of the other wear surface, and resilient means in said recess permitting shifting of the element within the recess to accommodate for dimensional differences between the two wear surfaces.

4,315,800

NUCLEAR REACTOR

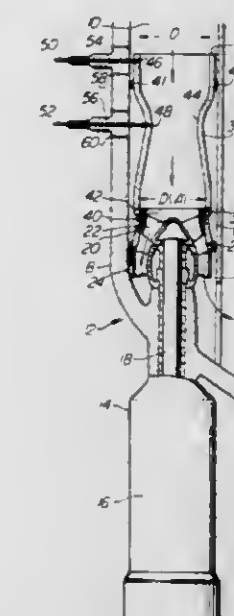
Yuichiro Yoshimoto, and Hiroshi Kodama, both of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 22, 1980, Ser. No. 142,817

Claims priority, application Japan, Apr. 28, 1979, 54-52756 Int. Cl.³ G21C 19/28

U.S. Cl. 376-246

10 Claims



1. In a nuclear reactor comprising a reactor core, a shroud enclosing said reactor core, a pressure vessel surrounding said shroud and defining a vertical annular space between the vessel and the shroud, and a plurality of internal circulation pumps disposed in a lower portion of said vertical annular space for forcing a coolant in said vertical annular space to flow into below said reactor core so that the coolant flows through the reactor core in forced circulation, the improvement comprising means for vertically guiding over a predetermined distance a flow of the coolant being sucked into each said internal circulation pump to increase the effective inertia of the flow of the coolant, to thereby enhance the stability of the flow conditions of the coolant flowing through the reactor core, said guide means including a tubular guide member in the form of a venturi tube for each said internal circulation pump, and further comprising flow measurement means associated with said venturi tube for measuring the flow rate of the coolant flowing through said reactor core.

4,315,801

APPARATUS FOR THE SOLVENT EXTRACTION OF AROMATIC HYDROCARBONS FROM A HYDROCARBON MIXTURE

George R. Winter, III, Mt. Prospect, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Oct. 17, 1980, Ser. No. 198,036

The portion of the term of this patent subsequent to Oct. 6, 1998, has been disclaimed.

Int. Cl.³ B01D 11/04; C10C 3/08

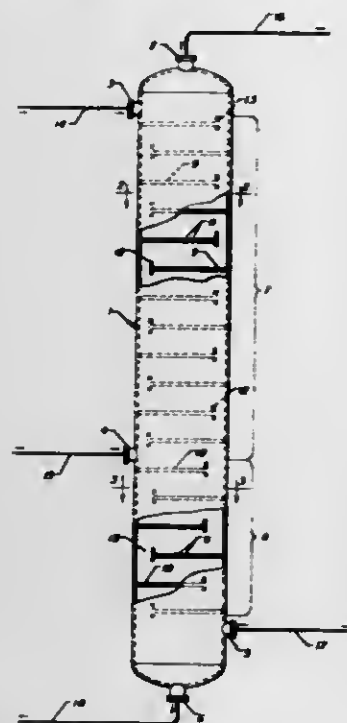
U.S. Cl. 196-14.52

4 Claims

1. A multiple stage extractor column for countercurrent contact of an upwardly moving hydrocarbon phase and a downwardly moving solvent phase which comprises:

- an enclosed vertically elongated shell having an overhead raffinate outlet means, an upper lean solvent inlet means, an intermediate hydrocarbon feedstock inlet means, a lower hydrocarbon reflux inlet means, and a bottom rich solvent outlet means;
- a first plurality of vertically spaced apart extraction trays traversing said shell in a horizontal plane and situated above said intermediate inlet means;
- each of said plurality of trays having an upcomer means associated therewith of a substantially uniform, pre-

lected cross-sectional area, and a number of perforations uniformly distributed across the contacting area thereof; (d) a second plurality of vertically spaced apart extraction trays traversing said shell in a horizontal plane and situated below said intermediate inlet means;



(e) each of said second plurality of trays having an upcomer means associated therewith of a substantially uniform cross-sectional area, and a number of perforations uniformly distributed across the contacting area thereof; and, (f) the upcomer means associated with said second plurality of trays having a greater cross-sectional area than the upcomer means associated with said first plurality of trays.

4,315,802

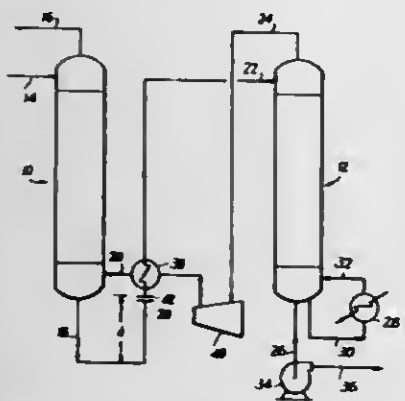
PROCESS AND APPARATUS FOR FRACTIONATING CLOSE BOILING COMPONENTS OF A MULTI-COMPONENT SYSTEM

Utah Tsao, Jersey City, N.J., assignor to The Lummus Company, Bloomfield, N.J.

Filed May 12, 1980, Ser. No. 148,977
Int. Cl.³ B01D 3/14

U.S. Cl. 202-158

4 Claims



1. In an apparatus for fractionating close-boiling components of a multi-component system in a plurality of fractionation columns wherein there are at least two of said columns in series, said plurality of columns being of like operating pressures, wherein a conduit for liquid is provided for passing a liquid bottoms from a penultimate fractionation column to an upper portion of the last fractionation column of said series and wherein a conduit for vapor is provided for withdrawing a vapor stream from the upper portion of said last fractionation column and wherein a higher boiling component of said multi-component system is withdrawn as a liquid from said last fractionation column and wherein a lower boiling component

of said multi-component system is withdrawn as a vapor, an improved apparatus which comprises: means for eliminating the requirement for a pump, comprising a first conduit having an orifice therein, for feeding from the bottom of said first column; aid orifice being sized, and spaced sufficiently below said bottom to provide self venting; and means for eliminating the requirement of a reboiler in said first column, comprising a second conduit having a compressor therein for feeding from the top of said last column to the bottom of said first column.

4,315,803

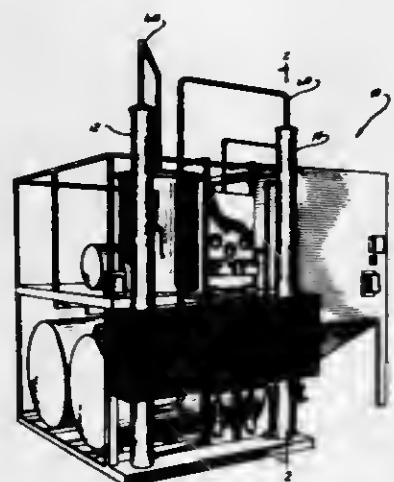
BAFFLE FOR ALCOHOL STILL

Robert E. Strang, Sr., North Liberty, Ind., assignor to Injection Plastics & Manufacturing Co., LaPaz, Ind.

Continuation-in-part of Ser. No. 172,752, Jul. 28, 1980, Pat. No. 4,273,618. This application Jan. 14, 1981, Ser. No. 225,022
Int. Cl.³ B01D 3/02

U.S. Cl. 202-158

9 Claims



1. A baffle adapted to be stacked in spaced relation in a vertical tube of an alcohol still, said baffle comprising a body having an upper cooking surface and lower refracting surface and a plurality of concentric series of spaced openings therethrough, a collection cup extending upwardly from said cooking surface, an open-ended downcomer tube carried by said body and projecting above said cooking surface and below said refracting surface, said collection cup and downcomer tube of adjacent baffles being arranged oppositely for alignment of each cup with the downcomer tube of the next higher baffle, one of said openings being substantially concentric with said downcomer tube, said refracting surface having a plurality of substantially radial ribs and a plurality of spaced concentric ribs projecting downwardly from said refracting surface.

4,315,804

SHED STRUCTURE FOR A SET OF COKE OVENS

Kurt Renner, Bochum-Stiepel; Ernst Langer, Oer-Erkenschwick, and Werner Eisenhut, Essen, all of Fed. Rep. of Germany, assignors to Bergwerksverband GmbH, Essen, Fed. Rep. of Germany

Filed Apr. 24, 1980, Ser. No. 143,305

Claims priority, application Fed. Rep. of Germany, Jan. 3, 1980, 3000064

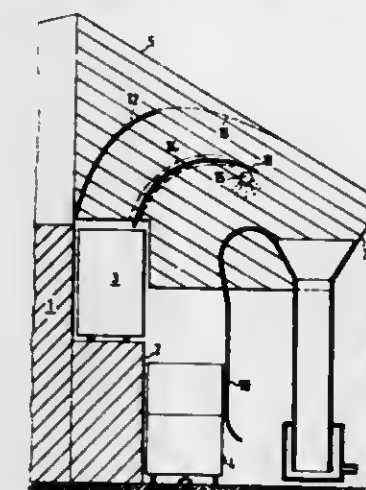
Int. Cl.³ C10B 33/00, 41/02

U.S. Cl. 202-263

12 Claims

1. A hall structure for discharging polluting substances such as dust particles, gases and vapors released during the discharge of coke from a set of coke ovens and escaping from the oven doors, the set including a door region for a coke guide transfer carriage, said transfer carriage having an inner top edge facing said ovens and an outer top edge remote from said ovens, a quenching carriage region communicating with the door region and a washer region arranged behind and being spaced apart from the quenching carriage region as viewed from the door region, said structure comprising supporting

means adjoining said washer region, a roof resting on the supporting means and terminating at said ovens above the door region to define a roof space above the respective regions, an upright central partition arranged between said quenching carriage region and said washer region and extending approximately up to the height of said ovens, the top portion of said partition being bent by about 180° to form a guiding surface over a substantially semicircular cross-section communicating with the inlet of said washer region, a curved upper guiding



member extending in said roof space parallel with said top portion of the partition and being connected at one end to the top edge of said ovens in said door region in the range of said inner top edge of said transfer carriage and at the other end terminating in said washer region above said partition, and an intermediate guiding member extending in said roof space, one end of said intermediate guiding member starting in the range of the outer top edge of said transfer carriage in the door region and the other end terminating in said washer region above said partition.

4,315,805

SOLID POLYMER ELECTROLYTE CHLOR-ALKALI PROCESS

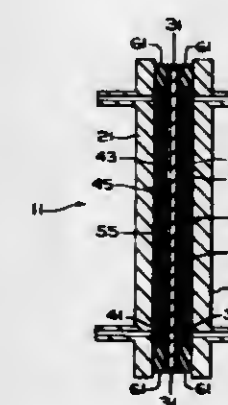
William B. Darlington, Portland, and Donald W. DuBois, Corpus Christi, both of Tex., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Continuation-in-part of Ser. No. 76,898, Sep. 19, 1979. This application Feb. 11, 1980, Ser. No. 120,217

Int. Cl.³ C25F 1/34, 1/04

U.S. Cl. 204-98

7 Claims



1. In a method of electrolyzing alkali metal chloride brine to form chlorine and alkali metal hydroxide, which method comprises feeding the brine to an electrolytic cell having an anode comprising anodic electrocatalyst separated from a cathode comprising cathodic electrocatalyst by a permionic membrane, said anodic electrocatalyst and said cathodic electrocatalyst both contacting said permionic membrane, and passing an electrical current from said anodic electrocatalyst to said cathodic electrocatalyst whereby to evolve chlorine at the anode and hydrogen and alkali metal hydroxide at the cathode, the improvement wherein said anode comprises a pervious sub-

strate having anodic electrocatalyst bonded thereto and bearing upon the permionic membrane, said cathodic electrocatalyst is bonded to and embedded in the permionic membrane, and the permionic membrane is a perfluorocarbon having functional groups chosen from the group consisting of —COOH, —CN₂COF, —COCl, —COOR₁, —COOM, and —CONR₂R₃, where R₁ is a C₁–C₁₀ alkyl group, R₂ and R₃ are chosen from the group consisting of hydrogen and C₁–C₁₀ alkyl groups and M is chosen from the group consisting of hydrogen, Na, and K.

4,315,806

INTERMITTENT AC ETCHING OF ALUMINUM FOIL

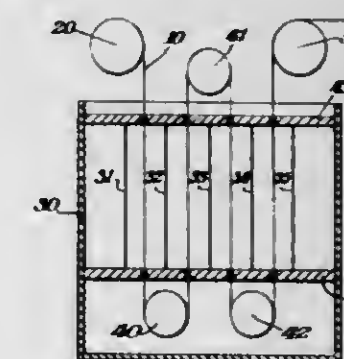
Malk A. Arora, Williamston, Mass., assignor to Sprague Electric Company, North Adams, Mass.

Filed Sep. 19, 1980, Ser. No. 188,637

Int. Cl.³ C25F 3/04

U.S. Cl. 204-129.4

6 Claims



1. A process for electrolytic etching of aluminum capacitor foil comprising passing said foil through an electrolyte bath between two electrodes in an insulated frame, continuously supplying AC current to said electrodes, subjecting said foil to AC etching for a period of time t₁ during which said foil is between said electrodes and during which all current passed is utilized for etching followed by a rest period of time t₂ of up to 10 seconds during which said foil is outside said frame and outside said electrodes and during which no electrochemical etching takes place, subjecting said foil to AC etching for another period of time t₁ followed by another nonetching period t₂, and repeating said etching and nonetching periods until the foil has been etched to the desired level.

4,315,807

SENSITIZERS FOR PHOTOPOLYMERIZATION

Louis Felder, Basel; Rudolf Kirchmayr, Aesch, and Rinaldo Hüster, Binningen, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Division of Ser. No. 970,016, Dec. 18, 1978. This application Dec. 28, 1979, Ser. No. 108,276

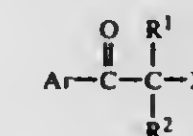
Claims priority, application Switzerland, Dec. 22, 1977, 15884/77; Mar. 8, 1978, 2518/78; Sep. 18, 1978, 9723/78

Int. Cl.³ C08F 2/50; C08J 3/28

U.S. Cl. 204-159.18

10 Claims

1. In a method for the photopolymerisation of unsaturated compounds or for the photochemical crosslinking of polyolefins employing a sensitizer, the improvement according to which the sensitizer is a compound of the formula



wherein

Ar is a tetrahydronaphthyl or indanyl radical,

X represents one of the groups —NR⁴R⁵, —OR⁶, O—

$\text{Si}(\text{R}^7)(\text{R}^8)_2$, hydroxymethoxy, $(\text{C}_1\text{-C}_4\text{alkoxy})\text{methoxy}$, $(\text{C}_2\text{-C}_8\text{acyloxy})\text{methoxy}$ or together with R^1 represents $-\text{OCH}(\text{C}_1\text{-C}_8\text{alkyl})-\text{O}(\text{CH}_2)_{1-2}-$, $-\text{OCH}(\text{C}_6\text{-C}_{14}\text{aryl})-\text{O}-$, $-\text{OCH}(\text{C}_1\text{-C}_8\text{alkyl})-$ or $-\text{OCH}(\text{C}_6\text{-C}_{14}\text{aryl})-$.

R^1 , if X is $-\text{OR}^6$, represents (a) $\text{C}_1\text{-C}_8$ alkyl, (b) $\text{C}_1\text{-C}_8$ alkyl substituted by $\text{C}_2\text{-C}_8$ acyloxy, $-\text{COO}-(\text{C}_1\text{-C}_4)\text{alkyl}$ or $-\text{CN}$, (c) $\text{C}_5\text{-C}_6$ cycloalkyl or (d) $\text{C}_7\text{-C}_9$ phenylalkyl, and, in all other cases, represents (a) alkyl of 1 to 8 carbon atoms, (b) alkyl of 1 to 8 carbon atoms substituted by OH, $\text{C}_1\text{-C}_4$ alkoxy, $\text{C}_2\text{-C}_8$ acyloxy, $-\text{COO}-(\text{C}_1\text{-C}_4)\text{alkyl}$ or $-\text{CN}$, (c) cycloalkyl of 5 to 6 carbon atoms or (d) phenylalkyl of 7 to 9 carbon atoms,

R^2 has one of the meanings assigned to R^1 or represents allyl, methallyl, 2-carbamoyl ethyl, 2-(N-C₁-C₄alkylcarbamoyl)ethyl, 2-(N,N-di-C₁-C₄alkylcarbamoyl)ethyl, 2-(2-pyridyl)ethyl, 2-(2-oxo-1-pyrrolidinyl)ethyl or 2-(di-O-C₁-C₄alkylphosphono)ethyl, or R^1 and R^2 together represent alkylene of 4 to 6 carbon atoms, oxalkylene of 3 to 4 carbons or azaalkylene of 3 to 4 carbon atoms, or R^1 and R^2 are both hydroxymethyl.

R^4 represents (a) alkyl of 1 to 12 carbon atoms, (b) alkyl of 2 to 4 carbon atoms which is substituted by $-\text{OH}$ or $-\text{Oalk}$, (c) allyl, (d) cyclohexyl, (e) phenylalkyl of 7 to 9 carbon atoms, (f) phenyl or (g) phenyl which is substituted by Cl, alk, OH, $-\text{Oalk}$ or $-\text{COOalk}$.

R^5 represents (a) alkyl of 1 to 12 carbon atoms, (b) alkyl of 2 to 4 carbon atoms which is substituted by $-\text{OH}$ or $-\text{Oalk}$, (c) allyl, (d) cyclohexyl or (e) phenylalkyl of 7 to 9 carbon atoms, or R^4 and R^5 together represent alkylene of 4 to 5 carbon atoms which can be interrupted by $-\text{O}-$, $-\text{NH}-$ or $-\text{Nalk}-$, or, together with R^2 represents alkylene or phenylalkylene of 1 to 9 carbon atoms, oxalkylene of 2 to 3 carbon atoms or azaalkylene of 2 to 3 carbon atoms,

R^6 represents (a) hydrogen, (b) alkyl of 1 to 12 carbon atoms, (c) alkyl of 2 to 4 carbon atoms which is substituted by $-\text{OH}$ or $-\text{Oalk}$, (d) allyl, (e) cyclohexyl, (f) phenylalkyl of 7 to 9 carbon atoms, (g) phenyl or (h) phenyl which is substituted by Cl or alk,

R^7 and R^8 are the same or different and represent alkyl of 1 to 4 carbon atoms or phenyl.

4,315,808

METHOD FOR MODIFYING SURFACE PROPERTIES OF SHAPED ARTICLES OF VINYL CHLORIDE BASED RESIN WITH LOW TEMPERATURE PLASMA

Kiyoshi Imada, Omiya; Susumu Ueno, and Hirokazu Nomura, both of Ibaraki, all of Japan, assignors to Shin-Etsu Chemical Co. Ltd., Tokyo, Japan

Filed May 13, 1980, Ser. No. 149,417

Claims priority, application Japan, May 21, 1979, 54-62349
Int. Cl.³ C08F 2/46

U.S. Cl. 204-169

4 Claims

1. A method for modifying surface properties of a shaped article composed of a vinyl chloride-based resin composition and having a plasticizer therein which comprises subjecting the surface of the article to intermittent exposure to an atmosphere of low temperature plasma of an inorganic gas under a pressure in the range from 0.01 Torr to 1.0 Torr for a length of the treatment time which is an alternate sequence of at least five alternating exposure and repose times wherein the length of each of the exposure times is in the range from 0.001 second to 1000 seconds and the length of each of the repose times is in the range from 0.001 second to 1000 seconds.

4,315,809 CLUSTER CORE ASSEMBLY FOR ELECTROPLATING RADIOACTIVE SOURCES FOR AN IONIZATION SMOKE DETECTOR

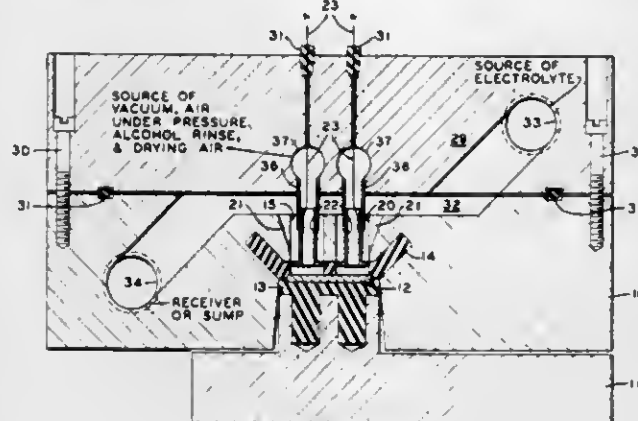
James G. Phillips, Albuquerque, N. Mex., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Apr. 23, 1979, Ser. No. 32,042

Int. Cl.³ C25D 17/00

U.S. Cl. 204-224 R

7 Claims



1. In apparatus for electroplating a spot of radioactive material on a substrate comprising:

- a member having at least one cavity which is open on one end,
- an electrode mounted in said cavity and positioned to have one end in the vicinity of said one end of said cavity, means for holding a substrate against said one end of said cavity and spaced a distance of approximately 50 to 100 thousandth of an inch from said electrode,
- a source of electrolyte connected to said cavity to fill said cavity with electrolyte,
- a source of electrical power, providing a constant current, and
- circuit means connecting one side of said source of power to said electrode and another side of said substrate whereby upon the flow of current through said electrolyte to said substrate a deposit of material forms on said substrate.

4,315,810

ELECTRODE FOR MONOPOLAR FILTER PRESS CELLS

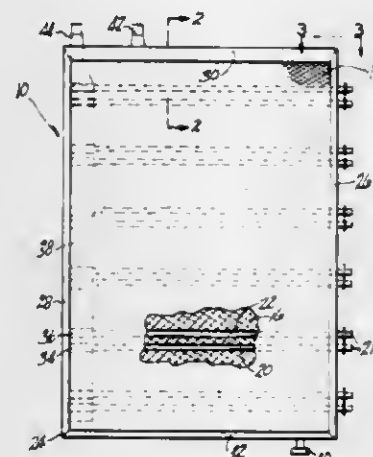
Morton S. Kircher, Clearwater, Fla., assignor to Olin Corporation, New Haven, Conn.

Continuation-in-part of Ser. No. 128,684, Mar. 10, 1980. This application Jun. 9, 1980, Ser. No. 157,902

Int. Cl.³ C25B 9/04, 11/03, 11/00

U.S. Cl. 204-257

11 Claims



1. An electrode for a monopolar filter press cell which comprises:

- (a) a first foraminous surface and a second foraminous surface positioned in parallel and spaced apart;

(b) a frame having two side members, a top member and a bottom member attached to said first foraminous surface and said second foraminous surface;

(c) a chamber formed between said first foraminous surface and said second foraminous surface and bounded by said frame;

(d) at least one pair of conductor rods entering said chamber through openings in one of said side members of said frame, one of said pair of conductor rods being attached only to said first foraminous surface and the other of said pair of conductor rods being attached only to said second electrode surface, each conductor rod having a lead portion outside of said chamber suitable for attachment to a current supply means and a support portion inside said chamber for said attachment to said electrode surface; said openings being substantially centered in said side frame member, and said support portion of each of said conductor rods being bent toward said electrode surface to which said conductor rod is attached; and

(e) inlets and outlets in said frame for introducing fluids into and removing electrolysis products from said chamber.

4,315,811

REINFORCED METAL CHANNELS FOR CELL FRAME

Morton S. Kircher, Clearwater, Fla., assignor to Olin Corporation, New Haven, Conn.

Continuation-in-part of Ser. No. 128,684, Mar. 10, 1980. This application Jun. 6, 1980, Ser. No. 157,917

Int. Cl.³ C25B 9/02, 11/00

U.S. Cl. 204-279

13 Claims



1. A frame component for a frame of an electrode for use in a monopolar filter press membrane type of electrolytic cell, the electrode being in a generally vertically upright position during operation, said frame component comprising:

- (a) a first planar side wall having a first outer edge and a first inner edge, said outer edge being suitable to fasten a first electrode surface thereto, said fastening thereby defining a first predetermined elongate area of attachment;
- (b) a second planar side wall parallel to said first wall and having a corresponding first outer edge and a first inner edge, said first outer edge of said second planar side wall being suitable to fasten a second electrode surface thereto, said fastening thereby defining a second predetermined elongate area of attachment;
- (c) an outer planar wall attached orthogonally to said first and second planar side walls; and
- (d) a multiplicity of spaced rigid reinforcing members horizontally extending between and connected to said first and second planar side walls when the electrode is in the generally vertical upright position, said reinforcing members further being connected to said first and second planar side walls along a plane that does not intersect said first and second predetermined elongate areas of attachment.

4,315,812

APPARATUS FOR CONTINUOUS ELECTROCHROMATOGRAPHIC SEPARATION

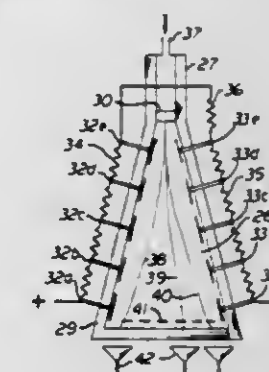
Eskil L. Karlson, 4634 State St., Erie, Pa. 16509

Filed May 28, 1980, Ser. No. 154,065

Int. Cl.³ G01N 27/26, 27/30

U.S. Cl. 204-299 R

3 Claims



1. An apparatus for continuous molecular separation within a gas or liquid comprising opposed plates of insulation material defining an elongated flattened passageway with an inlet at one end and an outlet at the other end, a bed of glass beads or chromatographic filter material filling said passageway, a series of a plurality of pairs of electrodes, each pair having electrodes on opposite edges of said passageway for producing an edgewise electric charge across the filter material between said plates for effecting lateral movement of the molecular components relative to a flow of fluid in said passageway towards said outlet, said pairs of electrodes being spaced from each other along the length of the passageway, means for supplying a different voltage to each of said pairs of electrodes, and means for introducing into the inlet fluid having components of different molecular weights, size and/or polarity.

4,315,813

SOLVENT DEWAXING WAXY HYDROCARBON OILS USING DEWAXING AID

Takashi Onodera, Urawa; Kikui Komine, Tokorozawa; Fumio Ohashi, and Tsutomu Naito, both of Ohi, all of Japan, assignors to Toa Nenryo Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 21, 1978, Ser. No. 926,812

Int. Cl.³ C10G 73/04

U.S. Cl. 208-33

10 Claims

1. In a solvent dewaxing process wherein a waxy hydrocarbon oil is mixed with a dewaxing aid and dewaxing solvent and chilled to form a slurry comprising solid particles of wax and mixture of dewaxed oil and solvent and wherein said wax is separated from said slurry, the improvement which comprises using a polymeric dewaxing aid comprising a condensation product of naphthalene and a chlorinated wax, said condensation product having an average molecular weight ranging from about 20,000 to 500,000 and a molecular weight distribution exceeding the range of from about 10,000 to 1,000,000.

4,315,814

HYDROCARBON CONVERSION PROCESS

David S. Shibabi, Pennington, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Division of Ser. No. 103,793, Dec. 14, 1979, Pat. No. 4,284,529. This application Jan. 8, 1981, Ser. No. 223,531

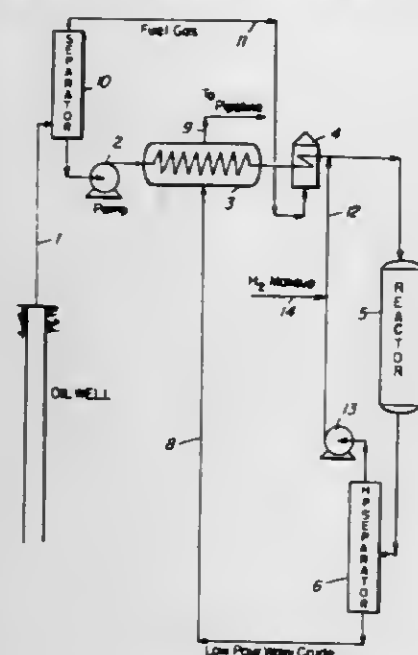
Int. Cl.³ C10G 11/05, 47/20

U.S. Cl. 208-111

15 Claims

1. A process for converting a high boiling hydrocarbon charge fraction to liquid products of lower boiling range which comprises contacting said charge fraction with a steamed crystalline zeolite characterized by a silica/alumina ratio greater than 12, a constraint index between about 1 and about 12, and substantially no activity for cracking n-hexane,

said activity having been substantially eliminated by base-exchange of said steamed zeolite with an alkali metal cation,



said contacting being conducted at about 650° to 850° F., and a space velocity of 0.1 to 5.0 LHSV.

4,315,815

PROCESS FOR SEPARATING BITUMINOUS MATERIALS AND RECOVERING SOLVENT

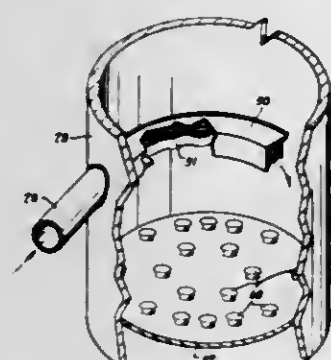
Junior A. Gearhart, Oklahoma City, Okla., assignor to Kerr-McGee Refining Corporation, Oklahoma City, Okla.

Continuation-in-part of Ser. No. 164,598, Jan. 30, 1980, abandoned. This application Feb. 23, 1981, Ser. No. 237,376

Int. Cl.³ B65D 85/46; C10C 3/00, 3/08

U.S. Cl. 208—321

18 Claims



1. A process comprising:

separating an admixture comprising a fluid-like bituminous material and a solvent in a separation zone into at least a fluid-like light phase comprising a portion of said bituminous material and solvent and a fluid-like heavy phase comprising the remainder of said bituminous material and solvent by maintaining the mixture at an elevated temperature and pressure;

reducing the pressure on said heavy phase to vaporize at least a portion of the solvent present therein and form a mixture of fluid-like bituminous material in association with said vaporized solvent together with undesired fine particles of bituminous material dispersed therein;

introducing said mixture into a steam stripping zone comprising a steam stripper vessel to separate at least a portion of any nonvaporized solvent remaining in association with said fluid-like bituminous material, said mixture being introduced into said stripping zone through an introduction means in a manner such that a centrifugal motion is imparted thereto, said introduction means including a plurality of vanes, the surfaces of which are at least partially wetted by the fluid-like bituminous material of said mixture and which utilize said centrifugal motion to create

turbulence in said mixture within said introduction means to cause at least a portion of said fine particle size bituminous material dispersed in said vaporized solvent to impinge on said portion of said surfaces of said vanes on which said fluid-like bituminous material is present and adhere to said fluid-like bituminous material to cause said fine particles of bituminous material to separate from said vaporized solvent; and recovering said solvent from said steam stripping zone substantially free of any fine particle size bituminous material.

4,315,816

HIGH INTENSITY MAGNETIC FIELD DRUM SEPARATOR

Guenter Ries; Klaus-Peter Jüengst; Siegfried Förster; Franz Graf, all of Karlsruhe; Wolfgang Lehmann, Leopoldshafen; Karl-Heinz Uakelbach, and Gottfried Düeren, both of Cologne, all of Fed. Rep. of Germany, assignors to Klöckner-Humboldt-Deutz AG, Fed. Rep. of Germany

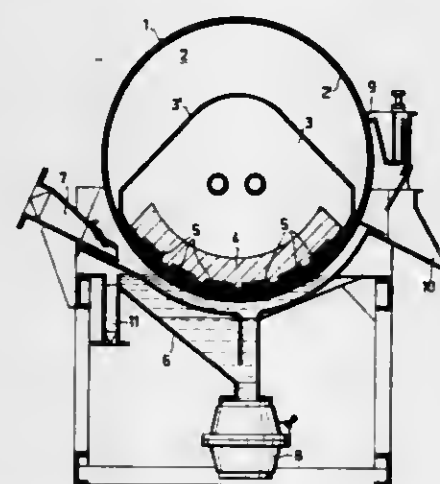
Filed Oct. 19, 1977, Ser. No. 843,738

Claims priority, application Fed. Rep. of Germany, Nov. 4, 1976, 2650540

Int. Cl.³ B03C 1/14

U.S. Cl. 209—223 A

6 Claims



5. A high intensity magnetic field drum separator, comprising:

a rotatable magnetic drum; and

a magnetic system mounted stationary within said rotatable drum and including an arrangement of superconducting conductors, a coil support of weakly magnetizable iron shaped to match and supported adjacent to the curved inner surface of said drum, and a plurality of superconducting coils formed by said conductors embedded in the surface of said support which faces the inner surface of said drum.

said coils being wound and mounted such that their winding axes extend radially with respect to said drum and said coils being curved in the direction of their transverse axes to conform to the shape of the inner surface of said drum, said coils being mounted and connected to be energized in the same direction.

4,315,817

VIBRATING SURFACE APPARATUS

Jaklin B. Popper, Kyriat Motzkin, Israel, assignor to Popper Engineering Ltd., Kyriat Motzkin, Israel

Filed Jan. 5, 1978, Ser. No. 912,886

Int. Cl.³ B07B 1/42

U.S. Cl. 209—315

6 Claims

1. Vibratory surface apparatus comprising:

a fixed base member;

vibratory motion producing means vibrating axially along a vibratory axis;

first spring means coupling said vibratory motion producing means to said base member;

4,315,819

HOLLOW FIBER PERMEATOR APPARATUS

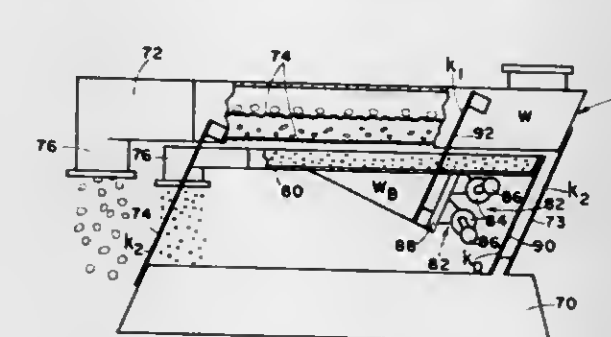
Duane E. King, Wake Forest; Billy J. Harris, Durham; Donald L. MacLean, and Tommy E. Graham, both of Raleigh, all of N.C., assignors to Monsanto Company, St. Louis, Mo.

Filed Jun. 12, 1978, Ser. No. 915,082

Int. Cl.³ B01D 31/00

U.S. Cl. 210—321.3

22 Claims



third spring means coupling said first surface to said base member; the spring constants of said first, second and third spring means being selected such that substantially no vibrational forces are transmitted to said base member and such that said first, second and third spring means do not produce appreciable damping.

4,315,818

ANTI-POLLUTION EQUIPMENT

John L. Thomas, Ottershaw, England, assignor to The British Petroleum Company Limited, London, England

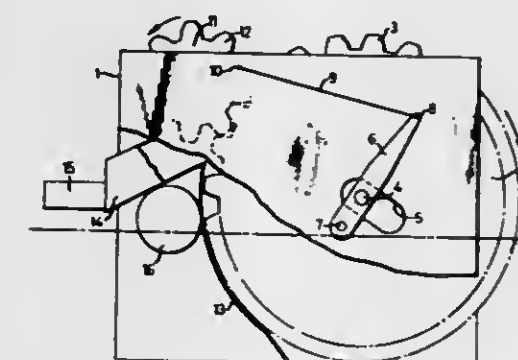
Filed May 21, 1980, Ser. No. 152,086

Claims priority, application United Kingdom, May 29, 1979, 18697/79

Int. Cl.³ E02B 15/04

U.S. Cl. 210—242.3

5 Claims



1. A device for removing oil floating on the surface of water which device comprises a frame, two rotatable drums, one of which is larger than the other, each drum having corrugations in the form of gear teeth extending across the surface of the drum, said corrugations being parallel to each other and to the axis of the drum and being adapted to mesh with the corrugations of the other drum, the device also comprising:

(a) means for driving one of the drums;

(b) a collector for recovered oil mounted below the area where the gear teeth of the two drums mesh during rotation thereof; and

(c) at least one float so that in use the device floats with the larger drum partially immersed in water and with the smaller drum and collector clear of the water and with the plane joining the axis of rotation of the drums at an angle between the horizontal and the vertical.

4,315,820

SELF-CLEANING STRAINER

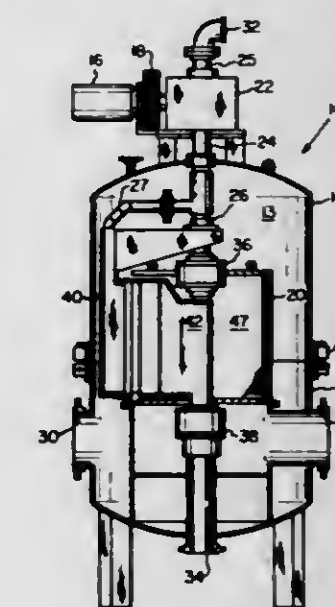
Alexander B. Mann; John B. Kraeling, Jr., and Ronald G. Bakowski, all of Erie, Pa., assignors to Zura Industries, Inc., Erie, Pa.

Filed Jan. 23, 1980, Ser. No. 114,679

Int. Cl.³ B01D 29/38

U.S. Cl. 210—408

17 Claims



1. In a strainer of the automatic backwashing type including a strainer element having an upstream and downstream side and a backwash arm for passing over the strainer element at least along the upstream side so as to provide a backwash to

remove debris entrained on the strainer element, the improvement comprising:

- A. protruding surfaces extending radially beyond the strainer element to form aligned vertical compartments for mating engagement with the backwash arm;
- B. straining passageways associated with the strainer element being substantially greater in depth than height and in coaxial alignment with the compartments; and
- C. shearing means connected to the backwash arm for engaging the protruding surfaces in spaced relationship to the straining passageways for shearing any entrained debris extending between adjacent compartments.

4,315,821

TREATMENT OF NITROGENOUS WASTES

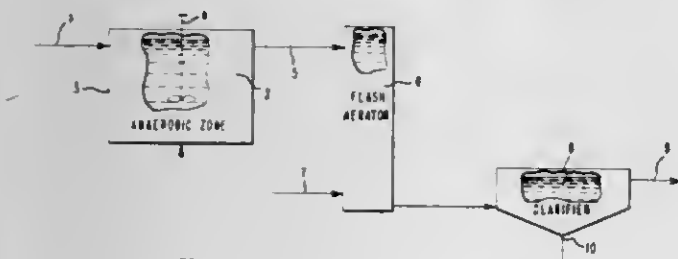
David C. Climenhage, Kingston, Canada, assignor to Du Pont Canada Inc., Mississauga, Canada

Continuation-in-part of Ser. No. 538,757, Jan. 6, 1975, abandoned, which is a continuation-in-part of Ser. No. 390,414, Aug. 22, 1973, abandoned. This application Oct. 10, 1978, Ser. No. 949,433

Int. Cl.³ C02F 3/30

U.S. Cl. 210—605

4 Claims



1. A process for the treatment of aqueous wastes containing nitrogenous matter selected from the group consisting of nitrate and nitrite ions and matter capable of forming nitrate or nitrite ions comprising (a) passing the aqueous waste having a pH less than about 6, a substantial portion of the acidic component of the waste being nitrogenous matter, through an anaerobic treatment zone at a rate such that (1) the concentration of nitrogen in the form of nitrate and nitrite ions in the anaerobic zone is less than about 3 milligrams/liter, and (2) the BOD loading factor of the effluent therefrom is less than 0.25 lb BOD/lb of volatile suspended solids, the anaerobic treatment zone having a pH of at least about 6 and containing acclimated anaerobic activated sludge and sufficient carbonaceous matter to obtain substantially complete denitrification of the aqueous waste, (b) passing denitrified effluent therefrom to an aerobic treatment zone wherein said matter capable of forming nitrates and nitrites is substantially all converted to nitrates and nitrites and (c) separating and recycling a mixture of sludge and effluent from the aerobic treatment zone to the anaerobic treatment zone at a rate at least as high as the feed rate of aqueous waste to the anaerobic treatment zone.

4,315,822

PROCESS AND APPARATUS FOR SEPARATING LIQUIDS

Rajan A. Jaisinghani, Stoughton, Wis., assignor to Nelson Industries, Inc., Stoughton, Wis.

Filed Jan. 26, 1981, Ser. No. 228,248

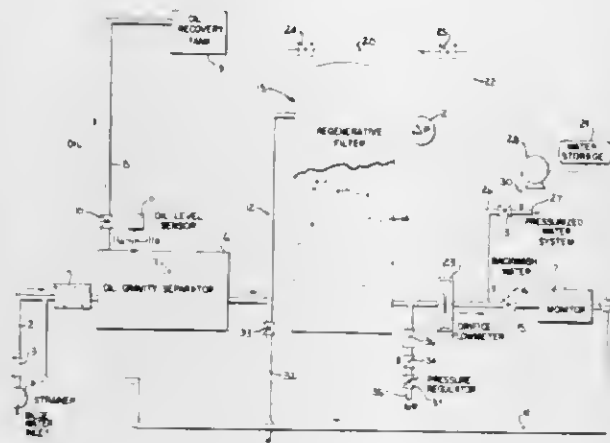
Int. Cl.³ B01D 17/04

U.S. Cl. 210—794

21 Claims

1. A system for separating a mixture of liquids of different

specific gravities, comprising pumping means having an inlet and an outlet, said inlet connected to storage site containing a mixture of liquids of different specific gravities, a first gravity separator unit connected to the outlet of the pumping means whereby the mixture of liquids is pumped from said site to the first separator unit, said first separator unit disposed to separate the liquids with a first liquid of said mixture being collected as a layer in said separator unit and a second of said mixture of liquids normally flowing through said separator unit, liquid discharge conduit means connecting said separator unit with a collection site for conducting said second liquid to said site, first valve means disposed in said discharge conduit means, said first valve means being normally open to permit flow of said second liquid through said separator unit and through said discharge conduit means, drain conduit means connected to the portion of said separator whereat said first liquid is col-



lected, second valve means disposed in said drain conduit means, and means responsive to a predetermined maximum depth of said layer of first liquid in said first separator unit for opening said second valve means and closing said first valve means, whereby operation of said pumping means will pump said layer of said first liquid through said drain conduit means to a second collection site.

6. The system of claim 1, and including sensing means disposed in said discharge conduit means for sensing the presence of said first liquid in the flow stream of said second liquid, recirculating conduit means connecting the discharge conduit means with the inlet of said pumping means, and flow control means for directing the flow of said second liquid through said recirculating conduit means to said pumping means when the amount of said first liquid in the flow stream of said second liquid exceeds a predetermined value.

4,315,823

ANAEROBIC TREATMENT

Enrique R. Witt; William J. Humphrey, and James P. Cave, all of Corpus Christi, Tex., assignors to Celanese Corporation, New York, N.Y.

Continuation of Ser. No. 57,545, Jul. 13, 1979, abandoned, which is a continuation of Ser. No. 737,241, Oct. 29, 1976, abandoned. This application May 19, 1980, Ser. No. 150,829

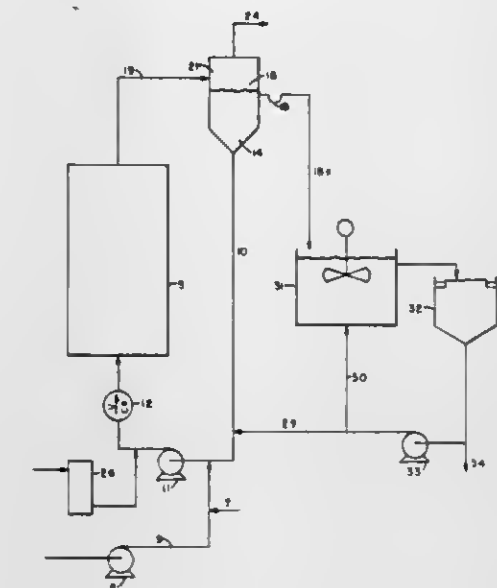
Int. Cl.³ C02F 3/28, 3/30

U.S. Cl. 210—605

17 Claims

1. Process for the treatment of aqueous organic waste streams in an anaerobic filter, with concomitant production of methane gas while supplying alkaline material to the filter to neutralize acids fed thereto and formed therein, to produce a liquid effluent stream containing said methane gas from said filter, said liquid effluent stream having a lower C.O.D. content than said waste stream and containing less than 600 mg per liter of volatile suspended solids, said process comprising separating said methane gas from said liquid effluent stream, separating said liquid effluent stream into two liquid streams, hereafter termed stream a and stream b, withdrawing said liquid stream a while recycling said liquid stream b, to said filter and blending said stream b together with fresh feed of said waste stream, the volumetric rate of said fresh feed being about the

same as the volumetric rate of withdrawal of said liquid stream a, and the ratio of said volumetric rate of feed to the volumetric rate of said recycle being in the range of about 1:1 to 1:20, feeding said withdrawn liquid a to an aerobic digester to produce an activated sludge slurry, passing said activated sludge slurry to a clarifier to produce activated sludge and a clarified effluent and recycling at least about 20% of the net activated sludge produced in said aerobic digester to said anaerobic



filter, in which process said fresh feed of said waste stream has a C.O.D. of at least about 5000 mg/l, the fresh feed is supplied at a rate which is at least about 0.5 lb. C.O.D. per cubic foot of filter per day, the mixture of said liquid b and said fresh feed has a C.O.D. of at least about 500, said filter comprises packing of such construction that the void volume is about 60%, the hydraulic feed rate in said filter is at least about 1 foot per hour and said fresh feed has a pH of about 3 to 5.

4,315,824

FILTRATION OF COAL-DERIVED LIQUIDS CONTAINING PARTICULATE SOLIDS

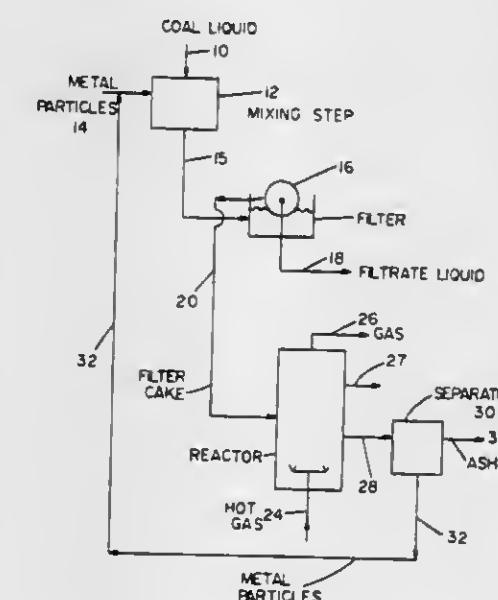
Walter F. Karolkiewicz, Trenton, N.J., and Pradip Rao, Media, Pa., assignors to Hydrocarbon Research, Inc., Lawrenceville, N.J.

Filed Jun. 3, 1980, Ser. No. 156,158

Int. Cl.³ B01D 37/02

U.S. Cl. 210—769

7 Claims



7. A method of filtering a coal-derived liquid containing solid particles, comprising:

- (a) mixing the liquid with a filter aid material comprising metallic particles having size range of 10 to 400 mesh;
- (b) filtering the mixture from (a) to produce a filtrate liquid

- and a filter cake residue containing unconverted coal and ash solids and the metallic particles;
- (c) heating the filter cake obtained from (b) to a temperature between 650° and 2000° F. to gasify the hydrocarbon material contained therein;
- (d) separating the metallic particles from the product of (c); and
- (e) recycling the recovered metallic particles to mixing step (a) for reuse.

4,315,825

LITHIUM SOAPS OF SUBSTITUTED HYDROXYLATED FATTY ACIDS AND THEIR USE AS THICKENING AGENTS

Dieter Schweizer, Düsseldorf, and Johann Glasl, Solingen, both of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Düsseldorf-Holthausen, Fed. Rep. of Germany

Filed Jul. 3, 1980, Ser. No. 165,744

Claims priority, application Fed. Rep. of Germany, Jul. 9, 1979, 2927686

Int. Cl.³ C10M 5/14

U.S. Cl. 252—41

12 Claims

1. Lithium soaps of non-terminal vicinal substituted fatty acids having from 16 to 22 carbon atoms wherein said vicinal substituents are a hydroxy group and a group selected from the group consisting of alkanoyloxy having from 2 to 18 carbon atoms, alkenoyloxy having from 3 to 18 carbon atoms, and mixtures of said alkanoyloxy and said alkenoyloxy, said fatty acid being substituted with from 0 to 2 other hydroxyls.

2. The lithium soaps of claim 1 produced by epoxidation of fatty acids having from 16 to 22 carbon atoms and at least one ethylenic unsaturation, reaction of the resulting epoxy fatty acid with a reactant selected from the group consisting of alkanoyloxy having from 2 to 18 carbon atoms, alkenoyloxy having from 3 to 18 carbon atoms, and mixtures of said alkanoyloxy and said alkenoyloxy, and reaction with lithium hydroxide to form the lithium salt.

7. A lithium soap of the reaction product of epoxidized oleic acid with an alkanoyloxy having from 10 to 18 carbon atoms.

11. A lubricating grease consisting essentially of a liquid phase with lubricant characteristics, conventional lubricant additives in amounts from 0 to 25% by weight, and from 2% to 25% by weight of the lithium soaps of claims 1 or 2 as a lithium soap thickening agent.

4,315,826

REACTION PRODUCTS OF CARBON DISULFIDE WITH THIOMOLYBDENUM DERIVATIVES OF ALKENYLSUCCINIMIDES AND LUBRICANTS CONTAINING SAME

Raymond C. Schlicht; Stephen A. Levine, both of Fishkill, and Harry Chafetz, Poughkeepsie, all of N.Y., assignors to Texaco Inc., White Plains, N.Y.

Filed Aug. 19, 1980, Ser. No. 179,611

Int. Cl.³ C10N 1/54

U.S. Cl. 252—46.4

8 Claims

1. A composition of the formula:



wherein v ranges from 0.5 to 3, w is a number such that v + w ranges from 0.5 to 3, x ranges from 0.8 to 5, y ranges from 1 to 3, and z ranges from 0.5 to 5, R is an alkenylsuccinyl di- or polyamine group having 15 to 300 carbon atoms, and R' is hydrogen, an alkyl group of 1 to 20 carbon atoms, an alkenylsuccinyl amine or an alkenylsuccinyl polyamine group which can be the same as or different from R.

4. A lubricant composition comprising a major amount of an oil of lubricating viscosity and an effective friction-reducing amount of a composition of claim 1.

5. A process for forming a composition having friction-re-

ducing, anti-wear and anti-oxidant properties comprising reacting CS₂ with a composition of the formula:



wherein R is an alkenylsuccinyl di- or polyamine group having from 15 to 300 carbon atoms, $a=0.5$ to 3, $b=2.5-0$, $c=0-3$, $x=0.8-5$; R' is hydrogen, an alkyl group of 1 to 20 carbon atoms, an alkenylsuccinyl amine or an alkenylsuccinyl group which can be the same as or different from R; using a molar charge ratio of CS₂ to molybdenum of about 0.5:1 to 5:1, removing the water of reaction which forms and recovering a composition according to claim 1.

4,315,827

LOW-VAPOR-PRESSURE FERROFLUIDS AND METHOD OF MAKING SAME

William R. Bottenberg, Thousand Oaks, Calif., and Mark S. Chagnon, Lowell, Mass., assignors to Ferrofluidics Corporation, Nashua, N.H.

Continuation of Ser. No. 92,349, Nov. 8, 1979, abandoned. This application Feb. 13, 1981, Ser. No. 234,561
Int. Cl.³ H01F 10/10

U.S. Cl. 252-62.51

29 Claims

1. A ferrofluid composition which comprises a colloidal dispersion of finely-divided magnetic particles in a liquid polyphenyl ether carrier and a dispersing amount of a surfactant, which surfactant comprises a surfactant containing a functional polar group which forms a chemical bond with the surface of the magnetic particles and a tail group containing phenyl, benzyl or phenoxy groups which are soluble in the carrier, and a linking group to separate the polar and tail groups, to provide a stable ferrofluid composition.

4,315,828

WATER BASED WINDOW GLASS AND CHROME CLEANER COMPOSITION

Peter K. Church, Cascade, Colo., assignor to Max L. Wymore and Leisure Products Corporation, both of Colorado Springs, Colo., a part interest to each

Continuation-in-part of Ser. No. 885,311, Mar. 10, 1978, Pat. No. 4,213,873. This application Feb. 8, 1980, Ser. No. 119,861
The portion of the term of this patent subsequent to Jul. 22, 1997, has been disclaimed.

Int. Cl.³ C11D 3/43, 1/72

U.S. Cl. 252-153

1 Claim

1. A water based cleaning composition consisting essentially of water on the order of about 59.3 to about 99.58 weight percent, a cleaning agent selected from the group consisting of ammonium hydroxide, a monohydroxy alcohol containing not more than 3 carbon atoms and mixtures thereof on the order of about 0.31 to about 40.3 weight percent plus an amount of a lubricity compound comprised of a water soluble alkyl derivative of ethylene glycol having the formula ROCH₂(C₂H₄OCH₂)_nCH₂OR wherein n is at least 2 and R is an on the order of about 0.025 to about 0.3 weight percent to impart substantial lubricity to the composition.

4,315,829

METHOD OF PREPARING A BATTERY PASTE CONTAINING FIBROUS POLYFLUOROETHYLENE FOR USE IN THE PLATES OF A LEAD-ACID STORAGE BATTERY

Joseph C. Duddy, Trevose, Pa.; Francis P. Malaspina, Raleigh, N.C., and William J. Martini, Fairless Hills, Pa., assignors to Exide Corporation, Philadelphia, Pa.

Filed Jan. 27, 1978, Ser. No. 872,870

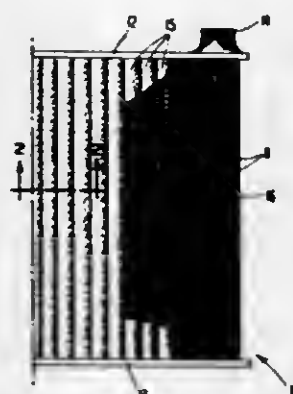
Int. Cl.³ C08L 27/18

U.S. Cl. 252-182.1

11 Claims

1. A method of preparing a battery paste for use in the plates of a lead acid storage battery which comprises the steps of:

- (a) mixing a water dispersion of polyfluoroethylene with lead material,
- (b) adding an aqueous solution of sulfuric acid to the lead material-dispersion mix and mixing to form a paste having fibrillation developed therein,



- (c) controlling the amount of fibrillation developed in the paste by controlling the temperature developed during step (b) within a range from about 20° C. to about 100° C. and the amount of shear imparted to the paste, and
- (d) controlling the paste density for use in a battery plate.

4,315,830

METHOD FOR ALTERING THE CHARACTERISTICS OF POLYMERS

David M. French, Alexandria, Va.; J. T. L. Rosborough, Washington, D.C., and Clyde J. Swendsberg, Greenville, S.C., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 19, 1972, Ser. No. 219,184

Int. Cl.³ C06D 5/06; C09K 3/00

U.S. Cl. 252-182

8 Claims

1. A method of modifying a liquid telechelic polymer for uses requiring a lower reactive group content and a different viscosity which comprises:

reacting to completion said liquid telechelic polymer with an amount of a difunctional reagent which amount does not cause said polymer to solidify so that said polymer has a reduced reactive-group content and an increased viscosity; and

admixing a liquid plasticizing nonfunctional polymer which is structurally similar to said telechelic polymer except for the absence of functional groups with said telechelic polymer to produce a liquid polymer mixture with a reactive-group content less than said liquid telechelic polymer and with a viscosity equal to or different from said liquid telechelic polymer.

4,315,831

PROCESS FOR THE CONDITIONING OF SOLID RADIOACTIVE WASTE WITH LARGE DIMENSIONS

Bruno Morin, Grenoble, and Daniel Thiery, Saint Martin d'Heres, both of France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed Aug. 5, 1977, Ser. No. 822,317

Claims priority, application France, Aug. 13, 1976, 76 24760

Int. Cl.³ G21F 9/36

U.S. Cl. 252-628

2 Claims

1. A process for encasing a solid mass of radioactive waste of large dimensions comprising:

- (1) premixing an ambient temperature-thermosetting resin with a cross-linking agent, a plasticizer, and an inert filler;
- (2) suspending said solid radioactive waste mass in said premixed resin; and
- (3) cross-linking said resin, said inert filler serving to reduce shrinkage and prevent cracking during said cross-linking, wherein said radioactive mass is encased in said resin under water.

4,315,832

PROCESS FOR INCREASING LASER CRYSTAL FLUORESCENCE YIELD BY CONTROLLED ATMOSPHERE PROCESSING

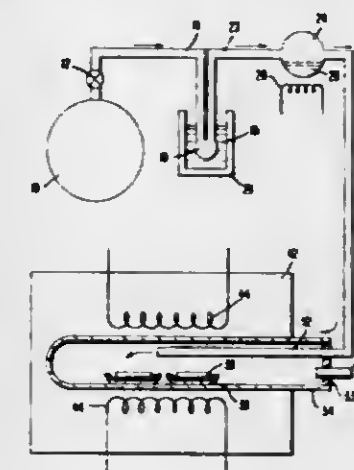
Ricardo C. Pastor, Manhattan Beach, and Donald P. Devor, Woodland Hills, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Mar. 5, 1979, Ser. No. 17,864

Int. Cl.³ C09K 11/46; C01F 17/00

U.S. Cl. 252-301.4 R

13 Claims



1. A process for modifying the environment of active atoms in a selected material by removing selected impurities from said environment, said impurities being selected from the group consisting of water and water-derived impurities and being substitutionally or interstitially incorporated in said material, which comprises heating said material at a predetermined elevated temperature in an atmosphere conducive to the formation of atomic oxygen for a period of time sufficient to enable said atomic oxygen to react with the atoms and molecules in said environment to thereby remove said impurities and alter selected properties of said material.

12. A Nd-doped laser host crystal selected from the group consisting of Y₃Al₅O₁₂, YAlO₃, Gd₃Ga₅O₁₂, YVO₄, and Y₂O₃ having optimized lasing efficiency, formed by heating said crystal at a predetermined elevated temperature in an atmosphere conducive to the formation of atomic oxygen for a period of time sufficient to enable said atomic oxygen to react with and remove selected impurities from said crystal and thereby increase the fluorescence yield and lasing efficiency of said crystal.

4,315,833

ARC SPUTTERING METHOD OF MAKING COLLOIDAL MAGNESIUM SOL AND APPARATUS THEREFOR

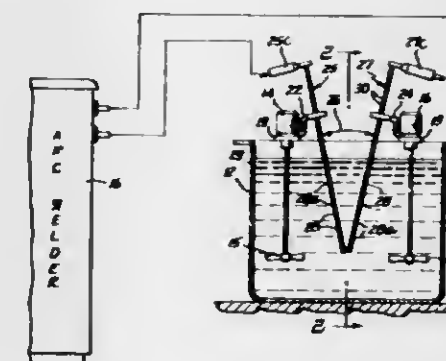
Winston Boyer, The Boyer Ranch, Savery, Wyo. 82332
Division of Ser. No. 881,388, Feb. 27, 1978, Pat. No. 4,214,615.

This application Dec. 4, 1979, Ser. No. 100,233

Int. Cl.³ B01J 13/00; B01F 7/22

U.S. Cl. 252-314

8 Claims



1. Apparatus for the preparation of a colloidal magnesium

sol in kerosene at a concentration of about 0.05 grams per liter up to about 4.0 grams per liter comprising:

a rectangular transparent tank having a flat upper edge, said tank adapted for holding kerosene and viewing a pair of electrodes in a V relation for arc sputtering;

a pair of electrodes of uniform cross section in V relation immersed in said kerosene;

two electric motor fitted mixers, each a single shaft and bottom propeller, one for mixing on each side of the V paired electrodes;

a cross bar mounting means resting on and across the width of said flat upper edge having mounting apertures for the electrodes and for the two mixers, one placed on each side of said electrodes;

two reversed Z shaped insulated holder supports, each of said supports being formed with an aperture base portion serving as an anchor about the bottom of the motor of the mixer, a mid portion joining the base and top and an apertured top portion which serves as a mounting arm for an electrode of the V pair;

said upper arm portion projecting obliquely and upwardly to thereby mount each electrode of the V pair at a critical angle of about 22 to 30 degrees and placing said V pair at about 1/2 to 1 inch from the transparent front edge of said tank with the propeller below the electrodes and on each side thereof when the electrodes are in the V position for sputtering; and

scribed markings on said electrodes which enable the visual monitoring of consumption of the electrodes by arc sputtering.

8. A method of preparing colloidal magnesium sol in kerosene, said method comprising the steps of:

filling a rectangular transparent tank with kerosene and immersing pure magnesium electrodes in V relation at an angle between about 22 and 30 degrees at the bottom of the V;

placing the angularly adjusted V electrodes within about 1/2 inch to 1 inch of the front transparent wall to permit visual observation and monitoring of the arc and black cloud formation when the magnesium sol is formed in kerosene; agitating from below and adjacent the V arc zone by means of propeller agitation to sweep away the black cloud and expose the arc to view;

energizing the electrodes with 1/2 to 1 ampere current from an arc welder while agitating to view cloud formation; stopping the arc sputtering after from 1/2 to 4 inches of the electrode is consumed; and

filtering the kerosene containing the sol when a predetermined concentration of sol is obtained to remove beads and droplets of coarse magnesium impurity.

4,315,834

PROCESS FOR RECOVERING THE SOOT FORMED DURING THE PRODUCTION OF SYNTHESIS GAS BY PARTIAL OXIDATION OF HYDROCARBONACEOUS MATERIALS

Raymond K. A. Van Deraersdot, Willebroek, Belgium, assignor to A.S.E.D., Brussels, Belgium

Continuation-in-part of Ser. No. 934,286, Aug. 16, 1978, abandoned. This application Jul. 17, 1979, Ser. No. 58,395
Claims priority, application United Kingdom, May 8, 1978, 45542/77

Int. Cl.³ C01B 3/36

U.S. Cl. 252-373

6 Claims

1. A continuous process for separating soot from an aqueous suspension containing said soot obtained in the preparation of a synthesis gas which comprises intimately contacting, at a temperature between about 60° and 205° C., the aqueous suspension with at least a part of a liquid hydrocarbonaceous material having a density of less than about 0.97 kg/liter or more than 1.00 kg/liter at 15° C. feeding a synthesis gas generator and recycling into said gas generator the suspension of soot in the liquid hydrocarbonaceous material after separation of a

clarified water phase by decantation, the aqueous suspension containing the soot being continuously brought intimately into contact with the liquid hydrocarbonaceous material in an amount of at least 10 times the weight of the soot contained in the aqueous suspension so as to obtain a pumpable suspension of soot in said hydrocarbonaceous material by mixing all the aqueous suspension and all the liquid hydrocarbonaceous material in two successive continuous steps effected in two separate static mixers in serial order in such a way that a step-wise rising amount of energy is used for said mixing, the energy amount used in the first mixing step being about 2,100 to about 7,200 Joules per kilogram of soot and per second so as to obtain a substantially complete and continuous transfer of the soot from the aqueous suspension to the liquid hydrocarbonaceous material, and the energy amount used in the second mixing step being about 10,800 to about 33,500 Joules per kilogram of soot and per second so as to reduce the water content of the liquid hydrocarbonaceous material to such an extent that the obtained hydrocarbonaceous material, containing substantially all the soot and having a low water content which is separated from the clarified aqueous phase by decantation can be recycled into said gas generator whereas the aqueous phase is clear and can be disposed of.

4,315,835

COMPONENTS OF CATALYSTS FOR POLYMERIZING ALPHA-OLEFINS AND THE CATALYSTS FORMED FROM THE COMPONENTS

Umberto Scata', Luciano Luciani, and Pier C. Barbe', all of Ferrara, Italy, assignors to Montedison S.p.A., Milan, Italy. Continuation of Ser. No. 909,047, May 24, 1978, Pat. No. 4,220,554. This application May 7, 1980, Ser. No. 147,521. Claims priority, application Italy, May 25, 1977, 23984 A/77; Jul. 4, 1977, 25344 A/77.

The portion of the term of this patent subsequent to Sep. 2, 1997, has been disclaimed.

Int. Cl.³ C08F 4/64

U.S. Cl. 252—429 B

11 Claims

1. Process for preparing a carrier for components of catalysts for the polymerization of olefins and having the formula



in which n is about 2. R is an alkyl, aryl or cycloalkyl radical containing from 1 to 20 carbon atoms, and X is a halogen atom, which process comprises reacting a Mg compound having the formula



in which $0 \leq n < 2$. R is an alkyl, aryl or cycloalkyl radical containing from 1 to 20 carbon atoms and X is a halogen atom, with an ester of orthosilicic acid, in the presence of a halogenating substance.

4,315,836

CATALYSTS FOR POLYMERIZING ALPHA-OLEFINS

Enrico Albizzati, Arona, and Enzo Giannetti, Novara, both of Italy, assignors to Montedison, S.p.A., Milan, Italy. Continuation of Ser. No. 10,238, Feb. 8, 1979, abandoned. This application Apr. 4, 1980, Ser. No. 137,256.

Claims priority, application Italy, Feb. 9, 1978, 20096 A/78.

Int. Cl.³ C08F 4/64

U.S. Cl. 252—429 B

29 Claims

1. Catalysts for polymerizing alpha-olefins $CH_2=CHR$, in which R is an alkyl radical having 1 to 6 carbon atoms, mixtures thereof and mixtures thereof with ethylene, comprising the product of the reaction between the following two components:

(a) a solid product comprising a Mg dihalide and complexes of said halide with at least a compound of tetravalent Ti selected from the group consisting of the halides, haloalcohols and organic carboxylates and a hydrocarbon

electron-donor compound selected from the group consisting of alkyl, aryl and cycloalkyl esters of the organic and inorganic oxygenated acids, the anhydrides, halides, and amides of said acids, ethers ROR' and ketones RCOR', in which R and R', the same or different from one another, are alkyl, cycloalkyl or aryl radicals having 1 to 18 carbon atoms; in which the Mg/Ti ratio between Mg dihalide and Ti compound ranges from 5 to 100, the amount of Ti compound extractable with $TiCl_4$ at 80° C. is lower than 50% and the molar ratio between electron-donor compound and Ti compound ranges, after extraction with $TiCl_4$, from 0.2 to 3, and

(b) an Al alkyl compound selected from the group consisting of trialkyls, the Al alkyl compounds containing two or more Al atoms bound to one another through an oxygen atom or a nitrogen atom, and compounds $AlR_3-n(OR')_n$, in which R is an alkyl radical having 1 to 18 carbon atoms, R' is an aryl radical ortho-hindered in positions 2,6 with substituents capable of giving a steric hindrance higher than that of the group $-C_2H_5$, or a naphthyl group containing at least in position 2 a substituent with a steric hindrance higher than that of the group $-C_2H_5$, and n is a number comprised in the range from 1 to 2; said Al alkyl compound being present for at least 85% in a non-combined form with an electron-donor compound and being employed in amounts corresponding to a molar ratio to the Ti compound of component (a) ranging from 1 to 30.

4,315,837

COMPOSITE MATERIAL FOR OZONE REMOVAL

John L. Rourke, Fairport, and Ronald E. Keukelaar, Rochester, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Apr. 16, 1980, Ser. No. 140,915

Int. Cl.³ B01J 31/06

U.S. Cl. 252—430

15 Claims

1. A composite material for the removal of ozone from a gaseous stream comprising a support matrix having coated on its surface an adhering layer of finely divided particles of hopcalite, said support matrix having a relatively broad transition region for coating said adhering layer of finely divided particles of hopcalite hereon, and said support matrix having dimensional stability at the temperature of said ozone containing gaseous stream.

4,315,838

CATALYST PREPARATION TECHNIQUE

Arthur F. Miller, Lyndhurst; James L. Callaban, Wooster, and Wilfrid G. Shaw, Lyndhurst, all of Ohio, assignors to Standard Oil Company, Cleveland, Ohio.

Filed Jun. 5, 1978, Ser. No. 912,651

Int. Cl.³ B01J 37/00

U.S. Cl. 252—448

11 Claims

1. A process for producing a metal-containing complex oxide catalyst comprising:

forming a pre-catalyst containing all of the metals in said catalyst as well as at least one heat-decomposable material,

forming an aqueous slurry from said pre-catalyst, dropping said slurry in the form of droplets onto a particle bed whereby droplets of said slurry agglomerate into essentially spherical agglomerates, and

calcining said agglomerates in the presence of oxygen to form said metal-containing complex oxide catalyst, no more than 90% of said heat-decomposable material being removed from said pre-catalyst prior to forming said slurry.

4,315,839

SPHEROIDAL ALUMINA PARTICULATES HAVING BIFOLD POROSITY AND PROCESS FOR THEIR PREPARATION

Gilbert Bouge, Salindres; Roland Jacques, Ales; Regis Poisson, Sevres, and Laurent Seigneurin, Salindres, all of France, assignors to Rhone-Poulenc Industries, Paris, France.

Filed Feb. 26, 1980, Ser. No. 124,778

Claims priority, application France, Feb. 26, 1979, 79 04810

Int. Cl.³ B01J 21/04, 35/08

U.S. Cl. 252—448

36 Claims

1. Spheroidal alumina particulates having bifold porosity, and comprising a total pore volume ranging from about 0.55 to 1.7 cm^3/g ; a micropore volume ranging from about 0.5 to 1 cm^3/g , with a micropore having a pore diameter of less than 0.06 microns; a macropore volume ranging from about 0.05 to 0.7 cm^3/g , with a macropore having a pore diameter of greater than 0.06 microns; a macropore mean diameter ranging from about 0.1 to 10 microns; a specific surface ranging from about 80 to 350 cm^2/g ; a breaking strength in excess of 1 kg; and the alumina comprising said spheroidal particulates being essentially completely in at least one of the phases eta, gamma, delta and theta.

4,315,840

PREPARATION OF CATHODIC ELECTROCOATING BINDERS

Fritz E. Kempter, Mannheim; Eberhard Schupp, Schwetzingen, and Erich Gulbins, Heidelberg-Neuenheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany.

Filed Oct. 18, 1979, Ser. No. 85,965

Claims priority, application Fed. Rep. of Germany, Oct. 23, 1978, 2845988.

Int. Cl.³ C08G 18/80, 18/48; C08L 91/00; C08J 3/04

U.S. Cl. 260—18 TN

21 Claims

1. A process for the preparation of self-crosslinking, cathodic electrocoating binders by reacting polyetherpolyols, which may or may not contain thio groups, with semi-blocked diisocyanates or partially blocked polyisocyanates, wherein the reaction products (A) so obtained and containing blocked isocyanate groups, are further reacted with a polyamine (B) in such a way that one or more amino groups of the polyamine (B) form a urea group with a blocked isocyanate group of the reaction product (A) and the self-crosslinking reaction product of (A) and (B) is thereafter converted into a water-dilutable form in the conventional manner by protonization with an acid.

4,315,841

FILLED MOLDING COMPOSITION FEATURING STAR-BLOCK COPOLYMER CONJUGATED DIENE AND VINYL AROMATIC COMPOUND

Ronald A. Fava, Monroeville, Pa., assignor to ARCO Polymers, Inc., Philadelphia, Pa.

Filed Sep. 5, 1980, Ser. No. 184,503

Int. Cl.³ C08K 9/04

U.S. Cl. 260—23.7 M

1 Claim

1. A molding composition having an advantageous impact strength, said molding composition consisting of an initiate mixture of from about 25 to about 40 percent of precipitated calcium carbonate particles and about 75 to 60 percent star-block interpolymers of 60 to 95 percent by weight monovinyl aromatic compound and 40 to 5 percent by weight conjugated diene of from 4 to 8 carbon atoms, said star-block interpolymers having been prepared by polymerization using an organolithium catalyst, said star-block interpolymers having from about 3 to 20 arms, at least some of the arms comprising random segments substantially free from significant blocks of either monovinyl aromatic compound or conjugated diene, said precipitated calcium carbonate particles resulting from precipitation at conditions controlled to provide an average size within the range from about 450 to about 850 millimicrons and said

particles being modified by a minor amount of coating derived from stearic acid.

4,315,842

HOT MELT COMPOSITION

Shozo Tsuchiya, Tokyo; Akio Oshima, and Hideo Hayashi, both of Yokohama, all of Japan, assignors to Nippon Oil Company, Limited, Tokyo, Japan.

Continuation-in-part of Ser. No. 63,406, Aug. 3, 1979, abandoned. This application Jul. 2, 1980, Ser. No. 164,504. Claims priority, application Japan, Aug. 9, 1978, 53-96203; Sep. 14, 1978, 53-113086.

Int. Cl.³ C08L 91/00

U.S. Cl. 260—28.5 B

12 Claims

1. A hot melt composition comprising:
(A) a hydrogenated resin having a softening point ranging from 60° to 130° C., said hydrogenated resin (A) being prepared by hydrogenating a resin at a hydrogenation percentage of aromatic rings of from 10 to 90%, said resin being prepared by copolymerizing at least two components comprising (a) 100 parts by weight of cyclopentadiene or its derivative selected from the group consisting of cyclopentadiene and dicyclopentadiene and an alkyl substituent thereof and (b) 5 to 50 parts by weight of indene or its derivative selected from the group consisting of indene and an alkyl substituent thereof; and
(B) one or more compound selected from the group consisting of ethylene-unsaturated ester copolymers, polyester resins and waxes.

4,315,843

THIN FILM MONOMER REMOVAL FROM POLYVINYL CHLORIDE LATEXES

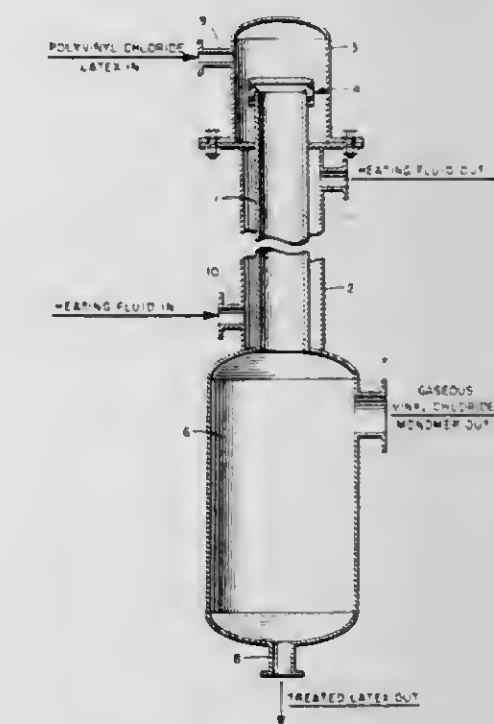
Graziano Vidotto, Padova; Febo Sellan, Treviso; Enzo Bacchetta, Scorzè; Sandro Mainardi, Marghera, and Giovanni Benussi, Mestre, all of Italy, assignors to Montedison S.p.A., Milan, Italy.

Filed May 27, 1980, Ser. No. 153,605

Claims priority, application Italy, May 28, 1979, 23036 A/79. Int. Cl.³ C08F 6/16

U.S. Cl. 260—29.6 PT

3 Claims



1. A process for extracting vinyl chloride monomer from polyvinyl chloride latexes, consisting essentially of causing continuous gravity flow of the latex under vacuum on a heat exchange surface, said latex being in the form of a thin film having a thickness ranging from 0.5 to 1.2 mm, having a temperature between 40° and 70° C. and being under a residual pressure due to the vacuum ranging from 45 to 210 mm Hg.

and removing said monomer concurrently with the flow of said latex, whereby foam formation is substantially prevented.

4,315,844

ORGANIC ELASTOMERS CONTAINING KAOLIN CLAY MODIFIED WITH ISOCYANATE COUPLING AGENTS AND MERCAPTOETHANOL

Peter Aboytes, Borger, Tex., assignor to J. M. Huber Corporation, Locust, N.J.

Filed Jul. 8, 1980, Ser. No. 166,862

Int. Cl.³ C08K 59/16; C08L 7/00

U.S. Cl. 260—42.16

1 Claim

1. A method of producing an organic elastomer containing a surface treated modified kaolin clay comprising:

- vaporizing a diisocyanate compound selected from the group consisting of 2,4-tolylene diisocyanate and 4,4'-diphenylmethane diisocyanate;
- contacting said vaporized diisocyanate compound with a dry kaolin clay for a period of time from ten minutes to one hour in the absence of water vapor so that the diisocyanate constitutes a level of from 0.2 to 3% by weight of the kaolin clay;
- treating the modified clay with mercaptoethanol; and
- blending the resulting surface treated modified clay into an organic elastomer.

4,315,845

PROCESS FOR PREPARING CHEMICALLY PLATABLE THERMOSETTING POWDER COATING

Hiroshi Takahashi, Kasama; Koichi Tsuyama; Nobuo Uozu, both of Shimodate, and Makoto Fujikura, Hitachi, all of Japan, assignors to Hitachi Chemical Company, Ltd., Tokyo, Japan

Filed Mar. 19, 1980, Ser. No. 131,625

Claims priority, application Japan, Mar. 22, 1979, 54-33924; Aug. 2, 1979, 54-99148

Int. Cl.³ C08K 5/15

U.S. Cl. 260—42.28

26 Claims

1. A process for preparing a chemically platable thermosetting powder coating comprising an intimate mixture of components in the following proportions: 100 parts by weight of at least one thermosetting resin having a melting point of up to 150° C., 1 to 30 parts by weight of a rubber component comprising at least 10% by weight of at least one rubber having ethylenic double bonds and polar groups in the molecule and up to 200 parts by weight of at least one inorganic filler, said powder coating having a melt viscosity of up to 10⁵ centipoises at least once during the course of heat hardening, the lower limit of the amount of the inorganic filler in the powder coating corresponding to that amount of the inorganic filler used in step (1) of preliminary kneading as described below, which process comprises the steps of:

- preliminarily kneading a composition comprising 3 to 50% by weight of at least one thermosetting resin having a melting point of up to 150° C., 5 to 60% by weight of at least one inorganic filler and up to 80% by weight of a rubber component as defined above, the amount of which constitutes the total amount of rubber component in the final powder coating, the minimum rubber component content of the composition being at least twice the rubber component content of the final powder coating, said composition being heated at a temperature of at least the melting point of the thermosetting resin at least once during the course of the preliminary kneading, thereby to effect efficient dispersion of the components;
- further kneading said composition together with at least one thermosetting resin having a melting point of up to 150° C. and other components which constitute the powder coating, thereby to effect intimate mixing of the components; and
- pulverizing the resulting kneaded mass.

4,315,846 METAL SALT OF N-SUBSTITUTED ALKYLENEBISDITHIOCARBAMIC ACID

Masuo Kuchikata; Hiroshi Tsuyuki, both of Urawa; Toshio Furukawa, Tokyo; Yoshihiro Nitta, Komae, and Hiroshi Kuyama, Urawa, all of Japan, assignors to Tokyo Organic Chemical Industries, Ltd., Tokyo, Japan

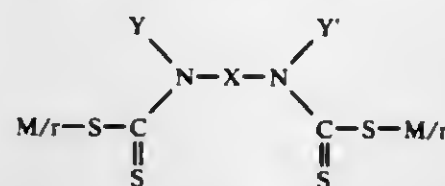
Filed Mar. 26, 1980, Ser. No. 133,994

Int. Cl.³ C07F 3/06

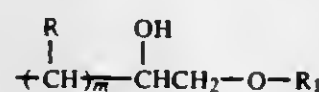
U.S. Cl. 260—429.9

13 Claims

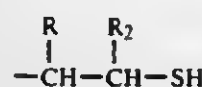
1. A metal salt of N-substituted alkylenebisdithiocarbamic acid represented by the general formula:



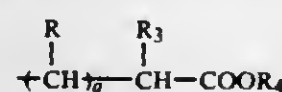
wherein, X denotes a straight or branched aliphatic chain containing at least two carbon atoms linking the nitrogen atoms, Y and Y' each denote a hydrogen atom (excluding the case wherein both Y and Y' are a hydrogen atom),



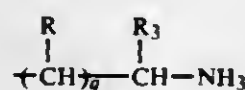
(where, R is a hydrogen atom or an alkyl group, R₁ is a hydrogen atom, an alkyl group, an unsaturated alkyl group, a phenyl group, or a phenyl group substituted with lower alkyl groups or one or more halogen atoms, and m is an integer having the value of 0, 1 or 2),



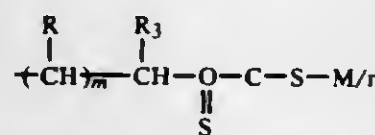
(where R and R₂ are the same as described above),



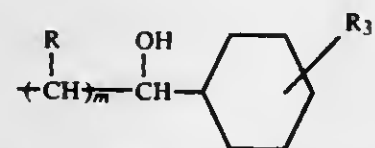
(R is the same as described above, R₃ is a hydrogen atom, a lower alkyl group or a hydroxyl group, R₄ is an alkyl group, a dialkylaminoalkyl group, an unsaturated alkyl group, a hydroxyalkyl group or a salt, and q is an integer having the value of 0 or 1),



(R, R₃ and q are the same as described above),



(where, R, R₃ and m are the same as described above, and M and r are the same as described herein below), or



(where, R, R₃ and m are the same as described above), M

denotes a member of the group consisting of zinc, copper, iron, nickel, magnesium, calcium, cobalt, manganese and tin, and r denotes a valency.

4,315,847

LINEAR SATURATED POLYESTERS OF PHOSPHORIC ACID AND HALOGENATED DIOLS AS FLAME-RETARDANT ADDITIVES AND COATINGS

Robert B. Login, and David D. Newkirk, both of Woodhaven, Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

Division of Ser. No. 933,986, Aug. 16, 1978, Pat. No. 4,259,222.

This application Jul. 20, 1979, Ser. No. 59,170

The portion of the term of this patent subsequent to Feb. 16, 1999, has been disclaimed.

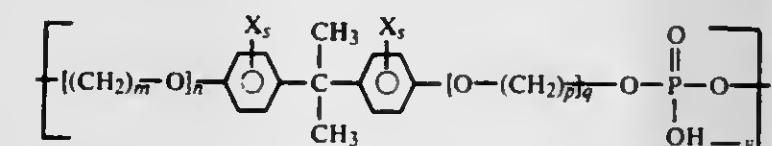
Int. Cl.³ C08K 5/52; C08L 67/02

U.S. Cl. 260—45.7 PH

7 Claims

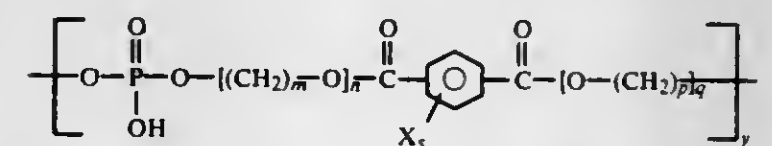
1. A flame-retardant polyester textile fiber composition comprising a normally flammable high-molecular weight poly-(alkylene terephthalate)polymer and as a flame-retardant, a phosphorus- and halogen-containing polymer which is present in a flame-retardant amount, selected from the group consisting of at least one of

A. a saturated polyester comprising the reaction product of a phosphorus acid reactant and either a halogenated bis-hydroxyalkyl aromatic diol or a non-oxyalkylated halogenated aromatic diol or mixtures thereof having the formula:



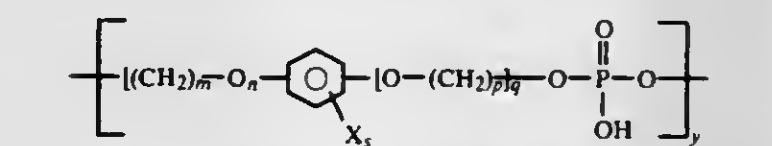
wherein X attached to the aromatic ring represents a halogen atom; s is an integer of 1 to 4; m and p are integers of 2 to 6; n and q are 0 or integers of 1 to 10; and y is an integer of 2 to 100;

B. a saturated polyester comprising the reaction product of a phosphorus acid reactant and a halogenated bis-hydroxyalkyl aromatic diacid having the formula:



wherein said diacid is selected from the group consisting of phthalic, isophthalic, and terephthalic acids, phthalic anhydride, and esters thereof and wherein X attached to the aromatic ring represents a halogen atom selected from the group consisting of bromine, chlorine, and mixtures thereof; s is an integer of 1 to 4; m and p are integers of 2 to 6; n and q are integers of 1 to 10; y is an integer of 2 to 100;

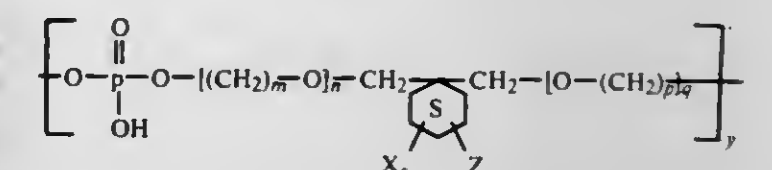
C. a saturated polyester comprising the reaction product of a phosphorus acid reactant and either a bis-hydroxyalkyl halogenated diphenol or a non-oxyalkylated halogenated dihydroxy benzene or mixtures thereof having the formula:



wherein the X attached to the aromatic ring represents a halogen atom selected from the group consisting of bromine, chlorine, and mixtures thereof; s is an integer of 1 to 4; m and

p are integers of 2 to 6; n and q are 0 or integers of 1 to 10; and y is an integer of 2 to 100; and

D. a saturated polyester comprising the reaction product of a phosphorus acid reactant and either a halocyclohexane 1,1-dimethanol or oxyalkylated derivative thereof or mixtures thereof having the formula:



wherein the X attached to the saturated ring represents a halogen atom selected from the group consisting of chlorine, bromine and mixtures thereof; s is an integer of 1 to 2; Z represents hydrogen, an alkyl radical having 1 to 6 carbon atoms or phenyl; m and p are integers of 2 to 6; n and q are 0 or integers of 1 to 10; and y is an integer of 2 to 100; prepared by coating said flammable polymer by immersing in at least one of said organic solvent solution, aqueous dispersion, or aqueous solution of said phosphorus- and halogen-containing polymer.

4,315,848

2-[2-HYDROXY-3,5-DI-(α,α -DIMETHYLBENZYL)-PHENYL]-2H-BENZOTRIAZOLE AND STABILIZED COMPOSITIONS

Martin Dexter, Briarcliff Manor, and Roland A. E. Winter, Armonk, both of N.Y., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Division of Ser. No. 36,914, May 10, 1979, which is a continuation-in-part of Ser. No. 918,984, Jan. 26, 1978, Pat. No. 4,226,763. This application Oct. 1, 1980, Ser. No. 192,741

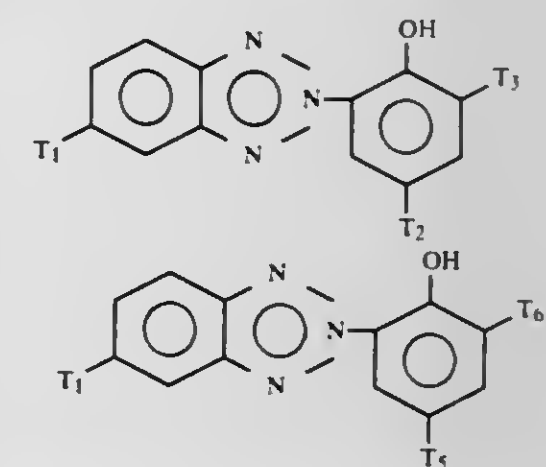
Int. Cl.³ C08K 5/34; C09D 3/80, 5/00

U.S. Cl. 260—45.8 NT

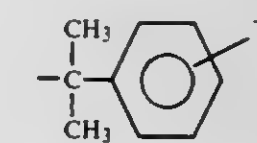
14 Claims

1. An automotive topcoat finish, lacquer or enamel composition exhibiting retention of gloss and resistance to delamination on weathering which comprises

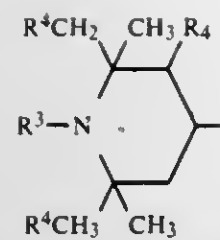
- a thermoplastic acrylic resin or a thermoset acrylic resin,
- 0.1 to 5% by weight of resin of a compound of the formula



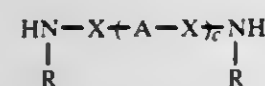
wherein T₁ is hydrogen or chloro, T₂ and T₃ are independently the group



where T₄ is hydrogen or lower alkyl, T₅ is tert-octyl or the group



wherein R^3 is hydrogen, C_1 - C_{18} alkyl, C_3 - C_{12} alkenyl, C_3 - C_{18} alkynyl, C_3 - C_{18} alkoxyalkyl, C_2 - C_4 hydroxyalkyl which is unsubstituted or substituted by phenyl or phenoxy, or is C_7 - C_{18} aryl, and R^4 is hydrogen or methyl, and each of R^8 and $R^{8'}$ independently is hydrogen, C_1 - C_{23} alkyl which can be interrupted by oxygen, C_3 - C_{12} cycloalkyl, C_7 - C_{18} alkyl, C_6 - C_{10} aryl or the radical of the formula II, or R^8 and $R^{8'}$ together with the nitrogen atom to which they are attached form a pyrrolidine ring or a piperidine, morpholine, or hexamethyleneimine ring which is unsubstituted or substituted by C_1 - C_4 alkyl, with at least one polyamine of the formula



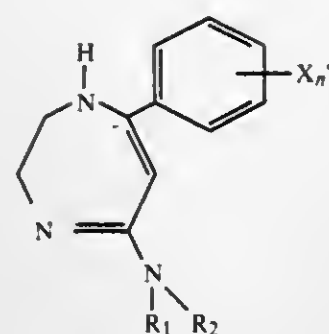
(XIX)

wherein X is C_2 - C_6 alkylene, A is $-O-$, $-S-$ or $-NR-$, each R independently is hydrogen, C_1 - C_{23} alkyl which can be interrupted by oxygen, C_3 - C_{12} cycloalkyl, C_7 - C_{18} alkyl, C_6 - C_{10} aryl or the radical of the formula II, and c can be an integer from 1 to 4, with the proviso that at least one of R^2 or R is or contains a group of the formula II, and, if desired, treating the compound so obtained with an acylating agent, such that, if a mixture of polyamines of the formula XIX is used, said mixture can contain an amount of an amine of the formula XIX in which c is 0, and whenever $R^{2'}$ is halogen, or if terminal halogen atoms are still present, the compound obtained can subsequently additionally be reacted with compounds of the formula XX



(XX)

wherein $R^{2'}$ has the same meaning as R^2 excepting halogen and phenyl.



wherein

R_1 and R_2 taken together and with the nitrogen atom to which they are joined are pyrrolidino, piperidino or N -2-hydroxyethylpiperazino,

each

X' is independently non-sterically hindered alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms chloro, bromo or fluoro, or two X' 's on adjacent carbon atoms together are methylenedioxy, and

n is 0, 1, 2 or 3,

or a pharmaceutically acceptable acid addition salt thereof.

4,315,861

PROCESS FOR O-ACYLATING PHENOL DERIVATIVES AND ACYLATING COMPOSITIONS FOR THIS PURPOSE

Georgy Lugosi, Felsogod; Antal Simay, Budapest; Janos Bodnar, Budapest; Istvan Turcsan, Budapest; Istvan Jelinek, Budapest; Eva Somfai, Budapest, and Laszlo Simandi, Budapest, all of Hungary, assignors to Chinoin Gyógyszer RT, Budapest, Hungary

Continuation-in-part of Ser. No. 201,508, Oct. 28, 1980. This application Mar. 23, 1981, Ser. No. 246,412

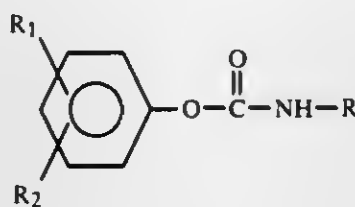
Claims priority, application Hungary, Nov. 8, 1979, CI 1984

Int. Cl.³ C07D 317/10; C07C 125/067

U.S. Cl. 260—340.9 R

6 Claims

1. A process for preparing a carbamic acid phenyl ester of the formula (I)



wherein

R is alkyl having 1 to 8 carbon atoms, aryl, cycloalkyl having 5 or 6 carbon atoms, or aralkyl having 7 to 16 carbon atoms, wherein the aryl, cycloalkyl, or aralkyl is unsubstituted or substituted by at least one alkyl group having 1 to 8 carbon atoms; R_1 is hydrogen, alkyl having 1 to 4 carbon atoms, alkoxy having 1 to 4 carbon atoms, cyanomethyl, 1,3-dioxolan-2-yl, or carboalkoxyamino wherein the alkoxy group contains 1 to 4 carbon atoms;

R_2 is hydrogen, halogen, alkyl having 1 to 4 carbon atoms, or alkoxy having 1 to 4 carbon atoms; or

R_1 and R_2 form together a carbocyclic ring or a heterocyclic ring fused to the phenyl ring wherein the carbocyclic ring or heterocyclic ring is unsubstituted or substituted by at least one alkyl having 1 to 8 carbon atoms, which comprises acylating a phenol of the formula (II)

4,315,860

5-PYRROLIDINO, PIPERIDINO OR N'-2-HYDROXYETHYLPIPERAZINO-7-PHENYL OR SUBSTITUTED

PHENYL-2,3-DIHYDRO-1H-1,4-DIAZEPINES

William R. Simpson, Mendham, N.J., assignor to Sandoz, Inc., East Hanover, N.J.

Continuation-in-part of Ser. No. 887,953, Mar. 20, 1978, abandoned, which is a division of Ser. No. 725,440, Sep. 22, 1976, Pat. No. 4,096,140, which is a continuation-in-part of Ser. No. 528,344, Nov. 29, 1974, abandoned, which is a

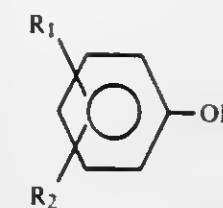
continuation-in-part of Ser. No. 456,017, Mar. 29, 1974, Pat. No. 3,929,884. This application Dec. 26, 1979, Ser. No. 107,428

Int. Cl.³ C07D 419/04

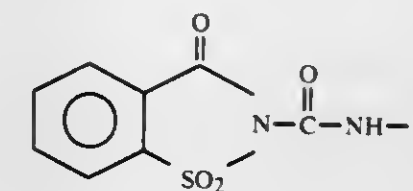
U.S. Cl. 260—245.7

6 Claims

1. A compound of the formula



with a compound of the formula (IV)



in the presence of a base.

4,315,862

PROCESS FOR PREPARING CANNABICHROMENE

Mahmoud A. Elsohly, and Carlton E. Turner, both of Oxford, Miss., assignors to The University of Mississippi, University, Miss.

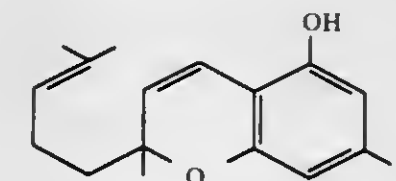
Filed May 31, 1979, Ser. No. 44,350

Int. Cl.³ C07D 311/58

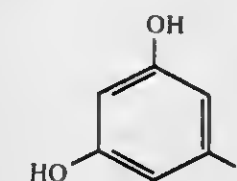
U.S. Cl. 260—345.2

10 Claims

1. A method for the preparation of cannabichromene and cannabichromene analogues of the formula



wherein R is hydrogen, C_1 - C_{10} -alkyl or C_2 - C_{10} -alkenyl, comprising reacting a substituted resorcinol of the formula



wherein R is hydrogen, C_1 - C_{10} -alkyl or C_2 - C_{10} -alkenyl with citral in the presence of a primary amine.

4,315,863

HIGHLY MALEATED WAX AND PROCESS FOR PRODUCING THE SAME

Toru Tomoshige, Otake; Harumi Furuta, Iwakuni; Akihiro Tachi, Otake, and Nobuyuki Kawamoto, Yanai, all of Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

Filed Aug. 6, 1980, Ser. No. 175,701

Claims priority, application Japan, Aug. 10, 1979, 54-101169

Int. Cl.³ C07D 307/60

U.S. Cl. 260—346.74

4 Claims

1. A process for producing a maleated saturated hydrocarbon wax comprising the step of reacting a melt of a saturated hydrocarbon wax having a number-average molecular weight of 400 through 5000 selected from the group consisting of polyethylene waxes which are derived from the polymerization of ethylene or the copolymerization of ethylene and other alpha-olefins, in the presence of hydrogen, in an inactive solvent, at a temperature of 120 through 300° C., by using a titanium compound highly activated with a magnesium compound, and an organoaluminum compound; polymethylene

waxes which are derived from a Fischer-Tropsch synthesis and the subsequent hydrogenation by using a conventional hydrogenation catalyst; hydrogenated products of cracked waxes derived from high molecular weight polyethylene, and mixtures thereof with 16 through 70 parts by weight, based on 100 parts by weight of the starting wax, of maleic anhydride in the presence of an organic peroxide at a temperature of from the melting point of the saturated hydrocarbon wax to 220° C. by continuously adding the maleic anhydride and the organic peroxide to the molten saturated hydrocarbon wax in such a manner that the addition rate of the maleic anhydride is within the range of 0.1 to 10 parts by weight per hour, based on 100 parts by weight of the starting saturated hydrocarbon wax, and that the addition rate of the organic peroxide is within the range of 5.0 to 30.0% by mol, based on the addition mol number of the maleic anhydride.

2. A maleated saturated hydrocarbon wax having a number-average molecular weight of 500 through 6000, a content of a maleic anhydride unit of 17 to 30% by weight and, a melt viscosity of 10² through 10⁶ centipoises at 140° C., and the average graft chain length of the maleic anhydride unit of said wax is in the range of from 1 to 2 wherein the saturated hydrocarbon wax used to produce said maleated saturated hydrocarbon wax has a number-average molecular weight of 400 through 5000 and is selected from the group consisting of polyethylene waxes which are derived from the polymerization of ethylene or the copolymerization of ethylene and other alpha-olefins, in the presence of hydrogen, in an inactive solvent, at a temperature of 120 through 300° C., by using a titanium compound highly activated with a magnesium compound, and an organoaluminum compound; polymethylene waxes which are derived from a Fischer-Tropsch synthesis and the subsequent hydrogenation by using a conventional hydrogenation catalyst; hydrogenated products of cracked waxes derived from high molecular weight polyethylene, and mixtures thereof.

4,315,864

PREPARATION OF MALEIC ANHYDRIDE

Noel J. Bremer, Stow, and Dennis E. Dria, Cleveland, both of Ohio, assignors to Standard Oil Company (Ohio), Cleveland, Ohio

Filed Oct. 22, 1980, Ser. No. 199,401

The portion of the term of this patent subsequent to Jan. 12, 1998, has been disclaimed.

Int. Cl.³ C07D 307/60

U.S. Cl. 260—346.75

11 Claims

1. A process for the production of maleic anhydride by the oxidation of *n*-butane, *n*-butene, 1,3-butadiene or a mixture thereof with molecular oxygen or oxygen-containing gas in the vapor phase at a reaction temperature of 250° C.-600° C. in the presence of a catalyst containing the mixed oxides of vanadium and phosphorus, wherein said catalyst is prepared by

- introducing a pentavalent vanadium-containing compound into an olefinic, oxygenated organic liquid-containing liquid medium,
- effecting reduction of at least a portion of said vanadium to a valence state of about +4 and in the absence of a corrosive reducing agent;
- adding a phosphorus-containing compound to said medium prior to or subsequent to effecting said reduction to form a catalyst precursor;
- recovering the catalyst precursor;
- drying the catalyst precursor;
- calcining the catalyst precursor.

4,315,865

PROCESS FOR THE PRODUCTION OF SULFURIC ACID SEMIESTER COMPOUNDS BY SULFATION IN A MACHINE EMPLOYING KNEADING ACTION

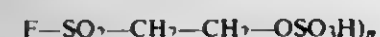
Ernst Hoyer, Frankfurt am Main; Hans H. Stewernagel, and Dieter Wagner, both of Kelheim, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Continuation of Ser. No. 820,851, Aug. 1, 1977, abandoned. This application May 31, 1978, Ser. No. 911,136

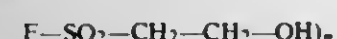
Claims priority, application Fed. Rep. of Germany, Aug. 3, 1976, 2634855; Aug. 3, 1976, 2634909

Int. Cl.³ C09B 1/30, 43/24, 45/00, 57/14
U.S. Cl. 260—373 7 Claims

1. In a process for the preparation of a compound of the formula



in which F is the radical of an organic dyestuff molecule and n is the number 1, 2, 3 or 4, by esterification of a compound of the formula



or a salt thereof in which F and n have the above meanings, by a sulfuric acid or sulfur trioxide agent, the improvement which comprises carrying out the reaction in a machine operating with a kneading action and with 1 to 5 times the equimolar amount, calculated on one mol of SO₃, of 92 to 100% strength sulfuric acid or sulfuric acid containing sulfur trioxide or sulfur trioxide itself.

4,315,866

PROCESS FOR PREPARING 11-KETO STEROIDS

Paul-Eberhard Schulze, and Ulrich Kerb, both of Berlin, Fed. Rep. of Germany, assignors to Schering, A.G., Berlin, Fed. Rep. of Germany

Filed Dec. 10, 1980, Ser. No. 215,761

Claims priority, application Fed. Rep. of Germany, Dec. 10, 1979, 2950026

Int. Cl.³ C07J 5/00

U.S. Cl. 260—397.3 7 Claims

1. A process for preparing an 11-keto steroid consisting essentially of heating the corresponding 9α-halo-11β-hydroxy steroid to 180°–350° C. in an inert, aprotic, high-boiling solvent.

7. A process of claim 1 wherein the solvent is biphenyl, diphenylene oxide, dibenzylbenzene, an oligoglycol dimethyl ether or a poly-C₄₋₈-alkanediol dimethyl ether.

4,315,867

SECONDARY AND TERTIARY 2-CARBOXYETHYL- AND CARBOXYMETHYLPHOSPHINES AND THE SALTS THEREOF, AS WELL AS THEIR PREPARATION AND USE

Peter Hünasle, Haltern, Fed. Rep. of Germany, assignor to Chemische Werke Huels, Aktiengesellschaft, Marl, Fed. Rep. of Germany

Filed Jan. 17, 1980, Ser. No. 112,754

Claims priority, application Fed. Rep. of Germany, Jan. 2, 1979, 2902202

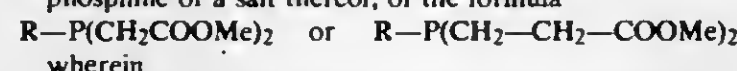
Int. Cl.³ C07F 15/00

U.S. Cl. 260—439 R 4 Claims

1. In a nickel-containing catalyst for the oligomerization of ethylene wherein Ni is bonded to (a) a phosphine ligand, and also to (b) up to two other ligands which are a different phosphine, a phosphite, a phosphino alkylene, an arsine, a stibine, a bismuthine or an olefinically unsaturated compound of 2–20 carbon atoms, containing up to four olefinically unsaturated linkages and up to 3 carbocyclic rings

the improvement wherein said ligand (a) is a

secondary or tertiary 2-carboxyethyl- or carboxymethyl-phosphine or a salt thereof, of the formula



wherein

Me is hydrogen, an alkali metal or NR' where R' is hydrogen, C₁₋₁₀ alkyl or C₆₋₁₄ aryl, and

R is hydrogen or a saturated or unsaturated, aliphatic or cycloaliphatic group of 1–20 carbon atoms and, for the 2-carboxyethylphosphines, also C₆₋₁₄ aryl.

4,315,868

PROCESS FOR THE PREPARATION OF α-CYANO BENZYL ESTERS

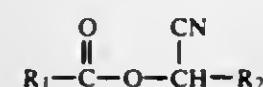
Jacques Martel, Bondy; Jean Tessier, Vincennes; Jean-Pierre Demonte, Montreuil-sous-Bois, and Andre Teche, Nanterre, all of France, assignors to Roussel Uclaf, Paris, France

Division of Ser. No. 951,184, Oct. 13, 1978, Pat. No. 4,277,617. This application Oct. 3, 1980, Ser. No. 193,798

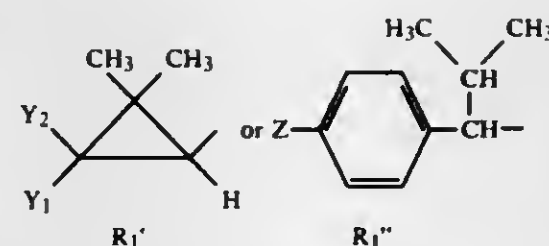
Claims priority, application France, Oct. 27, 1977, 77 32414; Oct. 27, 1977, 77 32415; Jul. 24, 1978, 78 21811; Jul. 24, 1978, 78-21812

Int. Cl.³ C07C 120/04, 121/66, 121/75
U.S. Cl. 260—465 D 7 Claims

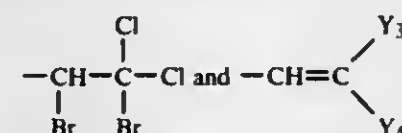
1. A process for the preparation of a compound of the formula



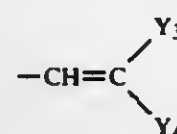
wherein R₁ is



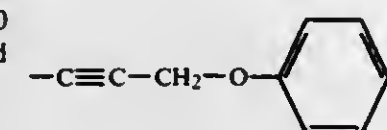
Y₁ and Y₂ may both be methyl or when Y₁ is hydrogen, Y₂ is selected from the group consisting of



and Y₃ and Y₄ are individually selected from the group consisting of fluorine, bromine, chlorine, or the group consisting of hydrogen and methyl, Z is selected from the group consisting of hydrogen, fluorine, chlorine, bromine, alkyl of 1 to 4 carbon atoms and alkoxy of 1 to 4 carbon atoms, and when Y₁ and Y₂ are methyl or when Y₁ is hydrogen and Y₂ is



R₂ is selected from the group consisting of



4,315,869

PREPARATION OF α,β-UNSATURATED NITRILES
Franz Merger, Frankenthal; Hans-Martin Hutmacher, Ludwigshafen, and Helmut Hagen, Frankenthal, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

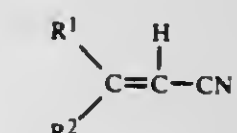
Filed Apr. 24, 1980, Ser. No. 143,446

Claims priority, application Fed. Rep. of Germany, May 16, 1979, 2919630

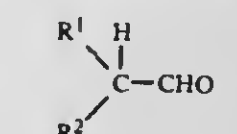
Int. Cl.³ C07C 120/10

U.S. Cl. 260—465.2 13 Claims

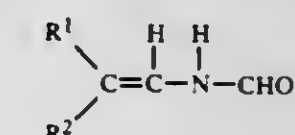
1. A process for the preparation of α,β-unsaturated nitriles of the formula



where R¹ and R² may be identical or different and each may be substituted or unsubstituted and each is alkyl of 1 to 7 carbons, cycloalkyl of 5 to 7 carbons, aralkyl or alkylaryl of 7 to 12 carbon atoms, aromatic, or piperidin-2-yl or R¹ and R² together with the adjacent carbon may also be members of a 5- to 6-membered alicyclic ring, and any of R¹ and R² may be substituted by alkyl or alkoxy of one to four carbon atoms, by first reacting, an aldehyde of the formula



where R¹ and R² have the above meanings, at a temperature from 40° to 150° C. with formamide in the presence of a catalytic amount of an inorganic acid, aromatic sulfonic acid and/or halogen-substituted aliphatic carboxylic acid in the absence of an added solvent or in the presence of an organic non-alcoholic and non-aromatic solvent which is inert under the reaction conditions, after which, in a second step, the resulting N-alkenylformamide of the formula



where R¹ and R² have the above meanings, is passed, in the gas phase, over a dehydration catalyst at from 250° to 700° C.

4,315,870

PHOSPHORODIAMIDOTHIOATES

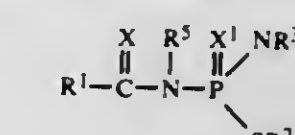
Janet Ollinger, Chalfont, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

Continuation-in-part of Ser. No. 5,937, Jan. 24, 1979, and Ser. No. 42,689, May 25, 1979. This application Dec. 11, 1979, Ser. No. 102,471

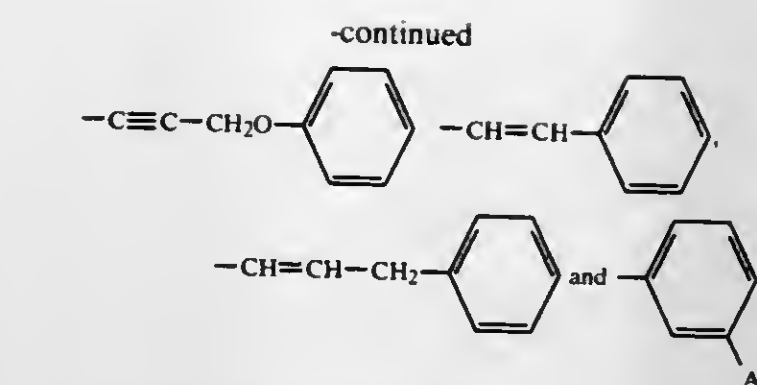
Int. Cl.³ C07F 9/24; A01N 57/28, 57/30

U.S. Cl. 260—947 10 Claims

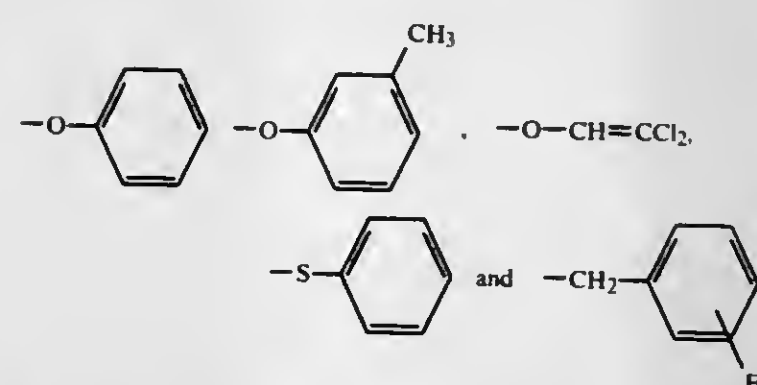
1. A compound of the formula:



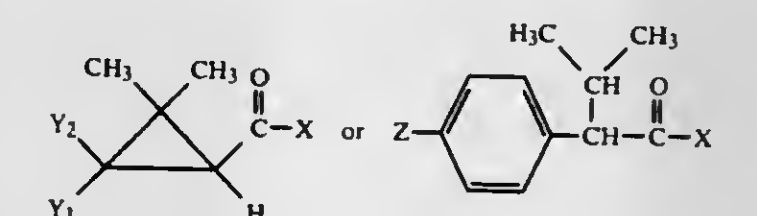
wherein
R¹ is a hydrogen atom;
an unsubstituted (C₁–C₆) alkyl group;
a (C₁–C₆) alkyl group substituted with up to three substituents selected from fluoro, chloro and bromo groups;



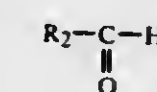
A — is selected from the group consisting of



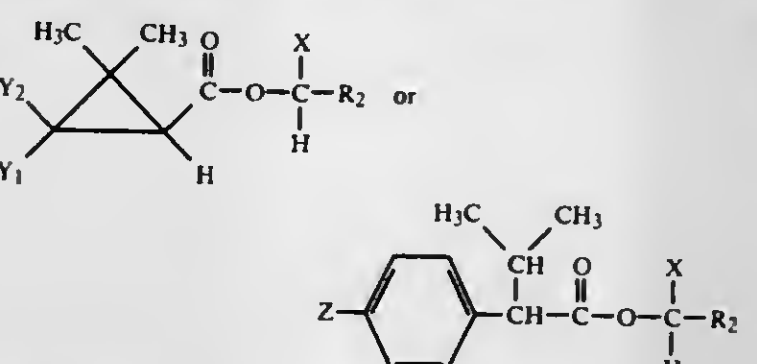
and when Y₁ is hydrogen and Y₂ is —CHBr—CCl₂Br, R₂ is m-phenoxyphenyl, the said acid moiety may be in the cis or trans form or mixtures thereof or optically active isomeric form or racemic mixtures thereof, comprising reacting in an anhydrous medium an acid halide of the formula



wherein Y₁ and Y₂ and Z have the above definition and X is selected from the group consisting of fluorine, chlorine and bromine with an aldehyde of the formula



wherein R₂ has the above definition in the presence of an acid catalyst to obtain a compound of the formula



that may be in one of two diastereoisomeric forms due to the existence of the asymmetrical carbon atoms to which X is attached and reacting the obtained compound with a compound which generates CN[−] ions to obtain the corresponding above compound.

a (C₁-C₆) alkyl group substituted with one substituent selected from (C₁-C₄) alkoxy, (C₁-C₄) alkoxycarbonyl, and phenoxy groups;
 a (C₃-C₆) alkenyl group;
 a (C₄-C₁₇) alkylidienyl group;
 a (C₃-C₆) cycloalkyl group;
 a (C₁-C₄) alkoxycarbonyl group;
 an unsubstituted phenyl group;
 an unsubstituted phenyl (C₁-C₃) alkyl group;
 an unsubstituted phenyl (C₂-C₆) alkenyl group;
 a phenyl or phenyl (C₁-C₃) alkyl group; substituted with up to two substituents selected from nitro and chloro groups;

R² is a (C₂-C₄) alkyl group;

R³ is a hydrogen atom,

a (C₁-C₃) alkyl group, or

a (C₁-C₃) alkenyl group;

R⁴ is a hydrogen atom or

a (C₁-C₃) alkyl group;

R⁵ is a hydrogen atom,

a (C₁-C₃) alkyl group or

a (C₁-C₃) alkenyl group; and

X and X¹ are an oxygen atom or a sulfur atom.

4,315,872

PLATE COLUMN

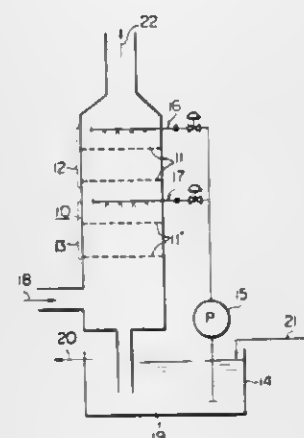
Teizo Senjo, Machida, and Makin Kobayashi, Toyonaka, both of Japan, assignors to Fuji Kasui Engineering Co., Ltd., Tokyo and Sumitomo Metal Industries, Ltd., Osaka, both of Japan
 Continuation of Ser. No. 878, Jan. 4, 1979, abandoned. This application Apr. 21, 1980, Ser. No. 141,982

Claims priority, application Japan, Jul. 29, 1977, 52-90411; Mar. 3, 1978, 53-26321; Jul. 28, 1978, 53-103091

Int. Cl.³ B01D 47/06

U.S. Cl. 261-113

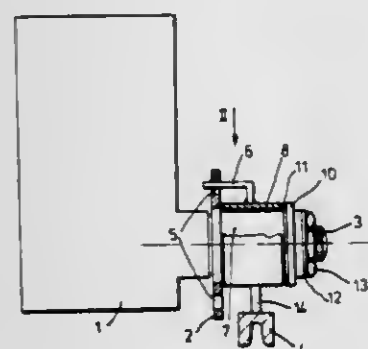
3 Claims



1. A process for removing a specific component from a gas comprising the steps of:

passing said gas upwardly, at a superficial gas velocity within a range of 2 to 7 m/second, through a scrubbing column comprising at least two sections, each section including at least one perforated or grid plate without weir and downcomer having a free-space ratio of from 0.30 to 0.60, and a liquid feed distributor at a top portion thereof for increasing a liquid-to-gas ratio (L/G) at said column from an uppermost section to a lowermost section, said free-space ratio of said at least one plate in each section increasing from said uppermost section to said lowermost section whereby pressure drop across each section is kept uniform despite the increase in liquid-to-gas ratio (L/G), said plates being supported by means of tray support beams which are fixed to a support post suspended in a center of said column, and said liquid feed distributor of each section up to but not including said uppermost section, being provided with a plurality of nozzles in such a manner that liquid is sprayed within a central area of each plate, said central area comprising about 10 to 50% of the total area of each plate, said liquid feed distributor of said uppermost section being provided with a plurality of nozzles in such a manner that liquid is sprayed uniformly across the entire uppermost plate, whereby channeling across the plates in said column is substantially limited; and

simultaneously passing a scrubbing liquid downwardly through said column at a liquid-to-gas ratio (L/G) of from 1 to 50, a portion of said scrubbing liquid being fed through the liquid feed distributor of said uppermost section and the remainder of said scrubbing liquid being fed through the others of said distributors mounted at said top portions of said sections of said column, wherein the gas in the lowermost portion is uniformly and countercurrently scrubbed with the total amount of scrubbing liquid and the gas in the uppermost section is uniformly and countercurrently scrubbed with only said portion of the scrubbing liquid fed through the liquid feed distributor of the uppermost section whereby improved removal results.



1. A carburetor control system for an internal combustion engine carburetor provided with a throttle valve and a shaft operating the valve, said system comprising a basic actuating member connected in a form-locking manner with respect to rotation, and at a defined angular position, to the throttle valve shaft, and a set of throttle valve levers having respectively different configurations, with one selected lever of said set being releasably connected to said basic actuating member without play for enabling the carburetor valve to be controlled by a respective actuating structure.

4,315,871

CARBURETOR CONTROL DEVICE FOR CARBURETORS IN INTERNAL-COMBUSTION ENGINES

Erwin Pape, Calberlah, Fed. Rep. of Germany, assignor to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Fed. Rep. of Germany

Filed Feb. 13, 1980, Ser. No. 121,231

Claims priority, application Fed. Rep. of Germany, Feb. 16, 1979, 2905911

Int. Cl.³ F02M 19/12

U.S. Cl. 261-65

7 Claims

4,315,873

COOLING EQUIPMENT

Ennis C. Smith, Houston, Tex., and Addison Y. Gunter, deceased, late of Gainesville, Tex. (by Ann R. Gunter, executrix), assignors to Hudson Products Corporation, Houston, Tex.

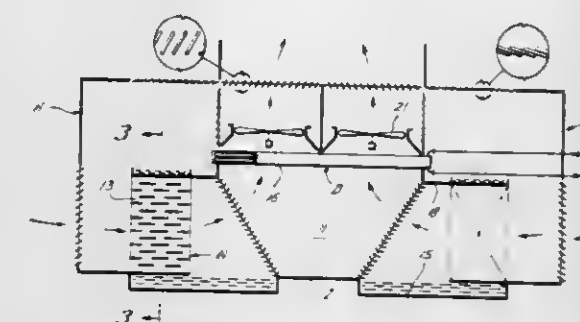
Continuation of Ser. No. 853,516, Nov. 21, 1977, abandoned.

This application Dec. 27, 1978, Ser. No. 973,634

Int. Cl.³ F28C 1/06

U.S. Cl. 261-158

3 Claims U.S. Cl. 264-23



1. Cooling equipment, comprising a wet cooling tower section having an air inlet, an air outlet, fill intermediate the inlet and outlet, and means for distributing water over the fill so as to cool air as it flows through the wet tower section, a dry cooling tower section having an inlet, an air outlet, and a tube bundle through which a cooling medium may be passed and over which air is caused to flow in passing through the dry tower section so as to cool the medium, means for causing air to pass successively through said wet section, into the inlet of said dry section, and across the tube bundle thereof, a housing having a first portion enclosing the inlet to the wet section, a second portion enclosing the outlet from the dry section, a first opening connecting the first and second portions, a second opening to admit air to said first portion, a third opening to vent air from the second portion, and means for controlling the flow of air through said first, second and third openings, whereby the first opening may be closed and the second and third openings opened to cause the air passing successively through said wet section and across the tube bundle of the dry section to be vented from said dry section, or the second and third openings may be closed and said first opening opened to cause said air to be recirculated through the wet section and across the tube bundle of the dry section.

4,315,874

PROCESS FOR THE PRODUCTION OF SPHERICAL CARRIER PARTICLES FOR OLEFIN POLYMERIZATION CATALYSTS

Yoshihisa Ushida, Ohtake; Yoshikatu Amimoto, Iwakuni; Akinori Toyota, Iwakuni, and Norio Kashiwa, Iwakuni, all of Japan, assignors to Mitsui Petrochemical Industries Ltd., Tokyo, Japan

Filed Apr. 7, 1980, Ser. No. 137,641

Claims priority, application Japan, Apr. 11, 1979, 54/43002

Int. Cl.³ B01J 2/00

U.S. Cl. 264-5

7 Claims

1. A process for producing spherical carrier particles for olefin polymerization catalyst, which comprises

(i) forming a suspension of molten droplets of an adduct of a halogen-containing magnesium compound and an active hydrogen-containing organic compound selected from the group consisting of alcohols having 1 to 18 carbon atoms, phenols having 6 to 15 carbon atoms, organic carboxylic acids having 1 to 18 carbon atoms and amines having 1 to 16 carbon atoms, in an organic liquid medium selected from the group consisting of hydrocarbons, halogenated hydrocarbons, and ethers in the presence of at least one oil soluble surface-active agent as an auxiliary component, and

(ii) quenching the resulting suspension to solidify the adduct droplets.

4,315,875

PROCESS FOR MOLDING MINERALIC COMPONENTS WITH ORGANIC BINDERS

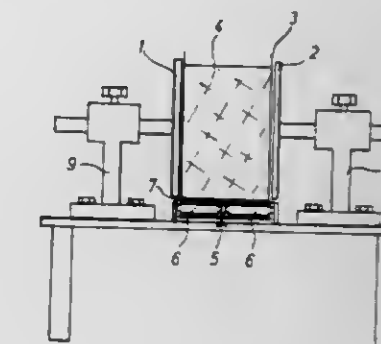
Helmut Hoedt, Bertramstrasse 69, 6000 Frankfurt 1, Fed. Rep. of Germany

Filed Apr. 7, 1980, Ser. No. 138,210

Claims priority, application Fed. Rep. of Germany, Aug. 22, 1979, 2933956

Int. Cl.³ B06B 3/00

8 Claims



1. A process for molding an electrically non conductive solid mass body of a mineralic particulate component and a heat hardenable organic binder, comprising:
 (a) mixing said heat hardenable organic binder with said mineralic component having a particle size of 0.05-6.0 mm, wherein the binder content is sufficient, upon heating, to harden and to bond said component particles into a solid mass,
 (b) filling a mold with said mixture, and
 (c) heating said mixture in said mold by a dielectric heat source to harden said binder and form said solid mass body.

4,315,876

METHOD FOR HOT PRESS FORMING ARTICLES

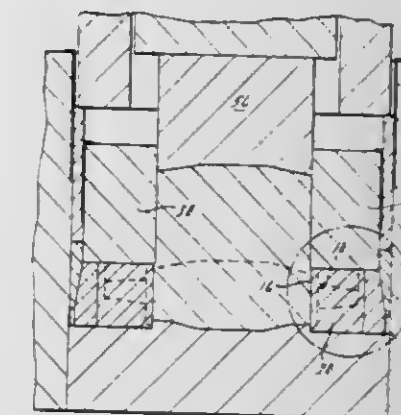
Robert R. Baker, and Dale L. Hartsock, both of Livonia, Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Jul. 31, 1979, Ser. No. 62,601

Int. Cl.³ C04B 35/60

U.S. Cl. 264-40.1

3 Claims



1. In a method for hot press forming both an outer facing circumferential surface of and an inner portion of a hub and of bonding that so-formed outer facing circumferential surface of the so-formed hub to an inner facing circumferential surface of a preformed outside ring thereby to form an article, the method being one in which the pre-formed outside ring is restrained by a restraining sleeve of ring-shaped cross-section having an inside diameter and wherein a die member used to engage the inside diameter of the restraining sleeve in a manner permitting relative movement therebetween, the improvement to achieve the best bond strength to minimize distortion and cracking of so-formed articles when the method is repeatedly used to form a series of articles, which method comprises the steps of:

forming several pairs of a matched restraining sleeve and die member with each matched pair having a predetermined diameter, said predetermined diameter being different from one another by stepped increments, the largest inside diameter of a restraining sleeve being equal to the diameter of the outer facing circumferential surface of the hub; using each of said pair of said matched restraining sleeve and die member to form a sample of an article in which an inside hub is bonded to an outside ring; evaluating said several formed samples to determine which sample has the best bond formed between the hub thereof and the ring thereof while minimizing any distortion of the ring; and thereafter using for repeated formation of articles in which an inside hub is bonded to an outside ring that matched restraining sleeve and die member which formed the article with the best bonding characteristics.

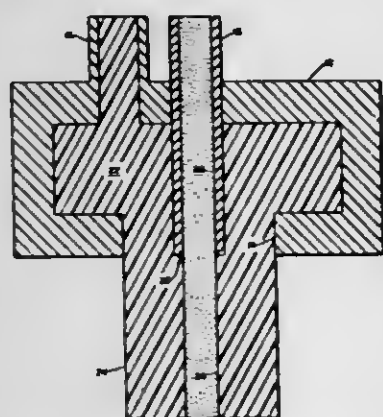
4,315,877

METHODS OF FABRICATING SORBENT-CORED TEXTILE YARNS

Myron J. Coplan, Natick, and George Lopatin, Newton, both of Mass., assignors to Albany International Corp., Albany, N.Y. Division of Ser. No. 14,071, Feb. 22, 1979, abandoned. This application Jan. 6, 1980, Ser. No. 157,102
Int. Cl.³ B29D 7/02

U.S. Cl. 264—45.9

19 Claims



1. The method of forming textile yarn filaments including the steps of:
cospinning through an orifice and a hollow needle therein and drawing a core comprising a slurry of particulate sorptive material in a liquid carrier with a surrounding sheath comprising a blend of a polymeric material and an open-cell pore-forming material which is compatible with the polymeric material during cospinning and incompatible therewith to form a discrete phase after leaving the orifice, said drawing reducing the outer diameter of the extrudate to between 0.001 and 0.01 inch, extracting the pore-forming material to porosify the sheath of the resulting filament, and extracting the liquid carrier from the core of the filament.

4,315,878

MANUFACTURE OF BLANKS FOR RECORDING DISCS UTILIZING COEXTRUSION AND BLANKS AND RECORDS MADE THEREBY

Dennis W. Van Dover, Monticello, and Richard C. Lindmark, Jr., Coon Rapids, both of Minn., assignors to H. B. Fuller Company, St. Paul, Minn.

Filed Jan. 14, 1980, Ser. No. 111,535

Int. Cl.³ B29C 24/00; B29D 17/00; B29F 3/10; B32B 27/08, 31/30

U.S. Cl. 264—107

12 Claims

1. A coextruded recording disc blank comprising:
(a) a coextruded core layer comprising recycled thermoplastic vinyl polymer blended with 5 to 95% by weight of a filler having a particle size finer than 40 U.S. mesh prior to coextrusion, said coextruded core layer being of less than

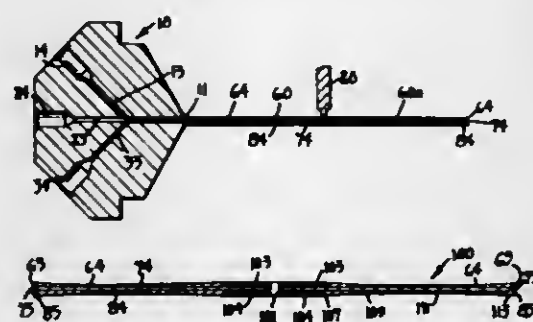
recording-grade quality in its ability to form high fidelity recording grooves,

(b) in adherent contact with each major surface of said coextruded core layer, a coextruded layer consisting essentially of sound recording-grade vinyl polymer.

2. In the manufacture of a layered record blank having a thickness at its thickest point which is greater than one millimeter and having a solid core comprising core material and, superposed upon and in adherent contact with a major surface of said core layer, a solid thermoplastic layer comprising recording groove-accepting thermoplastic material, the method comprising:

continuously bringing to a common die an extrudable flow comprising said core layer material and an extrudable flow comprising said recording groove-accepting thermoplastic material, and

continuously coextruding from said common die a substan-



tially laminar flow which is thicker than about one millimeter and which comprises a first layer comprising said core material and, in adherent contact therewith, a second layer comprising said recording groove-accepting thermoplastic material, the adherence of said adherent contact resulting at least in part from said coextruding step.

9. The method of forming a record disc from the blank produced from the process of claim 1 comprising the steps of claim 1 plus the additional steps of:

(a) maintaining a coextruded record disc blank comprising a core layer and a recording groove-accepting thermoplastic surface layer in adherent contact with each major surface of said core layer at a temperature above the glass transition temperature of the said surface layers in said record disc blank, and

(b) impressing recording grooves in said coextruded record disc blank while said record disc blank is at a temperature above said softening point and below said melting point.

4,315,879

PROCESS FOR PREPARING STARTING MATERIALS TO FORM A CERAMIC COMPOSITION

Hans P. H. Pfahl, Försterstr. 52; Dieter P. H. Agthe, Plöninger Weg 12, and Diethard G. Kreimer, Naturforsch. 2, all of 8672 Selb, Fed. Rep. of Germany

Filed Dec. 15, 1978, Ser. No. 970,065

Claims priority, application Fed. Rep. of Germany, Dec. 15, 1977, 2756034

Int. Cl.² B02B 5/02; C04B 33/02, 33/04

U.S. Cl. 264—117

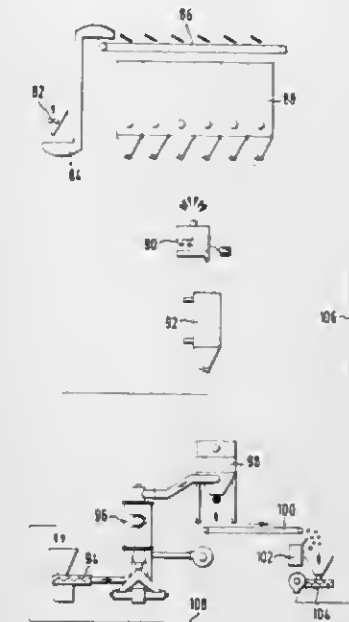
9 Claims

1. A process of producing mixed heterogeneous agglomerates of ceramic materials for ceramic compositions to be cast, kneaded or pressed, which agglomerates constitute wet interior portions enveloped by solid material dry at the surface, said heterogeneous agglomerates comprising about 6-25% water, the process comprising:

suspending finely ground ceramic starting materials in a gaseous stream and spraying the gaseous-solids mixture in a turbulent floating state uniformly over the cross-section of a spraying zone;

spraying droplets of dissolved or suspended recycling material constituting a water slurry of ceramic particles, from further processing of the ceramic composition, into said

spraying zone to contact said gaseous-solids mixture in the turbulent state;
thereby enveloping said droplets with said finely ground ceramic material and forming said mixed heterogeneous agglomerates having dry surfaces; and



maintaining the ratio of finely ground ceramic material to droplets of slurry to ensure that said heterogeneous agglomerates comprise about 6-25% water.

4,315,880

MANUFACTURE OF FIBROUS PRODUCTS

Uiltje J. Veenstra, Amsterdam, Netherlands, assignor to Shell Oil Company, Houston, Tex.

Continuation-in-part of Ser. No. 73,357, Sep. 7, 1979, abandoned. This application May 1, 1980, Ser. No. 145,564

Claims priority, application United Kingdom, Sep. 12, 1978, 36525/78

Int. Cl.³ B29F 5/00

U.S. Cl. 264—119

5 Claims

1. In the process for the manufacture of fibrous particles which comprises depositing on a surface a layer of powdery particles consisting at least to the extent of 50% by weight of thermoplastic resin and containing between 15 and 50 phr of a particulate inorganic filler having particle diameters in the range from 0.1 to 20 μ m, maintaining the layer under sufficient heat for a sufficient length of time to form a sheet of partly fused particles, and drawing the sheet to convert it to a uniform fibrous web, the improvement of including in said layer from 0.1 to 5 phr of a compound $(R'-COO)_nR^2$ in which n has a value 1, 2 or 3, sufficient to satisfy the valence of R^2 , R^1 is an aliphatic hydrocarbon group of 10 to 20 carbon atoms, and R^2 is a hydrogen atom or an atom of an alkali metal, alkaline earth metal or aluminum, or an organic radical.

4,315,881

PROCESS FOR PRODUCING COMPOSITE FIBERS OF SIDE BY SIDE TYPE HAVING NO CRIMP

Takayoshi Nakajima, Moriyamashi, and Susumu Tomioka, Shigaken, all of Japan, assignors to Chisso Corporation, Osaka, Japan

Filed Dec. 10, 1979, Ser. No. 102,134

Claims priority, application Japan, Dec. 20, 1978, 53/157880

Int. Cl.³ B29F 3/10

U.S. Cl. 264—171

1 Claim

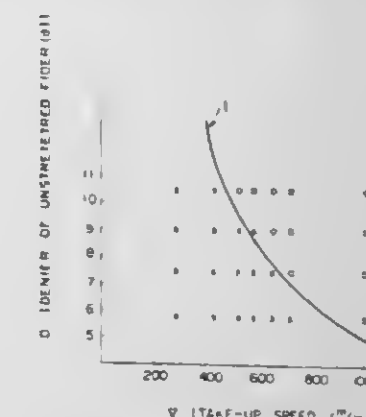
1. In the production of side-by-side type composite fibers by way of composite melt-spinning of polypropylene and polyethylene as composite components in side-by-side manner, followed by stretching, the improvement which comprises:

(a) passing a melt of a crystalline polypropylene having an intrinsic viscosity of 1.45-2.15 and a melt of a high density polyethylene having an intrinsic viscosity of 0.85-1.05

into a spinnerette for the production of side-by-side type composite fibers;

(b) extruding said melts through the spinnerette so that the ratio by weight of said polypropylene component to said polyethylene component in the resulting side-by-side composite fiber is within the range of 40:60 to 60:40,

(c) taking up the resulting composite side-by-side fiber so as



to satisfy the following condition: $10,500 \geq D \times V \geq 5,139$ wherein V represents take-up speed in m/min and D represents the diameter of the taken up unstretched composite fibers, and

(d) stretching the resulting composite side-by-side fibers to 3-5 times their original length at a temperature above 90° C. and below that at which the fibers melt-adhere to each other.

4,315,882

ELASTOMERIC SHAPED ARTICLE AND METHOD FOR PREPARING THE SAME

Motoki Hiratsuka, Nagoya; Chiaki Tanaka, Chita, and Nagayoshi Naito, Nagoya, all of Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Continuation-in-part of Ser. No. 31,312, Apr. 18, 1979, abandoned. This application Sep. 11, 1980, Ser. No. 186,407

Claims priority, application Japan, Apr. 21, 1978, 53-46468

Int. Cl.³ B29F 3/10

U.S. Cl. 264—171

7 Claims

1. In a process for extrusion molding an elastomeric block-copolyetherester comprised of from about 5% to 80% by weight of polyether soft segment and about 95% to 20% by weight of a polyester hard segment, said polyether soft segment being poly(butylene oxide) having an average molecular weight of about 300 to 6,000 and more than about 40 mol. % of said polyester hard segment being poly(butylene terephthalate), the improvement which comprises the steps of mixing about 0.1 to 10 parts by weight of poly(butylene terephthalate) with about 100 parts by weight of a blockcopolyetherester at a temperature above about 200° C., whereby fine fragments of poly(butylene terephthalate), maintained in a crystalline phase, are dispersed in the matrix of the blockcopolyetherester, and then extrusion molding the mixture at a temperature below the melting point of the poly(butylene terephthalate).

4,315,883

METHOD FOR FORMING CORROSION-RESISTANT LAYER AND SURFACE ELECTRICALLY CONDUCTIVE LAYER ON CABLE

Takahiro Horikawa; Yutaka Hibino, and Seichi Maki, all of Osaka, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed May 23, 1980, Ser. No. 152,959

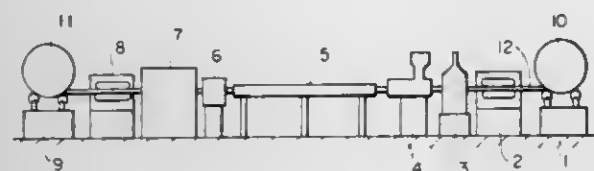
Claims priority, application Japan, May 25, 1979, 54-65146
Int. Cl.³ B29F 3/10; B05D 5/12

U.S. Cl. 264—174

9 Claims

7. A method for forming a corrosion-resistant layer and a surface electrically conductive layer on a metal-sheathed cable comprising the steps of:

passing the cable, without heating it, through an extruder to form a corrosion-resistant polyethylene layer on the cable surface;
then, passing the cable through an accumulating tank containing mixed powder comprising electrically conductive powder and binder powder so that the mixed powder adheres to the corrosion-resistant layer of the cable;



pressing said mixed powder against the surface of said cable at a cable outlet of said powder accumulating tank; and then, heating the surface of said cable to a temperature of 80° C. to 130° C. with a non-contacting heating device to melt said binder powder to cause said electrically conductive powder to firmly adhere to the corrosion-resistant layer of said cable.

4,315,884 PROCESS FOR THE PREPARATION OF SHAPED ARTICLES

René L. E. Van Gasse, Opglabbeek, Belgium, assignor to Stamicarbon, B.V., Geleen, Netherlands

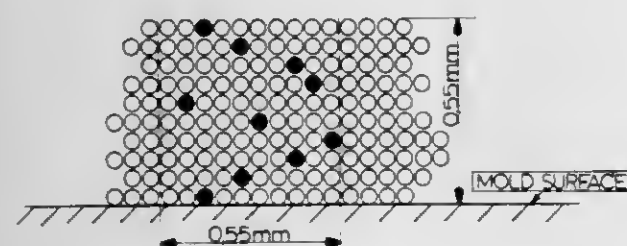
Filed Mar. 23, 1979, Ser. No. 24,435

Claims priority, application Netherlands, Mar. 25, 1978, 7803224

Int. Cl.³ B29D 9/00; B29B 1/04

U.S. Cl. 264—255

5 Claims



1. In a process for the preparation of a shaped article, comprising:

- coating at least part of the wall of a mold with a coating powder based on an unsaturated polyester resin;
 - curing said coating powder to form a coating layer, and thereafter
 - introducing a plastic thermosetting mass in the mold and
 - curing the whole to a shaped article provided with a coating thereon,
- the improvement wherein said coating powder applied in step (a) has been obtained by:

- forming a catalyst-containing powder by absorbing a liquid catalyst, or a solution of a catalyst in an inert solvent, in between 5 and 20% by weight of all unsaturated components in making up said coating powder;
- separately mixing the remaining components to make a mixture and grinding said mixture to about the same particle size as the catalyst-containing powder; and
- intimately mixing together the powders of (1) and (2).

4,315,885 CONTINUOUS MOLDING APPARATUS AND METHOD

Jerome H. Lemelson, 85 Rector St., Metuchen, N.J. 08840

Continuation of Ser. No. 813,795, Jul. 8, 1977, Pat. No.

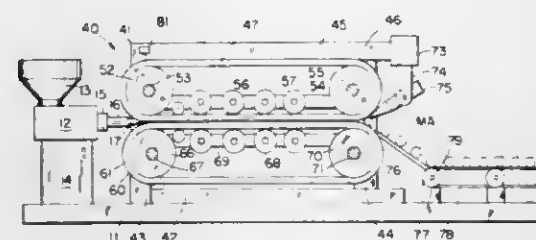
4,165,960, which is a continuation-in-part of Ser. No. 744,505, Nov. 24, 1976, Pat. No. 4,162,757. This application Aug. 22,

1979, Ser. No. 68,611

Int. Cl.³ B29F 1/00

U.S. Cl. 264—297

8 Claims



1. A method of molding article comprising the steps of: providing first and second belt conveying means wherein at least one of said belt conveying means contains a plurality of molding cavities spaced apart from each other along the length of the belt conveying means and facing outwardly therefrom;

guiding and driving said belt conveying means in respective endless paths wherein at least a portion of the path of travel of each conveying means extends parallel to a similar portion of the other flexible belt conveying means, compressing the parallel extending portions of said first and second belt conveying means together to define a plurality of closed molding cavities therebetween, which cavities are formed at least in part of said spaced apart molding cavities provided between said belt conveying means,

intermittently injecting through an injection means a liquid molding material between said first and second belt conveying means when they are compressed together, wherein each injection takes place when a molding cavity is predeterminedly disposed with respect to said injection means so as to intermittently fill each of the molding cavities defined therebetween after said belt conveying means have been compressed together, solidifying said liquid molding material in said molding cavities to form a plurality of separate molded articles between said first and second belt conveying means while the two belt conveying means are compressed together, driving said flexible belt conveying means apart beyond the portions thereof which extend parallel to each other after the material therebetween has solidified, and removing the molded articles formed between said flexible belt conveying means from each of the cavities into which such material is injected after the flexible belt conveying means have been driven apart from each other.

4,315,886 FLEXIBLE PRINTING PLATE AND ATTACHMENTS THEREFOR

John C. Darnall, Thousand Oaks, Calif., assignor to The Times Mirror Company, Los Angeles, Calif.

Continuation-in-part of Ser. No. 478,826, Jun. 12, 1974,

abandoned, and Ser. No. 652,836, Jan. 27, 1976, Pat. No.

4,136,150, which is a division of Ser. No. 449,662, Aug. 22, 1974, Pat. No. 3,986,698. This application Jun. 9, 1977, Ser. No.

804,930

The portion of the term of this patent subsequent to Jan. 23, 1996, has been disclaimed.

Int. Cl.³ B29F 1/00

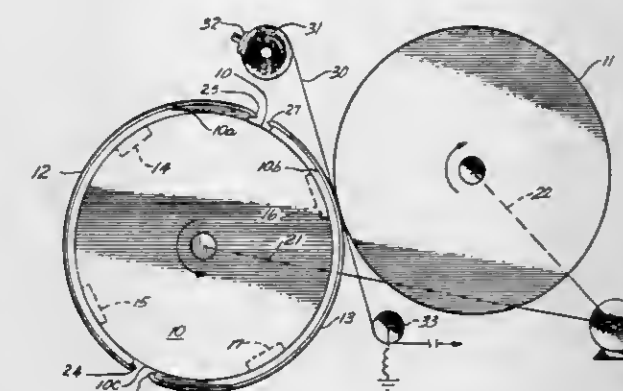
U.S. Cl. 264—318

4 Claims

1. A method for producing plastic printing plates comprising, in the order recited, the steps of:

- forming a mold cavity having a material injection inlet, a first portion that defines a printing plate, and second and

third portions that define laterally extending cylinder lockup means at its ends, the second and third portions interconnecting with the first portion, one side of the cavity being formed by a matrix with printing depressions; injecting a molten plastic material into the inlet of the formed mold cavity to form a molded plastic piece comprising a printing plate with cylinder lockup means in a one piece plastic construction;



opening the first portion of the mold cavity and releasing the printing plate; and thereafter opening the second and third portions of the mold cavity and releasing the lockup means to release the molded plastic piece from the mold cavity as a press ready printing plate.

4,315,887 INJECTION MOULDING OF HIGH MOLECULAR POLYETHYLENE USING ELEVATED MOULD TEMPERATURE

Josef Kubát, Solsparksvägen 3, S-171 35 Solna; Hans M. Rigdahl, Klostergången 7, S-413 18 Göteborg, and Jan K. Djurner, Viktoriagatan 8, S-411 25 Göteborg, all of Sweden
PCT No. PCT/SE79/00209, § 371 Date Jun. 20, 1980, § 102(e)
Date Jun. 12, 1980, PCT Pub. No. WO80/00812, PCT Pub. Date May 1, 1980

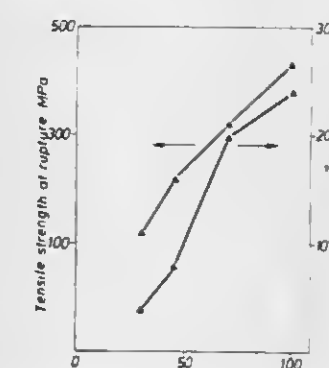
PCT Filed Oct. 19, 1979, Ser. No. 199,514

Claims priority, application Sweden, Oct. 20, 1978, 7810976

Int. Cl.³ B29F 1/08

U.S. Cl. 264—328.16

6 Claims



1. A process for producing a polyethylene article comprising injection molding a high molecular weight high density polyethylene in an injection mold at a pressure of more than 250 MPa in combination with conducting said injection molding at a mold temperature in the range of from 40° to 125° C. thereby producing an injection molded article exhibiting a high tensile strength, a low elongation at rupture and a high modulus of elasticity.

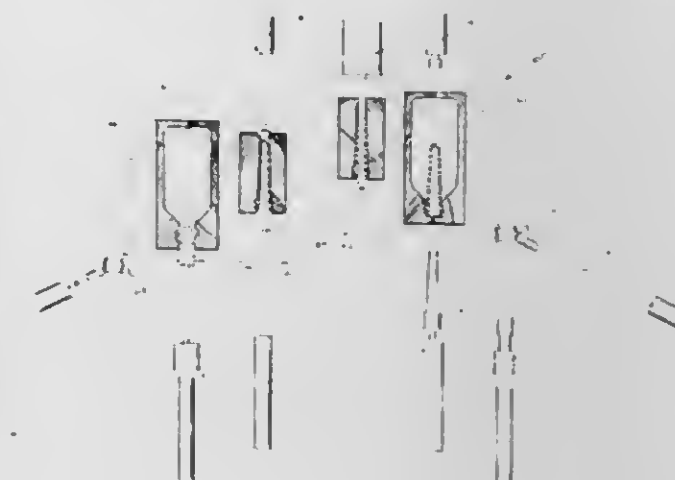
4,315,888 METHOD FOR FORMING A BLOWN THERMOPLASTIC ARTICLE

Robert X. Hafele, 5836 Vicksburg Dr., Baton Rouge, La. 70816
Filed Nov. 26, 1979, Ser. No. 97,230

Int. Cl.³ B29C 17/07

U.S. Cl. 264—503

13 Claims



1. In a method of forming a blown thermoplastic article, the steps of:

- extruding an essentially tubular parison of thermoplastic material;
- closing the sections of a preform mold around the parison, thereby leaving at least one end of the parison open and enclosing the parison within a preform cavity;
- radially expanding the parison with a differential pressure in order to enlarge the parison to essentially the shape of the preform mold, and holding the enlarged parison against the preform mold to accommodate the insertion of a core pin;
- inserting a tapering core pin into the open end of the enlarged parison into essentially the entire length of the enlarged preform as formed in Step (c) and compressing the parison between the core pin and the preform cavity to form a preform;
- during the compression of Step (d), transferring heat through both the inner and outer walls of the preform between the mold cavity and the core pin to thermally condition the preform to within a desired range;
- opening the sections of the preform mold;
- closing the sections of a blow mold around the thermally conditioned preform and thereby enclosing the preform within a blow mold cavity; and then
- expanding the preform to the shape of the blow mold cavity.

4,315,889 METHOD OF REDUCING LEACHING OF COBALT FROM METAL WORKING TOOLS CONTAINING TUNGSTEN CARBIDE PARTICLES BONDED BY COBALT

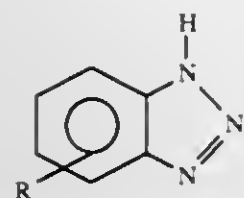
John M. McChesney, Huntington, W. Va., and Perry E. Landers, Russell, Ky., assignors to Ashland Oil, Inc., Ashland, Ky.
Filed Dec. 26, 1979, Ser. No. 106,500

Int. Cl.³ C23F 11/14, 11/16; C10M 1/06

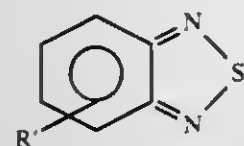
U.S. Cl. 422—7

12 Claims

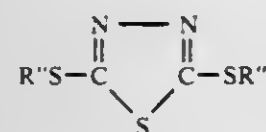
1. A method for reducing the leaching of cobalt from a surface through exposure of said surface to agents capable of leaching cobalt, comprising contacting a surface containing cobalt with a liquid composition containing a compound selected from the group consisting of triazole compounds having the structural formula:



wherein R is a hydrogen or a methyl radical; thiadiazole compounds having the structural formula:



wherein R' is hydrogen or a methyl radical; thiadiazole compounds having the structural formula:



wherein R'' is hydrogen or sodium; di-(triethanolammonium) dimercapto-thiadiazole; and mixtures thereof wherein said compound is present in an amount effective to reduce the leaching of cobalt.

4. The method of claim 1, wherein said compound is tolyl-triazole.

5. The method of claim 1, wherein said compound is 2,1,3-benzothiadiazole.

4,315,890

DEVICE FOR THE IDENTIFICATION OF VOLATILE FLUIDS

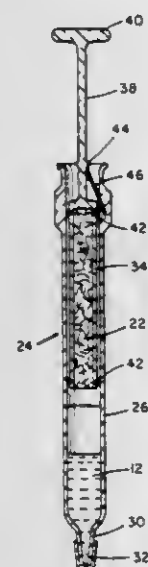
Murry A. Tamers, Hialeah, Fla., assignor to Intersci Corporation, Miami, Fla.

Filed May 1, 1980, Ser. No. 145,447

Int. Cl.³ G01N 1/22, 21/29, 31/22

U.S. Cl. 422-58

11 Claims



1. A naturally volatile substance identification device comprising:

- a container for receiving a solid or liquid specimen and;
- detecting means within the container spaced from the bottom of the container, said detecting means including:
 - an inert absorbant element, contained within an inert transparent tube and having a liquid or solid reagent retained thereon, which reacts with a naturally volatile component of the liquid or solid specimen; and
 - means for supporting said absorbant element in its tube

in spaced relation from the bottom of the container whereby vapor emitted from the liquid or solid specimen at the bottom of the container contacts the reagents to provide a visual indication thereof, but the bulk specimen does not come in contact with the reagents.

4,315,891

AUTOMATIC ANALYTICAL APPARATUS

Masahiko Sakurada, Machida, Japan, assignor to Olympus Optical Co. Ltd., Tokyo, Japan

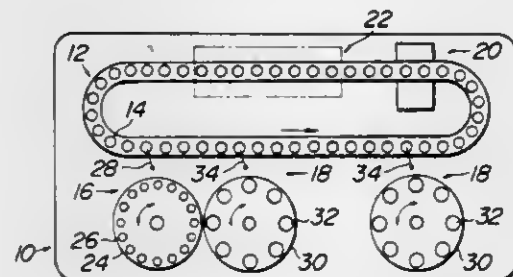
Filed Apr. 16, 1980, Ser. No. 140,795

Claims priority, application Japan, Apr. 28, 1979, 54-52895

Int. Cl.³ G01N 35/04, 35/06

U.S. Cl. 422-64

4 Claims



1. In an automatic analytical apparatus comprising a single reaction line, reaction vessels arranged along the reaction line and operative to be carried in a stepwise manner, a sample delivering station for delivering a sample into the reaction vessel during an interval between successive carrying steps, a reagent delivering station for delivering a reagent corresponding to a measurement item into the reaction vessel to form a test liquid during the interval between the successive carrying steps, and a photometering station for subjecting the test liquid to a photometric operation, the improvement comprising:

- sample and reagent delivering means for delivering at least one kind of sample and at least one kind of reagent into respective reaction vessels of a group consisting of a plurality of successive reaction vessels during an interval between successive carrying steps during each of which said group of the plurality of reaction vessels are carried along said single reaction line, and
- means comprising the plurality of photometers arranged along said single reaction line for photometering the test liquids contained in said plurality of the successive reaction vessels at the same time during said interval between the successive carrying steps.

4,315,892

FLUID COLLECTION DEVICE HAVING PHASE PARTITIONING MEANS

Glen Stone, O'Fallon, and Gary J. Haglund, Creve Coeur, both of Mo., assignors to Sherwood Medical Industries, Inc., St. Louis, Mo.

Filed Jul. 18, 1980, Ser. No. 170,222

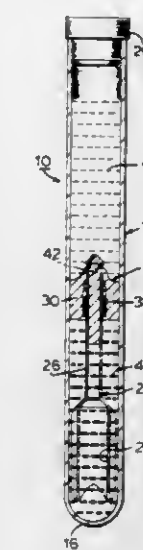
Int. Cl.³ G01N 33/48; B01D 21/26

U.S. Cl. 422-101

19 Claims

1. A fluid collection device for receiving a liquid centrifugally separable into relatively low and high density phases and for providing a partition between the separated phases comprising a collection container for receiving the liquid to be separated, and phase partitioning means in said container including a housing, and gel-like sealant in said housing having a specific gravity between the specific gravities of the separated low and high density phases and flowable to a location between the separated phases during centrifugation to form a semi-rigid partition therebetween, and valve means on said

housing responsive to a predetermined degree of phase separation during centrifugation of the device to open and allow the



flow of said sealant from said housing into said liquid and toward said location between the separated phases.

4,315,893

REFORMER EMPLOYING FINNED HEAT PIPES

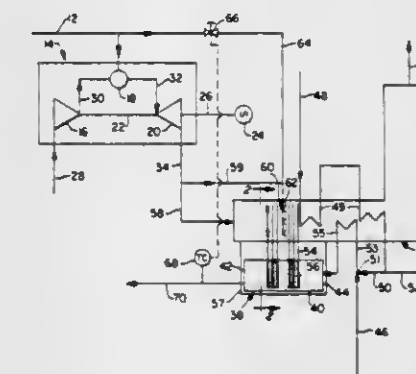
Robert A. McCallister, Mountain Lakes, N.J., assignor to Foster Wheeler Energy Corporation, Livingston, N.J.

Filed Dec. 17, 1980, Ser. No. 217,363

Int. Cl.³ G05D 23/00; B01J 8/00

U.S. Cl. 422-109

14 Claims



1. An apparatus for producing synthesis gas including carbon monoxide and hydrogen, said apparatus comprising:

- a first chamber adapted to receive a heated fluid,
- a second chamber spaced apart from said first chamber and adapted to receive a stream including fluid hydrocarbon and steam, said stream being at a temperature lower than the temperature of said heated fluid,
- a plurality of heat pipes disposed between said first and second chamber, a first portion of said heat pipes extending within said first chamber, a second portion of said heat pipes extending within said second chamber,
- a catalyst material disposed within said second chamber, said steam reacting with said fluid hydrocarbon when in the presence of said catalyst to yield said synthesis gas,
- means for introducing said heated fluid into said first chamber,
- means for introducing said stream to said second chamber, and
- means for removing said synthesis gas from said second chamber.

4,315,894

METHOD AND APPARATUS FOR PRODUCING CARBON BLACK

Oliver K. Austin, Bartlesville, Okla., assignor to Phillips Petroleum Co., Bartlesville, Okla.

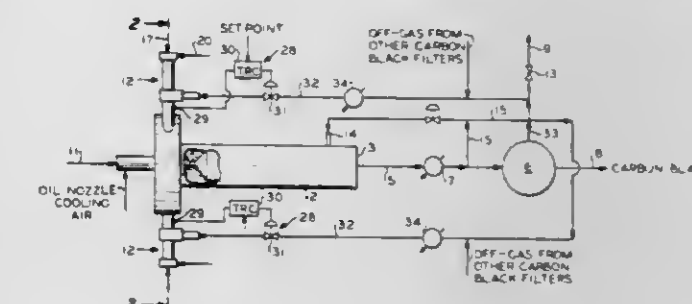
Division of Ser. No. 848,251, Nov. 3, 1977, Pat. No. 4,206,192.

This application Dec. 28, 1979, Ser. No. 108,210

Int. Cl.³ C01B 31/02; C09C 1/48

U.S. Cl. 422-151

19 Claims



1. An apparatus for producing carbon black including: a reactor defining a reaction chamber having an outlet; charging means opening into said reaction chamber operable for introducing a make hydrocarbon into said reaction chamber;

separating means operably connected to said outlet operable for receiving smoke containing carbon black and gas, and substantially separating the smoke into carbon black product and a gas stream;

combustion gas injection means opening into the reaction chamber and operable for introducing hot combustion gases into the reaction chamber, said combustion gas injection means defining a combustion chamber opening into the reaction chamber with the combustion chamber being directed to introduce combustion gases into the reaction chamber in a generally tangential direction with respect to the reaction chamber, first fluid inlet means opening into said combustion chamber operable for introducing a combustible fuel and an oxygen-containing gas into said combustion chamber, second fluid inlet means opening into said combustion chamber and directed for introducing quench fluid into said combustion chamber at a position intermediate said first fluid inlet means and said reaction chamber; and

supply means connecting said second fluid inlet means to a source of quench fluid.

4,315,895

METHOD AND APPARATUS FOR PURIFICATION OF EXHAUST GASES

Henry C. Bramer, Venetia, and Edward Shapiro, Pittsburg, both of Pa., assignors to Pittsburgh Environmental and Energy Systems, Inc., Pleasantville, Pa.

Division of Ser. No. 605,558, Aug. 18, 1975, Pat. No. 4,041,128.

This application Dec. 3, 1976, Ser. No. 747,225

Int. Cl.³ F01N 3/28

U.S. Cl. 422-171

10 Claims



1. A device for the removal of carbon monoxide, sulfur and nitrogen oxides from internal combustion engine exhaust which comprises a chamber which is a tubular conduit in which said exhaust enters at one end and exits at the other end containing a sulfide and an oxide of a metal or metals selected from the group consisting of iron, copper and zinc.

4,315,896

RECOVERY OF MOLYBDENUM AS AN AQUEOUS SOLUTION FROM SPENT CATALYST

Paul D. Taylor, Flemington, and Michael T. Mocella, East Windsor, both of N.J., assignors to Atlantic Richfield Company, Los Angeles, Calif.

Filed Jan. 21, 1981, Ser. No. 226,967
Int. Cl.³ C01G 39/00

U.S. Cl. 423—54

10 Claims

1. In the process of separating and recovering dissolved molybdenum by extraction from a molybdenum-containing spent catalyst solution obtained when epoxide and alcohol are removed from a crude reaction mixture of a molybdenum catalyzed epoxidation reaction,

the improvement comprises subjecting the spent catalyst solution to a liquid-to-liquid solvent extraction with an extracting medium consisting essentially of water and a water immiscible hydrocarbon or halogenated hydrocarbon organic solvent to form a two phase extraction system and then separating a molybdenum-rich aqueous phase extract from the organic phase extract.

4,315,897

STABILIZED RED PHOSPHORUS AND PROCESS FOR ITS MANUFACTURE

Horst Staendeke, Ertstadt; Wilhelm Adam, Neuisenburger; Franz-Josef Dany, and Joachim Kandler, both of Ertstadt, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Nov. 10, 1980, Ser. No. 205,627

Claims priority, application Fed. Rep. of Germany, Nov. 8, 1979, 2945118

Int. Cl.³ C01B 25/01, 25/02, 25/04

U.S. Cl. 423—274

10 Claims

1. An improved stabilized pulverulent red phosphorus consisting of phosphorus particles having a particle size of at most about 2 mm, and an oxidation stabilizer enveloping the phosphorus particles in the form of a thin layer, the improved phosphorus containing

- (a) as the oxidation stabilizer a combination of aluminum hydroxide and a hardened epoxide resin system having an epoxide equivalent weight of about 170 to 500,
- (b) the oxidation stabilizer in a total proportion of 0.1–5% by weight, based on the amount of red phosphorus, and
- (c) the aluminum hydroxide in a proportion of about 0.01 to 3% by weight, and the epoxide resin in a proportion of about 0.09 to 4.99% by weight, based in each case on red phosphorus.

5. A process for the manufacture of the stabilized pulverulent red phosphorus, consisting of phosphorus particles having a particle size of at most about 2 mm, and an oxidation stabilizer which envelops the phosphorus particles in the form of a thin layer, which comprises introducing a water-soluble aluminum salt and an aqueous or alcoholic solution or dispersion of an epoxide resin and of a hardener into an aqueous suspension of the red phosphorus, establishing a pH-value of about 5 to 9, stirring the mixture for 1 to 3 hours at a temperature of 20° to 90° C., with precipitation of the aluminum hydroxide and simultaneous hardening of the epoxide resin, filtering off the stabilized phosphorus and finally drying it at an elevated temperature.

4,315,898

PREPARATION OF GRANULAR SODIUM TRIPOLYPHOSPHATE HEXAHYDRATE WITH LOW FRIABILITY

Charles W. Lutz, Princeton, N.J., assignor to FMC Corporation, Philadelphia, Pa.

Filed Jun. 30, 1980, Ser. No. 164,626

Int. Cl.³ C01B 25/30

U.S. Cl. 423—315

15 Claims

1. A process for the production of granular sodium tripolyphosphate hexahydrate having low friability and a bulk density

within the range of from about 0.59 g/cc to about 0.64 g/cc, which comprises moisturizing screen undersize anhydrous sodium tripolyphosphate particles with from about 145% to about 185% by weight of the theoretical quantity of water necessary to produce sodium tripolyphosphate hexahydrate, said screen undersize anhydrous sodium tripolyphosphate particles containing at least about 2 weight percent of an alkali metal pyrophosphate, said screen undersize particles having a size distribution of at least 25% by weight —100 mesh, 0 to 65% by weight —50 +100 mesh, 0 to 10% by weight +50 mesh and not more than about 50% by weight —270 mesh, agitating the material being moisturized so as to keep the temperature below about 80° C., drying the moisturized material at a temperature below about 80° C. to remove most of the free moisture, and recovering granular sodium tripolyphosphate hexahydrate.

4,315,899

PROCESS FOR THE PURIFICATION OF WET PHOSPHORIC ACID

Armand Mamourian, Ales, and Francois Bousquet, Paris, both of France, assignors to Rhone-Poulenc Industries, Paris, France

Continuation of Ser. No. 908,819, May 23, 1978, abandoned.

This application Aug. 13, 1979, Ser. No. 66,222

Claims priority, application France, May 23, 1977, 77 15623

Int. Cl.³ C01B 25/16

U.S. Cl. 423—321 R

10 Claims

1. A process for the purification, concentration and defluorination of a crude aqueous solution of wet-process phosphoric acid obtained via the sulfuric acidulation of phosphate rock, to obtain a food grade phosphoric acid characterized by an F/P₂O₅ ratio of less than 10 ppm, consisting essentially of (i) countercurrently liquid-liquid extracting such crude wet-process phosphoric acid with a liquid solvent consisting essentially of an alkyl derivative of phosphoric acid in a first extraction zone consisting of a plurality of stages, while concomitantly introducing strong sulfuric acid to an intermediate stage of said first extraction zone, whereby phosphoric acid is removed from the crude solution to form an extracted aqueous phosphoric acid solution; (ii) next countercurrently washing said solvent-extracted phosphoric acid solution with an aqueous solution of phosphoric acid in a second extraction zone to form a washed extract; (iii) next countercurrently water washing said washed extract in a third extraction zone to phase separate the aqueous phosphoric acid in said washed extract from said liquid solvent; and (iv) thence concentrating and defluorinating said phase separated phosphoric acid solution to an F/P₂O₅ level of less than 10 ppm by contacting same with steam or hot gas and entraining volatilized fluorine values therein.

4,315,900

INTEGRATED PROCESS FOR THE PRODUCTION OF METHANOL AND AMMONIA

Shinkichi Nozawa, Funabashi, and Kenjiro Miyashita, Chiba, both of Japan, assignors to Toyo Engineering Corporation, Tokyo, Japan

Filed Oct. 6, 1980, Ser. No. 193,905

Claims priority, application Japan, May 18, 1979, 54/60272

Int. Cl.³ C01C 1/04

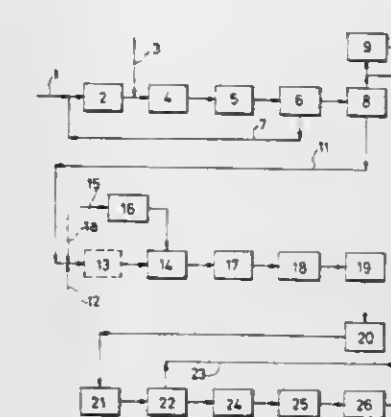
U.S. Cl. 423—359

12 Claims

1. An integrated process for the production of methanol and ammonia which comprises the steps of

- (a) subjecting a gaseous hydrocarbon feed to primary reforming with steam in the presence of a hydrocarbon reforming catalyst to produce a methanol synthesis gas containing hydrogen and carbon monoxide;
- (b) subjecting the methanol synthesis gas to methanol synthesis and then separating from the resulting methanol a purge gas containing hydrogen, carbon monoxide, carbon dioxide and methane;

- (c) subjecting the purge gas to secondary reforming with steam and an oxygen-containing gas to produce an ammonia synthesis gas containing hydrogen, carbon monoxide, carbon dioxide and nitrogen;
- (d) subjecting the ammonia synthesis gas to high temperature shift conversion and thereby converting carbon monoxide into hydrogen and carbon dioxide;



- (e) passing the carbon monoxide-impoverished ammonia synthesis gas through a series of steps required for the removal of carbon oxides; and
- (f) subjecting the resulting carbon monoxide-free ammonia synthesis gas to ammonia synthesis.

4,315,901

PROCESS FOR PRODUCING CARBON BLACK

Paul J. Cheng, and King L. Mills, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jul. 24, 1980, Ser. No. 171,923

Int. Cl.³ C01B 31/02; C09C 1/48

U.S. Cl. 423—455

14 Claims

1. In a process for producing carbon black in a vortex flow, oil furnace reactor comprising a generally cylindrical zone having a radius of between about 15 inches and about 27 inches, a generally frustoconical zone in axial alignment with and converging away from the generally cylindrical zone from an inlet to an outlet, and at least one combustion tunnel communicating generally tangentially with the generally cylindrical zone, wherein combustion gases are introduced into the generally cylindrical zone from the at least one combustion tunnel, and wherein a carbon black forming feedstock is introduced into the reactor from a position on the axis of the generally cylindrical zone for pyrolysis by the combustion gases to form carbon black,

the improvement comprising

- introducing the combustion gases at a rate of between about 30 and about 80 percent of a rate calculated from the relationship $11,900r^{2.3}$, wherein r is the radius in inches of the outlet of the generally frustoconical zone and the calculated rate is measured as at standard temperature and pressure based on the rates as at standard temperature and pressure at which combustible fluid and combustion supporting gases are introduced into the at least one combustion tunnel to form the combustion gases, so as to produce a carbon black having a tint residual of about —5 or less;

8. A process for producing carbon black having a tint residual 00–5 or less in a reactor characterized by

- (i) a first generally cylindrical zone having a radius of between about 15 and about 27 inches and a length of between about 14 and about 32 inches;
- (ii) a pair of tunnels emptying generally tangentially into the generally cylindrical zone in an opposed, corotational direction, each tunnel having a radius of between about 6 and 16 inches and a restriction having a radius of between about 3 and about 10 inches;
- (iii) a first generally frustoconical zone connected to, in axial alignment with, and converging away from the first generally cylindrical zone from an inlet to an outlet, the inlet

of the first frustoconical zone being adjacent the first generally cylindrical zone and having a radius of between about 8 and about 27 inches, the length of the first generally frustoconical zone being between about 10 and about 25 inches;

- (iv) a second generally cylindrical zone connected to, in axial alignment with, and extending away from the outlet of the first generally frustoconical zone from an inlet to an outlet, the second generally cylindrical zone having a radius the same as the radius at the outlet of the first generally frustoconical zone, the radius of the second generally cylindrical zone being between about 4 inches and about 8 inches and the length of the second generally cylindrical zone being between about 4 and about 13 inches;

- (v) a second generally frustoconical zone connected to, in axial alignment with, and diverging away from the outlet of the second generally cylindrical zone from an inlet to an outlet, the radius of the inlet of the second generally frustoconical zone being the same as the radius of the second generally cylindrical zone, the second generally frustoconical zone having an outlet with a radius of between about 10 and about 19 inches and a length of between about 60 and about 110 inches;

- (vi) a third generally cylindrical zone connected to, in axial alignment with, and extending away from the outlet of the second generally frustoconical zone, the third generally cylindrical zone having a radius of between about 10 and about 19 inches;

said process comprising:

- (a) flowing a mass of combustion gases through the pair of tunnels, through at least a portion of the first generally cylindrical zone, and through the first frustoconical zone, the second generally cylindrical zone, the second frustoconical zone, and the third generally cylindrical zone at a calculated rate of from about 30 to about 70 percent of the calculated rate expressed in standard cubic feet per hour given by the equation:

$$\text{rate} = 11,900r^{2.3}$$

wherein r is the radius of the second generally cylindrical zone in inches;

- (b) introducing a carbon black feedstock having a BMCI value of between about 85 and about 160 axially into the first generally cylindrical zone as a cone-shaped spray diverging toward the first generally frustoconical zone at a rate sufficient to maintain a ratio of air employed to form the mass of combustion gases to feedstock in standard cubic feet per gallon of between about 700:1 to about 1200:1;

- (c) pyrolyzing at least a portion of the feedstock with the combustion gases to form an effluent containing particulate carbon black;

- (d) quenching the effluent with a quenching fluid; and

- (e) collecting at least a portion of the particulate carbon black from the effluent.

4,315,902

METHOD FOR PRODUCING CARBON BLACK

Meredith N. Dilbert, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Feb. 7, 1980, Ser. No. 119,269

Int. Cl.³ C01B 31/02; C09C 1/48

U.S. Cl. 423—456

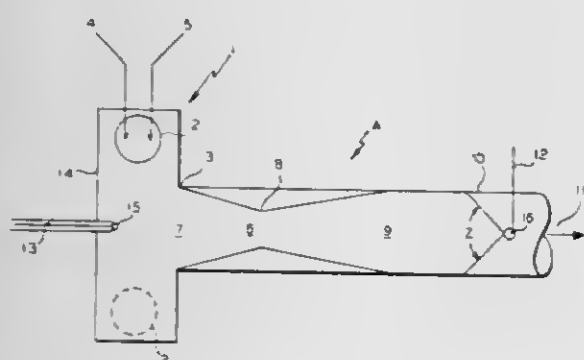
7 Claims

1. A method for producing carbon black having a tint residual of 7 or greater in an apparatus comprising:

- an upstream end;
- a downstream outlet;

means defining a flow path connecting the upstream end in flow communication with the downstream outlet, said means comprising a precombustion chamber having an

upstream end comprising the upstream end of the carbon black reactor, and a downstream opening;
 feed inlet means for introducing a hydrocarbon feed into the means defining a flow path at an injection distance measured from the downstream opening of the precombustion chamber;
 air and fuel tangential inlet means for introducing air and fuel generally tangentially into the precombustion chamber;
 axial prequench inlet means for introducing prequench fluid into the means defining a flow path in a generally conical hollow diverging pattern generally coaxially with a longitudinal axis of the means defining a flow path and in an upstream direction having an included angle effective to produce a positive tint residual black having a positive tint residual of 7 or greater;
 said method comprising:



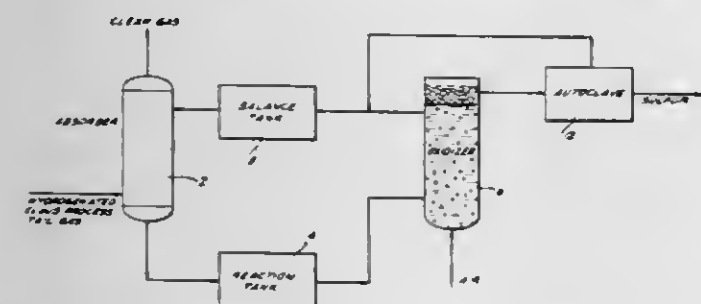
introducing air and fuel tangentially into the precombustion chamber;
 reacting the thus tangentially introduced air and fuel to produce swirling combustion gases;
 introducing a feed hydrocarbon into the combustion gases in the means defining a flow path at said injection distance;
 reacting the thus introduced feed hydrocarbon with the combustion gases to produce a reacting mixture;
 flowing the thus produced reacting mixture along a flow axis of the means defining a flow path from the upstream end of the precombustion zone to a downstream outlet;
 quenching the reacting mixture by spraying a prequench fluid by said prequench means into the reacting mixture in a generally axial upstream direction, said prequench fluid being sprayed in a generally conically diverging hollow spray pattern.

4,315,903 REDUCING THE CONSUMPTION OF ANTHRAQUINONE DISULFONATE IN STRETFORD SOLUTIONS

Donald M. Fenton, Anaheim, and Raoul P. Vaell, Los Angeles, both of Calif., assignors to Union Oil Company of California, Calif.

Division of Ser. No. 579,311, May 21, 1975, Pat. No. 4,060,594.
 This application Sep. 6, 1977, Ser. No. 830,575

Int. Cl.³ C01B 17/05; B01D 53/34
 U.S. Cl. 423—573 R 5 Claims



1. In the process for treating a hydrogen sulfide-containing hydrogenated Claus process tail gas to convert the hydrogen

sulfide to elemental sulfur in which said gas is contacted with an aqueous alkaline washing solution containing a water-soluble metal vanadate and a water-soluble anthraquinone disulfonate to yield an effluent gas of reduced sulfur content, the solution is thereafter regenerated by contact with an oxygen-containing gas, elemental sulfur is recovered from said solution, and said regenerated solution is recycled to said gas-contacting step, and in which said anthraquinone disulfonate is being chemically consumed, the improvement which comprises employing as said washing solution an aqueous alkaline solution containing a water-soluble metal vanadate, a water-soluble anthraquinone disulfonate, and an effective amount of a complexing agent for ferrous ions selected from the group consisting of water-soluble, inorganic phosphates, whereby chemical consumption of said anthraquinone disulfonate is substantially reduced.

4,315,904 PROCESS FOR REMOVING HYDROGEN SULPHIDE AND SULPHUR DIOXIDE FROM CLAUS TAIL GASES

Rainer Lell, Kerpen; Ghazi R. Al-Muddarris, Cologne, and Reinhard Pachaly, Kerpen, all of Fed. Rep. of Germany, assignors to Davy International Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Filed Jun. 12, 1980, Ser. No. 158,903

Claims priority, application Fed. Rep. of Germany, Jun. 13, 1979, 2923895

Int. Cl.³ C01B 17/02

U.S. Cl. 423—574 R 18 Claims
 1. A process for removing hydrogen sulphide and sulphur dioxide from Claus tail gases comprising separating the Claus tail gases into a first and second partial streams, conducting the first partial stream at a temperature above the sulphur dew point through a first catalyst bed charged with sulphur, cooling the first partial stream containing sulphur discharged in vapor form from the first catalyst bed to a temperature below the sulphur dew point for condensation of the sulphur, separating the condensed sulphur from the first partial stream, combining the first partial stream with the second partial stream, conducting the combined partial streams at a temperature below the sulphur dew point through a second catalyst bed freed previously from sulphur, and reversing the direction of flow of the gas streams through the catalyst beds when the first catalyst bed is freed from sulphur and the second catalyst bed is charged with sulphur.

4,315,905 PROCESS FOR PRODUCING AN ELECTRONICALLY CONDUCTIVE OXIDIZER MATERIAL

Everett M. Bens, and Aaron N. Fletcher, both of Ridgecrest, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jun. 30, 1980, Ser. No. 164,449

Int. Cl.³ C01G 31/02

U.S. Cl. 423—592 4 Claims
 1. A method of producing an electrically conductive oxidizer cathode material for use in thermal batteries consisting of:

heating vanadium pentoxide, V₂O₅, to a temperature in the range from about 400° C. to about 550° C.;
 treating said heated V₂O₅ with a reducing gas flowing at a rate from about 8.2 to 55 milliliters per minute for about 2 hours to 10 days until no water condenses at room temperatures reducing said V₂O₅ to produce a reduced electrically conductive oxidizer;
 recovering said reduced product; and
 sintering said recovered product to V₂O₅.

4,315,906 COLD INSOLUBLE GLOBULIN, ITS PURIFICATION AND USE

Frank B. Gelder, Shreveport, La., assignor to New England Nuclear Corporation, Boston, Mass.

Filed May 21, 1979, Ser. No. 40,995

Int. Cl.³ A61K 49/00; 43/00; C07G 7/00

U.S. Cl. 424—1 36 Claims

25. A method for in vivo visualizing a site of thrombi or tissue damage in a higher animal, said method comprising injecting said animal with a radiopharmaceutical preparation containing radiolabelled cold insoluble globulin, localizing the cold insoluble globulin at said site of thrombi or tissue damage, and visualizing said site of thrombi or tissue damage with radioscinographic imaging apparatus.

4,315,907 COMBINED HETEROGENEOUS SPECIFIC BINDING ASSAY

Bertold Fridlender; Zohar Ben-Moyal, both of Jerusalem; Udi Olshevsky, Ramat-Gan, and Regine Tirosh, Jerusalem, all of Israel, assignors to Ames-Yissum, Jerusalem, Ill.X

Filed Oct. 29, 1979, Ser. No. 89,269

Claims priority, application Israel, Oct. 30, 1978, 551816

Int. Cl.³ G01N 33/56; 33/58

U.S. Cl. 424—1 37 Claims

1. A specific binding assay method for the simultaneous determination of each of a plurality of different ligands in a single liquid test sample, comprising the steps of:

- forming a single reaction mixture comprising said sample and, corresponding to each different ligand to be determined, a labeled binding agent and a solid-phase binding agent, the label being the same for all such labeled binding agents and the solid-phase binding agent for each different ligand to be determined being differentially separable from the other solid-phase binding agents for the other ligands to be determined, whereby there is formed in said single reaction mixture, for each corresponding ligand to be determined, a binding reaction system having a solid-phase bound-species and a free-species of its respective labeled binding agent, the amount of said label resulting in each resulting solid-phase bound-species being a function of the presence or amount of the corresponding ligand in said sample;
- separating each resulting solid-phase bound-species from the other solid-phase bound-species and from all of the remaining free-species;
- measuring the amount of label in each such separated solid-phase bound-species; and
- relating each such measured amount of label to the presence or amount of each of the corresponding different ligands in said sample.

4,315,908 METHOD OF DETERMINING HUMAN CHORIONIC GONADOTROPIN (HCG) IN THE URINE

Tamar Zer, and Avraham Zer, both of 26 Burla St., Jerusalem, Israel

Filed Dec. 3, 1979, Ser. No. 100,015

Claims priority, application Israel, Dec. 29, 1978, 56342

Int. Cl.³ G01N 33/56; 33/48

U.S. Cl. 424—1 9 Claims

1. A method of analyzing urine to determine the presence or absence therein of human chorionic gonadotropin which comprises contacting the urine to be tested with an absorbent body which absorbs said urine and with it human chorionic gonadotropin that may be contained therein, contacting said absorbent body containing the absorbed urine with serum from a non-pregnant mammal to extract the urine from said body into the serum, and subjecting the thus obtained serum containing the extracted urine to radioimmunoassay for the determination of any human chorionic gonadotropin contained therein.

4,315,909 PROCESS FOR THE PREPARATION OF SOLID DRUG FORMULATIONS

Reinhard Hüttenrauch, Jena, German Democratic Rep., assignor to Veb Jenapharm, Jena, German Democratic Rep.

Continuation-in-part of Ser. No. 78,200, Sep. 24, 1979, abandoned. This application Oct. 3, 1979, Ser. No. 81,449

Claims priority, application German Democratic Rep., Sep. 25, 1978, 208050

Int. Cl.³ A61K 9/34

U.S. Cl. 424—35 5 Claims

1. In a process for preparing solid drug formulations, including dosage unit amounts of an active agent and adjuvant, the improvement comprising using a cellulose graft copolymer as 30-100% of said adjuvant.

4,315,910 AEROSOL HAIR SPRAY COMPOSITIONS

Frank A. Nowak, Jr., Somerville, and Albert L. Micchelli, Middletown, both of N.J., assignors to National Starch and Chemical Corporation, Bridgewater, N.J.

Continuation-in-part of Ser. No. 776,786, Mar. 11, 1977, abandoned. This application Sep. 5, 1978, Ser. No. 939,644

Int. Cl.³ A61K 7/11

U.S. Cl. 424—47 7 Claims

1. Aerosol hair spray compositions in aerosol metal containers comprising 0.5 to 5% of at least one hair spray resin selected from the group consisting of:

- a carboxylated organic vinyl polymer containing:
 - 5-55 mole percent acidic monomer selected from the group consisting of maleic acid, maleic anhydride, acrylic acid, methacrylic acid, fumaric acid, itaconic acid, maleic half esters, fumaric half esters, crotonic acid, aconitic acid, allyl acetic acid, allyl arsonic acid, 2-allyl oxypropionic acid, β -benzoyl acrylic acid, N-n-butyl maleamic acid, N-ethyl maleamic acid, N-methyl maleamic acid, N,N-carboxyl-substituted maleamides, 2-furfuryl acrylic acid, 2-vinyl propionic acid, vinyl acetic acid, sorbic acid, dihydroxy maleic acid and mixtures thereof;
 - 95-45 mole percent of at least one monomer selected from the group consisting of:
 - styrene and derivatives thereof;
 - methacrylate and acrylate alkyl esters wherein the alkyl group contains 1 to 18 carbon atoms;
 - vinyl esters of the formula $\text{CH}_2=\text{CH}-\text{OCOR}$ wherein R is C₁-C₁₈;
 - alkyl substituted acrylamides and methacrylamides of the formula $\text{CH}_2=\text{CH}-\text{CONR}_1\text{R}_2$ wherein R₁ is H or CH₃, R₂ is H or C₁-C₁₂ and R₂ is C₁-C₁₈;
 - diesters of fumaric, itaconic and maleic acids, and
 - vinyl ethers; and
 - 0-30 mole percent of at least one monomer selected from the group consisting of:
 - hydroxy functional acrylates and methacrylates;
 - cationic monomers selected from the group consisting of t-butyl aminoethyl methacrylate, dimethyl aminoethyl methacrylate, diethyl aminoethyl methacrylate, and the quaternized derivatives thereof;
 - acrylamide and non-alkyl substituted acrylamides, and
 - cyclic amides, wherein said carboxylated polymer is neutralized to an extent that 3 to 100% of the carboxyl groups have been reacted; and
- a nonionic resin selected from the group consisting of polyvinyl acetate hydrolyzed to an extent that from 15 to 60% of its acetate groups are converted into hydroxyl groups and copolymers of vinyl acetate and vinyl pyrrolidone containing at least about 50% vinyl acetate: 1 to 15% water, a propellant selected from the group consisting of 2-7% carbon dioxide, 5-35% hydrocarbon and mixtures thereof, the remainder of said composition to equal 100%, comprising ethanol or isopropanol or mix-

tures thereof, all percentages expressed by weight, said hair spray resin being soluble in said composition.

4,315,911

FLAVORING WITH MIXTURE OF ACETYL DIISOBUTYLENES

Richard M. Boden, Monmouth Beach, N.J., assignor to International Flavors & Fragrances Inc., New York, N.Y.
Filed Oct. 9, 1980, Ser. No. 195,672
Int. Cl.³ A23L 1/226

U.S. Cl. 424—48

7 Claims

1. A process for augmenting or enhancing the aroma or taste of a consumable material selected from the group consisting of foodstuffs, chewing gums, toothpastes and mouthwashes, comprising the steps of adding to said consumable material from 0.02 ppm up to about 50 ppm based on total weight of said consumable material of a composition of matter containing a major proportion of acetyl diisobutylene molecules defined according to the structure:



wherein in the mixture, in each of the molecules, one of the dashed lines represents a carbon-carbon double bond and the other of the dashed lines represents a carbon-carbon single bond produced according to the process comprising the steps of (a) dimerizing isobutylene in the presence of an alkyl aluminum chloride catalyst thereby producing a mixture of dimers and (b) acylating the resulting mixture of dimers with an acetylating agent selected from the group consisting of acetic anhydride, acetyl chloride and acetyl bromide in the presence of a catalyst selected from the group consisting of boron trifluoride, boron trifluoride etherate, stannic chloride, ethyl aluminum dichloride and diethyl aluminum chloride and distilling the resultant reaction product at a vapor temperature in the range of 50°–53° C. and a liquid temperature in the range of 59°–65° C. and a pressure of 2.0 mm/Hg.

4,315,912

CATIONIC SURFACTANTS

Gregoire Kalopissis, Neuilly-sur-Seine; Guy Vanlerberghe, Claye-Souilly, and Henri Sebagn, Paris, all of France, assignors to L'Oreal, Paris, France

Filed Dec. 5, 1979, Ser. No. 100,323

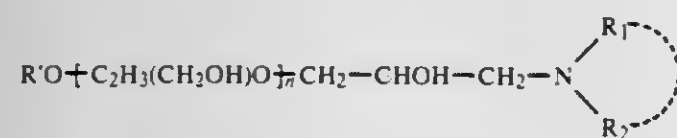
Claims priority, application France, Dec. 6, 1978, 78 34418

Int. Cl.³ A61K 7/06, 7/00, 31/00, 47/00

U.S. Cl. 424—70

12 Claims

1. A cosmetic composition for the treatment of the hair or skin comprising at least one cationic surfactant of the formula



wherein

R' represents a hydrocarbon radical derived from a member selected from the group consisting of alcohols and sterols of a member selected from the group consisting of lanolin and hydrogenated lanolin,

n is a number between 0.5 and 10, and

R₁ and R₂ are selected from the group consisting of lower alkyl containing 1–4 carbon atoms and lower hydroxyalkyl wherein the alkyl moiety contains 1–4 carbon atoms, or R₁ and R₂ together with the nitrogen atom to which they are attached form a heterocycle containing 5 or 6 chains.

4,315,913

IMMUNOLOGICALLY ACTIVE DIPEPTIDYL 2-AMINO-1,2-DIDEOXY-D-GLUCOSE DERIVATIVES AND METHODS OF PREPARATION

Philippe L. Durette, New Providence, N.J., assignor to Merck & Co. Inc., Rahway, N.J.

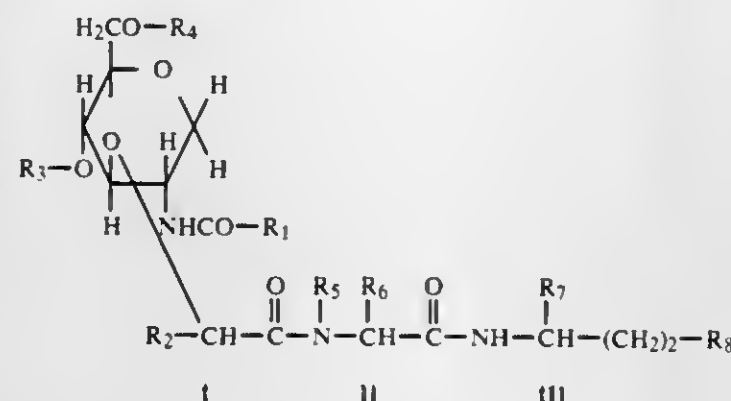
Filed Jun. 9, 1980, Ser. No. 157,906

Int. Cl.³ A61K 39/00, 37/02; C07C 103/52

U.S. Cl. 424—88

8 Claims

1. Dipeptidyl 2-amino-1,2-dideoxy-D-glucoses of the general structural formula:

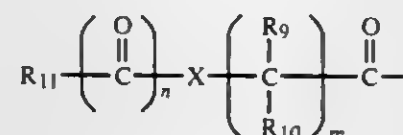


wherein:

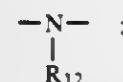
R₁ is C₁-alkyl, C₁-alkyl substituted by hydroxy, mercapto, alkoxy of 1–3 carbons, alkylmercapto of 1–3 carbons, hydroxy or mercapto esterified by an acid of 1–4 carbon atoms, halogen, carboxyl or carboxyl functionally modified by esterification with a lower alcohol of 1–3 carbons or by amidation; phenyl; or phenyl substituted by one or more alkyl groups of 1–3 carbon atoms or hydroxy or mercapto groups either free or etherified by an alkyl group of 1–3 carbons or esterified by an acid of 1–3 carbons, alkylidioxy of 1–4 carbons, cycloalkylidioxy of 5–7 carbon atoms, amino, trifluoromethyl, halo or phenyl;

R₂ is hydrogen; or C₁-₁₀ alkyl;

R₃ and R₄ may be the same or different and are each independently hydrogen, or acyl of the formula:



where X is —O—, —S—, —CH₂—, or



R₉, R₁₀, and R₁₂ may be the same or different and are each independently hydrogen; C₁-₂₀ alkyl; C₂-₂₀ alkenyl; C₁-₂₀ alkylcarbonyloxy; amino; phenyl; benzyl; C₁-₂₀ alkoxy-methyl; or C₁-₂₀ alkylamido;

R₁₁ is hydrogen; C₁-₃₀ alkyl; C₂-₃₀ alkenyl; C₁-₃₀ alkoxy; phenyl; C₁-₂₀ alkylsulfonyl; or cholesteryl; and m is 0–90; and n is 0 or 1, provided that when n is 0, R₁₁ may additionally be phenyl phenyl substituted by halo or phenyl, 1-adamantyl, or heterocycle selected from the group consisting of 2- or 3-furyl, 2- or 3-thienyl, 2- or 3-pyrrolidinyl, 2-, 3-, or 4-pyridyl, and 1-tetrazolyl, said heterocycle optionally substituted with C₁-₂₀ alkylcarbonyl;

R₅ is hydrogen; or R₅-R₆ together is —CH₂—CH₂—CH₂—; R₆ is hydrogen; C₁-₇ alkyl; hydroxymethyl; mercaptomethyl; benzyl; or benzyl substituted by one or more alkyl groups of 1–3 carbon atoms or hydroxy or mercapto groups either free or etherified by an alkyl group of 1–3 carbons or esterified by an acid of 1–4 carbons, alkylidioxy of 1–4 carbons, cy-

cloalkyldioxy of 5–7 carbon atoms, amino, trifluoromethyl, halo or phenyl;

R₇ and R₈ may be the same or different and are each independently COOR or CONR'R'', where R is hydrogen or C₁-₇ alkyl, and R' and R'' are each independently hydrogen or C₁-₃ alkyl;

when R₂ is C₁-₁₀ alkyl, the stereochemistry at asymmetric center I can be either D or L; when R₆ is not hydrogen, the stereochemistry at asymmetric center II is L; the stereochemistry at asymmetric center III is D.

4. A composition comprising a vaccine against bacterial, viral or parasitic infections or against various tissue antigens of normal or pathogenic origin and a compound of claim 1 in an amount effective to impart an immunostimulatory response.

4,315,914

PHARMACEUTICAL COMPOSITIONS USEFUL AS CELLULAR IMMUNOPOTENTIATOR AND ANTITUMOR AGENT AND PROCESS FOR PRODUCTION THEREOF

Seiji Arakawa, 2345, Hiyoshi Honcho, Kohoku-Ku, Yokohama-shi, Kanagawa-ken; Tomio Seki, Ohta; Hidekazu Matsuoka, Tokyo; Hatsunori Harada, Sugami, and Michinari Ninomiya, Hiroshima, all of Japan, assignors to Seiji Arakawa, Japan

Filed Apr. 4, 1980, Ser. No. 137,502

Int. Cl.³ A61K 39/285

U.S. Cl. 424—89

10 Claims

1. A pharmaceutical composition of matter useful as cellular immunopotentiator and immune antitumor agent comprising as active ingredient an attenuated strain of vaccinia virus which has no substantial capacity to form pocks in rabbits and which exhibits a substantially reduced humoral immune activity and an enhanced cellular immune activity in mice, in combination with a pharmaceutically acceptable carrier for the active ingredient virus, said attenuated strain having been obtained by the serial passages of vaccinia virus in chick embryo cell monolayer culture, after the serial passages of vaccinia virus in mouse kidney cell monolayer culture.

4,315,915

PROCESS FOR THE PREPARATION OF STABLE COPPER (II) SULFATE MONOHYDRATE APPLICABLE AS TRACE ELEMENT ADDITIVE IN ANIMAL FODDERS

Ferenc Kovacs, Varpalota; Akos Andor, and Tivadar Palagyi, both of Budapest, all of Hungary, assignors to Dolokemia Vegyipari Szövetkezet Közös Vállalat, Varpalota, Hungary

Filed Jun. 13, 1980, Ser. No. 159,380

Int. Cl.³ A01N 59/20; A61K 33/34; C01G 3/10

U.S. Cl. 424—143

2 Claims

1. In a process for the production of non-hygroscopic, stable, easily grindable copper(II) sulfate monohydrate applicable as a trace element additive in animal feeders, by neutralizing the free sulfuric acid content of copper(II) sulfate pentahydrate feed with an alkaline agent selected from sodium, potassium or ammonium hydroxide, carbonate or hydrocarbonate and removing four moles of its crystal water content by drying at 80° to 150° C. for at least 30 minutes, the improvement comprising treating copper (II) sulfate pentahydrate, melted in its own crystal water, during the neutralization with 3 to 20% by weight of said alkaline agent calculated as sodium carbonate based on the weight copper(II) sulfate pentahydrate feed in addition to the stoichiometric amount of said alkaline agent required to neutralize the free sulfuric acid content of said copper(II) sulfate pentahydrate.

4,315,916

TOPICAL SALVE

Jonas S. Likens, deceased, late of Macon County, Tenn.; by Ruby L. Ford, heir; by Mary F. L. Coulter, heir; by Pauline L. Coulter, heir, all of Lafayette, Tenn., and by Lucille L. Filson, heir, Rte. 1, Hartsville, Tenn. 37074, assignors to Lucille L. Filson, Hartsville, Tenn.

Continuation-in-part of Ser. No. 873,087, Jul. 18, 1978, Pat. No. 4,229,437. This application Dec. 28, 1979, Ser. No. 108,046

Int. Cl.³ A61K 33/00, 35/78

U.S. Cl. 424—145

9 Claims

1. The diethyl ether-soluble compound, which is an oil having the following properties:

- (1) approximate empirical formula—C₁₅H₂₅O or a multiple thereof;
- (2) thin layer chromatograph (TLC)—single spots (eluting solvent—22 parts by volume of benzene, 2 parts by volume of acetic, 4 parts by volume of methanol)
r_f=0.56 on silica gel (Merck F-254)
r_f=0.15 (tails to origin) on alumina (Baker)
r_f=0.99 on kieselguhr
r_f=0.86 (in half-moon form) on polyamide (Baker);
- (3) infrared (IR) absorption spectrum as set forth in FIG. 2,
- (4) nuclear magnetic resonance (NMR) as set forth in FIG. 3;
- (5) gas chromatography (GC)
Retention Time—12.3 minutes (as compared with 3.9 minutes for acetophenone, an internal standard)
Machine: Shimadzu, Mini-2
Column: 40 meter capillary
Coating: OV-101
Column Temperature: 200° C.
Injector Temperature: 210° C.
Attenuation: 64
Range: 1.

2. A pharmaceutically-acceptable composition for treating skin topically and consisting essentially of an admixture of (a) zinc chloride with (b) the compound of claim 1, the weight ratio of (a):(b) being within the range of from 1:20 to 20:1.

4,315,917

METHOD OF TREATING CANNIBALISM IN POULTRY

John W. Willard, Sr., 1314 S. 7th St., Rapid City, S. Dak. 57701

Continuation of Ser. No. 737,517, Nov. 1, 1976, abandoned, which is a continuation-in-part of Ser. No. 712,518, Aug. 6, 1976,

Pat. No. 4,029,770, and a continuation-in-part of Ser. No. 593,712, Jul. 7, 1975, Pat. No. 4,084,938, which is a continuation-in-part of Ser. No. 317,097, Dec. 20, 1972, Pat. No. 3,893,943, which is a continuation of Ser. No. 108,198, Jan. 20, 1971, abandoned, said Ser. No. 712,518, is a division of Ser. No. 455,022, Mar. 26, 1974, Pat. No. 3,984,540. This application Jul. 8, 1980, Ser. No. 166,908

Int. Cl.³ A61K 31/12

U.S. Cl. 424—155

23 Claims

1. A method of treating cannibalism in cannibalistic poultry grown under crowded conditions comprising administering drinking water to the said poultry containing an effective amount of a treating agent to control the said cannibalism, the said treating agent being present in the drinking water in an amount of about 0.0001–200 parts per million by weight on a dry solids basis and being prepared by a process comprising

admixing a water soluble alkali metal silicate with an aqueous medium containing a dissolved substance which is a source of calcium ion and a dissolved substance which is a source of magnesium ion, the aqueous medium containing said dissolved substances in amounts to provide between about 1 × 10⁻⁴ and 1 × 10⁻¹ mole per liter each of calcium ion and magnesium ion, the aqueous medium containing said dissolved substances in amounts to provide a molar ratio of calcium ion to magnesium ion between about 2.0:1.0 and 1.0:2.0, the alkali metal silicate having an alkali metal oxide to silicon

dioxide ratio between about 0.9:1.0 and less than 2.0:1.0 and being admixed with the aqueous medium in an amount of about 0.05-2 moles per liter.

reacting the alkali metal silicate with said dissolved substances providing calcium ion and magnesium ion to produce an aqueous suspension of finely divided particles of the reaction product,

admixing a micelle-forming surfactant with the aqueous medium in an amount to form micelles comprising said finely divided particles upon agitating the aqueous medium, and

agitating the aqueous medium containing the finely divided particles and surfactant to form said micelles.

4,315,918

PHARMACEUTICAL FORMULATION OF GUAR GUM
Stephen Gayst, 19 Arthur St., Double Bay, N.S.W., Australia (2028), and Michael J. Maguire, 9 Cotton St., Epping, N.S.W., Australia (2121)

Filed Aug. 13, 1979, Ser. No. 66,304

Claims priority, application United Kingdom, Jul. 25, 1978, 31060/78

Int. Cl.³ A61K 37/02, 31/73; C07H 37/00

U.S. Cl. 424-177

23 Claims

1. A pharmaceutical composition for use in medicine, presented as a dry powder suitable for reconstitution by admixture with drinking water, said composition comprising a therapeutically effective, non-toxic amount of a galactomannan admixed with a gellation inhibiting amount of gelatin hydrolysate.

4,315,919

DEPYROGENATION PROCESS

Edward Shanbrom, 2252 Liane La., Santa Ana, Calif. 92705

Filed Oct. 6, 1980, Ser. No. 194,263

Int. Cl.³ A61K 35/14, 37/00

U.S. Cl. 424-177

10 Claims

1. The method of depyrogenating a proteinaceous biological or pharmaceutical product comprising

(1) treating said proteinaceous biological or pharmaceutical product by prolonged contact with a solution or suspension of from about 0.25% to about 10% by weight of a non-denaturing amphiphile,

(2) adding to the resulting treatment mixture a protein precipitant for said proteinaceous biological or pharmaceutical product to thereby cause precipitation of said proteinaceous product and

(3) separating from the resulting precipitate the supernatant which contains said amphiphile together with endotoxin dissociated or disaggregated by said prolonged contact.

4,315,920

ADENOSINE DEAMINASE INHIBITORS

Howard J. Schaeffer, Richmond, Va.; Paulo M. S. DeMiranda, Raleigh, N.C.; Gertrude B. Elion, Chapel Hill, N.C., and George H. Hitchings, Durham, N.C., assignors to Burroughs Wellcome Co., Research Triangle Park, N.C.

Continuation of Ser. No. 838,167, Sep. 30, 1977, abandoned, which is a continuation of Ser. No. 605,718, Aug. 18, 1975, abandoned. This application Jan. 14, 1980, Ser. No. 111,817

Claims priority, application United Kingdom, Feb. 13, 1975, 6173/75

Int. Cl.³ A61K 31/70, 31/52

U.S. Cl. 424-180

6 Claims

1. The method of preventing rapid degradation of 9-β-D-arabinofuranosyladenine or a pharmaceutically acceptable salt thereof in a mammal undergoing systemic treatment with 9-β-D-arabinofuranosyladenine or a pharmaceutically acceptable salt thereof by inhibiting the conversion of 9-β-D-arabinofuranosyladenine or a pharmaceutically acceptable salt thereof comprising administering to said mammal an effective degradation inhibition amount of erythro-9-(2-hydroxy-3-nonyl)adenine or a pharmaceutically acceptable salt thereof.

4,315,921

PHARMACEUTICAL COMPOSITION CONTAINING FARA-AMINO-BENZOIC ACID-N-D-XYLOSIDE AS AN ACTIVE INGREDIENT

Chikao Yoshikumi, Kunitachi; Yoshio Ohmura, Funabashi; Fumio Hirose, Tokyo; Masanori Ikuzawa, Tachikawa; Kenichi Matsunaga, Tokyo; Takayoshi Fujii, Tokyo; Minoru Ohara, Tokyo, and Takao Ando, Tokyo, all of Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

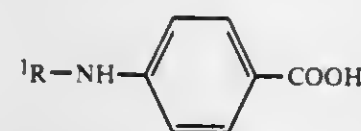
Continuation-in-part of Ser. No. 39,282, May 15, 1979, abandoned. This application Dec. 10, 1979, Ser. No. 102,224

Int. Cl.³ A61K 31/70

U.S. Cl. 424-180

4 Claims

1. A method for the treatment of hypertension, which comprises administering to a mammal suffering from hypertension an effective amount of a compound of the formula:



wherein ¹R denotes the residual group formed by removing OH at 1 position from xylose, or a pharmaceutically acceptable salt thereof.

4,315,922

NIKKOMICINS, A PROCESS FOR THEIR PREPARATION AND THEIR USE AS AGENTS FOR COMBATING PESTS

Hans-Paul Hagenmaier, Tübingen; Wilfried König, Pinneberg; Hans Zähler; Hans-Peter Fiedler, both of Tübingen; Wolfgang Dehler, Dettenhausen; Adelinde Keckeisen, Tübingen; Hartwig Holst, Pohlheim, and Gerhard Zoebelin, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jul. 10, 1980, Ser. No. 167,291

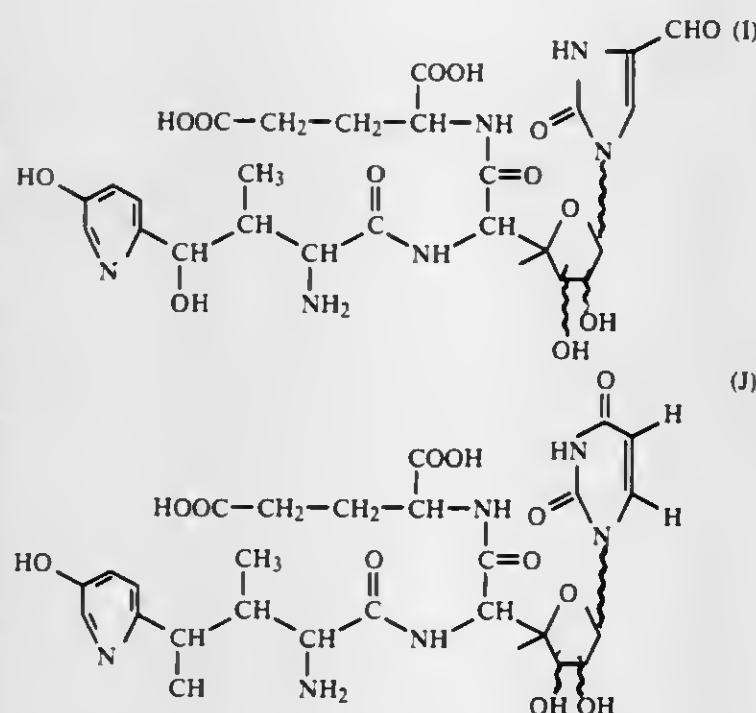
Claims priority, application Fed. Rep. of Germany, Jul. 12, 1979, 2928137

Int. Cl.³ A61K 31/71; C07H 19/06

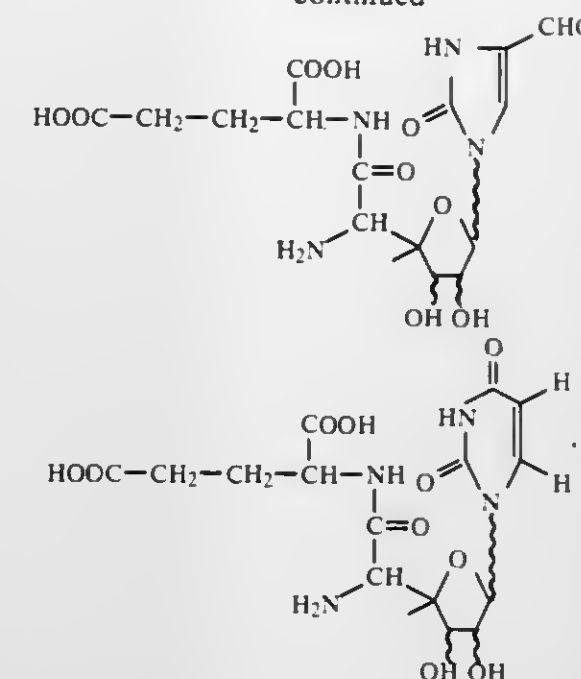
U.S. Cl. 424-181

12 Claims

1. A pure nikkomicin selected from the group consisting of



-continued



a mixture of nikkomicin I and J, and a mixture of nikkomicin M and N.

8. A pesticidal composition comprising a pesticidally effective amount of a nikkomicin according to claim 1 in admixture with a diluent.

9. A method of combating pests selected from the group consisting of arthropods, nematodes, fungi and bacteria which comprises applying to the pests, or to a habitat thereof, a pesticidally effective amount of a nikkomicin according to claim 1.

4,315,923

PROCESS FOR THE PRODUCTION OF ORGAN EXTRACTS WITH HIGH HEPARIN CONTENT

Istvan Takacs; György Kerey; János Illes; Peter Rudolf; Pal Gere; Laszlo Czebe, and Erzsébet Neszmelyi, all of Budapest, Hungary, assignors to Richter Gedeon Vegyeszeti Gyar RT, Budapest, Hungary

Filed Mar. 19, 1980, Ser. No. 131,824

Claims priority, application Hungary, Mar. 21, 1979, RI 705

Int. Cl.³ A61K 31/725; C08B 37/10

U.S. Cl. 424-183

4 Claims

1. A process for the production of an aqueous extract with a heparin content of substantially 150 to 300 NE/ml, comprising the steps of:

forming a heparin-enriched amorphous granular raw material containing 90 to 95% by weight dry substance from heparin-containing animal waste; and

extracting said granular raw material by counterflow extraction at a temperature between 20° C. and 80° C. with an aqueous salt solution of an electrolyte composition of 1.5 to 12.0% and a pH of 8 to 12.8 or with an alkaline solution of 0.5 normal to 1.0 normal to form the aqueous extract.

4,315,924

NOVEL MEDICAMENT BASED ON ASPIRIN AND HEPTAMINOL

Jacques Perrot, Paris, France, assignor to Societe D'Etudes Scientifiques et Industrielles, Paris, France

Filed Nov. 10, 1980, Ser. No. 205,727

Claims priority, application France, Nov. 26, 1979, 79 29036

Int. Cl.³ A61K 31/60, 31/605, 31/615

U.S. Cl. 424-233

6 Claims

6. The method of enhancing the analgesic effect of aspirin by subjects in need of same which comprises the co-administration to said subjects of heptaminol with aspirin in the ratio of one part by weight to two parts by weight.

4,315,925

METHOD OF ADMINISTERING NATURAL FEMALE SEX HORMONES

Anwar A. Hussain; Shinichiro Hirai, and Rima Bawarshi, all of Lexington, Ky., assignors to University of Kentucky Research Foundation, Lexington, Ky.

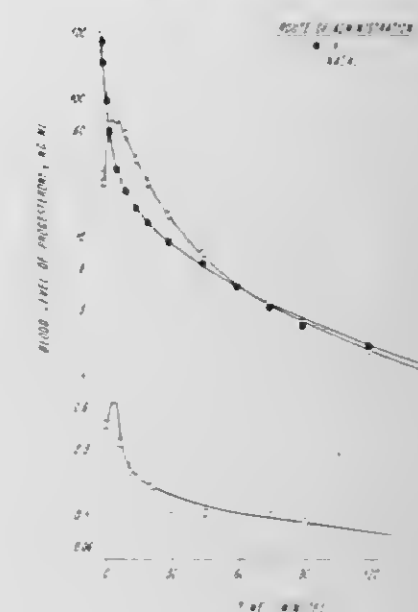
Filed May 30, 1980, Ser. No. 154,995

Int. Cl.³ A01N 45/00

U.S. Cl. 424-239

20 Claims

FIG. 1



1. A method of mammalian contraception which comprises nasally administering to a female mammal a contraceptively effective amount of a combination of progesterone and a pharmaceutically acceptable, estrogenically active form of 17β-estradiol.

7. A method according to claim 1, 3, 4 or 6 wherein the pharmaceutically acceptable, estrogenically active form of 17β-estradiol is selected from the group consisting of 17β-estradiol, 3-monoesters of 17β-estradiol, 17-monoesters of 17β-estradiol and 3,17-diester of 17β-estradiol.

4,315,926

DIBENZ[C,E]AZEPINES

Heinz W. Gschwend, New Providence, N.J., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

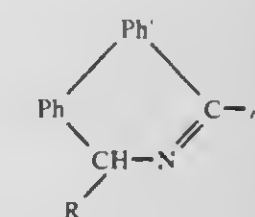
Filed Dec. 26, 1979, Ser. No. 106,645

Int. Cl.³ A61K 31/55; C07D 223/18

U.S. Cl. 424-244

7 Claims

1. A 7-aryl-5H-dibenz[c,e]azepine compound of the formula



wherein each of Ph and Ph' is 1,2-phenylene, unsubstituted or para and meta mono- or di-substituted by lower alkyl, hydroxy, lower alkoxy, halogeno or trifluoromethyl; Ar is phenyl unsubstituted or mono- or di-substituted by lower alkyl, hydroxy, lower alkoxy, halogeno, or trifluoromethyl; and R is hydrogen, lower alkyl, hydroxy, lower alkoxy, amino, mono-, di-lower alkylamino or lower alkanoyl derivatives of said 5-(hydroxy or amino) compounds; the 6-N-oxides and pharmaceutically acceptable acid addition salts thereof.

6. An anxiolytic pharmaceutical composition comprising

anxiolytically effective amount of a compound as claimed in claim 1, together with a pharmaceutical excipient.

4,315,927

DIETARY SUPPLEMENTATION WITH ESSENTIAL METAL PICOLINATES

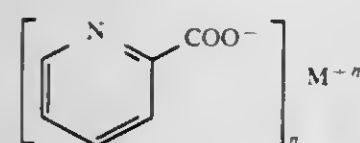
Gary W. Evans, Grand Forks, N. Dak., assignor to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Aug. 8, 1980, Ser. No. 176,234
Int. Cl.³ A61K 31/555

U.S. Cl. 424-245

11 Claims

1. A food composition for selectively supplementing essential metals in a mammalian diet and for facilitating absorption of said metals by the mammalian system comprising a food composition containing an effective amount of at least one exogenously synthesized essential metal picolinate complex characterized by the following structural formula:



wherein M represents the metallic cation and n is equal to the cation's valence.

4,315,928

N-AMINOSULFENYL CARBAMATE COMPOUNDS, COMPOSITIONS AND USE

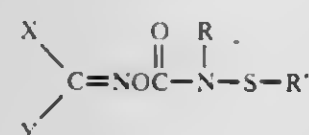
Duane E. Thurman, Salinas, Calif., assignor to Union Carbide Corporation, New York, N.Y.

Filed Jun. 26, 1975, Ser. No. 590,463

Int. Cl.³ C07C 161/00; C07D 295/22; A01N 41/12; 43/84
U.S. Cl. 424-248.5

39 Claims

1. A compound of the formula:



wherein:

R is hydrogen, lower alkyl, lower alkenyl, lower alkoxy, or lower cycloalkyl, either unsubstituted or, except where R is hydrogen, substituted with one or more chloro, bromo, fluoro, nitro or cyano substituents, or a combination thereof, or phenyl or lower phenylalkyl, either unsubstituted or substituted with one or more chloro, bromo, fluoro, nitro, cyano, lower alkyl, lower haloalkyl or lower alkoxy substituents or a combination thereof;

R' is lower dialkylamino or morpholino which may be unsubstituted or aliphatically substituted with one or more chloro, fluoro, bromo, nitro, lower haloalkyl or lower alkoxy;

X is alkylthio, cyanoalkyl, cyanoalkylthio;

Y is hydrogen or alkyl;

with the proviso that the total number of aliphatic carbon atoms in X and Y shall not exceed 12.

4,315,929

METHOD OF CONTROLLING THE EUROPEAN CORN BORER WITH TREWIASINE

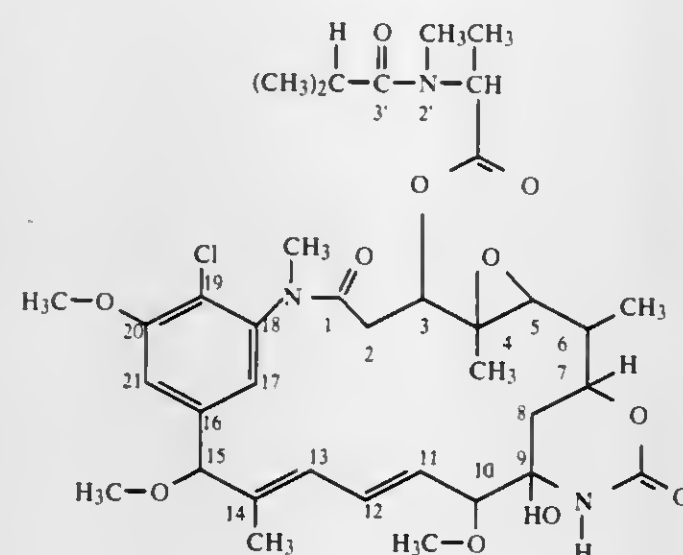
Bernard Freedman; Richard G. Powell, both of Peoria, and Cecil R. Smith, Jr., Dunlap, all of Ill., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Jan. 27, 1981, Ser. No. 228,852
Int. Cl.³ A01N 43/86

U.S. Cl. 424-248.54

3 Claims

1. A method for controlling insect pests, wherein said pests are European corn borers, comprising applying to substrates susceptible to infestation by said pests an insecticidally effective amount of the pure or substantially pure compound of the formula.



4,315,930

ANIMAL FEED AND PROCESS

Melvin J. DeGeeter, and John M. McCall, both of Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

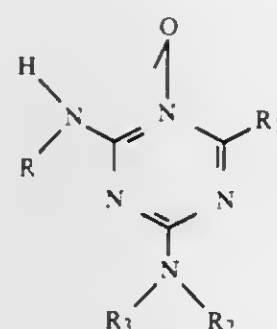
Filed Jun. 23, 1980, Ser. No. 161,946

Int. Cl.³ A61K 31/53; 27/00

U.S. Cl. 424-249

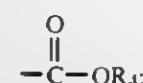
6 Claims

1. A process for obtaining increased production in meat-producing, egg-laying, or milk-producing animals comprising feeding to said animals an effective amount of a compound of the formula:

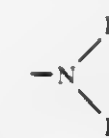


Formula I

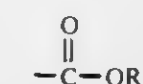
wherein R is a member selected from the group consisting of hydrogen, R4 wherein R4 is alkyl of from 1 to 8 carbon atoms, inclusive, including isomeric forms thereof, alkenyl of from 2 to 8 carbon atoms, inclusive, including isomeric forms thereof, cycloalkyl of from 3 to 7 carbon atoms,



and acyl wherein acyl is up to and including five carbon atoms. R1 is a member selected from the group consisting of hydrogen, R4, and



wherein R5 is selected from the group consisting of hydrogen,



and acyl wherein acyl is up to and including five carbon atoms; R2 and R3 are the same or different and are a member selected from the group consisting of hydrogen, provided that both R2 and R3 are not hydrogen; R4, cycloalkyl of from 3 to 8 carbon atoms, alkyl substituted cycloalkyl of the formula



wherein n is an integer of from 2 to 7, inclusive, and R7 is a member selected from the group consisting of hydrogen and alkyl of from 1 to 5 carbon atoms, inclusive, including isomeric forms thereof; alkenyl of from 2 to 8 carbon atoms, inclusive, including isomeric forms thereof, aralkyl wherein Ar is a member selected from the group consisting of phenyl, substituted phenyl wherein 1 or 2 hydrogens are replaced with chlorine, fluorine, bromine, iodine, R6, -OR6, or -CF3 and the substituents can be the same or different, and R6 is alkyl of from 1 to 4 carbon atoms, inclusive, including isomeric forms thereof, and R2 and R3 taken together with



is a heterocyclic moiety of from 4 to 8, inclusive, ring atoms and 1 or 2 hetero atoms selected from the group consisting of nitrogen, and oxygen, or a substituted heterocyclic moiety wherein 1, 2, or 3 of the carbon atoms of the heterocycle are substituted with R4.

4,315,931

N-PYRIMIDINYL-IMIDOACID ESTERS AND DRUGS CONTAINING THE SAID COMPOUNDS

Peter Scharwaechter, Moorrege; Klaus Gutsche, Rellingen; Wilhelm Kohlmann, Moorrege, all of Fed. Rep. of Germany; Gerhard Kroemer, deceased, late of Elmshorn, Fed. Rep. of Germany; by Norma Kroemer, legal representative, Lahn-Giessen; by Helmut Kroemer, legal representative, and by Maria M. Kroemer, legal representative, both of Stolberg, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Jul. 3, 1978, Ser. No. 921,701

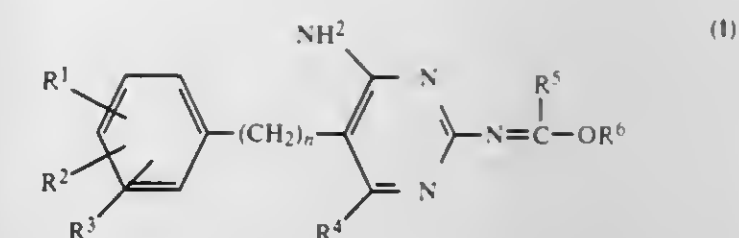
Claims priority, application Fed. Rep. of Germany, Jul. 6, 1977, 2730468

Int. Cl.³ C07D 239/48; A61K 31/505

U.S. Cl. 424-251

13 Claims

1. A N-pyrimidinyl-imidoacid ester of the general formula I



where R1, R2 and R3, which may be identical or different, are hydrogen, methyl, methoxy or chlorine, R4 is hydrogen or alkyl of 1 to 4 carbon atoms, R5 is alkyl of 1 to 6 carbon atoms or benzyl, R6 is alkyl of 1 to 4 carbon atoms or benzyl and n is 0 or 1.

13. A pharmaceutical composition for treatment of systemic infectious diseases comprising a compound as set forth in claim 1, from 1:10 to 5:1 of a sulfonamide selected from the group consisting of 2-sulfanilamido-pyridine, 2-sulfanilamido-thiazole, 2-sulfanilamido-pyrimidine, 2-sulfanilamido-4-methylpyrimidine, 2-sulfanilamido-4,6-dimethyl-pyrimidine, 4-sulfanilamido-2,6-dimethyl-pyrimidine, 5-sulfanilamido-3,4-dimethyl-isoxazole, 3-sulfanilamido-6-methoxy-pyridazine, 3-sulfanilamido-6-chloropyridazine, 4-sulfanilamido-2,6-dimethoxy-pyrimidine, 3-sulfanilamido-2-phenyl-pyrazole, 2-sulfanilamido-5-methylpyrimidine, 2-sulfanilamido-5-methoxy-pyrimidine, 2-sulfanilamido-5-methyl-isoxazole, 2-sulfanilamido-4,5-dimethyl-oxazole, 2-sulfanilamido-3-methoxy-pyrazine, 4-sulfanilamido-5,6-dimethoxy-pyrimidine, 4-sulfanilamido-3-methoxy-1,2,5-thiadiazole and 4-aminobenzene-sulfonyl-guanidine, and non-toxic, therapeutically acceptable solid or liquid carriers and galenical assistants.

4,315,932

METHOD OF USING 1H-PYRIMIDO-4,5-c-1,2-DIAZEPINES AS ANTIBACTERIAL AND ANTICOCCIDOCIAL AGENTS

Robert W. Morrison, Jr.; William R. Mallory, and Virgil L. Styles, all of Raleigh, N.C., assignors to Burroughs Wellcome Co., Research Triangle Park, N.C.

Division of Ser. No. 926,072, Jul. 19, 1978, abandoned. This application Sep. 17, 1979, Ser. No. 76,404

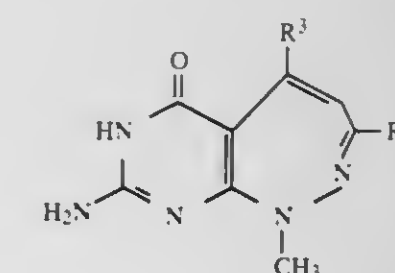
Claims priority, application United Kingdom, Jul. 20, 1977, 30380/77

Int. Cl.³ A61K 31/505; C07D 487/04

U.S. Cl. 424-251

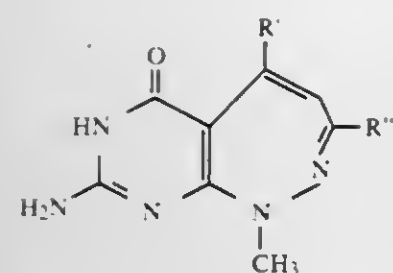
8 Claims

1. A method of potentiating the antibacterial activity of a 2,4-diamino-5-benzylpyrimidine and/or sulphamethoxazole against *Staphylococcus aureus* bacteria which comprises applying to *Staphylococcus aureus* bacteria an effective antibacterial amount of a 2,4-diamino-5-benzylpyrimidine and/or sulphamethoxazole and an effective potentiating amount of a compound of formula II or a tautomer or a pharmaceutically acceptable salt thereof



wherein R3 is phenyl, phenyl substituted with one or more hydroxy and R4 is a group -CO2R where R is lower alkyl.

4. The method of treating coccidiosis in a chicken which comprises orally administering to said chicken an effective anticoccidiosis amount of a compound of formula III or a tautomer or a pharmaceutically acceptable salt thereof



wherein R' is phenyl, phenyl substituted with one or more lower alkoxy and R'' is selected from phenyl and —CH₂R in which R is lower alkyl either alone or in combination with sulphadoxine and/or a 2,4-diamino-5-benzylpyrimidine in an effective potentiating amount.

4,315,933

ANTIBACTERIAL AMIDE COMPOUNDS AND PHARMACEUTICAL COMPOSITIONS CONTAINING THE SAME

Thomas F. Mich; Theodore H. Haskell, both of Ann Arbor, and Marland P. Hutt, Jr., Saline, all of Mich., assignors to Warner-Lambert Company, Morris Plains, N.J.

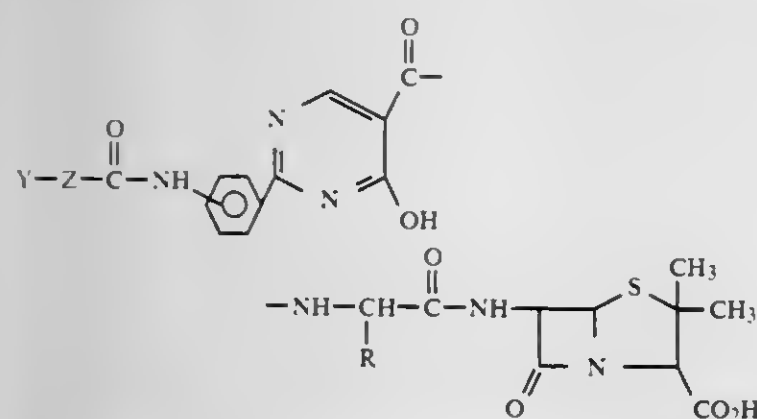
Filed Sep. 24, 1980, Ser. No. 190,154

Int. Cl.³ A61K 31/505; C07D 499/70

U.S. Cl. 424—251

12 Claims

1. A compound of the formula



and pharmaceutically acceptable salts thereof; wherein Z is a single bond and Y is lower alkyl, dichloromethyl, benzyl, CF₃, lower alkyl amino, lower alkyl carbonyl, lower alkoxy carbonyl, benzyloxy, and lower alkoxy, where Z is a methylene group and Y is cyano, lower alkoxy, tetrazolyl, or R¹ CH₂S where R¹ is CF₃ or CN and R is phenyl, 4-hydroxyphenyl, 2-thienyl or cyclohexa-1,4-dien-1-yl.

11. An antibacterial pharmaceutical composition comprising from 50 mg to 1000 mg of a compound of claim 1 and a pharmaceutical carrier.

4,315,934

ORGANIC COMPOUNDS

Anne V. Christensen, Farum, Denmark, assignor to Sandoz Ltd., Basel, Switzerland

Filed Sep. 19, 1980, Ser. No. 188,686

Claims priority, application United Kingdom, Sep. 24, 1979, 32990/79

Int. Cl.³ A61K 31/435

U.S. Cl. 424—256

5 Claims

1. A method of alleviating pain in a subject in need of such treatment which method comprises administering to said subject an analgesically effective amount of 4,5,6,7-tetrahydroisoxazolo[5,4-c]-pyridine-3-ol.

4,315,935 N,N'-BIS[SUBSTITUTED-1,2,3,4-TETRAHYDROISOUQUINOLINOLYL]DISULFONYLIMIDES AND ANTIALLERGIC COMPOSITIONS AND METHOD OF USE

Fadia E. Ali, Cherry Hill, N.J., assignor to SmithKline Corporation, Philadelphia, Pa.

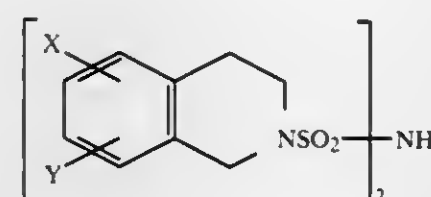
Continuation-in-part of Ser. No. 140,021, Apr. 14, 1980, abandoned. This application Jun. 13, 1980, Ser. No. 159,340

Int. Cl.³ A61K 31/47; C07D 217/16

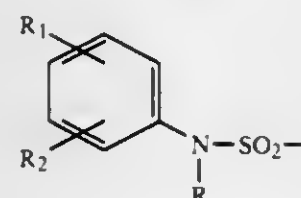
U.S. Cl. 424—258

25 Claims

1. A compound of the formula (I)



in which X is hydrogen, methyl, bromo or chloro; and Y is a benzeneamino-sulfonyl radical of the formula



in which R is hydrogen or methyl; R₁ is hydrogen, bromo, chloro, nitro, methyl, trifluoromethyl or methoxy; and R₂ is hydrogen, chloro or methyl provided that when R₂ is chloro, R₁ is chloro, methyl or trifluoromethyl and when R₂ is methyl, R₁ is methyl; or an alkali metal salt of said compound.

23. A method of inhibiting the symptoms of asthma which comprises administering to a subject in need of said inhibition a therapeutically effective amount for producing said inhibition of a compound of claim 1.

4,315,936

ANALGESIC COMPOSITION

Robert J. Capetola, Doylestown, Pa., and John L. McGuire, Whitehouse Station, N.J., assignors to Ortho Pharmaceutical Corporation, Raritan, N.J.

Filed Dec. 17, 1979, Ser. No. 104,495

Int. Cl.³ A61U 31/38, 31/48

U.S. Cl. 424—260

6 Claims

1. A method of controlling pain in mammals which comprises administering to a mammal an effective amount of a composition comprising from about 10 to 600 mg. of α-methyl-4-[2-thienylcarbonyl] benzene acetic acid and from about 5 to 80 mg. of a centrally-acting analgesic selected from the group consisting of codeine and butorphanol.

4,315,937

ERGOTS AND THEIR USE IN TREATING MINIMAL BRAIN DYSFUNCTION

William P. Maclay, Farnborough, and Mackenzie G. Wallace, Hatfield, both of England, assignors to Sandoz Ltd., Basel, Switzerland

Filed Nov. 26, 1980, Ser. No. 210,695

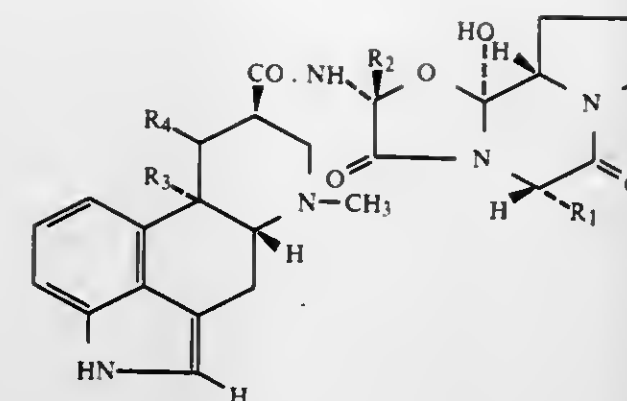
Claims priority, application United Kingdom, Nov. 28, 1979, 41095/79; Mar. 21, 1980, 10762/80

Int. Cl.³ A61K 31/48, 31/475

U.S. Cl. 424—261

7 Claims

1. A method of treating minimal brain dysfunction in children which comprises administering to a child having the minimal brain dysfunction a therapeutically effective dose of (i) a compound of formula 1



wherein

R₁ is isopropyl, isobutyl, sec-butyl or benzyl,

R₂ is methyl, ethyl or isopropyl,

R₃ and R₄ are each hydrogen, or

R₃ and R₄ together are a single bond, or a pharmaceutically acceptable acid addition salt thereof; or

(ii) a mixture of approximately equal proportions by weight of (a) dihydroergocornine, (b) dihydroergocristine and (c) α- and β-dihydroergocryptine in a 2:1 weight ratio in free base or pharmaceutically acceptable acid addition salt form.

4,315,938

4-PHENYL-4,5,6,7-TETRAHYDRO-PYRROLO [2,3-C] PYRIDINES AND SALTS THEREOF

Claus Schneider, Ingelheim am Rhein; Karl-Heinz Weber, Gau-Algesheim; Gerhard Walther, Bingen; Karin Büke, Ingelheim am Rhein, and Wolf D. Bechtel, Appenheim, all of Fed. Rep. of Germany, assignors to Boehringer Ingelheim GmbH, Ingelheim am Rhein, Fed. Rep. of Germany

Filed Jun. 30, 1980, Ser. No. 163,969

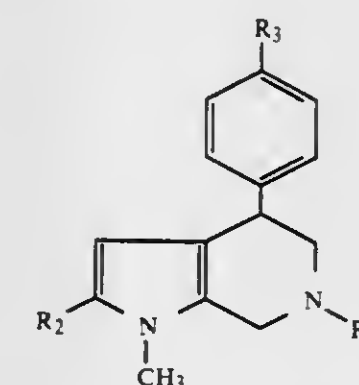
Claims priority, application Fed. Rep. of Germany, Jul. 6, 1979, 2927294

Int. Cl.³ A61K 31/44, 31/445; C07D 471/04

U.S. Cl. 424—267

10 Claims

1. A compound of the formula



wherein

R₂ is hydrogen, chlorine, bromine, formyl, acetyl, alkyl of 1 to 4 carbon atoms, nitro, cyano or —CH₂—A;

where

A is (alkyl of 1 to 2 carbon atoms)-amino; di(alkyl of 1 to 2 carbon atoms)-amino, where one of the alkyl moieties may have at terminal hydroxyl substituent attached thereto; or a 5-, 6- or 7-membered saturated heterocycle containing a single ring nitrogen atom, which is attached to the methylene group through the nitrogen atom and may have a hydroxyl or hydroxymethyl substituent attached to a ring carbon atom, and the 6-membered heterocycle may contain oxygen as an additional ring heteroatom in the p-position;

R₃ is hydrogen, fluorine, chlorine, bromine, methyl or methoxy; and

R₄ is hydrogen or alkyl of 1 to 3 carbon atoms;

or a non-toxic, pharmacologically acceptable acid addition salt thereof.

4,315,939

PIPERIDINE DERIVATIVES OF 4,5-DIALKYL-3-HYDROXY-PYRROLE-2-CARBOXYLIC ACID ESTERS, PHARMACEUTICAL FORMULATIONS CONTAINING THESE COMPOUNDS AND USE IN TREATING CARDIAC ARRHYTHMIAS

Fritz-Frieder Frickel, Deidesheim; Albrecht Franke, Wachenheim; Gerda Von Philipsborn, Weinheim; Claus D. Mueller, Viernheim, and Dieter Lenke, Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Oct. 6, 1980, Ser. No. 194,441

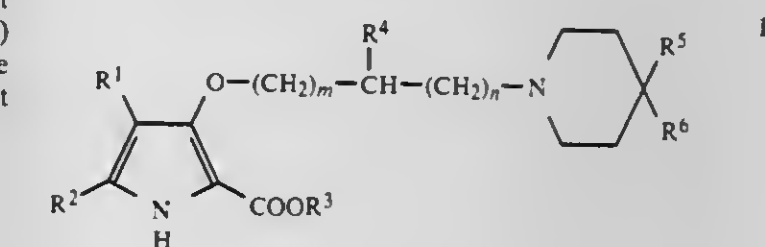
Claims priority, application Fed. Rep. of Germany, Oct. 13, 1979, 2941597

Int. Cl.³ A61K 31/445; C07D 401/04, 401/12, 401/14

U.S. Cl. 424—267

10 Claims

1. A compound of the formula I



where

R¹ and R² are identical or different and each is alkyl of 1 to 4 carbon atoms or aralkyl of 7 to 9 carbon atoms, or R¹ and R² together with the two carbon atoms by which they are linked form a 6-membered ring possessing 4 methylene groups and

R³ is alkyl of 1 to 6 carbon atoms,

R⁴ and R⁵ are hydrogen or hydroxyl,

R⁶ is a pyridyl or phenyl radical which may be monosubstituted or disubstituted by halogen or monosubstituted by trifluoromethyl, and

m and n are integers from 1 to 5 and the sum of m + n does not exceed 6 and, if R⁴ is hydrogen, m or n may also be 0, and its physiologically tolerated addition salts with acids.

4,315,940

ANTIDIABETIC 1-PIPERIDINE-SULFONYLUREAS

Volker Hitzel, Hofheim am Taunus; Rudi Weyer, Kelkheim; Karl Geisen, Frankfurt am Main, and Günter Regitz, Bad Soden am Taunus, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Nov. 26, 1980, Ser. No. 211,331

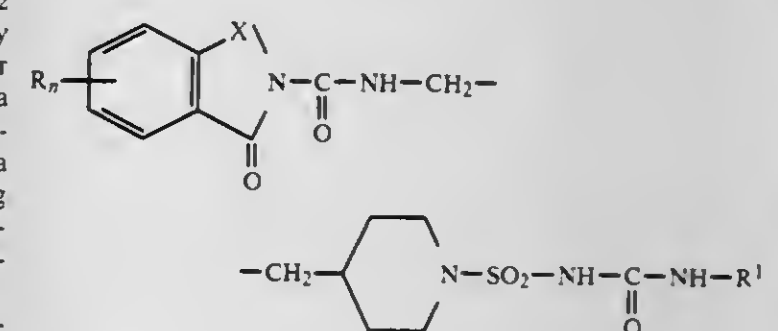
Claims priority, application Fed. Rep. of Germany, Dec. 1, 1979, 2948434

Int. Cl.³ A61K 31/445; C07D 401/12

U.S. Cl. 424—267

7 Claims

1. Sulfonylurea of the formula



in which

n is 1 or 2;

R is hydrogen, alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms or halogen, the Rs being identical or different when n is 2;

X is $-\text{CH}_2-$, $-\text{CH}_2-\text{CH}_2-$ or $-\text{CH}(\text{CH}_3)-$;

R¹ is alkyl of 2 to 8 carbon atoms, cycloalkyl, alkylcycloalkyl, dialkylcycloalkyl, cycloalkylalkyl, cycloalkenyl, or alkylcycloalkenyl, in each case with 5 to 9 carbon atoms, methylcyclopentylmethyl, cyclohexenylmethyl, chlorocyclohexyl, methoxycyclohexyl, bicyclo[2.2.1]-heptyl, bicyclo[2.2.1]-heptenyl, bicyclo[2.2.1]heptylmethyl, bicyclo[2.2.1]-heptenylmethyl, bicyclo[2.2.2]octyl, norbornyl, adamantyl or benzyl, or a physiologically acceptable salt thereof.

6. Method of treatment of diabetes which comprises oral administration to a diabetic patient of an effective amount of a compound as defined in claim 1.

4,315,941

URAZOLE ANALOGS OF PROSTAGLANDIN DERIVATIVES

Frederick Cassidy, Harlow, and Richard W. Moore, Bishop Stortford, both of England, assignors to Beecham Group Limited, England

Filed Jun. 30, 1980, Ser. No. 164,158

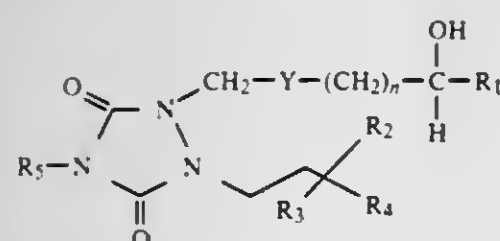
Claims priority, application United Kingdom, Jul. 12, 1979, 24235/79; Jul. 30, 1979, 26432/79

Int. Cl.³ A61K 31/41; C07D 249/12

U.S. Cl. 424-269

9 Claims

1. A compound of the formula:



wherein

n has a value of from 3 to 5;

Y is $-\text{CH}_2\text{CH}_2-$, $-\text{CH}=\text{CH}-$; or $-\text{C}=\text{C}-$;

R₁ is alkyl of 1 to 4 carbon atoms;

R₂ is hydrogen, alkyl of 1 to 4 carbon atoms or phenyl;

R₃ is hydroxy, acyloxy of 1 to 4 carbon atoms, methoxy or benzyloxy;

R₄ is hydrogen, alkyl of 1 to 9 carbon atoms, cycloalkyl of 3 to 8 carbon atoms, phenyl or naphthyl, said phenyl and naphthyl being unsubstituted or substituted with halo, trifluoromethyl, alkyl of 1 to 6 carbon atoms, hydroxy, alkoxy of 1 to 6 carbon atoms, phenyl(alkoxy of 1 to 6 carbon atoms in the alkoxy moiety or nitro; and

R₅ is alkyl of 1 to 5 carbon atoms.

8. A pharmaceutical composition comprising a quantity of a compound according to claim 1 sufficient to effect bronchodilation together with a pharmaceutically acceptable carrier.

4,315,942

INTRAVENOUSLY ADMINSTRABLE IRON SUPPLEMENT

Brian J. Corden, Kensington, Md., assignor to New England Medical Center, Inc., Boston, Mass.

Filed May 21, 1979, Ser. No. 40,899

Int. Cl.³ A61K 31/295; C07F 15/02

U.S. Cl. 424-295

12 Claims

1. A method of increasing the amount of bioavailable iron in a mammal which comprises administering to the mammal an amount of an iron (III) complex of the formula $\text{Fe}(\text{RC}(\text{HNOH}))_3$ wherein R is H or C₂₋₆ alkyl or of the iron (III) complex of acetohydroxamic acid effective to increase the amount of bioavailable iron.

4,315,943 CYCLOPROPYL-CARBOXYLATES USED AS NEMATOCIDES

Jacques Martel, Bondy, and Jean Tessier, Vincennes, both of France, assignors to Roussel Uclaf, Paris, France

Division of Ser. No. 44,912, Jun. 4, 1979. This application Mar. 24, 1980, Ser. No. 132,836

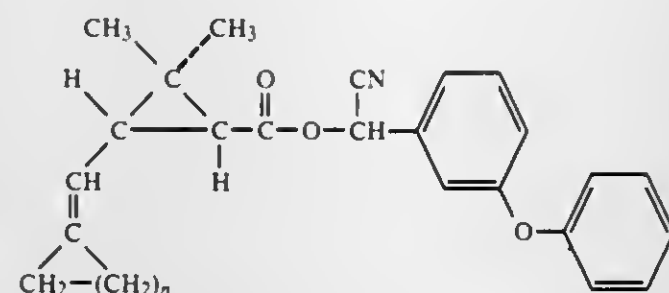
Claims priority, application France, Jun. 6, 1978, 78 16858

Int. Cl.³ A01N 37/34

U.S. Cl. 424-304

2 Claims

1. A method of combatting nematodes comprising contacting nematodes with a nematocidally effective amount of at least one compound selected from the group consisting of (R,S) and (S)-α-cyano-3-phenoxy-benzyl ester of the cyclopropane carboxylic acids of the formula



wherein n is an integer from 1,2 or 3 and the acid is (1R, trans) or (1R, cis) by incorporation into soil infested therewith.

4,315,944

PHARMACEUTICAL COMPOSITION COMPRISING L-CARNITINE FOR THE TREATMENT OF HYPERLIPIDAEMIAS AND HYPERLIPOPROTEINAEMIAS

Maria T. Ramacci, Rome, Italy, assignor to SIGMA-TAU Industrie Farmaceutiche Riunite S.p.A., Rome, Italy

Filed Sep. 16, 1980, Ser. No. 187,655

Claims priority, application Italy, Sep. 21, 1979, 50331 A/79

Int. Cl.³ A61V 31/195

U.S. Cl. 424-319

3 Claims

1. A therapeutic method for the treatment of patients affected by hyperlipidaemias and hyperlipoproteinaemias characterized by the fact of administering to said patients, orally or parenterally, a pharmaceutical composition comprising an effective amount of carnitine present solely in the L form.

4,315,945

FLAVORING WITH NORBORNYL ETHERS AND ESTERS

Mark A. Sprecker, Sea Bright, N.J., assignor to International Flavors & Fragrances Inc., New York, N.Y.

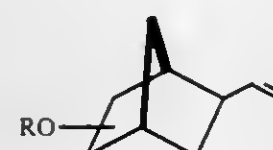
Continuation-in-part of Ser. No. 200,012, Oct. 23, 1980. This application Mar. 25, 1981, Ser. No. 247,321

Int. Cl.³ A23L 1/226

U.S. Cl. 426-3

3 Claims

1. A process for augmenting or enhancing the aroma or taste of a foodstuff or chewing gum comprising the step of adding to a foodstuff base or chewing gum base, from 0.5 ppm up to 100 ppm of a mixture of compounds represented by the structure:



wherein the "RO" moiety exists in the "5" and "6" position on the norbornyl ring structure and wherein R represents a moiety selected from the group consisting of acetyl, propionyl and allyl and wherein in the mixture the "R" moieties are identical.

4,315,946

MODIFIED VEGETABLE PROTEIN ISOLATES

Steven P. Greiner, Waukegan; Wayne E. Marshall, Spring Grove, and Linda G. Sitterly, Prospect Heights, all of Ill., assignors to Kraft, Inc., Glenview, Ill.

Filed Feb. 13, 1980, Ser. No. 121,270

Int. Cl.³ A23J 3/00

U.S. Cl. 426-46

6 Claims

1. A method for treating vegetable protein isolates to provide improved texture and cheese-compatible flavor properties, comprising

providing an aqueous slurry of bland vegetable protein isolate comprising less than about 1 percent by weight mono and disaccharides, based on the dry weight of said isolate,

heat treating said slurry at a temperature in the range of from about 150° F. to about 170° F. for from about 20 to about 40 minutes or equivalent time-temperature treatment to pasteurize and aid in the dispersion of said isolate,

treating said slurry with neutral food grade proteolytic enzyme selected from the class of endopeptidases at an enzyme to substrate weight ratio in the range of from 0.004 to 0.01 and inoculating said slurry with an effective microorganism selected from the group consisting of Micrococcus Cohn Subgroup 2 and Leuconostoc cremoris to provide an initial concentration of said microorganism in said slurry in the range of from about 1×10^6 to about 1×10^7 cells per milliliter of slurry,

simultaneously fermenting and hydrolyzing said inoculated slurry for from about 2 to about 4 hours at a temperature in the range of from about 30° to about 40° C., and a fermentation pH in the range of from about 6.5 to about 7.0 and

pasteurizing said slurry to provide a modified vegetable protein isolate.

4,315,947

LIQUID SEASONING COMPOSITIONS II

Paul H. Todd, Jr., and Howard E. Haley, both of Kalamazoo, Mich., assignors to KALSEC, Inc., Kalamazoo, Mich.

Filed Feb. 28, 1980, Ser. No. 125,424

Int. Cl.³ A23L 1/27

U.S. Cl. 426-250

57 Claims

1. A homogeneous liquid condimental composition, useful in flavoring or coloring foods and beverages, which is dispersible in brine or syrup containing solid food substrate with development of a haze, but which upon standing becomes a part of the flavoring or coloring of said food substrate present in said brine or syrup, with resulting clearing of color and haze from said brine or syrup, consisting essentially of (1) at least one condiment selected from an edible flavoring and an edible coloring and (2) a polyglycerol ester of a fatty acid, said polyglycerol having at least three glycerol units, the weight ratio of (2) to (1) in the said composition being at least 0.7:1.

4,315,948

PROCESS FOR PREPARING COOKED BACON HAVING REDUCED LEVELS OF N-NITROSAMINES

Rhule B. Sleeth, Paradise Valley; Richard F. Theiler, and Robert B. Rendek, both of Scottsdale, all of Ariz., assignors to Armour and Company, Phoenix, Ariz.

Filed Jun. 12, 1980, Ser. No. 158,679

Int. Cl.³ A23B 4/00

U.S. Cl. 426-266

8 Claims

1. A process for preparing cured bacon which, when cooked for consumption, contains substantially reduced levels of N-nitrosamines, said process comprising the steps of preparing a nitrite-stable injectable curing solution comprising

a nitrite-containing pickle,

a liquid smoke in concentration to provide 20 to 160 ppm phenols and 10 to 800 ppm carbonyl compounds, based upon the green weight of the belly to be injected, the

ratio of carbonyls to phenols being within the range of 0.5-5 to 1, and

an effective amount of a food grade emulsifier which does not substantially increase N-nitrosamine formation; injecting said curing solution into a green belly; and processing said belly to effect curing.

4,315,949

PROCESS FOR MAKING A MILK PROTEIN DIGESTION PRODUCT AND FOODSTUFFS COMPRISING SAME

Karl Schroder, Reimehring, Fed. Rep. of Germany, assignor to Meggle Milchindustrie GmbH & Co. KG, Reimehring, Fed. Rep. of Germany

Filed Sep. 11, 1978, Ser. No. 941,833

Claims priority, application Fed. Rep. of Germany, Sep. 19, 1977, 2742083

Int. Cl.³ A23C 23/00; A23J 3/02; A23P 1/00

U.S. Cl. 426-334

14 Claims

1. Process for the production of a milk protein digestion product which process comprises passing, at elevated pressure and temperature, a mixture of casein-containing milk protein, at least one digestion agent, water and a composition, which liberates an inert gas at said elevated pressure and temperature, through an extruder and allowing the product to expand freely at the outlet thereof to give a foamed form-stable extrudate with a specific weight up to 0.4 g./cm³.

4,315,950

METHOD FOR COOKING HAMBURGER PATTIES

Claude A. Reed, Omaha, Nebr., assignor to International Food Equipment, Inc., Peoria, Ill.

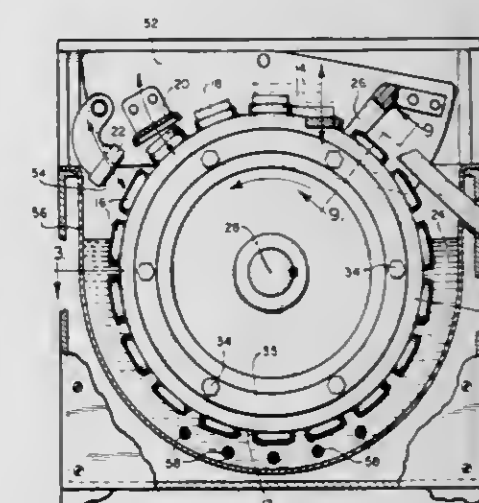
Division of Ser. No. 909,795, May 26, 1978, Pat. No. 4,261,258, which is a continuation of Ser. No. 719,585, Sep. 1, 1976,

abandoned, which is a continuation-in-part of Ser. No. 446,951, Feb. 28, 1974, Pat. No. 3,996,847, which is a continuation-in-part of Ser. No. 190,254, Oct. 18, 1971, abandoned. This application Jul. 21, 1980, Ser. No. 170,720

Int. Cl.³ A23L 1/01

U.S. Cl. 426-509

8 Claims



1. A method for rapidly cooking a hamburger patty in a water base cooking liquid, the steps comprising:

providing a first zone for performing operations on a hamburger patty;

providing a second zone containing a liquid cooking medium;

said liquid cooking medium consisting essentially of a water base liquid;

heating said liquid cooking medium to a temperature in the range from about 160° F. to about 210° F.;

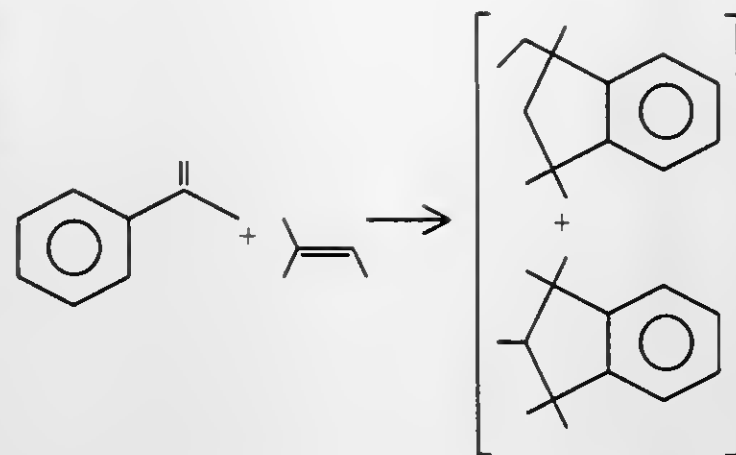
inserting into a hamburger patty in said first zone a plurality of heat conductive grill means of a sufficient number and spaced with sufficient proximities to facilitate rapid cooking of said hamburger patty;

said plurality of grill means provided with heat transfer fins; said grill means inserted transversely into said hamburger patty and substantially penetrating said patty, with heat conductive areas of said heat transfer fins remaining in heat conductive relationship with the exterior of said hamburger patty;

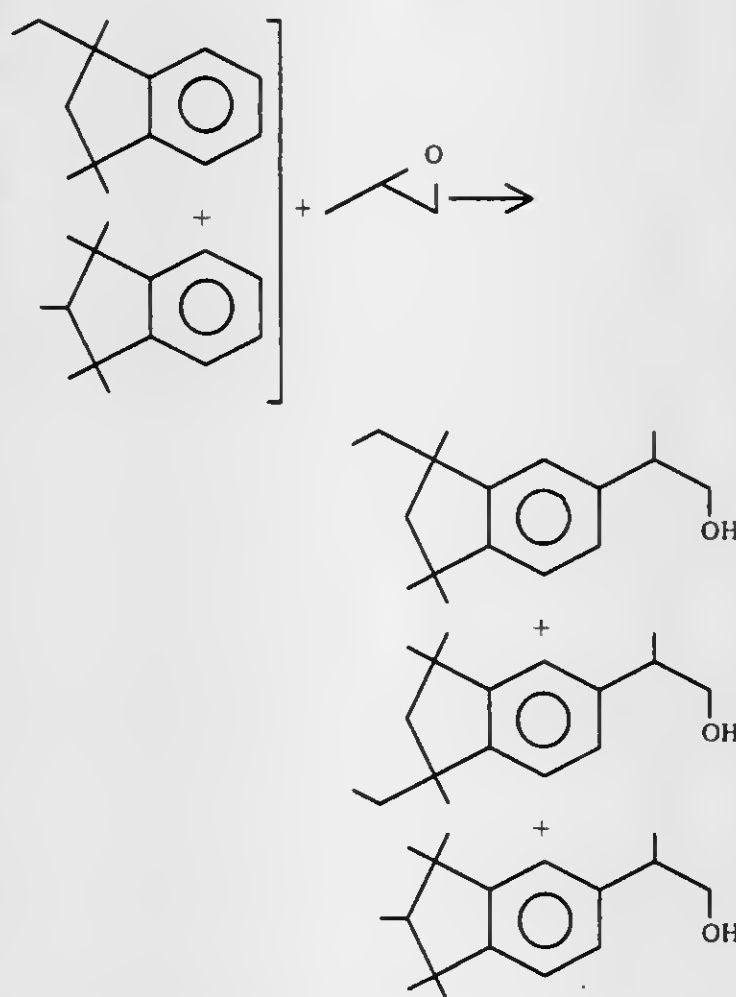
conveying said grill means, and said heat transfer fins, with said hamburger patty impaled thereon and immersing the same in said liquid cooking medium in said second zone; maintaining said heat transfer fins and said grill means with said hamburger patty impaled thereon in said liquid cooking medium for a time sufficient to cook portions exterior and interior to said hamburger patty;

conveying said grill means with said hamburger patty out of said liquid cooking medium; and

ejecting said grill means from within said hamburger patty.



in the presence of a heterogeneous solid catalyst selected from the group consisting of acid clays and acid ion exchange resins, the mole ratio of isoamylene to alpha methyl styrene being between 1:1 and 2:1; the ratio of catalyst to reactants being from 0.1% up to 8% of the total weight of alpha methyl styrene and isoamylene; the reaction temperature being between 75° C. and 250° C.; the reaction pressure being between 50 p.s.i.g. and 300 p.s.i.g.; (ii) reacting the resulting product with propylene oxide in the presence of a catalyst to produce a mixture consisting essentially of indane alkanols according to the reaction:

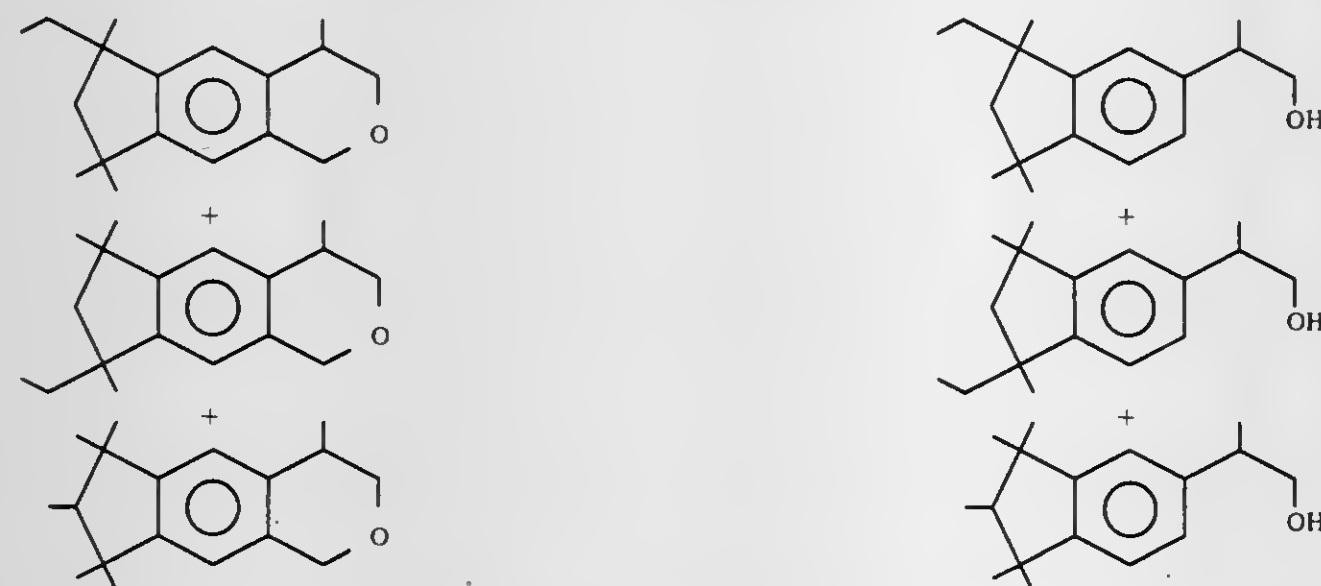


4,315,951
FLAVORING WITH INDANE ALKANOLS AND TRICYCLIC ISOCHROMANS
 Wilhelmus J. Wieggers, Red Bank; Mark A. Sprecker, Sea Bright; Hugh Watkins, Lincroft; Manfred H. Vock, Locust, and Frederick L. Schmitt, Holmdel, all of N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.
 Continuation-in-part of Ser. No. 63,518, Aug. 3, 1979, Pat. No. 4,265,818. This application Dec. 4, 1980, Ser. No. 212,886
 Int. Cl.³ A23L 1/226

U.S. Cl. 426-536

3 Claims

1. A process for augmenting or enhancing the aroma or taste of a foodstuff comprising the step of adding to said foodstuff from 0.0001 parts per million up to about 50 parts per million by weight based on the foodstuff of a product consisting essentially of compounds having the structures:



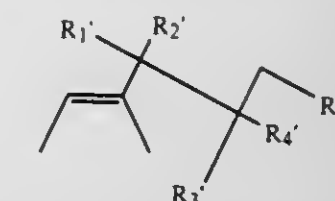
produced according to the process comprising the steps of (i) reacting isoamylene with alpha methyl styrene according to the reaction:

and (iii) reacting the mixture consisting essentially of indane alkanols with a formaldehyde or a formaldehyde source according to the reaction:

(a) dimerization of isoamylene having the structure:

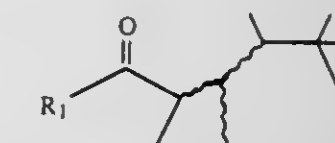


in the presence of an acid catalyst to form a mixture containing a major proportion of a mixture of compounds defined according to the structure:



wherein (i) at least one of R₃' and R₄' represents methyl; (ii) the sum of the carbon atoms in R₁', R₂', R₃', R₄' and R₅' is 3; and (iii) R₁' and R₂' represent hydrogen when R₅' is methyl;

(b) reacting the resulting diisoamylene mixture with acetic anhydride to form a mixture containing a major proportion of compounds defined according to the structure:



wherein R₁ is methyl and wherein in the mixtures in each of the molecules one of the dashed lines represents a carbon-carbon double bond and the other of the dashed lines represent carbon-carbon single bonds; and

(c) reacting the resulting mixture with a compound selected from the group consisting of 1,2-propylene glycol; 1,2-propylene oxide; 1,2-ethylene glycol; and 1,2-ethylene oxide at a temperature of between 0° C. and 80° C. in the presence of a Lewis acid catalyst and the composition of matter is separated from the reaction mass by distillation either at (1) a vapor temperature of 55°-80° C., a liquid temperature of 73°-80° C. and a pressure of 3 mm Hg. or (2) at a vapor pressure of 70°-210° C., a liquid temperature of 83°-240° C. and a pressure of 3 mm Hg.

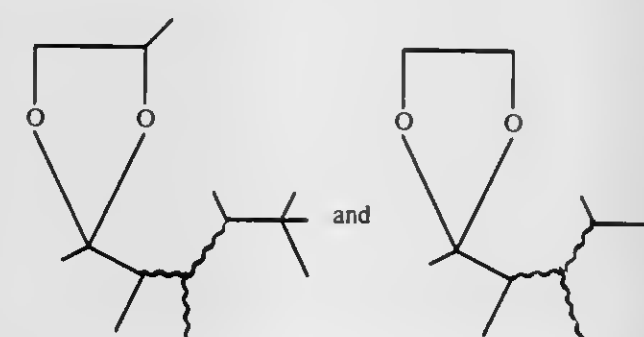
4,315,952**FLAVORING WITH DIOXOLANES**

Richard M. Boden, Monmouth Beach, N.J., assignor to International Flavors & Fragrances Inc., New York, N.Y.
 Filed Dec. 4, 1980, Ser. No. 212,993
 Int. Cl.³ A23L 1/226

U.S. Cl. 426-536

2 Claims

1. A process for augmenting or enhancing the aroma or taste of a foodstuff comprising the step of adding to a foodstuff from 0.05 ppm up to about 100 ppm by weight of said foodstuff of a composition of matter comprising a major proportion of compounds defined according to a structure selected from the group consisting of:



wherein in the mixture in each of the molecules one of the dashed lines represents a carbon-carbon double bond and each of the other of the dashed lines represent carbon-carbon single bonds, said composition of matter produced according to the process comprising the steps of:

4,315,953
PROCESS FOR AUGMENTING OR ENHANCING THE AROMA OR TASTE OF RASPBERRY FLAVORED FOODSTUFFS USING

2,6,6-TRIMETHYLCYCLOHEXENE DERIVATIVES

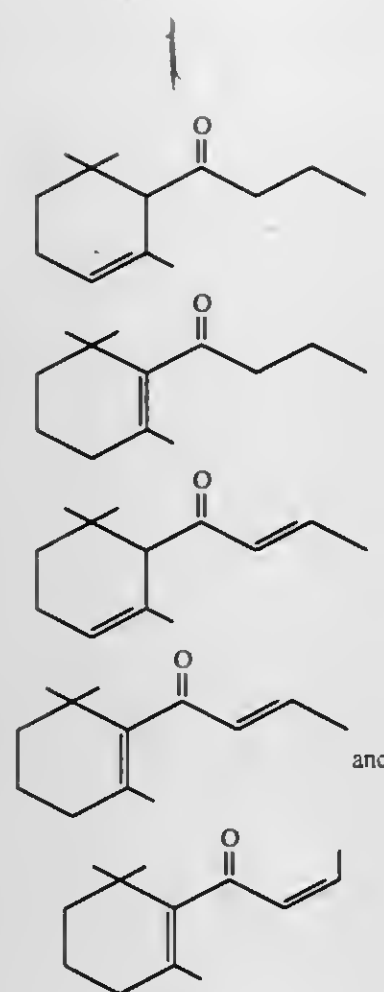
Robert W. Trenkle, Bricktown; Braja D. Mookherjee; Frederick L. Schmitt, both of Holmdel; Manfred H. Vock, Locust; Joaquin F. Vinals, Red Bank, all of N.J., and Jacob Kiwala, Brooklyn, N.Y., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 969,852, Dec. 15, 1978, Pat. No. 4,292,447.
 This application Feb. 27, 1981, Ser. No. 239,048
 Int. Cl.³ A23L 1/235

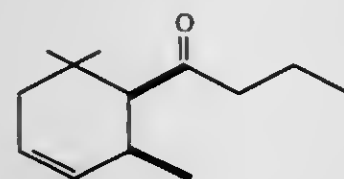
U.S. Cl. 426-538

2 Claims

1. A process for augmenting or enhancing the raspberry aroma or taste of a foodstuff comprising the step of adding to said foodstuff from 0.002 ppm up to about 100 ppm of a mixture of compounds defined according to the structures:



2. A process for augmenting or enhancing the raspberry aroma or taste of a foodstuff comprising the step of adding to a foodstuff from 0.002 ppm up to 100 ppm by weight of said foodstuff of the compound defined according to the structure:



4,315,954

PROCESS FOR EXTRUDING A DIETARY FIBER SNACK PRODUCT

Arie Kuipers, and Karl Schröder, both of Reitmehring, Fed. Rep. of Germany, assignors to Meggle Milchindustrie GmbH & Co. KG, Reitmehring, Fed. Rep. of Germany

Filed Oct. 9, 1979, Ser. No. 83,130

Claims priority, application Fed. Rep. of Germany, Oct. 19, 1978, 2845571

Int. Cl.³ A23L 1/164

U.S. Cl. 426—583

5 Claims

1. Process for the manufacture of an extruded dietary fiber snack product containing 10% to 80% dietary fiber and 20% to 90% of a protein plastifiable under extruding conditions, comprising the steps of

mixing the dietary fiber, which by itself is difficult to extrude, with a protein that is plastifiable under extruding conditions, the plastifiable protein being formed of a non-beneficiated protein and a beneficiating agent selected from an alkali, alkaline-earth or ammonium compound of carboxylic acid, phosphoric acid, or citric acid, or a corresponding hydroxide; or a mixture of a complexing acid with alkalinely reacting salts, adjusting the mixture to a moisture content between 8% and 25%; and, thereafter, extruding the mixture at a temperature of at least 100° C. to form the product.

4,315,955
FILLED CREAM, BUTTER-LIKE PRODUCT MADE THEREFROM AND METHOD OF MANUFACTURING THEM

Glen G. Cramer, New Brighton, Minn., assignor to Madison Creamery, Inc., St. Paul, Minn.

Filed Mar. 10, 1980, Ser. No. 128,587

Int. Cl.³ A23L 1/19; A23D 3/00

U.S. Cl. 426—585

11 Claims

1. In a method for producing a solid, butter-like, churned emulsion containing less than about 20% by weight of water distributed through a continuous fatty phase, comprising the steps of

- preparing a mixture comprising vegetable fat and milk,
- subjecting the mixture resulting from step (a) to steam under superatmospheric pressure to disperse the vegetable fat in the milk followed by subjecting said dispersion to subatmospheric pressure to form an emulsified filled cream, and
- cooling the filled cream to a temperature below the solidification temperature of the vegetable fat, and churning the cooled, filled cream in a churning zone until the dispersed vegetable fat begins to agglomerate, thereby forming macroscopic agglomerates of a butter-like material and forming said agglomerates into said solid butter-like emulsion;

the improvement which comprises:

- controlling the timing of the forming of said agglomerates to a duration within the range of 8 to 60 minutes by including within said filled cream a combination of emulsifiers which comprises, per 100 parts by weight of said vegetable fat, about 0.2–0.5 part of a lecithin emulsifier, about 0.15–0.45 part of a mono-diglyceride mixture comprising mono and diglycerides of C₁₂–C₂₂ vegetable fatty acids, said mixture having an HLB value in the range of about 2.5–3.5 and containing at least about 30% by weight of diglyceride, and about 0.06–0.3 part of a purified monoglyceride of a C₁₂–C₂₂ vegetable fatty acid, exclusive of any diglyceride contaminant thereof.

4,315,956

PROCESS FOR DEPOSITING COBALT ONDES ON A REFRACTORY-COATED PLATINUM RESISTOR COIL

Frank X. McNally, Venetia, Pa., assignor to National Mine Service Company, Pittsburgh, Pa.

Filed Apr. 21, 1980, Ser. No. 142,026

Int. Cl.³ B05D 3/14

U.S. Cl. 427—52

1 Claim

1. A process for depositing cobalt oxides on a refractory-coated platinum resistor coil which comprises applying an aqueous solution of cobaltous nitrate to the surface of the refractory, passing a current through the conductor in the presence of air to raise its temperature to 500° C. to 1000° C., whereby the cobaltous nitrate is oxidized to cobalt oxides and the water is volatilized.

4,315,957

PROCESS FOR PROTECTING METAL OR LACQUERED SURFACES

Alfred Hereth, Klaus Rieger, and Josef Wildgruber, all of Gersthofen, Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Jun. 25, 1980, Ser. No. 162,758

Claims priority, application Fed. Rep. of Germany, Jun. 29, 1979, 2926197

Int. Cl.³ B05D 00/00

U.S. Cl. 427—155

1 Claim

1. A process for temporarily protecting a metal or lacquered surface with a wax coating which is easily removable by treatment with a water-steam mixture, said process comprising

applying a liquid, aqueous wax-containing preservative onto said surface, said preservative consisting essentially of

- from 4 to 20% by weight of an acid wax based on montan wax with a drop point of 80° to 90° C. and an acid number of from 100 to 150, or an ester wax based on montan wax with a drop point of 78° to 88° C., an acid number of from 20 to 50 and a saponification number of from 100 to 150 or of a mixture of said waxes,
- from 0 to 12% by weight of a natural wax selected from the group consisting of carnauba wax, candelilla wax, ouricoury wax and Japan wax,
- from 10 to 20% by weight of a hydrocarbon wax selected from the group consisting of cake paraffin with a softening point of from 50° to 56° C., synthetic paraffin with a softening point of from 102° to 104° C., high-molecular 1-olefin with a softening point of from 73° to 75° C., micro-crystalline wax with a softening point of from 60° to 70° C., polyolefin wax with a softening point of from 100° to 130° C. and polyolefin wax oxidate with a drop point of from 100° to 115° C. and an acid number of from 15 to 30, or a mixture of said waxes,
- from 0.02 to 0.5% by weight of lithium or potassium hydroxide,
- from 0.5 to 8% by weight of an alkane sulfonate as emulsifier, and
- water in an amount so that the total of (a) through (f) is 100% by weight.

4,315,958

COLLOIDAL COATING FOR SMALL THREE DIMENSIONAL ARTICLES, AND PARTICULARLY FOR FUSION TARGETS HAVING GLASS SHELLS

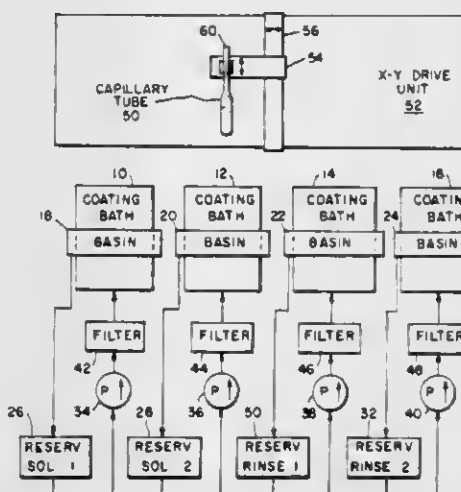
Dennis G. Peiffer, East Brunswick, and Harry W. Deckman, Fanwood, both of N.J., assignors to The University of Rochester, Rochester, N.Y.

Filed Jun. 2, 1980, Ser. No. 155,266

Int. Cl.³ B05D 7/00, 1/18

U.S. Cl. 427—214

25 Claims



1. The method of providing a coating on a closed glass shell which comprises suspending such shell in water within a capillary tube having a closed end and an open end, immersing the open end of said tube successively in a plurality of baths containing in different ones thereof a dilute suspension of positively charged colloidal particles and a dilute suspension of negatively charged colloidal particles, and at least a first and second of which baths contain water and a water displacing agent, respectively, with said tube being immersed successively in said first and second baths after being immersed in any of said charged particle suspension baths to provide a plurality of monolayers of said positively and negatively charged particles on said shell.

4,315,959

PROCESS FOR COATING MINERAL, ORGANIC OR METALLIC MICROSCOPIC OR MACROSCOPIC SUBSTRATES

Ludwig D. G. Brandts Buys, Brussels; Pierre M. J. L. Godard, Faux-Court St. Etienne; Henri C. Goossens, Hove; Joseph J. Mignard, Sint-Joris-Weert; Jean-Luc H. M. F. G. Wertz, Ceroux-Mousty, and Jean-Pierre Mercier, Leuven, all of Belgium, assignors to Wyns-Bristol S.A. Peintures, Vilvoorde and N.V. Trimetal Paint Co., Machelen, both of Belgium

Filed Jun. 19, 1980, Ser. No. 161,176

Claims priority, application United Kingdom, Jun. 25, 1979, 22050/79

Int. Cl.³ C04B 31/02

U.S. Cl. 427—214

24 Claims

1. A process for coating microscopic or macroscopic mineral, organic or metallic substrates, comprising a first step consisting in coating said substrate with a first layer of a composition comprising a liquid medium containing a polyhydroxylated polymer and a transition metal selected among the metals of the IB, IIB, IIIB, IVB, VB, VIB, VIIIB and VIIIIB groups of the periodic arrangement of the elements capable of forming a polymer/metal complex, a second step consisting in applying on the first layer a polymerizable material capable of being grafted on the first layer and a third step consisting in causing said polymerizable material to become grafted to the first layer by polymerization thereon.

4,315,960

METHOD OF MAKING A THIN FILM

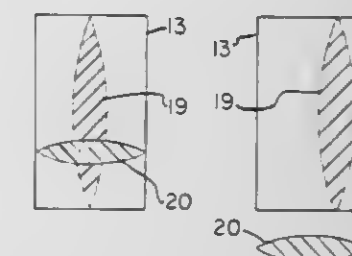
Kenzo Ohji, Hirakata; Osamu Yamazaki, Suita; Kiyotaka Wasa, Nara, and Shigeru Hayakawa, Hirakata, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Japan

Filed May 28, 1980, Ser. No. 154,080

Int. Cl.³ C23C 13/00, 15/00

U.S. Cl. 427—248.1

6 Claims



1. A method of making a thin film comprising the step of vapor depositing a source material onto a substrate with an apparatus having first and second mask plates for equalizing the deposition rate, located between said source material and said substrate, said mask plates and said substrate being moved relatively to each other, wherein said substrate and said source material are stationary and said mask plates reciprocate, the deposition rate being equalized in two directions perpendicular to each other by a combination of a variation of the width contour of said mask plates, the variation of the speed of said reciprocation and the first mask plate reciprocating in the direction perpendicular to the reciprocating direction of the second mask plate.

4,315,961

PRODUCTION OF STRIKING SURFACES FOR MATCHES

Wilhelm Adam, Neu-Isenburg; Hannsjörg Ulrich, Erfstadt; Franz-Josef Dany, Erfstadt; and Gerd Kaltefleiter, Erfstadt, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Jul. 9, 1980, Ser. No. 167,219

Claims priority, application Fed. Rep. of Germany, Jul. 12, 1979, 2928140

Int. Cl.³ B05D 3/02

U.S. Cl. 427—385.5

11 Claims

1. In the process for making striking surfaces for matches, wherein

red phosphorus, abrasive agents, a binder comprised of aqueous urea/formaldehyde or melamine/formaldehyde-condensates are made into an aqueous suspension, the suspension is applied on to a striking surface substrate and the substrate is heat-treated,

the improvement which comprises: admixing the suspension, based on the solid matter content of the condensates used as binder, with 5 to 20 weight %, calculated as solid matter, of an agent cross-linking the amine resin, the cross-linking agent being a polyester which is the polycondensation product of divalent dicarboxylic acids and dihydric alcohols or derivatives of the said acids and alcohols, or copolymer produced by subjecting an acryl and/or methacryl ester to copolymerization with vinyl acetate in a ratio by weight of 1:9 to 9:1, the copolymer having optionally up to 20 weight % based on the monomeric ester proportion of acrylic acid or methacrylic acid polymerized therein; and establishing, in the resulting mixture, a pH-value within the range 6.5 to 8.0, in the event of the cross-linking agent being a copolymer, or a pH-value within the range 7 to 11, in the event of the cross-linking agent being a polyester.

4,315,962

INSULATION BATTS

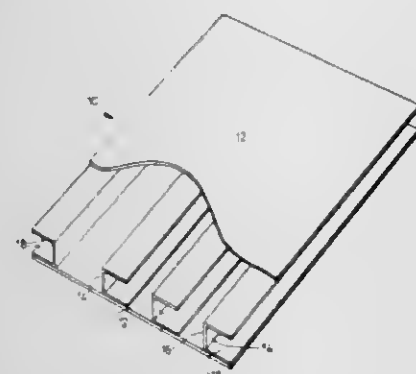
Ralph W. Skoien, 53 Grove Rd., Rosanna, Victoria, Australia

Continuation-in-part of Ser. No. 964,044, Nov. 27, 1978, abandoned. This application Jul. 8, 1980, Ser. No. 166,790

Int. Cl.³ B32B 9/06, 3/20, 3/22

U.S. Cl. 428—12

4 Claims



1. An insulation batt comprising: two rectangular sheets of heat reflecting material; and a plurality of strips secured to said sheets and positioned between said sheets and securing said sheets in overlapping substantially parallel relation, said strips extending in substantially parallel spaced relation with and between said sheets, said strips permitting relative movement of said sheets whereby either one or both of the sheets can be moved from a first position in which the sheets are in substantially face to face contact but wherein one longitudinal edge portion of each sheet, which extends in the same direction as said strips, overlaps a longitudinal edge portion of the other strip, to a second position in which the sheets are spaced from one another and wherein the

said longitudinal edge portions no longer overlap, said second position providing an insulating air space between the sheets, said strips and said sheets being formed of laminated paper and metal foil and wherein:

said strips are made of a continuous strip of material shaped, when said sheets are in said second position, to form a C-shaped channel with squared corners, the center portion of said channel extending edgewise between said sheets, and each leg portion of said channel extending parallel to, and affixed to the respective one of, said sheets; said batt is of predetermined width, and said channels extend lengthwise thereof; and the strips adjacent the longitudinal edges of said batt have their channel legs extending in an outwardly direction.

4,315,963

THERMOPLASTIC FILM WITH INTEGRAL RIBBED PATTERN AND BAG THEREFROM

Carl B. Havens, Newark, Ohio, assignor to The Dow Chemical Co., Midland, Mich.

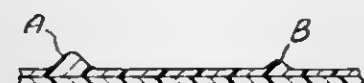
Division of Ser. No. 75,477, Sep. 14, 1979, Pat. No. 4,265,853.

This application Jul. 18, 1980, Ser. No. 170,217

Int. Cl.³ B65D 85/30

U.S. Cl. 428—35

5 Claims



1. A thermoplastic film having an integral ribbed pattern thereon, said ribs having a rib sharpness sufficient to permit a large number of ribs per film width to be present in said pattern, the ribs having a thickness at least twice that of the film body between the ribs, the relatively thin film body between the ribs being oriented for toughness, said ribs preventing tear propagation should said film body become ruptured.

4,315,964

GLASS FIBER REINFORCED RESIN LAMINATE AND A PROCESS FOR THE MANUFACTURE THEREOF

Yukinori Ozaki, Akashi, and Hidemi Soda, Daito, both of Japan, assignors to Nippon Shokubai Kagaku Kogyo, Co., Ltd., Osaka, Japan

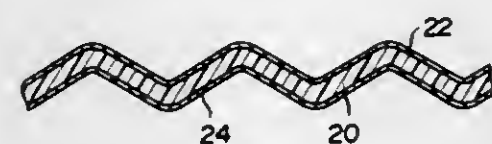
Filed Jul. 1, 1980, Ser. No. 164,979

Claims priority, application Japan, Jul. 6, 1979, 54-85021; Jun. 5, 1980, 55-74927

Int. Cl.³ B32B 3/28

U.S. Cl. 428—182

27 Claims



1. A glass fiber reinforced resin laminate comprising a cured layer of glass fiber reinforced resin using an unsaturated polyester resin (1) and a surface layer of polyvinyl fluoride formed on at least one of the opposite surfaces of the aforementioned cured layer, wherein said unsaturated polyester resin (1) comprises (A) 40 to 80% by weight of an unsaturated polyester derived from an acid moiety containing 20 to 90 mol% of at least one member selected from the group consisting of α,β-unsaturated polybasic acids and anhydrides thereof and a polyhydric alcohol moiety containing 10 to 40 mol% of diethylene glycol and (B) 60 to 20% by weight of an ethylenically unsaturated monomer containing an amount falling within the range of 0.1 to 0.6 mol, based on mol of the diethylene glycol used in the derivation of said unsaturated polyester (A), of an acrylic

ester or methacrylic ester, and, on being cured, exhibits a refractive index within the range of 1.50 to 1.56 at 25° C.

4,315,965

METHOD OF MAKING NONWOVEN FABRIC AND PRODUCT MADE THEREBY HAVING BOTH STICK BONDS AND MOLTEN BONDS

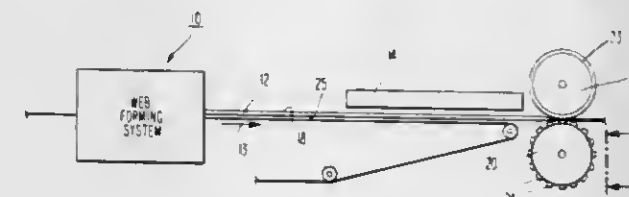
Charles R. Mason, Hammonton; David K. Osteen, Williamstown, and Lawrence Vaalburg, Vineland, all of N.J., assignors to Scott Paper Company, Philadelphia, Pa.

Filed Jun. 20, 1980, Ser. No. 161,270

Int. Cl.³ D04H 1/54, 3/14

U.S. Cl. 428—198

30 Claims



1. A method of autogenously bonding a nonwoven web formed predominantly of thermoplastic fibers, characterized by the steps of directing heat into the web from only one surface thereof to preheat the web, and then directing the preheated web through a bonding nip formed between opposed rolls, one of said rolls being hotter than the other roll, being capable of heating the web surface it engages to a temperature above the melt point of the thermoplastic fibers and being positioned to engage the surface of the web opposite the one into which heat was directed during the preheating operation; said web being preheated by means completely independent of the opposed rolls that form the bonding nip.

14. A nonwoven web made according to the method of claim 1.

26. An autogenously bonded nonwoven web, said web, prior to bonding being weaker in the cross-machine-direction than in the machine-direction, characterized in that the autogenous bonds on one surface include substantially continuous molten bonds extending in a direction, in the plane of the web, for reinforcing the web in the cross-machine-direction, said molten bonds extending only partially through the thickness of the web, said bonded web having a cross-machine-direction wet tensile energy absorption level of at least about 3.15 m-kJ/m² (80 inch-grams/in²) and a cross-machine-direction wet tensile strength exceeding 9.83 kg/m (250 gms/in.).

4,315,966

FIBROUS SUBSTRATE VULCANIZATION-ADHERED TO ETHYLENE-PROPYLENE RUBBER COMPOSITION

Takeshi Akiyama; Toshiyuki Koide, and Mutsuo Nagasawa, all of Yokkaichi, Japan, assignors to Japan Synthetic Rubber Co., Ltd., Tokyo, Japan

Filed Oct. 16, 1980, Ser. No. 197,679

Claims priority, application Japan, Oct. 22, 1979, 54/135303

Int. Cl.³ B32B 5/00, 25/00, 25/02

U.S. Cl. 428—260

10 Claims

1. An article obtained by subjecting to vulcanizing-adhesion a fibrous substrate and an ethylene-propylene rubber composition comprising 100 parts by weight of an ethylene-propylene rubber, 5-40 parts by weight of polyisoprene having an intrinsic viscosity $[\eta]$ of 0.2-1.5 dl/g as measured in toluene at 30° C. and a total 1,2- and 3,4-configuration content of 30% or less, and a vulcanizing agent.

4,315,967

MAGNESIUM OXYCEMENT/FIBROUS WEB COMPOSITES

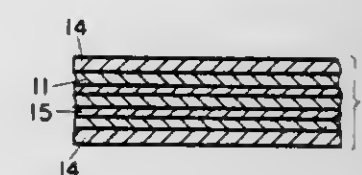
William Prior, Newark, Ohio, and Richard S. Lindstrom, Reading, Mass., assignors to Arthur D. Little, Inc., Cambridge, Mass.

Filed Feb. 1, 1980, Ser. No. 117,540

Int. Cl.³ B32B 15/14

U.S. Cl. 428—285

25 Claims



1. A composite material comprising a laminate formed of bonded, distinct alternating layers of a cured magnesium oxy-cement and a fibrous web said cured magnesium oxy-cement in said laminate being formed by laying down a liquid reactive water slurry and curing said slurry, the composition of said slurry being such as to retain essentially all of the water of said slurry in said cured magnesium oxy-cement.

4,315,968

SILICON COATED SILICON CARBIDE FILAMENTS AND METHOD

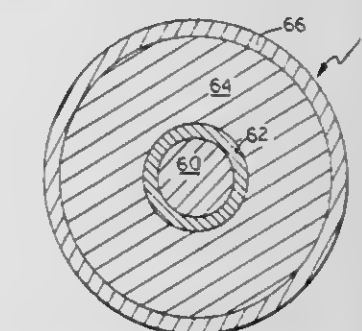
Raymond J. Suplinskas, Haverhill, and Thomas W. Henze, Lawrence, both of Mass., assignors to Avco Corporation, Wilmington, Mass.

Filed Feb. 6, 1980, Ser. No. 118,954

Int. Cl.³ B32B 9/00; D02G 3/00

U.S. Cl. 428—367

6 Claims



1. A high strength, high modulus threadlike article useful in forming composite matrix structures comprising a silicon carbide substrate filament having applied thereto a thin coating of silicon-rich material wherein the ratio of C/Si varies from one (stoichiometric) at the interface of the substrate filament to zero (pure silicon) at the exterior surface.

3. A method of producing a silicon-rich coating on a silicon carbide filament substrate wherein the ratio of C/Si coating varies from one at the interface of the coating and filament to zero at the surface comprising the steps of:

vapor depositing silicon carbide on a filament substrate moving through a reactor; and adding a chlorosilane to the reactor downstream of where silicon carbide is deposited on the substrate and vapor depositing a silicon-rich silicon carbide coating from the chlorosilane on the silicon carbide deposit.

4,315,969

LINEAR SATURATED POLYESTERS OF PHOSPHORIC ACID AND HALOGENATED DIOLS AS FLAME-RETARDANT ADDITIVES AND COATINGS

Robert B. Login, and David D. Newkirk, both of Woodhaven, Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

Division of Ser. No. 933,986, Aug. 16, 1978, Pat. No. 4,259,222.

This application Jul. 20, 1979, Ser. No. 59,435

The portion of the term of this patent subsequent to Feb. 16, 1999, has been disclaimed.

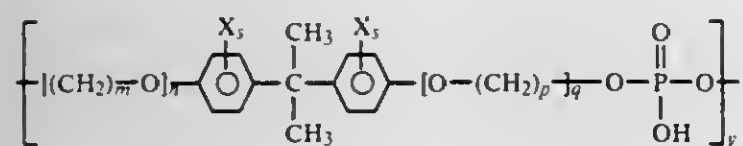
Int. Cl.³ C08K 5/52; C08L 67/02

U.S. Cl. 428—395

4 Claims

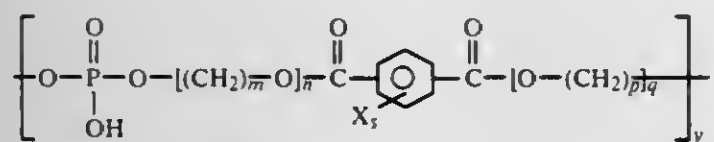
1. The process of producing a flame-retardant polyester textile fiber comprising coating a polyester fiber with an organic solvent solution, an aqueous dispersion, or an aqueous solution of a phosphorus- and halogen-containing polymer selected from the group consisting of at least one of

A. a saturated polyester comprising the reaction product of a phosphorus acid reactant and either a halogenated bis-hydroxyalkyl aromatic diol or a non-oxyalkylated halogenated aromatic diol or mixtures thereof having the formula:



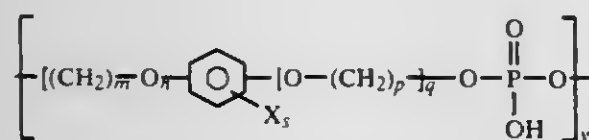
wherein X attached to the aromatic ring represents a halogen atom; s is an integer of 1 to 4; m and p are integers of 2 to 6; n and q are 0 or integers of 1 to 10; and y is an integer of 2 to 100;

B. a saturated polyester comprising the reaction product of a phosphorus acid reactant and a halogenated bis-hydroxyl aromatic diacid having the formula:



wherein said diacid is selected from the group consisting of phthalic, isophthalic, and terephthalic acids, phthalic anhydride, and esters thereof and wherein X attached to the aromatic ring represents a halogen atom selected from the group consisting of bromine, chlorine, and mixtures thereof; s is an integer of 1 to 4; m and p are integers of 2 to 6; n and q are integers of 1 to 10; and y is an integer of 2 to 100;

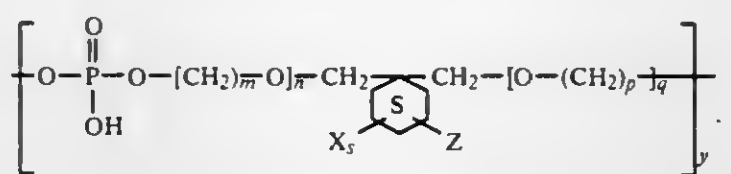
C. a saturated polyester comprising the reaction product of a phosphorus acid reactant and either a bis-hydroxyalkyl halogenated diphenol or a non-oxyalkylated halogenated dihydroxy benzene or mixtures thereof having the formula:



wherein the X attached to the aromatic ring represents a halogen atom selected from the group consisting of bromine, chlorine, and mixtures thereof; s is an integer of 1 to 4; m and p are integers of 2 to 6; n and q are 0 or integers of 1 to 10; and y is an integer of 2 to 100; and

D. a saturated polyester comprising the reaction product of a phosphorus acid reactant product of a phosphorus acid reactant and either a halocyclohexane 1,1-dimethanol or

oxyalkylated derivative thereof or mixtures thereof having the formula:



wherein the X attached to the saturated ring represents a halogen atom selected from the group consisting of chlorine, bromine and mixtures thereof; s is an integer of 1 to 2; Z represents hydrogen, an alkyl radical having 1 to 6 carbon atoms or phenyl; m and p are integers of 2 to 6; n and q are 0 or integers of 1 to 10; and y is an integer of 2 to 100.

4,315,970

ADHESION OF METALS TO SOLID SUBSTRATES

James B. McGee, Sanford, Mich., assignor to Dow Corning Corporation, Midland, Mich.

Continuation-in-part of Ser. No. 120,197, Feb. 11, 1980,

abandoned. This application Sep. 22, 1980, Ser. No. 189,433

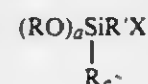
Int. Cl.³ B32B 15/08, 17/10

U.S. Cl. 428—412

54 Claims

1. A method of forming an adherent metal surface on a substrate by

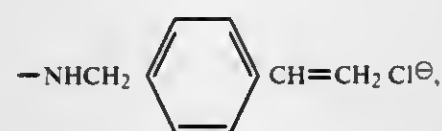
(I) treating a solid substrate with at least one organofunctionalsilane, or the partial hydrolyzates thereof, having the general formula



or a mixture of an organofunctional silane or the partial hydrolyzates thereof with a different organosilane, or the partial hydrolyzates thereof, which has the general formula



in which formulae R is an alkyl radical of 1-4 carbon atoms, R' is a difunctional hydrocarbon radical having from 1-12 carbon atoms or a $-\text{CH}_2\text{CH}_2\text{CH}_2-\text{NHCH}_2\text{CH}_2-$ radical X is an $-\text{NH}_2$,



$-\text{SH}$, OH , or Cl radical, R'' is an $-(\text{R}'\text{X})$ radical, a and b each have a value of 2 or 3, c has a value of 0 or 1 and $a+c=3$;

(II) drying the silane treated surface until the majority of volatile materials have been removed and thereafter,

(III) vapor depositing a metal on the silane treated surface to form a thin continuous film or coating thereon.

4,315,971

SOUND DEADENING

Peter A. J. Taylor, and George W. Hammond, both of Peterborough, England, assignors to Massey-Ferguson Services N.V., Curacao, Netherlands Antilles

Filed May 23, 1980, Ser. No. 152,863

Claims priority, application United Kingdom, May 23, 1979, 18057/79

Int. Cl.³ B32B 27/06; B05D 1/02

U.S. Cl. 428—419

12 Claims

1. A method of sound deadening an article by suppressing emission of sound by vibration of said article comprising applying to the surface of the article a first layer of a resilient material selected from the group consisting of polysulphide, silicone and polyurethane rubber, and applying to said first layer a second layer consisting of a continuous material selected from the group consisting of zinc, aluminum, and ferrous metal and their alloys.

4,315,972

CASTING WHOSE MOLDING TAKES PLACE DURING ITS RECOVERY BY MEANS OF FILTRATION-DEHYDRATION

Chatty Rao, Bensberg-Refrath, and Hans Bender, Leverkusen, both of Fed. Rep. of Germany, assignors to Klockner-Humboldt-Deutz AG, Fed. Rep. of Germany

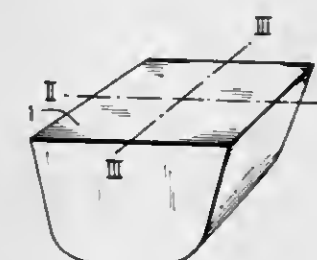
Continuation-in-part of Ser. No. 805,011, Jun. 9, 1977, abandoned. This application Jul. 18, 1977, Ser. No. 806,530

Claims priority, application Fed. Rep. of Germany, Jun. 14, 1976, 2626603

Int. Cl.³ C22B 1/14, 1/16, 1/22; B32B 9/04

U.S. Cl. 428—542

8 Claims



1. A casting consisting of a dehydrated agglomerate of a particulate metal ore material having a shape such that it has at least one projection in a plane perpendicular to its major dimension in the form of a trapezoid whose sides which include angles greater than 90° are joined by means of a curved surface, said casting having a thickness between 3 and 25 mm. and an edge length measured perpendicular to the thickness between 5 and 30 mm.

4,315,973

PHOTOELECTROCHEMICAL CELL ASSEMBLY HAVING ELECTROLYTE CONTACTS BETWEEN SEMICONDUCTOR SURFACES

Joost Manassen; Gary Hodes, and David Cahen, all of Rehovot, Israel, assignors to Yeda Research and Development Co., Ltd., Rehovot, Israel

Filed Aug. 22, 1980, Ser. No. 180,472

Claims priority, application Israel, Nov. 20, 1979, 58747

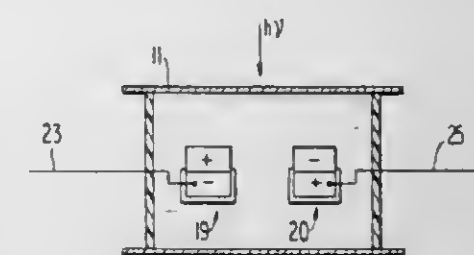
Int. Cl.³ H01M 6/36

U.S. Cl. 429—111

14 Claims

1. An assembly comprising at least two separated semiconductor electrodes, each of said semiconductor electrodes having a positive and negative surface with a photoactive junction therebetween, one of said surfaces of each electrode being exposed for contact with an electrolyte and the other being isolated from said electrolyte, and said electrolyte for electrically connecting in series said exposed surfaces of opposite polarity of said at least two semiconductor electrodes, said electrolyte comprising at least one redox couple capable of a

reversible redox reaction with one exposed surface of each of said semiconductor electrodes whereby the composition of



said electrolyte remains substantially unchanged as charge is passed between said electrodes.

4,315,974

ELECTROCHEMICAL CELL WITH PROTECTED ELECTRICAL FEEDTHROUGH

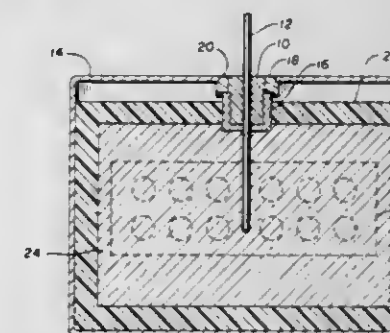
Lee F. Athearn, Fridley, and William J. Morrissey, Champlin, both of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed May 1, 1978, Ser. No. 901,596

Int. Cl.³ H01M 2/06

U.S. Cl. 429—181

7 Claims



1. An electrochemical cell comprising a case including electrode means; electrode lead-wire means extending into the case from the exterior thereof to contact the electrode means; glass seal means around the lead-wire means at its point of entry into the case with an inner glass portion extending inside the case, and ceramic cover means surrounding the lead-wire means and extending between the glass and the electrode means, the ceramic cover means being fused to the inner glass portion of the glass seal means inside the case and shielding those inner portions of the glass inside the case which are exposed to cell contents which tend to react with the glass whereby reaction between the cell contents and the glass and the cell contents and the lead-wire means is avoided.

4,315,975

SOLID-STATE LITHIUM-IODINE PRIMARY BATTERY

Satoshi Sekido, Yawata; Tadashi Sotomura, Kashiwara, and Muneaki Nakai, Tokonaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Aug. 6, 1980, Ser. No. 175,734

Claims priority, application Japan, Aug. 15, 1979, 54-103728; Dec. 28, 1979, 54-171154

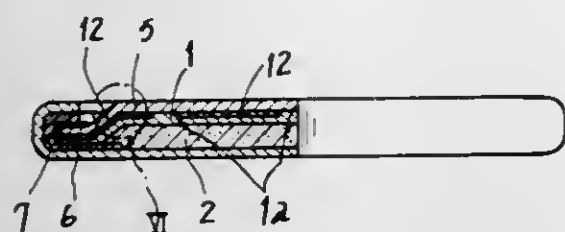
Int. Cl.³ H01M 6/18

U.S. Cl. 429—191

5 Claims

1. A substantially anhydrous cell comprising a lithium anode, a cathode comprising iodine particles not more than 77 μm in diameter and a charge transfer complex consisting of

iodine and a 1-normal-alkyl-pyridinium iodide, and a lithium iodide based solid electrolyte formed on the lithium anode



surface by contact of the lithium anode with the iodine cathode in assembling the cell.

4,315,976

COATED ACTIVE ANODES

Alfred L. Conte, Cleveland, Ohio, assignor to Union Carbide Corporation, New York, N.Y.

Filed Dec. 21, 1979, Ser. No. 106,024

Int. Cl.³ H01M 6/14

U.S. Cl. 429—194

13 Claims

1. An active anode member selected from the group consisting of lithium, sodium and calcium, coated on its surface with an electrically nonconductive and chemically and electrochemically inert particulate material in an amount between about 0.1 milligram per square centimeter and about 8 milligram per square centimeter.

4,315,977

MOLD FOR CASTING GRID FOR TUBULAR PLATES OF A LEAD-ACID BATTERY AND RESULTING CASTING

Paul Ruetschi, Yverdon, Switzerland, assignor to Leclanché S.A., Yverdon, Switzerland

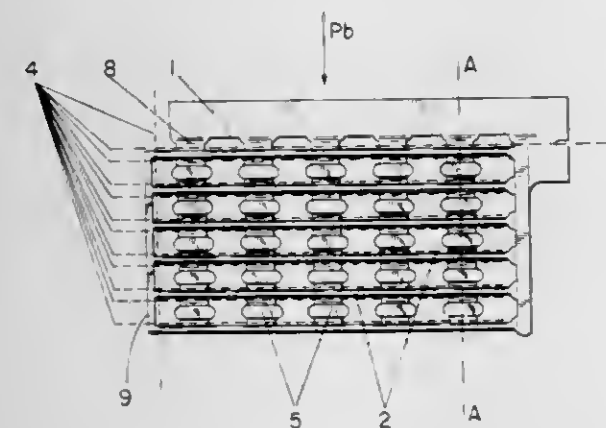
Continuation of Ser. No. 16,439, Mar. 1, 1979, abandoned. This application Aug. 18, 1980, Ser. No. 179,084

Claims priority, application Switzerland, Mar. 6, 1978, 2426/78

Int. Cl.³ B22C 9/22; B22D 25/04; H01M 4/73

U.S. Cl. 429—233

7 Claims



1. A mold for casting grids for tubular plates of a lead-acid battery, the mold having generally complementary halves comprising:

- an array of long, parallel grid rod channels to form parallel grid rods for a lead-acid battery grid;
- said array of grid rod channels being connected at both ends thereof with end portion channels, one of said end portion channels forming a connection end portion to connect together the parallel grid rods at one end of a finished grid, the other of said end portion channels forming a temporary end portion connector that is subsequently removed from between the other ends of the parallel grid rods of the finished grid;
- a plurality of temporary intermediate large connector portion channels between said grid rod channels to form a

plurality of temporary intermediate connecting portions between said parallel grid rods;

a generally horizontal runner channel at the top of said mold, said runner channel having a plurality of gates that are generally perpendicular to the grid rod channels and that open into the top end of each of said temporary intermediate connector channels; and

each of said temporary intermediate connector channels having a thick portion between said grid rod channels and having a constricted location between each of said thick portions and said grid rod channels, whereby said temporary intermediate connectors that are formed upon casting are subsequently readily removed from between the parallel grid rods.

4. A lead alloy casting designed to become a finished grid for a tubular plate in a lead-acid battery, said casting comprising: an array of long, parallel grid rods for a lead-acid battery; a connection end portion connecting together each of said plurality of long, parallel grid rods at one end thereof in the finished grid;
- a temporary end portion connecting together each of said plurality of long, parallel grid rods at an opposite end thereof, said temporary end portion being removed in the finished grid;
- a plurality of temporary intermediate connecting portions connecting said parallel grid rods at locations between said connection end portion and said temporary end portion;
- a runner having a plurality of gate members connected to each of said plurality of temporary intermediate connecting portions; and
- each of said temporary intermediate connecting portions has a portion of thickened cross-section between said grid rods and a portion of constricted cross-section between each of said portions of thickened cross-section and each of said grid rods, whereby said temporary intermediate connectors are readily punched out from between the parallel grid rods of the finished grid.

4,315,978

SOLID-STATE COLOR IMAGING DEVICE HAVING A COLOR FILTER ARRAY USING A PHOTOCROSSLINKABLE BARRIER

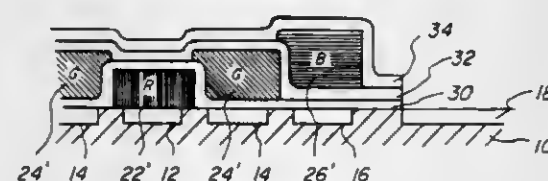
Susan E. Hartman, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 6, 1980, Ser. No. 127,605

Int. Cl.³ G03C 1/84

U.S. Cl. 430—4

12 Claims



1. A solid-state color imaging device comprising a support having a surface comprising solid-state radiation-sensitive elements and bonding pad areas and, superimposed on said radiation-sensitive elements, in microregistration, a color filter array having at least three sets of filter elements, each filter element being a dyed island of a dyeable composition having an area less than about $1.0 \times 10^{-8} \text{ m}^2$, said color filter array comprising:

- a first set of filter elements on the surface of said device,
 - a second set of filter elements separated from said surface by a layer of a crosslinked dye-impermeable polymer and
 - a third set of filter elements separated from the surface of the device by two layers of a cross-linked dye-impermeable polymer,
- said bonding pad areas being substantially free from said dye-impermeable polymer.

4,315,979

RARE EARTH OXYHALIDE PHOSPHOR AND X-RAY IMAGE CONVERTERS UTILIZING SAME

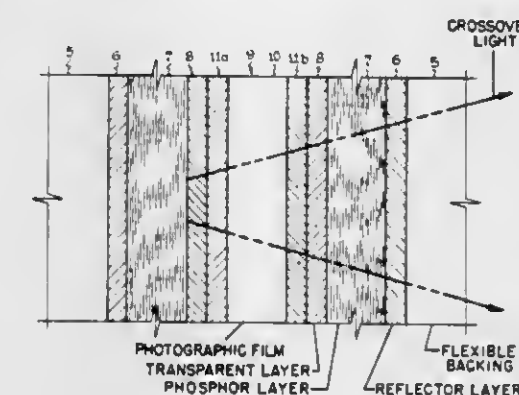
Marjorie J. Brines, South Euclid, and Jacob G. Rabatin, Chardon, both of Ohio, assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 19, 1980, Ser. No. 218,199

Int. Cl.³ G01J 1/58; C09K 11/46

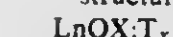
U.S. Cl. 430—6

16 Claims



6. An improved multilayer x-ray screen construction which comprises:

- (a) a photographic film having emulsion layers disposed on each major surface and separated by an optically transparent support,
- (b) a pair of phosphor layers being positioned on each side of said photographic film to form a sandwich configuration, and
- (c) each of said phosphor layers comprising an improved brightness oxyhalide phosphor having the following structural formula:



wherein

Ln is one or more of La and Gd,

X is one or more of Cl and Br, and

T_x is an activator ion selected from Tb and Tm, including mixtures thereof;

consisting essentially of recrystallized phosphor crystals in the average median particle size range not below about 2 microns and not greater than about 16 microns and being shaped as plate-like particles having a length to thickness ratio no greater than about 10 to 1, said phosphor exhibiting improved image sharpness and reduced crossover problem.

4,315,980

ELECTROPHOTOGRAPHIC MEMBER WITH METALLOCENE CONTAINING OVERLAYER

Shigeru Sadamatsu, Kohichi Yamamoto, and Kazuaki Ohmi, all of Minami-ashigara, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Apr. 4, 1980, Ser. No. 137,191

Claims priority, application Japan, Apr. 9, 1979, 54-42118

Int. Cl.³ G03G 5/14

U.S. Cl. 430—58

10 Claims

1. An electrophotographic member in which a photoconductive layer and a protective layer are superposed in order on a photoconductive support, wherein the improvement comprises:

said protective layer comprising at least one metallocene or a compound having at least one metallocene nucleus in its molecular structure and at least one electron acceptor dispersed in a binder resin containing a



bond, said protective layer having a thickness of about 0.5 to 50 μ .

4,315,981

ORGANIC DOUBLE LAYER ELECTROPHOTOGRAPHIC RECORDING MATERIAL

Wolfgang Wiedemann, Geisenheim-Johannisberg, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Continuation of Ser. No. 758,896, Jan. 13, 1977, abandoned, which is a continuation of Ser. No. 587,771, Jun. 17, 1975, abandoned, which is a continuation of Ser. No. 354,184, Apr. 25, 1973, abandoned. This application Mar. 2, 1978, Ser. No. 882,706

Int. Cl.³ G03G 5/06

U.S. Cl. 430—59

1 Claim

1. An electrophotographic recording material consisting essentially of an electroconductive support material and a photoconductive double layer of organic materials which is composed of a tightly packed, homogeneous, uniform, opaque, unoriented, charge carrier producing dyestuff layer of a compound having an aromatic or heterocyclic polynuclear quinone ring system or the substitution product thereof, selected from the group consisting of dibenzopyrene quinone, anthanthrone, pyranthrone, dibenzanthrone and flavanthrone, substituents being selected from the group consisting of halogen and alkoxy groups, and a transparent top layer of 2,5-bis-(4-diethylaminophenyl)-oxdiazole-1,3,4, and a binder in a ratio by weight of about 1:1, which recording material is useful in an electrophotographic copying process with negative charging of the top layer, if an electron donating compound is used.

4,315,982

STYRYL PYRAZOLINE COMPOUNDS, PROCESS FOR PRODUCTION THEREOF, AND ELECTROPHOTOGRAPHIC MATERIAL COMPRISING SAID COMPOUNDS

Shozo Ishikawa, Tokyo; Shoji Masubuchi, Naka, and Shigeki Ohkawa, Tokyo, all of Japan, assignors to Copyer Co., Ltd., Tokyo, Japan

Filed Feb. 24, 1981, Ser. No. 237,810

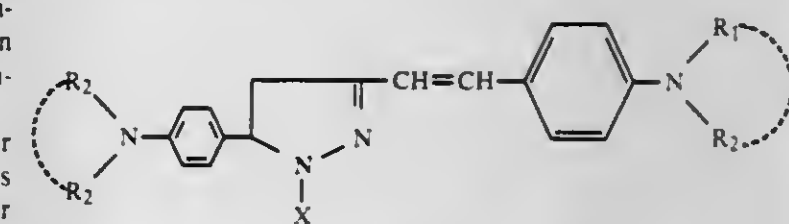
Claims priority, application Japan, Sep. 4, 1979, 53-107600

Int. Cl.³ G03G 5/06, 5/14

U.S. Cl. 430—59

24 Claims

1. An electrophotographic material comprising a support having thereon at least one layer comprising a binder and a compound of the formula:



wherein R₁ and R₂ are the same or different and are an alkyl group or combine with the nitrogen atom to form a 5- or 6-membered ring, and X is a pyridyl group, a quinolyl group, or a pyridyl or quinolyl group substituted by at least one alkyl or alkoxy group.

4,315,983

2,6-DI-TERT-BUTYL-4-SUBSTITUTED THIOPYRYLIUM SALT, PROCESS FOR PRODUCTION OF SAME, AND A PHOTOCONDUCTIVE COMPOSITION CONTAINING SAME

Koichi Kawamura; Harumi Katsuyama, and Hideo Sato, all of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jul. 14, 1980, Ser. No. 168,855

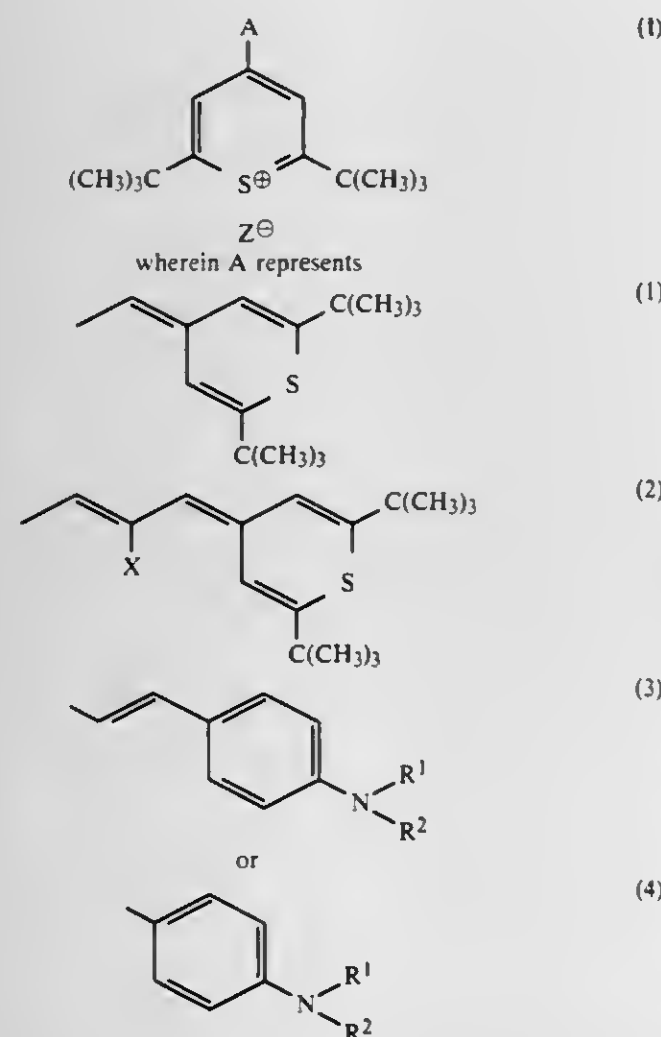
Claims priority, application Japan, Jul. 13, 1979, 54-88317; Jul. 13, 1979, 54-88318; Aug. 21, 1979, 54-105546; Aug. 21, 1979, 54-105547; Aug. 31, 1979, 54-110457

Int. Cl.³ G03G 5/09

U.S. Cl. 430—70

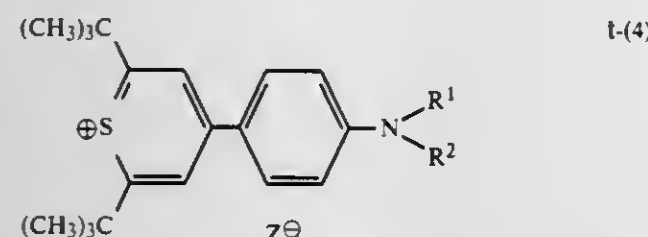
47 Claims

1. A 2,6-di-tert-butyl-4-substituted thiopyrylium salt represented by Formula (1):



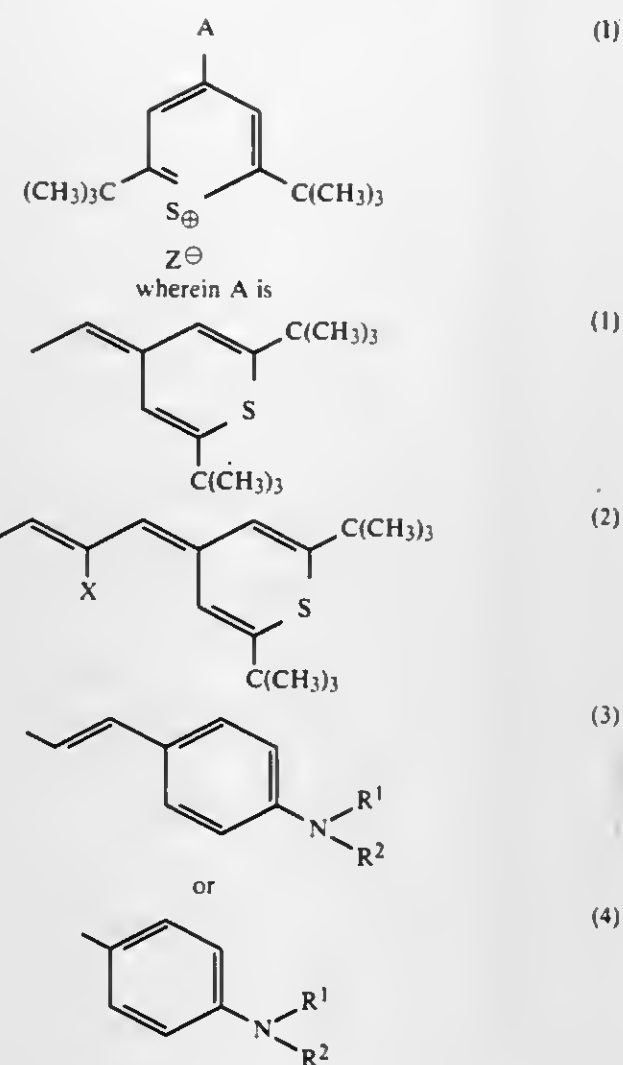
wherein Z^{\ominus} is an anion, X is a hydrogen atom, an aryl group, a substituted aryl group or an alkyl group, and R^1 and R^2 are the same or different and represent alkyl groups.

5. 2,6-di-tert-butyl-4-(4-disubstituted aminophenyl)thiopyrylium salt represented by formula I-(4):



wherein Z^{\ominus} is an anion, and R^1 and R^2 are the same or different and represent alkyl groups.

32. The photoconductive composition comprising a photoconductor and, as a sensitizer a 2,6-di-tert-butyl-4-substituted thiopyrylium salt represented by formula (1):



wherein Z^{\ominus} is an anion, X is a hydrogen atom, an aryl group, a substituted aryl group or an alkyl group and R^1 and R^2 are the same or different and include an alkyl group.

4,315,984

METHOD OF PRODUCING A SEMICONDUCTOR DEVICE

Sbinji Okazaki, Urawa; Kozo Mochiji, Tachikawa; Susumu Takahashi, Hinodemachi, and Fumio Murai, Hachioji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

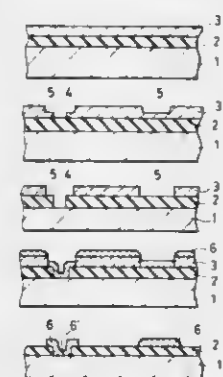
Filed Aug. 11, 1980, Ser. No. 176,799

Claims priority, application Japan, Aug. 13, 1979, 54-102245

Int. Cl.³ B05D 3/06

U.S. Cl. 430—296

5 Claims



1. A method of producing a semiconductor device comprising the steps of:

- deposited in succession an insulating film and a resist film reacting to an electron beam onto a surface of a semiconductor substrate;
- irradiating that region of said resist film in which a contact is to be formed and that region thereof in which an interconnection is to be formed, with the electron beam in an optimum dose for said resist film and in a dose less than

said optimum dose respectively, thereby to increase solubilities of the irradiated regions;

- developing said resist film, to form an opening extending to said insulating film in said region of said resist film in which said contact is to be formed and simultaneously to reduce a film thickness of said region of said resist film in which said interconnection is to be formed;
- performing etching to remove the exposed region of said insulating film so as to form a contact hole, and simultaneously to remove the resist film in said region in which said interconnection is to be formed, so as to expose a surface of said insulating film;
- depositing a conductive metal film on a whole surface; and
- removing said resist film together with said metal film deposited thereon.

4,315,985

FINE-LINE CIRCUIT FABRICATION AND PHOTORESIST APPLICATION THEREFOR

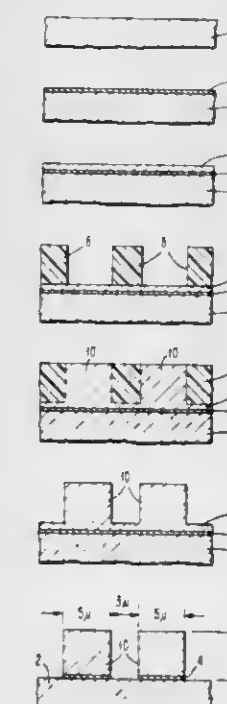
Eugene E. Castellani, Putnam Valley; Ian M. Croll, Pleasantville; Aloysius T. Pfeiffer, Peekskill, and Lubomyr T. Roman-kiw, Briarcliff Manor, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 695,225, Jun. 11, 1976, abandoned, which is a division of Ser. No. 510,954, Oct. 2, 1974, abandoned, which is a continuation of Ser. No. 311,006, Nov. 30, 1972, abandoned. This application Dec. 28, 1977, Ser. No. 865,344

Int. Cl.³ G03C 5/00, 1/76

U.S. Cl. 430—314

15 Claims



1. A process of fabricating ultra-narrow line circuitry with a thickness to width ratio of greater than 0.4, comprising the steps of:

- depositing a conductive metal on a substrate;
- flooded a positive liquid photoresist onto the conductive metal;
- providing a predetermined time for partially drying the liquid photoresist between resist application and spinning for a measured predetermined stationary drying interval which is varied in duration as a known function of the desired ultimate thickness of the resist at the completion of the process;
- spinning the photoresist at a speed on the order of 2000 rpm subsequent to the end of said predetermined time to produce a uniform coating with the thickness being proportional to the amount of time allowed for partial drying;
- baking, exposing through a suitable mask and developing said photoresist so as to produce a pattern of the desired circuit;
- electroplating the desired circuit pattern onto said conduc-

tive metal to a thickness on the order of the thickness of said resist; removing the resist; and etching the conductive metal between the circuitry.

4,315,986

PHOTOGRAPHIC EMULSIONS AND ELEMENTS CAPABLE OF FORMING DIRECT-POSITIVE IMAGES

Roger M. Baralle, Champigny-sur-Marne; Marcel A. Compere, Fontenay-sous-Bois; Maurice E. Pfaff, Le Perreux-sur-Marne, and Claude G. Goumont, Chelles, all of France, assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 10, 1980, Ser. No. 205,069

Int. Cl.³ G03C 1/485

U.S. Cl. 430—411

16 Claims

1. A silver halide emulsion comprised of silver halide grains capable of forming an internal latent image and, adsorbed to the surface of said silver halide grains, a diphenylmethane nucleating agent.

9. A photographic element comprising a support and a silver halide emulsion according to claim 1, 2, 3, 4, 5, 6, 7, or 8 forming a layer on said support.

4,315,987

CONTINUOUS FERMENTATION PROCESS

Werner C. Muller, Dobbs Ferry, N.Y., and Franklyn D. Miller, Cincinnati, Ohio, assignors to National Distillers & Chemical Corp., New York, N.Y.

Filed Mar. 12, 1980, Ser. No. 129,516

Int. Cl.³ C12P 7/14

U.S. Cl. 435—162

9 Claims

1. A process for the production of ethanol by continuous fermentation which comprises carrying out fermentation upon an aqueous solution of fermentable sugar and fermentable sugar oligomer in a series of fermentation vessels, the fermentation employing at least two different strains of ethanol-producing yeast, one of which provides a relatively high rate of conversion of fermentable sugar to ethanol and the other of which provides a relatively high rate of conversion of fermentable sugar oligomer to ethanol, each of said strains of yeast being separately employed in its own fermentation vessel from which said yeast is separately recovered therefrom and recycled thereto.

4,315,988

THERMOPHILIC COLLAGENASES, THERMOPHILIC BACTERIA CAPABLE OF PRODUCING THERMOPHILIC COLLAGENASES, AND PROCESS FOR PRODUCING SAID COLLAGENASES

Naoto Miwa, Ami; Yoshiro Masuda, Kashiwa; Seiichi Kawarabuki; Toshiyuki Sai, both of Ami, and Takao Saito, Tsuchiura, all of Japan, assignors to Mitsubishi Petrochemical Co., Ltd., Tokyo, Japan

Filed Mar. 30, 1979, Ser. No. 25,748

Claims priority, application Japan, Mar. 30, 1978, 53-36018

Int. Cl.³ C12N 9/54, 1/20

U.S. Cl. 435—221

14 Claims

1. A process for producing thermophilic collagenase, which comprises aerobically cultivating a thermophilic collagenase-producing thermophilic bacterium in a culture medium therefor, said thermophilic collagenase-producing thermophilic bacterium being a thermophilic bacterium of the genus Bacillus

which grows at a temperature of 42° to 74° C. and a pH of 5.0 to 9.0, and recovering thermophilic collagenase from the culture broth, said thermophilic collagenase being such that it does not substantially lose collagenase activity even when maintained for one hour at a temperature of 60° C. in the presence of a calcium ion at a pH in the range of 6.5 to 8.5, and has a molecular weight, determined by gel filtration, between those of cytochrome C and ovalbumin.

9. A novel thermophilic collagenase which does not substantially lose collagenase activity even when maintained for 1 hour at a temperature of 60° C. in the presence of a calcium ion at a pH in the range of 6.5 to 8.5, and which has a molecular weight, determined by gel filtration, between those of cytochrome C and ovalbumin.

4,315,989

BIOLOGICALLY PURE CULTURE OF THE MICROORGANISM NOCARDIA ATCC31280

Eiji Higashide, Takarazuka; Mitsuko Asai, Osaka, and Toru Hasegawa, Kawanishi, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan
Division of Ser. No. 66,823, Aug. 14, 1979, Pat. No. 4,245,047, which is a division of Ser. No. 815,050, Jul. 12, 1977, Pat. No. 4,187,292. This application Aug. 11, 1980, Ser. No. 176,755
Claims priority, application Japan, Mar. 31, 1977, 52-37168; Apr. 1, 1977, 52-37884

Int. Cl.³ C12N 1/20

U.S. Cl. 435—253

1 Claim

1. A biologically pure culture of the microorganism belonging to the genus *Nocardia* having the identifying characteristics of ATCC 31280, said culture medium being capable of producing in a culture medium containing assimilable carbon and digestible nitrogen sources, a recoverable amount of Antibiotic C-14919 E-1 or E-2 or mixtures thereof having the following characteristics:

(a) Antibiotic C-14919 E-1

(i) m.p. 187° C. (decomp.)

(ii) Appearance: yellow crystals (needles or prisms)

(iii) Solubility:

Insoluble in: petroleum ether, hexane, water

Sparingly soluble in: diethyl ether, benzene

Soluble in: ethyl acetate, chloroform, butanol, methyl isobutyl ketone, ethanol, acetone, methanol

Readily soluble in: dimethylsulfoxide

(iv) Acid, neutral or basic: a neutral substance

(v) Elemental analysis:

C, 65.31; 65.05; 64.85 (%)

H, 7.71; 7.58; 7.62

N, 5.01; 4.95; 5.01

O, 21.37; 22.83; 22.45

(vi) Empirical formula: C₃₀H₄₂N₂O₈

(vii) Ultraviolet absorption spectrum:

 λ_{max} MeOH: N—HCl(9:1)(nm)(E_{1cm}^{1%}): 274(455), 240(sh.), 397(43)
 λ_{max} MeOH(nm)(E_{1cm}^{1%}): 274(455), 240(sh.), 397(43)
 λ_{max} MeOH: N—NaOH(9:1)(nm)(E_{1cm}^{1%}): 236(585), 265(500), 550(56)

(viii) Infrared absorption spectrum (KBr):

Dominant peaks (cm⁻¹) at:

3430, 3340, 2950, 2910, 1740, 1692, 1660, 1645, 1605, 1500, 1375, 1315, 1120, 1100, 1085, 1060, 1025

(ix) Specific rotation: $[\alpha]_D^{25} + 350 \pm 10^\circ$ (c=0.5, methanol)

(x) color reactions

Negative ninhydrin, Ehrlich, peptide and 1% iron chloride-1% ferricyanide (1:1) reactions

(b) Antibiotic C-14919 E-2

(i) m.p. 148° C. (decomp.)

(ii) Appearance: Pale yellow crystals (needles or prisms)

(iii) Solubility:

Insoluble in: petroleum ether, hexane

Sparingly soluble in: diethyl ether, benzene, chloroform, water

Soluble in: ethyl acetate, butanol, methyl isobutyl ketone, ethanol, acetone, methanol

Readily soluble in: dimethylsulfoxide

(iv) Acid, neutral or basic: a neutral substance

(v) Elemental analysis:

C, 62.32; 62.07 (%)

H, 8.58; 8.43

N, 4.82; 4.78

O, 20.81; 20.81

(vi) Empirical formula: C₃₀H₄₄N₂O₈·xH₂O

(vii) Ultraviolet absorption spectrum:

 λ_{max} MeOH: N—HCl(9:1)(nm)(E_{1cm}^{1%}): 255(295), 308(sh.)
 λ_{max} MeOH(nm)(E_{1cm}^{1%}): 255(2090), 308(sh.)
 λ_{max} MeOH: N—NaOH(nm)(E_{1cm}^{1%}): 236(505), 265(420), 550(50)(viii) Infrared absorption spectrum (KBr): Dominant peaks (cm⁻¹) at:

3480, 3250, 2980, 1685, 1625, 1598, 1472, 1390, 1370, 1315, 1207, 1090, 1065, 1042, 1030

(ix) Specific rotation: $[\alpha]_D^{25} + 62^\circ \pm 4^\circ$ (c=0.5, methanol)

(x) Color reactions

Negative ninhydrin, Ehrlich and peptide reactions; Positive 1% iron chloride-1% ferricyanide (1:1) reaction (blue).

4,315,990

FERMENTATION SYSTEM AND PROBE DETECTOR HOLDER

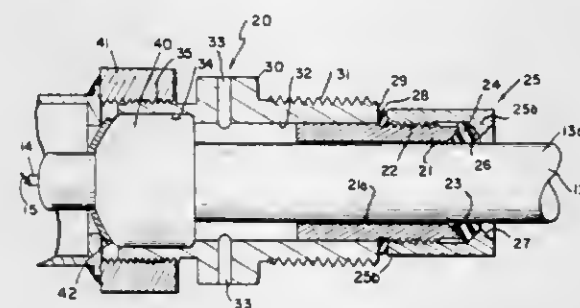
Francis E. Sheets, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Filed Jun. 11, 1980, Ser. No. 158,498

Int. Cl.³ C12M 1/34

U.S. Cl. 435—291

9 Claims



1. A system for the preparation of biological agents, comprising

a tank for the fermentation of biological agents;

a threaded fitting in the tank wall;

a detector to monitor the fermentation process;

detector support means threadedly engaging the threaded fitting in the tank wall to support the operative portion of the detector within the tank and to provide access to the output of the detector outside of the vessel, said detector support means comprising

an inner member having an inner bore adapted to receive the detector, a concave, frustoconical, seal-engaging surface, and a threaded cylindrical outer surface at one end, and

a detector support housing having a first threaded outer surface portion to engage the threaded fitting in the tank wall, a housing inner bore at one end of the housing fas-

tened to the other end of the outer surface of the inner member, a grommet-sealing surface at the outer end of the housing inner bore, and a second threaded outer surface surrounding the grommet-sealing surface;

a grommet surrounding and supporting the detector and seated on the grommet-sealing surface of the housing;

a grommet compression nut threaded onto the second threaded outer portion of the housing with a grommet washer between the grommet and grommet compression nut;

a first seal seated on the detector forwardly of the inner member within the tank;

a seal compression member threadedly engaging the threaded outer surface of the inner member and compressing the first seal between the seal compression member, the frustoconical, seal-engaging surface of the inner member and the outer surface of the detector;

a second seal seated on the inner member forwardly of the detector support housing and adjacent the interface between the inner member and the housing, said seal compression member and the threaded outer surface portion of the inner member being adapted so that the distal end of the seal compression member compresses the second seal between the distal end of the seal compression member and the detector support housing, said system thereby limiting exposure of fermentation materials to outwardly exposed surfaces of the system.

4,315,991

VERY LOW EXPANSION SEALING FRITS

Henry E. Hagy, and Francis W. Martin, both of Painted Post, N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Dec. 19, 1980, Ser. No. 218,358

Int. Cl.³ C03C 1/00, 3/22

U.S. Cl. 501—26

3 Claims

1. A thermally devitrifiable sealing glass suitable for sealing to glass, glass-ceramic, and ceramic articles having coefficients of thermal expansion ranging between about -5 to $5 \times 10^{-7}/^\circ\text{C}$., said sealing glass consisting essentially, expressed in weight percent on the oxide basis, as calculated from the batch, of about 1-2% Li₂O, 9-13% ZnO, 0-1.5% MgO, 19-23% Al₂O₃, 61-68% SiO₂, and 1-8% K₂O+Rb₂O+Cs₂O in the indicated proportions of 0-3% K₂O, 0-4% Rb₂O, and 0-7% Cs₂O, said glass being capable of forming sound seals when fired at about 900°-1000° C. and developing zinc beta-quartz crystals.

4,315,992

CARBON-CONTAINING AND UNCARBONIZED SINTER MAGNESIA REFRACTORIES

Hans-Jürgen Guls, Leoben, Austria, assignor to Veitscher Magnesitwerke-Aktien-Gesellschaft, Vienna, Austria

Filed Aug. 7, 1980, Ser. No. 175,962

Claims priority, application Austria, Aug. 10, 1979, 5453/79

Int. Cl.³ C04B 35/04

U.S. Cl. 501—101

5 Claims

1. A refractory, carbon-containing and uncarbonized brick or mass based on sinter magnesite, consisting essentially of an amount of a carbon-containing substance producing a residual content of 2 to 30% of carbon in an end product after carbonization, as determined by ASTM norm C 831-76, 1 to 20%, calculated as chromium metal, of metallic chromium or a metallic chromium compound, the metallic chromium or metallic chromium compound being primarily fine-grained and at least 80% thereof, based on the chromium metal content, having a grain size of less than 1 mm, and 60 to 97% of sinter magnesite, all percentages being by weight.

1015 O.G.—36

4,315,993

PREPARATION OF ETHYLENE GLYCOL

John F. Knifton, Austin, Tex., assignor to Texaco Inc., White Plains, N.Y.

Filed Dec. 22, 1980, Ser. No. 219,073

Int. Cl.³ C07C 27/06

U.S. Cl. 518—700

15 Claims

1. A process for the preparation of ethylene glycol which comprises reacting carbon monoxide and hydrogen in the presence of a ruthenium compound and one or more polyhydric phenols at a temperature of about 125° to about 300° C. and at a pressure of about 1000 psi to about 10,000 psi and wherein the said reaction is conducted in the presence of a solvent having the formula:



wherein R is alkyl having 1 to 4 inclusive carbon atoms and R' is selected from the group consisting of hydrogen and alkyl having 1 to 4 inclusive carbon atoms, and n is an integer of from 2 to 4 inclusive.

4,315,994

PREPARATION OF GLYCOLS AND ETHERS

John F. Knifton, Austin, Tex., assignor to Texaco Inc., White Plains, N.Y.

Filed Dec. 29, 1980, Ser. No. 220,486

Int. Cl.³ C07C 27/06

U.S. Cl. 518—701

12 Claims

1. A process of making alkylene glycols and their ethers which comprises the steps of contacting a mixture of CO and H₂ with a catalytically effective amount of a bimetallic catalyst system comprising a ruthenium(III) acetylacetonate and rhodium(III) acetylacetonate dispersed in a low melting quaternary phosphonium or ammonium base or salt at a pressure of 500 psi or greater and at a temperature of at least 180° C. for a sufficient time to provide said alkylene glycols and their ethers.

4,315,995

PREPARATION OF CATION-EXCHANGE RESIN

Charles M. Starks, Ponca City, Okla., assignor to Conoco Inc., Ponca City, Okla.

Filed Aug. 22, 1980, Ser. No. 180,200

Int. Cl.³ B01J 39/24

U.S. Cl. 521—33

8 Claims

1. A process for preparing a cation-exchange resin wherein the process comprises:

(a) treating a chlorine-containing material, which is the distillation residue obtained by chlorinating or oxychlorinating a C₂-C₄₀ hydrocarbon, with an effective amount of a sulfonating agent,

(b) treating the admixture of step (a) with an effective amount of water and an effective amount of organic solvent until the product is substantially free of sulfonating agents and is substantially free of materials which are soluble in common, organic solvents, and

(c) removing the volatile materials to obtain an insoluble, carbonaceous solid material containing 0.1 to 10 milliequivalents per gram of acid groups, said process being characterized further in that the distillation residue of step (a) is a liquid under column bottoms temperature.

4,315,996

METHOD FOR THE MANUFACTURE OF COMPOSITE FOAM MATERIALS

Günther Baatz, Buxheim; Klaus-Dieter Conrad, and Franz Riemhofer, both of Memmingen, all of Fed. Rep. of Germany, assignors to Metzeler Schaum GmbH, Memmingen, Fed. Rep. of Germany

Filed Dec. 4, 1980, Ser. No. 212,800

Claims priority, application Fed. Rep. of Germany, Dec. 7, 1979, 2949392

Int. Cl.³ C08G 18/14

U.S. Cl. 521-54

15 Claims

1. Method for the manufacture of composite foam materials of foam material flakes, polyurethane binders and additional solid components which cause a modification or change of the properties of the composite foam material by mixing the foam material flakes with a polyurethane-forming binder and the additional solid components and cementing the foam material flakes together by subsequent hardening of the mixture obtained under pressure, the improvement comprising admixing said additional solid components in the form of an aqueous dispersion or an aqueous solution.

4,315,997

STYRENE RESIN-BLOCK COPOLYMER COMPOSITION

Norihisa Ujikawa, Aichi; Masaharu Nakayama, Nagoya, and Masaru Matsushima, Aichi, all of Japan, assignors to Nippon Oil and Fats Co., Ltd., Tokyo, Japan

Filed Jul. 2, 1980, Ser. No. 165,471

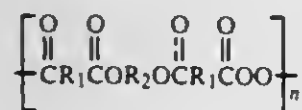
Claims priority, application Japan, Jul. 6, 1979, 54-85549

Int. Cl.³ C08L 53/00, 25/14

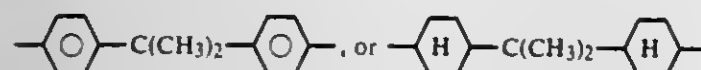
U.S. Cl. 525-94

5 Claims

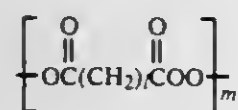
1. A styrene resin composition which consists of 0.01-40 wt % of a styrene-vinyl acetate block copolymer and 99.99-60 wt % of a styrene polymer, said styrene-vinyl acetate block copolymer consisting of 90-10 wt % of the constitution unit based on the styrene and 10-90 wt % of the constitution unit based on the vinyl acetate and is prepared by copolymerizing a vinyl acetate polymer having peroxy bonds in the molecule thereof with styrene monomers, said vinyl acetate polymer having peroxy bonds in the molecule thereof being prepared by polymerizing vinyl acetate monomers with a polymer having peroxy bonds in the molecule which is selected from the group consisting of diacyl type polymeric peroxides having the following formula (1), diacyl type polymeric peroxides having the following formula (2) and ester type polymeric peroxides having the following formula (3)



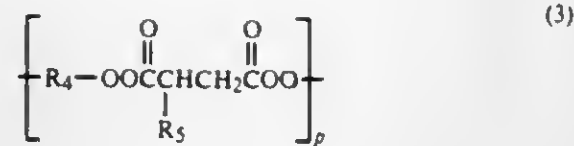
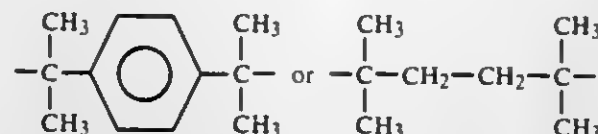
wherein R₁ is an alkylene group having 1-15 carbon atoms or a phenylene group and R₂ is an alkylene group having 2 to 10 carbon atoms, —(CHR₃CH₂O)_k—CHR₃—CH₂— (R₃ is a hydrogen atom or a methyl group, K is 1-9),



and n is 2-20



wherein l is 1-15, and m is 2-20

wherein R₄ isR₅ is a hydrogen atom, CH₃ group or Cl atom and p is 2-20.

4,315,998

POLYMER-BOUND PHOTOSENSITIZING CATALYSTS

Douglas C. Neckers, Bowling Green, Ohio; Erich C. Blossey, Winter Park, Fla., and A. Paul Schaap, Detroit, Mich., assignors to Research Corporation, New York, N.Y.

Continuation of Ser. No. 699,746, Jun. 24, 1976, abandoned, which is a continuation-in-part of Ser. No. 478,694, Jun. 12, 1974, abandoned. This application Feb. 5, 1979, Ser. No. 9,713

Int. Cl.³ C08F 8/00; C08G 69/48

U.S. Cl. 525-332

8 Claims

1. A method of preparing a polymer-bound photosensitizing catalyst for use in heterogeneous catalysis of photosensitized chemical reactions, which comprises forming a mixture in an organic solvent of a polymeric material having attached thereto an available leaving group which is capable of being displaced in a nucleophilic displacement reaction with a nucleophilic reagent and a photosensitizing catalytic compound containing in its molecule a nucleophile which is capable of displacing the chloride atom of a chloromethylated styrene polymer in a nucleophilic displacement reaction and which nucleophile is a photosensitizer dye selected from the group consisting of rose bengal, acridine orange, chlorophyllin, crystal violet, eosin Y, fluorescein, flavin mononucleotide, hematoporphyrin, hemin, malachite green, methylene blue, rhodamine B, chlorophyll, cosine, erythrosin, methylene green, toluidine blue and thionine, refluxing said mixture for a time sufficient to effect a nucleophilic displacement reaction between said chloromethylated styrene polymer and said photosensitizing dye, and recovering from said mixture the resulting polymer-bound photosensitizing catalyst beads.

4,315,999

PROCESS FOR PREPARING POLYOLEFINS

Kazuo Matsuura; Takeichi Shiraishi; Etsuo Kawamata, all of Kawasaki; Nobuyuki Kuroda, Yokohama, and Mituji Miyoshi, Kanagawa, all of Japan, assignors to Nippon Oil Company, Limited, Tokyo, Japan

Filed Sep. 23, 1980, Ser. No. 189,823

Claims priority, application Japan, Sep. 26, 1979, 54-122599; Dec. 6, 1979, 54-157428

Int. Cl.³ C08F 4/02, 10/00

U.S. Cl. 526-114

16 Claims

1. A process for polymerizing at least one olefin using a catalyst, said catalyst comprising a solid component and an organometallic compound, characterized in that said solid component is a solid product obtained by contacting together the following components (i)-(iii):

- at least one compound selected from the group consisting of a silicon oxide and aluminum oxide,
- a compound represented by the general formula ROH wherein R is a hydrocarbon radical having 1 to 20 carbon atoms, and
- a substance obtained by supporting at least one compound selected from the group consisting of a titanium compound and a vanadium compound on a solid com-

4,316,002

MOLDING COMPOSITIONS COMPRISED OF POLYIMIDE/N-VINYLPYRROLIDONE PREPOLYMER AND EPOXY RESIN

Robert Cassat, Ternay, and Gerard Guillot, Tassin La Demi-Lune, both of France, assignors to Rhone-Poulenc Industries, Paris, France

Filed Oct. 23, 1979, Ser. No. 87,650

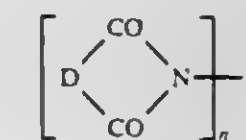
Claims priority, application France, Oct. 25, 1978, 78 30276

Int. Cl.³ C08G 59/08, 59/06, 73/12

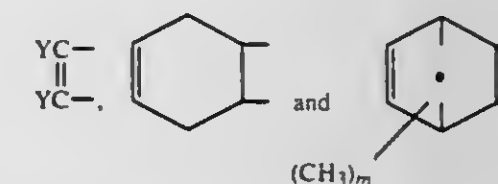
U.S. Cl. 528-107

12 Claims

1. A composition of matter comprising (i) a prepolymer consisting essentially of a reaction product obtained by reacting (a) a polyimide having the structural formula:



wherein D is selected from the group consisting of



wherein Y is selected from the group consisting of H, CH₃, and Cl, m is 0, 1 or 2, R is an organic radical of valency n, containing from 2 to 50 carbon atoms, and n is a number having an average value between 2 and 5, and (b) N-vinyl-2-pyrrolidone; and (ii) an epoxy resin having at least one 1,2 epoxy group.

4,316,000

TWO-PART, ANAEROBICALLY-CURING COMPOSITIONS

Charles W. Boeder, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Nov. 3, 1980, Ser. No. 203,685

Int. Cl.³ C08F 20/10, 20/20

U.S. Cl. 526-301

10 Claims

1. An anaerobically-curing composition comprising a first part and a second part, with at least one of said first part and said second part comprising as a major constituent a polymerizable monomer having at least one α,β-unsaturated carboxyl functionality per molecule of monomer, and with said first part comprising as a first initiator component a perfluoroalkyl sulfonamide and said second part comprising as a second initiator component a secondary or tertiary aromatic amine.

4,316,001

ANIONIC POLYMERIZATION OF HETEROCYCLIC MONOMERS WITH ALKALI METAL AMIDE HYDROXYLATED COMPOUND INITIATOR

Sylvie L. Boileau, Paris; Serge L. Lecolier, Janville sur Juine, and Serge F. Raynal, Villejuif, all of France, assignors to Societe Nationale des Poudres et Explosifs, Cedex, France

Division of Ser. No. 800,036, May 24, 1977, Pat. No. 4,254,247.

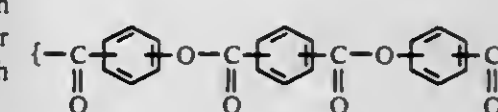
This application Jul. 27, 1979, Ser. No. 61,288

Int. Cl.³ C08G 77/08, 69/20, 63/10, 59/68

U.S. Cl. 528-14

11 Claims

1. A process of polymerization of an heterocyclic monomer which is capable of undergoing anionic polymerization by opening of the heterocyclic ring in the presence of an initiator and a solvent, which comprises polymerizing said heterocyclic monomer in the presence of an initiator which comprises an association product prepared from at least two moles of an alkali metal amide which is lithium amide, sodium amide or potassium amide and one mole of at least one compound which is an hydroxylated compound, in an aprotic solvent.



(1)

4,316,004

PROCESS FOR PRODUCING OXYBENZOYL COPOLYESTERS

Shozaburo Imai, Akashi, and Hiroaki Sugimoto, Yao, both of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Apr. 25, 1980, Ser. No. 143,531

Claims priority, application Japan, May 11, 1979, 54-58491

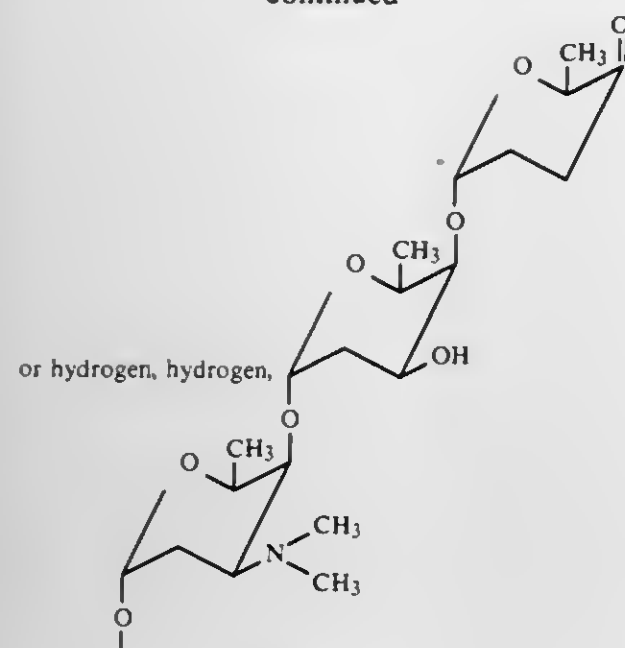
Int. Cl.³ C08G 63/02

U.S. Cl. 528-126

5 Claims

1. A process for producing oxybenzoyl copolyesters comprising 3 to 300 of at least a portion of a repeating unit of the formula,

-continued



or a non-toxic acid addition salt thereof.

4,316,012

RECOVERY OF XANTHAN GUM

Michael B. Inkson, and Clive K. Wilkinson, both of Reading, England, assignors to Talres Development (N.A.) N.V., Netherlands Antilles

Filed Aug. 29, 1980, Ser. No. 182,504

Claims priority, application United Kingdom, Oct. 29, 1979, 37364/79

Int. Cl.³ C08B 37/00; C12D 13/00

U.S. Cl. 536—114

9 Claims

1. A process for recovery of xanthan gum from an aqueous fermented broth containing xanthan gum and solids, which process consists essentially of adding isopropanol (IPA) to said broth to give a diluted broth, said IPA being added in a sub-precipitant amount of an IPA:broth volume ratio of 0.6:1 to 0.95:1; removing solids from said diluted broth at a temperature of at least 100° C. and thereby giving a resultant liquid; and then precipitating said gum by addition of IPA to said resultant liquid.

4,316,013

SUBSTITUTED HETEROCYCLIC METHINE DYES

Keith Hunt, Maghull, England, assignor to Eastman Kodak Company, Rochester, N.Y.

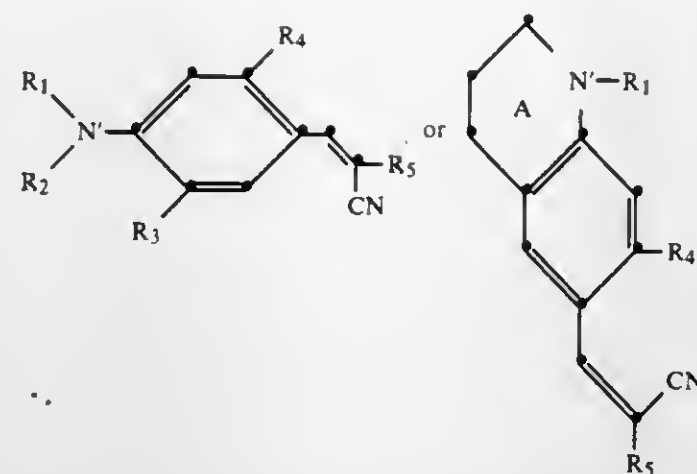
Filed Aug. 29, 1980, Ser. No. 182,520

Claims priority, application United Kingdom, May 16, 1980, 16214/80

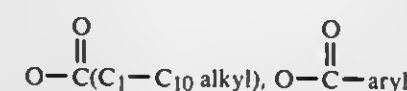
Int. Cl.³ C07D 403/10, 263/54

U.S. Cl. 542—445

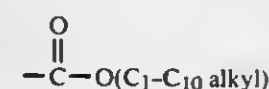
1. A compound of the formula



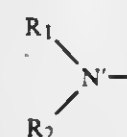
in which R₁ and R₂ are the same or different and selected from hydrogen, aryl, benzyl, cyclohexyl, C₁-C₆ alkyl, C₁-C₆ alkyl substituted with Cl, CN, OC₂H₄OC₂H₅, C₁-C₄ alkoxy, aryl,



in which the aryl, and the C₁-C₁₀ alkyl of the preceding substituent are unsubstituted or substituted with Cl, Br, CN, NO₂, CO-alkyl, CO-aryl, alkoxy, aryloxy, CO-O-alkyl or CO-O-aryl,



NHCONHPh, OCONHPh, phthalimido, succinimido and mercaptobenzothiazolyl;



is selected from piperidino, morpholino, thiomorpholino, and piperazino; R₃ is H, Cl, Br, C₁-C₄ alkyl or C₁-C₄ alkoxy; ring A is unsubstituted or substituted with 1-3 methyl groups; R₄ is H, Cl, Br, C₁-C₄ alkyl or C₁-C₄ alkoxy; and R₅ is selected from 3-benzisothiazolyl, 2-benzothiazolyl, 2-benzoxazolyl, 2-quinoxalyl, 2-quinazolinonyl, 2-1,3,4-oxadiazolyl, 2-1,3,4-thiadiazolyl, and these heterocycles substituted with Cl, Br, NO₂, CN, aryl, aryl substituted with Cl, Br, NO₂, or CN, C₁-C₄ alkyl, or COOR₆ wherein R₆ is C₁-C₄ alkyl or aryl.

4,316,014

5,6-DIHYDRO-1,2,4,6-THIATRIAZIN-5-ONE-1,1-DIOXIDES

Gerhard Hamprecht, Weinheim; Rolf-Dieter Acker, Leimen, and Bruno Wuerzer, Otterstadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Jul. 8, 1980, Ser. No. 166,856

Claims priority, application Fed. Rep. of Germany, Aug. 22, 1979, 2933889

Int. Cl.³ C07D 285/00

U.S. Cl. 544—7

2 Claims

1. A 5,6-dihydro-1,2,4,6-thiatiazin-5-one-1,1-dioxide of the formula

4,316,016

CEPHALOSPORIN INTERMEDIATES

Derek Walker, Jamesville; Herbert H. Silvestri, DeWitt; Chester Sapino, East Syracuse, and David A. Johnson, Fayetteville, all of N.Y., assignors to Bristol-Myers Company, New York, N.Y.

Division of Ser. No. 110,277, Jan. 7, 1980, abandoned, which is a division of Ser. No. 21,511, Mar. 19, 1979, Pat. No. 4,223,135.

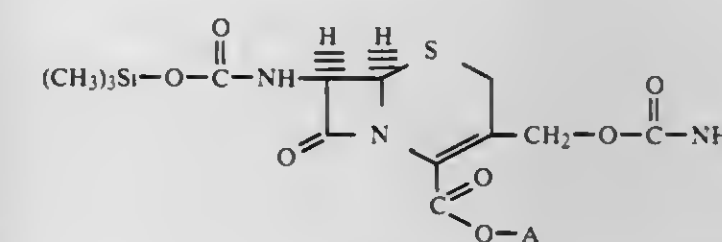
This application Jun. 11, 1980, Ser. No. 158,554

Int. Cl.³ C07D 501/04, 501/16

U.S. Cl. 544—16

8 Claims

1. A compound having the formula



wherein A is (CH₃)₃Si— or an easily cleavable ester protecting group.

4,316,017

CEPHALOSPORIN INTERMEDIATES

Derek Walker, Jamesville; Herbert H. Silvestri, DeWitt; Chester Sapino, East Syracuse, and David A. Johnson, Fayetteville, all of N.Y., assignors to Bristol-Myers Company, New York, N.Y.

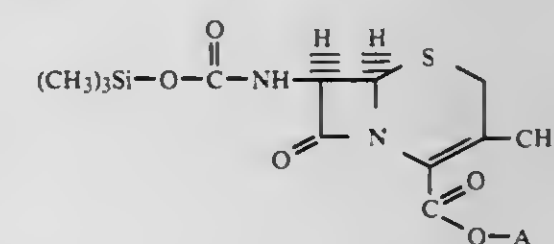
Continuation-in-part of Ser. No. 110,277, Jan. 7, 1980, abandoned, which is a division of Ser. No. 21,511, Mar. 19, 1979, Pat. No. 4,223,135. This application Jun. 11, 1980, Ser. No. 158,546

Int. Cl.³ C07D 501/36

U.S. Cl. 544—026

3 Claims

1. A compound having the formula



wherein

A is an easily cleavable ester protecting group; and E is —S—Z wherein Z represents a 5-membered aromatic heterocyclic ring containing three or four atoms of N and zero or one atom selected from the group consisting of O and S, said heterocyclic ring being substituted by one substituent selected from the group consisting of methyl and —(CH₂)_nCOOSi(CH₃)₃ in which n is 1, 2 or 3, said sulfur atom in —S—Z being connected to a carbon atom of said heterocyclic ring Z and said 5-membered aromatic heterocycle being a triazole, tetrazole, oxadiazole or thiazole.

4,316,018

CRYSTALLIZED CEPHALOSPORIN SALTS

Yoshinobu Yoshimura, Suita; Nobuhide Morikawa, Toyonaka, and Kunio Takanohashi, Kawanishi, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Filed May 6, 1980, Ser. No. 147,053

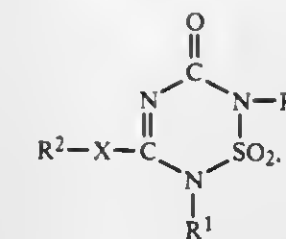
Claims priority, application Japan, May 14, 1979, 54-59481

Int. Cl.³ C07D 501/36

U.S. Cl. 544—27

5 Claims

1. A crystalline dihydrate or anhydride of pivaloyloxymethyl 7β-[2-(2-aminothiazol-4-yl)acetamidol]-3-[[[1-(2-



where

R¹ is hydrogen, a metal atom or an unsubstituted or substituted ammonium radical,

R² is saturated or unsaturated straight-chain aliphatic radical of up to 10 carbon atoms, a cycloaliphatic radical of 3 to 7 carbon atoms, a branched saturated or unsaturated aliphatic radical of 3 to 10 carbon atoms, a halogen-, alkoxy- or alkylmercapto-substituted aliphatic radical of 2 to 10 carbon atoms, tetrahydrofuryl substituted methyl, a cycloalkoxy-substituted aliphatic radical of 4 to 10 carbon atoms, unsubstituted or halogen-substituted benzyl or phenyl, haloalkyl or alkylphenyl of a total of up to 10 carbon atoms,

R³ is hydrogen, a straight-chain aliphatic radical of up to 10 carbon atoms, a cycloaliphatic radical of 3 to 7 carbon atoms, a branched aliphatic radical of 3 to 10 carbon atoms, haloalkyl, or alkoxyalkyl of 2 to 10 carbon atoms and

X is oxygen and may also be sulfur if R² is unsubstituted or halogen-substituted benzyl.

4,316,015

6H-1,2,4,6-THIATRIAZINE-1,1-DIOXIDES

Gerhard Hamprecht, Weinheim; Rolf-Dieter Acker, Leimen, and Bruno Wuerzer, Otterstadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Oct. 23, 1980, Ser. No. 199,820

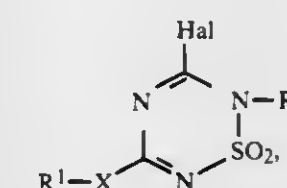
Claims priority, application Fed. Rep. of Germany, Oct. 30, 1979, 2943703

Int. Cl.³ C07D 285/00

U.S. Cl. 544—7

2 Claims

1. A 6H-1,2,4,6-thiatiazine-1,1-dioxide of the formula



where

R¹ is an alkyl, alkenyl or alkynyl radical of up to 10 carbon atoms, a cycloalkyl radical of 3 to 7 carbon atoms, a branched, saturated or unsaturated alkyl, alkenyl or alkynyl radical of 3 to 10 carbon atoms, a halogen-, alkoxy- or alkylmercapto-substituted straight-chain or branched alkyl, alkenyl or alkynyl radical of 2 to 10 carbon atoms, a cycloalkoxy-substituted alkyl, alkenyl or alkynyl radical of 4 to 10 carbon atoms, unsubstituted or halogen-, lower alkyl- or lower alkoxy-substituted phenyl, or unsubstituted or halogen-substituted benzyl, R² is hydrogen, an alkyl radical of 1 to 10 carbon atoms, a cycloalkyl radical of 3 to 7 carbon atoms, a branched alkyl radical of 3 to 10 carbon atoms or halogen- or alkoxy-substituted alkyl of 2 to 10 carbon atoms, X is oxygen, sulfur, sulfinyl or sulfonyl and Hal is halogen.

dimethylaminoethyl)-1H-tetrazol-5-yl]thio]methyl]ceph-3-em-4-carboxylate dihydrochloride.

4,316,019

PREPARATION OF SYN-ISOMER OF 3-ALKANOYLOXYMETHYL-7-(2-ALKOXYIMINO-2-THIAZOLYLACETAMIDO)-3-CEPHEM-4-CARBOXYLIC ACID COMPOUNDS

Takao Takaya, Sakai; Takashi Masugi, Kitamachi; Hisashi Takasugi, Kohamanishi, and Hiromu Kochi, Sakai, all of Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan

Division of Ser. No. 767,700, Feb. 11, 1977, Pat. No. 4,166,115.

This application Jun. 19, 1978, Ser. No. 916,952

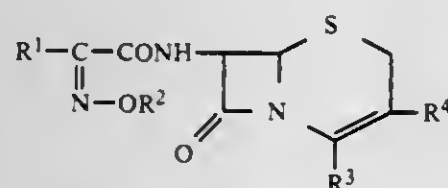
Claims priority, application United Kingdom, Apr. 12, 1976, 14916/76; Jun. 7, 1976, 23490/76; Japan, Oct. 19, 1976, 51-125826

Int. Cl.³ C07D 501/06

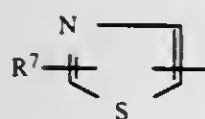
U.S. Cl. 544—28

3 Claims

I. A process for preparing syn-isomer of 3-lower alkanoyloxymethyl-7-(2-lower alkoxyimino-2-thiazolylacetamido)-3-cephem-4-carboxylic acid compounds of the formula:



and pharmaceutically acceptable salts thereof, wherein R¹ is



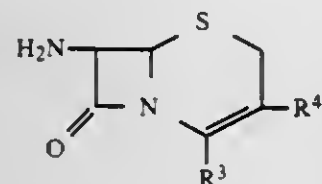
R² is lower alkyl;

R³ is carboxy;

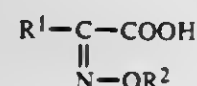
R⁴ is lower alkanoyloxymethyl; and

R⁷ is amino, lower alkanoylamino or halo(lower)alkanolamino,

which comprises the step of reacting a compound of the formula:



or its trimethylsilylated compound at the amino group or an acid addition salt or a salt with base, with a 2-lower alkoxyimino-2-thiazolylacetic acid of the formula:



or an acid addition salt or a salt with base in the presence of a Vilsmeier reagent produced by the reaction of phosphorus oxychloride with dimethylformamide.

4,316,020

PREPARATION OF ISATOIC ANHYDRIDES

Gernot Reissenweber, Ludwigshafen, Fed. Rep. of Germany, assignor to BASF Aktiengesellschaft, Fed. Rep. of Germany
Filed Jun. 2, 1980, Ser. No. 155,761

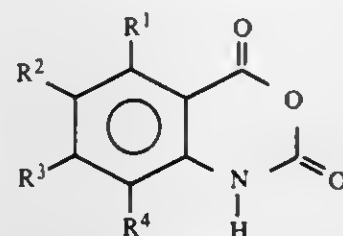
Claims priority, application Fed. Rep. of Germany, Jun. 22, 1979, 2925175

Int. Cl.³ C07D 265/26

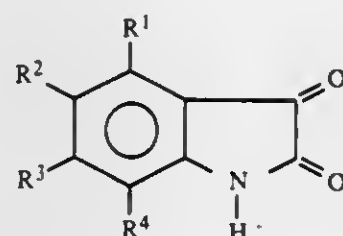
U.S. Cl. 544—105

2 Claims

I. A process for the preparation of isatoic anhydrides of the formula I



where R¹, R², R³ and R⁴ are identical or different and each is hydrogen, alkyl, alkoxy, halogen, nitro, haloalkyl or haloalkoxy, said alkyl, alkoxy, haloalkyl and haloalkoxy radicals containing from 1 to 4 carbon atoms, wherein an isatin of the formula II



where R¹, R², R³ and R⁴ have the above meanings, is reacted with hydrogen peroxide in an acid medium.

4,316,021

SUBSTITUTED 1-SULFONYLBENZIMIDAZOLES

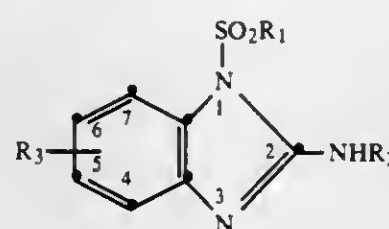
Charles J. Paget, Indianapolis, and James H. Wikel, Greenwood, both of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 66,353, Aug. 13, 1979, Pat. No. 4,243,813, which is a division of Ser. No. 887,391, Mar. 16, 1978, Pat. No. 4,196,125, which is a division of Ser. No. 760,803, Jan. 19, 1977, Pat. No. 4,118,573, which is a division of Ser. No. 634,942, Nov. 24, 1975, Pat. No. 4,018,790, which is a continuation-in-part of Ser. No. 574,202, May 8, 1975, abandoned, which is a continuation-in-part of Ser. No. 484,841, Jul. 1, 1974, abandoned. This application Sep. 2, 1980, Ser. No. 183,659
Int. Cl.³ C07D 235/30, 413/12

U.S. Cl. 544—139

7 Claims

I. A compound of the formula



wherein

R₁ is C₁-C₅ alkyl, C₃-C₇ cycloalkyl, phenyl, furyl, thienyl, thiazol-2-yl, 2-acetamido-4-methylthiazol-5-yl, 1,3,4-thiadiazol-2-yl, 2-methyl-1,3,4-thiadiazol-5-yl, 2-methylamino-1,3,4-thiadiazol-5-yl or R₄R₅N—, wherein R₄ and R₅ are independently C₁-C₃ alkyl and when taken together with the nitrogen atom to which they are attached, are pyrrolidino, piperidino or morpholino; R₂ is hydrogen, formyl, acetyl or propionyl;

R₃ C₁-C₈ alkoxy carbonyl(methyl, 1-(C₁-C₈ alkoxy carbonyl)ethyl, hydroxymethyl, methylsulfonyl or trifluoromethyl; and R₃ is at the 5 or 6 position, provided that R₃ is other than hydroxymethyl when R₁ is R₄R₅N—.

4,316,022

BENZO-AS-TRIAZINE DERIVATIVES

György Hajos; Andras Messmer; Pal Benko; Lujza Petocz; Peter Görg, and Ibolya Kasoczky, all of Budapest, Hungary, assignors to EGYT Gyógyszervegyészeti Gyar, Budapest, Hungary

Filed Mar. 28, 1980, Ser. No. 135,143

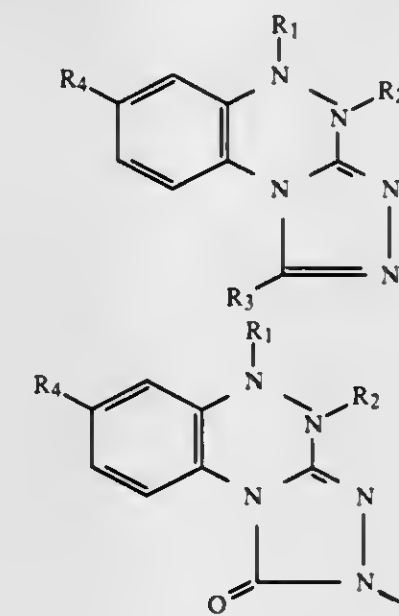
Claims priority, application Hungary, Apr. 11, 1979, EE 2646

Int. Cl.³ C07D 487/04, 487/14, 401/14, 403/14

U.S. Cl. 544—184

3 Claims

I. A benzo-as-triazine derivative of the formula (I) or (Ia) or a pharmaceutically acceptable acid addition salt thereof,



where

R¹ is C₁-C₄-alkyl,

R² is hydrogen or C₁-C₄-alkyl and

X is oxygen, sulfur, imino or N-cyanoimino.

(I)

4,316,024

DIOXO PIPERAZINE COMPOUNDS

Seiji Iimura, Tokyo; Jun Okumura, Yokohama, and Takayuki Naito, Kawasaki, all of Japan, assignors to Bristol-Myers Company, New York, N.Y.

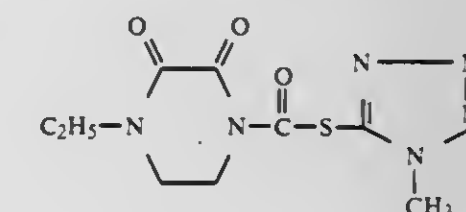
Filed Sep. 15, 1980, Ser. No. 187,273

Int. Cl.³ C07D 241/04

U.S. Cl. 544—359

2 Claims

I. The compound having the structure



4,316,025

PIPERIDINE COMPOUNDS

Giuseppe Cantatore, Casalecchio di Reno, and Paolo Cassandrini, Bologna, both of Italy, assignors to Chimosa Chimica Organica S.p.A., Bologna, Italy

Filed Apr. 10, 1980, Ser. No. 139,274

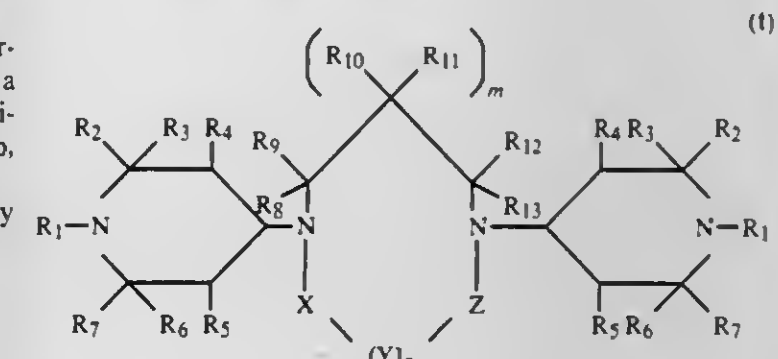
Claims priority, application Italy, Apr. 13, 1979, 21841 A/79

Int. Cl.³ C07D 401/14

U.S. Cl. 544—364

6 Claims

I. A compound of the formula



(I)

wherein

R₁ and R₂ each represent hydrogen, a C₁-20 alkyl carbonyl group, a phenyl carbonyl or phenyl-(C₁-4 alkyl)-carbonyl group having optionally one or more halogen, hydroxy or C₁-3 alkoxy substituents which may be the same or different, furthermore a pyridyl carbonyl, a pyrazinyl carbonyl, a furyl carbonyl, a chloroacetyl or a C₁-4 alkoxy carbonyl group, or

R₁ and R₂ may form, together with the adjacent nitrogen atoms, a pyrazole ring having optionally a C₁-6 alkyl substituent in position 4, with the proviso that one of R₁ and R₂ is always different from hydrogen,

R₃ stands for hydrogen, mercapto group, a C₁-4 alkylmercapto group, amino group, a C₁-4 alkylamino group, a piperazino group having optionally an N-alkyl or 2-pyridyl substituent, a morpholino group or a piperidino group, and

R₄ stands for hydrogen, halogen, C₁-4 alkyl or C₁-4 alkoxy group.

4,316,023

ISOINDOLINE COLORANTS

Georg Henning, Ludwigshafen, and Wolfgang Lotsch, Beindersheim, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany
Filed Apr. 4, 1980, Ser. No. 137,272

Claims priority, application Fed. Rep. of Germany, Apr. 7, 1979, 2914086

Int. Cl.³ C09B 57/04

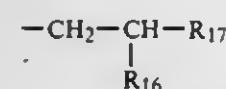
U.S. Cl. 544—300

5 Claims

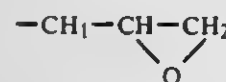
I. An isoindoline colorant insoluble in water and organic solvents of the formula

in which R₁ is hydrogen, —O—, —CN, a linear or branched alkyl radical containing from 1 to 20 carbon atoms, an alkenyl or alkynyl radical containing from 2 to 20 carbon atoms, benzyl which is unsubstituted or substituted by 1 to 3 C₁-C₄-alkyl radicals or hydroxybenzyl which is unsubstituted or substituted by 1 to 3 C₁-C₄-alkyl radicals; or R₁ is a —COR₁₄, —COOR₁₄, —CH₂COOR₁₄ or —CONR₁₄R₁₅ radical, in which R₁₄ and R₁₅, which may be identical or different, are linear or branched C₁-C₂₀-alkyl, C₂-C₂₀-alkenyl, C₅-C₁₂-

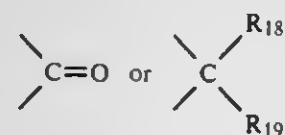
cycloalkyl, phenyl which is unsubstituted or substituted by 1 to 3 C₁-C₈-alkyl radicals, hydroxyphenyl which is unsubstituted or substituted by 1 to 3 C₁-C₄-alkyl radicals, C₇-C₁₂-alkyl, 2,2,6,6-tetramethyl-4-piperidyl, 1,2,2,6,6-pentamethyl-4-piperidyl or, when they are bonded to N, can be hydrogen or, conjointly with the N to which they are bonded, can form a nitrogen-containing heterocyclic ring selected from the group consisting of pyrrolidine, piperidine, morpholine, piperazine, N-methylpiperazine, homopiperazine and N-methylhomopiperazine; or R₁ is a



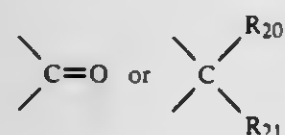
radical, in which R₁₆ is hydrogen or methyl and R₁₇ is —OH, —OR₁₄, —OCOR₁₄ or —OCONR₁₄R₁₅, in which R₁₄ and R₁₅ are as defined above; or R₁ is a



radical; R₂, R₆ and R₇, which may be identical or different, are an alkyl radical containing 1 to 6 carbon atoms; R₄ and R₅, which may be identical or different, are hydrogen or an alkyl radical containing from 1 to 6 carbon atoms; R₈, R₉, R₁₀, R₁₁, R₁₂ and R₁₃, which may be identical or different, are hydrogen or an alkyl radical containing 1 to 6 carbon atoms; m and n are zero or 1; X and Z, which may be identical or different, are

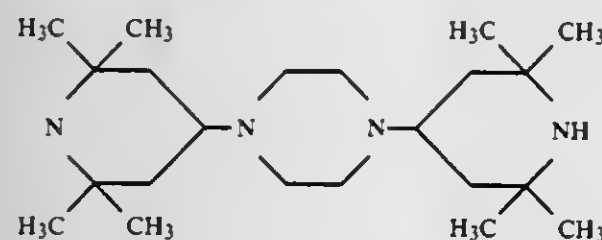


in which R₁₈ is hydrogen or C₁-C₂₀-alkyl and R₁₉ is hydrogen, C₁-C₂₀-alkyl or a —(CH₂)_r—COOR₁₄ radical, or a —CONR₁₄R₁₅ radical in which R₁₄ and R₁₅ are as defined above and r is an integer from 0 to 10; Y is



in which R₂₀ is hydrogen or C₁-C₂₀-alkyl and R₂₁ is hydrogen, C₁-C₂₀-alkyl, benzyl which is unsubstituted or substituted by 1 to 3 C₁-C₄-alkyl radicals, hydroxybenzyl which is unsubstituted or substituted by 1 to 3 C₁-C₄-alkyl radicals, 2,2,6,6-tetramethyl-4-piperidyl, 1,2,2,6,6-pentamethyl-4-piperidyl or a —OH, —NO₂, —NR₂₂R₂₃ or —NH—COR₂₄ radical, in which R₂₂ and R₂₃, which may be identical or different, are hydrogen, C₁-C₂₀-alkyl, benzyl or hydroxybenzyl substituted by 1 to 3 C₁-C₄-alkyl radicals and R₂₄ is C₁-C₂₀-alkyl, phenyl which is unsubstituted or substituted by 1 to 3 C₁-C₈-alkyl radicals or hydroxyphenyl which is substituted by 1 to 3 C₁-C₄-alkyl radicals.

6. A compound of the formula



4,316,026 PROCESS FOR THE PREPARATION OF COPPER QUINOLINATE

Yoshihiro Hatano, Osaka; Seishi Ikegami; Kenji Itob, both of Yao, and Mansuke Matsumoto, Amagasaki, all of Japan, assignors to Yamamoto Kagaku Gosei Co., Ltd., Yao, Japan
Filed Aug. 12, 1980, Ser. No. 177,694

Claims priority, application Japan, Aug. 14, 1979, 54-102756
Int. Cl.³ C07D 213/807

U.S. Cl. 546—5

7 Claims

1. A process for the preparation of copper quinolate by oxidizing quinoline with hydrogen peroxide in a mixture of water and sulfuric acid in the presence of copper sulfate at a temperature of 55° to 75° C. and isolating copper quinolate from the reaction media, wherein the molar ratio of sulfuric acid to quinoline is greater than 1 to 1, the molar ratio of hydrogen peroxide to quinoline is 10.8 to 1 or greater and the concentration of sulfuric acid is from about 10 to about 30% in said mixture.

4,316,027 7,7'-DIAMINO DERIVATIVES OF 2,2'-SPIRODIBENZOPYRANES

Hans Baumann, Wachenheim, and Andreas Oberlinner, Ludwigshafen, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Division of Ser. No. 773,337, Mar. 1, 1977, Pat. No. 4,110,348.

This application Apr. 6, 1978, Ser. No. 894,095

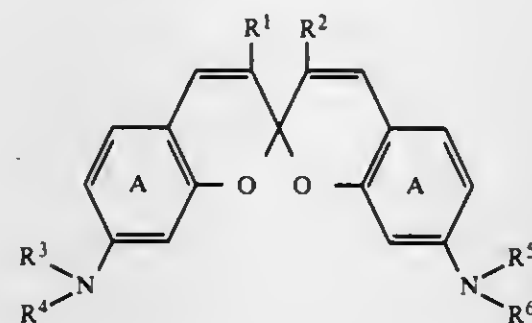
Claims priority, application Fed. Rep. of Germany, Mar. 19, 1976, 2611600

Int. Cl.³ C07D 491/22; C09B 57/00

U.S. Cl. 546—15

6 Claims

1. A dye intermediate of the formula



where R¹ is hydrogen, alkyl of 1 to 12 carbon atoms, phenyl which is unsubstituted or substituted by alkyl of 1 to 4 carbon atoms, methoxy, ethoxy, chlorine or bromine, or phenylalkyl of 7 to 10 carbon atoms, R² is hydrogen or R¹ and R² together are dimethylene, trimethylene or tetramethylene, which are unsubstituted or substituted by alkyl of 1 to 12 carbon atoms, R³ and R⁵ each are selected from the group consisting of trimethylene which is unsubstituted or substituted by 1 to 3 methyl and is bonded to the carbon atom in the 6-position or 6'-position of the benzene ring, R⁴ and R⁶ each are alkyl of 1 to 12 carbon atoms, cyano-, chlorine-, methoxy- or ethoxy-substituted alkyl of 2 to 4 carbon atoms, phenylalkyl of 7 to 10 carbon atoms, phenyl which is unsubstituted or substituted by alkyl of 1 to 4 carbon atoms, chlorine or bromine, or trimethylene bonded to the carbon atom in the 8-position or 8'-position of the benzene ring, and the substituents R³, R⁴, R⁵ and R⁶ may be identical or different and the rings A and A' are unsubstituted or substituted by alkyl of 1 to 3 carbon atoms.

4,316,028 PROCESS FOR PRODUCING EBURNANE DERIVATIVES

Junki Katsube, Toyonaka; Keiichi Ono, Osaka, and Hajime Kawakami, Takarazuka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Nov. 13, 1979, Ser. No. 93,606

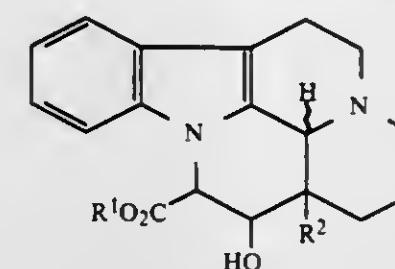
Claims priority, application Japan, Nov. 20, 1978, 53-143841; Jan. 24, 1979, 54-7482; Jan. 25, 1979, 54-7849

Int. Cl.³ C07D 461/00

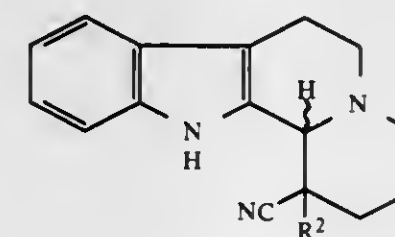
U.S. Cl. 546—51

12 Claims

4. A process for producing a compound of the formula:



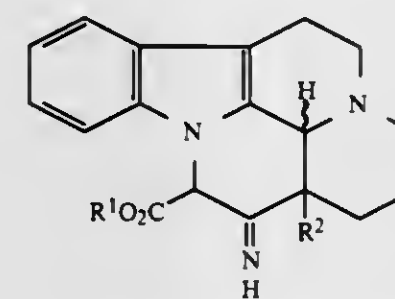
wherein R¹ is a C₁-C₆ alkyl group and R² is a hydrogen atom or a C₁-C₆ alkyl group, or a pharmaceutically acceptable acid addition salt thereof, which comprises allowing a compound of the formula:



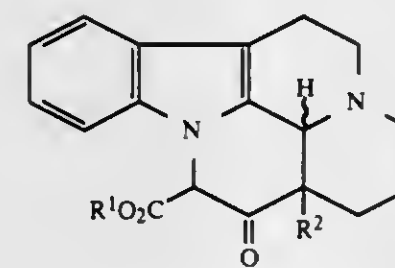
wherein R² is as defined above, to react with a compound of the formula:



wherein R¹ is as defined above and X is a halogen atom, hydrolyzing the resulting compound of the formula:



wherein R¹ and R² are each as defined above, in the presence of a mineral acid and reducing the resulting compound of the formula:



wherein R¹ and R² are each as defined above, with a metal hydride.

4,316,029 SYNTHESIS OF VINCAMINIC ACID DERIVATIVES

Guy Rossey, Cachan, France, assignor to Synthelabo, Paris, France

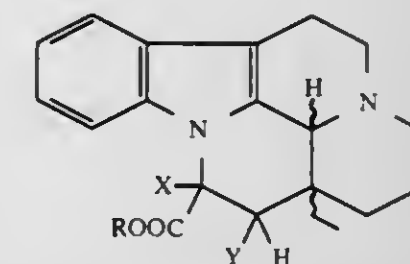
Filed Jun. 20, 1980, Ser. No. 161,359

Claims priority, application France, Jun. 22, 1979, 79 16030
Int. Cl.³ C07D 461/00

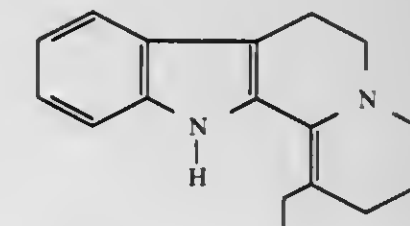
U.S. Cl. 546—51

7 Claims

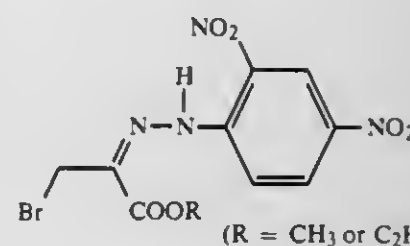
1. A process for the preparation of vincaminic acid derivatives of formula



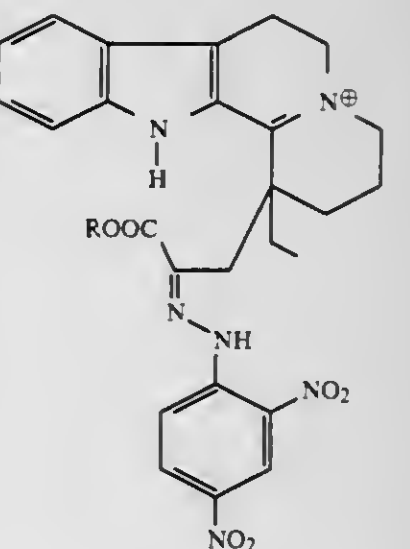
in which R is methyl or ethyl and X is hydroxy or hydrogen and Y is hydrogen or X and Y together form a carbon to carbon double bond, which process is characterised in that the enamine (1)



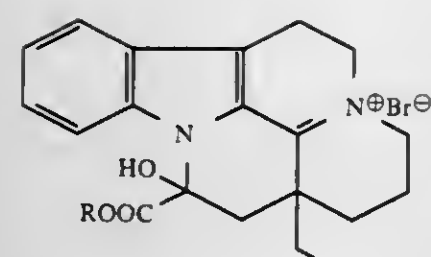
is reacted with the (2,4-dinitrophenyl)-hydrazone of ethyl or methyl bromopyruvate (2)



and then either the protective group is removed from the compound (3)

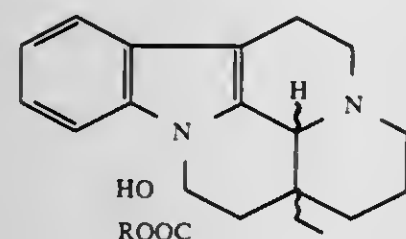


in order to obtain the cyclised compound (4)



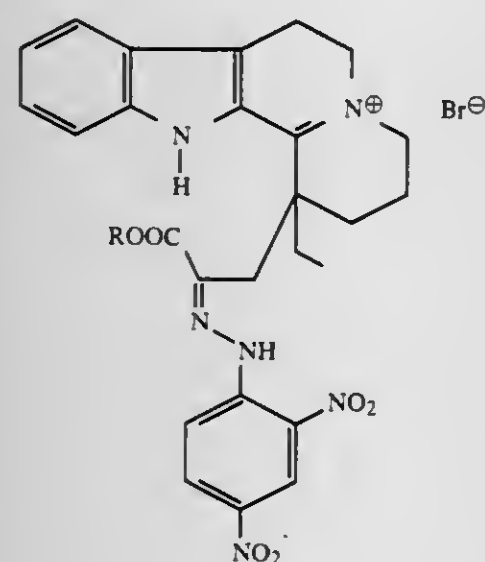
(4)

which is reduced in order to obtain the compound (6)



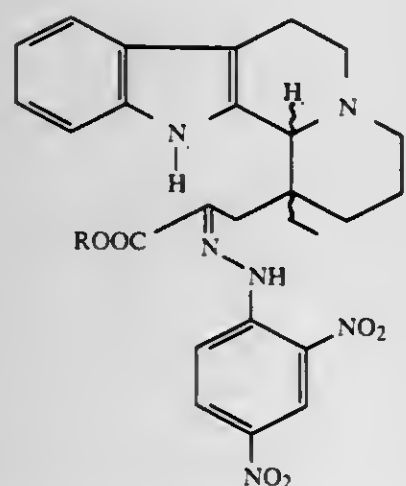
(6)

or the compound (3)



(3)

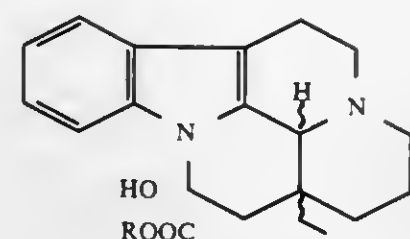
is reduced in order to obtain the compound (5)



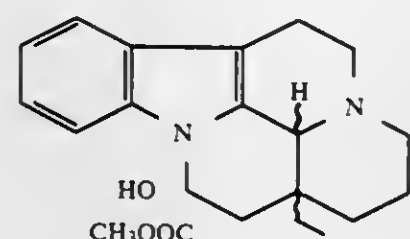
(5)

if desired compound (5) is resolved to produce either optically isomeric form thereof, and the compound (5) is treated as follows:

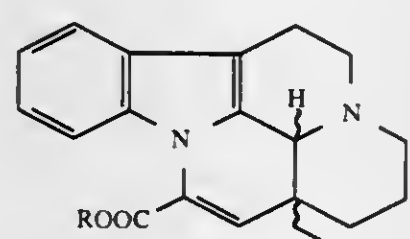
either (a) the protective group is removed therefrom in order to obtain the cyclised compound



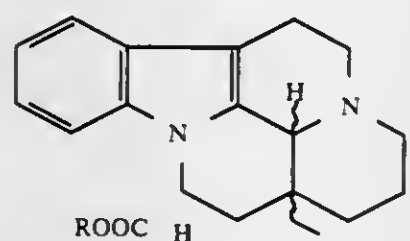
which, if desired, is transesterified, if R is C₂H₅ to give vincamine (7)



or (b) it is reacted, in formic acid, either with an about 15% strength solution of titanium (III) chloride in order to obtain ethyl apovincamine (8, R=C₂H₅) or apovincamine (8, R=CH₃), or with an about 30% strength solution of titanium (III) chloride in order to obtain ethyl deoxyvincamine (9, R=C₂H₅) or deoxyvincamine (9, R=CH₃)



respectively.



4,316,030 PHENYL-QUINOLIZIDINES

Rene Imhof, Wittnau, and Emilio Kyburz, Reinach, both of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

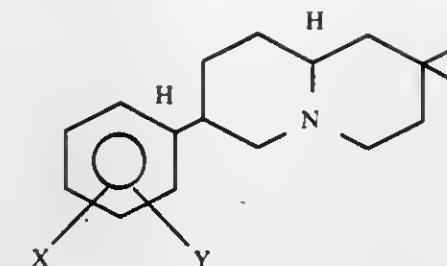
Division of Ser. No. 148,646, May 12, 1980, Pat. No. 4,272,627, which is a division of Ser. No. 85,096, Oct. 15, 1979, Pat. No. 4,236,010. This application Dec. 18, 1980, Ser. No. 217,888 Claims priority, application Switzerland, Oct. 13, 1978, 10654/78; Aug. 3, 1979, 7156/79

Int. Cl.³ C07D 455/02

U.S. Cl. 546—138

1. A compound of the formula

2 Claims



VII

wherein X is hydrogen, fluorine, chlorine, lower alkoxy, lower alkyl or trifluoromethyl; Y is hydrogen, fluorine, chlorine, lower alkoxy or lower alkyl; and Z is a cleavable group selected from the group consisting of chlorine, bromine, mesyloxy or tosyloxy, its racemate or an enantiomer thereof.

4,316,031

PROCESS FOR THE PREPARATION OF 2-MERCAPTOBENZOTHAZOLE

Manfred Bergfeld, Erlenback; Hans-Georg Zengel, Kleinwallstadt, and Heinz Praetorius, Duren-Lendersdorf, all of Fed. Rep. of Germany, assignors to Akzona Incorporated, Asheville, N.C.

Filed Mar. 26, 1979, Ser. No. 23,986

Claims priority, application Fed. Rep. of Germany, Apr. 15, 1978, 2816407

Int. Cl.³ C07D 277/72

U.S. Cl. 546—175

11 Claims

1. A process for the preparation of 2-mercaptobenzothiazole comprising heating a reaction mixture comprising nitrosobenzene, hydrogen sulfide and carbon disulfide in a molar ratio of about 1:1.5 to 4:1 to 3, respectively, to a temperature from about 200° to about 300° C., for a time sufficient to convert at least a portion of the reactants into 2-mercaptobenzothiazole.

2. A process for the preparation of 2-mercaptobenzothiazole comprising first reacting nitrosobenzene with hydrogen sulfide in a molar ratio of about 1:1.5 to 4, at a temperature from about 20° to about 100° C. for a period of time sufficient to substantially reduce the nitrosobenzene and subsequently reacting the resulting product mixture with from about 1 to about 3 mole equivalents of carbon disulfide per mole of originally charged nitrosobenzene, at a temperature from about 200° C. to about 300° C.

4,316,032

OXIMINO-IMINO-ISOINDOLINE METAL COMPLEXES USEFUL AS PIGMENTS

Peter Bitterli, Reinach, Switzerland, assignor to Sandoz Ltd., Basel, Switzerland

Filed Apr. 28, 1980, Ser. No. 144,382

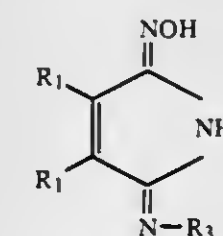
Claims priority, application Switzerland, May 2, 1979, 4097/79

Int. Cl.³ C09B 57/10, 57/04

U.S. Cl. 548—109

9 Claims

1. A metal complex of a compound of formula I



in which

both R₁'s are hydrogen or halogen or together form —S—CH₂—CH₂—S— or a condensed benzene ring which is unsubstituted or substituted by a total of up to

four substituents selected from chlorine and bromine or by one nitro group, and

R₃ is hydrogen; phenyl; phenyl substituted by up to three substituents selected from chlorine, bromine, methyl and methoxy or by one benzoylamino or N-phthalimido group; triazolyl; or thiazolyl; or a divalent 1,3- or 1,4-phenylene radical which is unsubstituted or substituted by a total of up to two substituents selected from chlorine, bromine, methyl, methoxy and nitro; or a divalent unsubstituted 1,4- or 2,6-naphthalene radical; which divalent radical links one further radical of formula I, wherein R₃ is a direct bond and the R₁ groups are the same as or different from the R₁ groups of the first compound of formula I,

which metal complex is either a 1:1 metal complex when R₃ is a divalent linking radical, or a symmetric or asymmetric 1:2 metal complex of monomeric compounds of formula I, and the metal is a divalent transition metal.

4,316,033

ALKOXY-SILYL-BENZOTRIAZOLES

Ta-Yen Ching, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

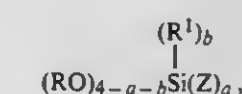
Filed May 30, 1980, Ser. No. 154,625

Int. Cl.³ C07F 7/18

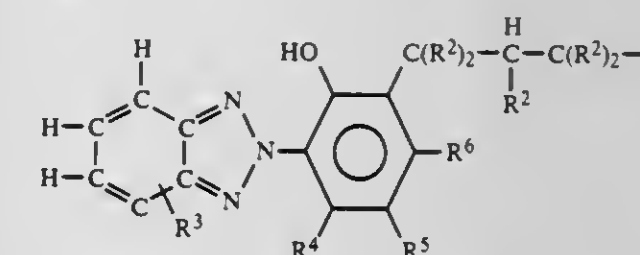
U.S. Cl. 548—110

2 Claims

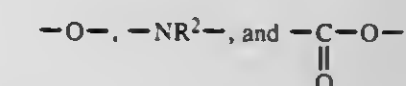
1. Silylbenzotriazoles having the formula,



where Z is



R is a C₍₁₋₈₎ alkyl radical, R¹ is a C₍₁₋₈₎ alkyl or C₍₆₋₁₂₎ aryl radical, R² is selected from hydrogen and R, R³ is selected from hydrogen, C₍₁₋₈₎ alkyl, C₍₁₋₈₎ alkoxy, carbalkoxy, hydroxy, amino and halogen, and Q—(CH₂)₃—Si(OR)₃, where Q is selected from



R⁴—R⁶ are selected from hydrogen and the same of different C₍₁₋₈₎ alkyl, C₍₁₋₈₎ alkoxy and halogen radicals, a is an integer equal to 1 to 3 inclusive, b is a whole number equal to 0 to 2 inclusive and the sum of a + b is equal to 1 to 3 inclusive.

4,316,034

ADDUCTS OF FUROXAN AND VICINAL DIKETONES
John Crosby, and John A. Milner, both of Runcorn, England, assignors to Imperial Chemical Industries Limited, London, England

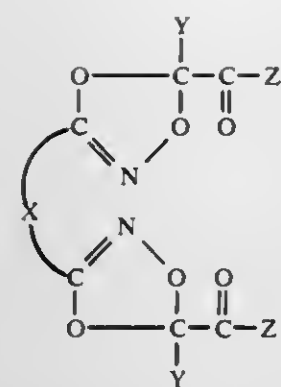
Continuation of Ser. No. 968,926, Dec. 13, 1978, abandoned, which is a division of Ser. No. 781,869, Mar. 28, 1977, Pat. No. 4,145,360. This application Feb. 19, 1980, Ser. No. 122,743 Claims priority, application United Kingdom, Apr. 1, 1976, 13302/76

Int. Cl.³ C07D 273/00

U.S. Cl. 548—124

13 Claims

1. An adduct having the structure



wherein X represents an acyclic or cyclic divalent hydrocarbon group optionally carrying one or more substituents which are inert towards diketo compounds and Y and Z are either separate monovalent hydrocarbon groups which may be the same or different, or are combined into one cyclic divalent hydrocarbon group, the hydrocarbon groups represented by Y and Z optionally carrying substituents which are inert towards furoxan compounds or reactive derivatives thereof.

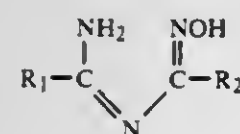
4,316,035 PREPARATION OF PERFLUORINATED 1,2,4-OXADIAZOLES

Robert A. Frosch, Administrator of the National Aeronautics and Space Administration, with respect to an invention of; Reinhold H. Kratzer, Irvine, Calif.; Kazimiera J. L. Paciorek, Corona del Mar, Calif.; Thomas I. Ito, Fountain Valley, Calif., and Robert W. Rosser, San Jose, Calif.

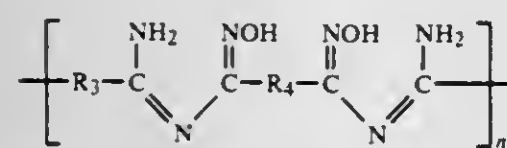
Filed Jun. 27, 1980, Ser. No. 163,838
Int. Cl.³ C07D 271/06; C08G 73/06

U.S. Cl. 548—131 4 Claims
1. A process for preparing 1,2,4-oxadiazoles and polymers thereof which comprises:

(a) providing an imidoamidoxime selected from the class consisting of



and



wherein

R₁ and R₂ are the same or different and are selected from the class consisting of (a) perfluoroalkyl and (b) perfluoroalkyl ether,

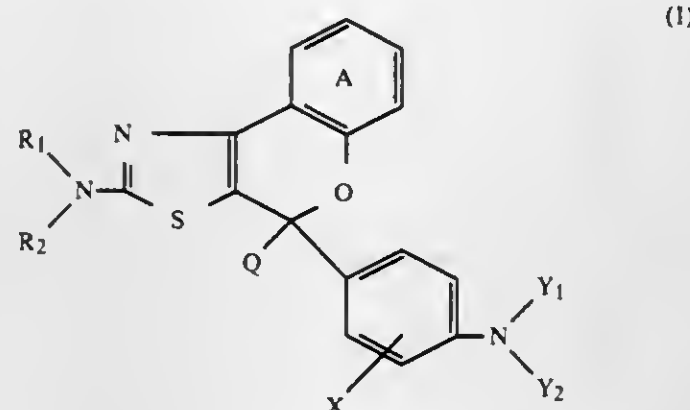
R₃ and R₄ are the same or different and are selected from the class consisting of perfluoroalkylene and perfluoroalkylene ether and

n is a positive integer,

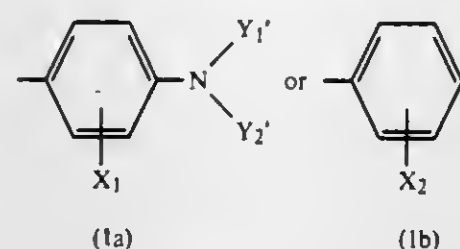
(b) heating such imidoamidoximes within the range of 40° to 100° C. for a period of 8 to 144 hours in the presence of an ammonia acceptor whereby the imidoamidoxime group or groups are converted to 1,2,4-oxadiazole groups.

4,316,036
BENZOPYRANOTHAZOLES
Jean C. Petitpierre, Kaiseraugst, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.
Filed Sep. 11, 1978, Ser. No. 941,432
Claims priority, application Switzerland, Sep. 19, 1977, 11405
Int. Cl.³ C07D 277/60

U.S. Cl. 548—153 5 Claims
1. A benzopyranothiazole of the formula



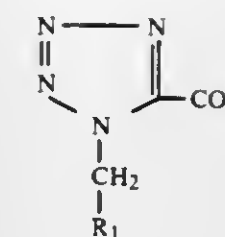
wherein each of R₁ and R₂ independently represents hydrogen, alkyl of not more than 12 carbon atoms which is unsubstituted or substituted by halogen, hydroxyl, cyano or lower alkoxy, or represents cycloalkyl, phenyl, benzyl, or phenyl or benzyl which is substituted by halogen, lower alkyl or lower alkoxy, or R₁ and R₂ together with the nitrogen atom to which they are attached represents a 5- or 6-membered heterocyclic radical selected from the group consisting of pyrrolidino, piperidino, pipercolino, morpholino, thiomorpholino or piperazino, or a N-substituted carbazole, Q represents hydrogen, lower alkyl, benzyl or groups of the formulae (1a) or (1b)



1 each of X, X₁ and X₂ represents hydrogen, halogen, lower alkyl or lower alkoxy, each of Y₁, Y₂, Y₁' and Y₂' represents hydrogen, alkyl of not more than 12 carbon atoms which is unsubstituted or substituted by halogen, hydroxyl cyano or lower alkoxy, or represents cycloalkyl, phenyl, benzyl, or phenyl or benzyl which is substituted by halogen, lower alkyl or lower alkoxy, or each of the pair of substituents Y₁ and Y₂ and Y₁' and Y₂', together with the nitrogen atom to said pair is attached, independently represented a 5- or 6-membered heterocyclic radical selected from the group consisting of pyrrolidino, piperidino, pipercolino, morpholino, thiomorpholino or piperazino, or a N-unsubstituted carbazole and the ring A is unsubstituted or substituted by halogen, nitro, lower alkyl, lower alkoxy, phenoxy or an amino group which is unsubstituted or substituted by lower alkyl, phenyl or benzyl.

4,316,037
N-BENZYL AND N-SUBSTITUTED BENZYL
TETRAZOLE-5-CARBOXYLIC ACIDS AND THE
PREPARATION THEREOF
John H. Sellstedt, Pottstown, and Dieter H. Klaubert, West Chester, both of Pa., assignors to American Home Products Corporation, New York, N.Y.
Filed Jan. 21, 1977, Ser. No. 761,149
Int. Cl.³ C07D 257/02

U.S. Cl. 548—253 12 Claims
1. A compound of the formula:



in which

R is —Om, halo or lower alkoxy wherein M is hydrogen, an alkali metal cation or an alkaline earth metal cation; and R₁ is phenyl, 4-methoxyphenyl, 2,4-dimethoxyphenyl, or 2,4,6-trimethoxyphenyl.

12. A process for the production of a lower alkyl ester of a 1H-tetrazole-5-carboxylic acid which comprises adding an azide of the formula R₁—CH₂—N₃ in which R₁ is selected from the group consisting of phenyl, 4-methoxyphenyl, 2,4-dimethoxyphenyl and 2,4,6-trimethoxyphenyl, to a lower alkyl cyanofomate at a temperature between about 85° C. to about 250° C. in a closed vessel under autogenous pressure for a time sufficient to effect the addition reaction.

4,316,038

1-(2-METHOXYETHYL)-2-METHYL-4-PHENYL-2- IMIDAZOLINE

Sivaraman Raghu, Norwalk, Conn., assignor to American Cyanamid Company, Stamford, Conn.

Division of Ser. No. 63,278, Aug. 2, 1979, Pat. No. 4,245,102, which is a continuation of Ser. No. 958,221, Nov. 6, 1978, abandoned. This application May 21, 1980, Ser. No. 152,266

Int. Cl.³ C07D 233/06

U.S. Cl. 548—352 1 Claim
1. The compound: 1-(2-methoxyethyl)-2-methyl-4-phenyl-2-imidazoline.

4,316,039

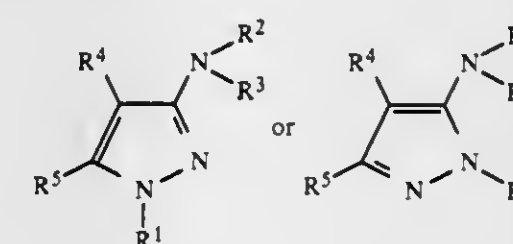
SUBSTITUTED 3-AMINOPYRAZOLES

Peter Plath, Ludwigsbafen; Bruno Wuerzer, Limburgerhof, and Wolfgang Rohr, Mannheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany
Division of Ser. No. 951,566, Oct. 16, 1978, Pat. No. 4,260,775.
This application Aug. 25, 1980, Ser. No. 180,950

Claims priority, application Fed. Rep. of Germany, Oct. 22, 1977, 2747531

Int. Cl.³ C07D 231/38

U.S. Cl. 548—362 1 Claim
1. A pyrazole of the formula



where

R¹ is hydrogen,
R² is hydrogen or lower alkyl,
R³ is n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, 3-methyl-2-butyl, pentyl-2 or pentyl-3 or one of said groups substituted by lower alkoxy or is a 5-, 6-, or 7-membered cycloalkyl,
R⁴ is methoxycarbonyl, and
R⁵ is hydrogen or methyl, and the agriculturally acceptable acid addition salts thereof.

4,316,040 4-METHOXYCARBONYL-PYRAZOLE ETHER DERIVATIVES

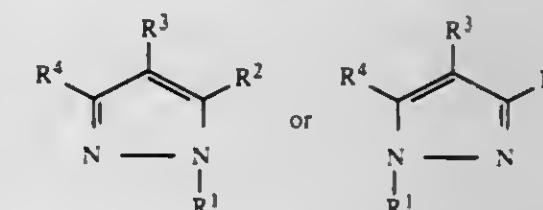
Peter Plath, Ludwigsbafen; Wolfgang Rohr, Mannheim; Bruno Wuerzer, Limburgerhof, and Rainer Becker, Bad Dürkheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Continuation of Ser. No. 49,506, Jun. 18, 1979, abandoned. This application Jan. 14, 1981, Ser. No. 224,938

Claims priority, application Fed. Rep. of Germany, Jul. 4, 1978, 2829289

Int. Cl.³ C07D 231/18, 231/20

U.S. Cl. 548—377 2 Claims
1. A pyrazole ether derivative of the formula



where R¹ denotes hydrogen, R² denotes Y—R⁷, Y denoting oxygen or sulfur and R⁷ denoting an alkyl radical of from 3 to 8 carbon atoms, an aryl radical of from 6 to 10 carbon atoms or a cycloalkyl radical of from 5 to 8 carbon atoms, said radicals being unsubstituted or mono- or disubstituted by lower alkyl, halogen, halo lower alkyl, cycloalkyl of 5 to 6 carbons, aryloxy of 6 to 10 carbons in the aryl moiety, lower alkoxy, lower alkylthio, nitro, cyano, lower alkylaminocarbonyl, di-lower alkylaminocarbonyl, lower acyloxy, acylamino or o-lower alkylcarbonyl, R³ denotes the methoxy carbonyl radical and R⁴ denotes hydrogen or methyl, and acid addition salts of agriculturally acceptable acids.

4,316,041

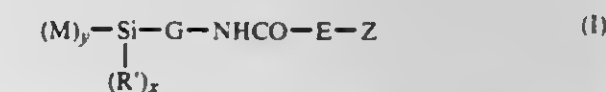
LIQUID CRYSTAL SILANES

George E. Totten, West Haverstraw, N.Y., and Thomas C. Williams, Ridgefield, Conn., assignors to Union Carbide Corporation, New York, N.Y.

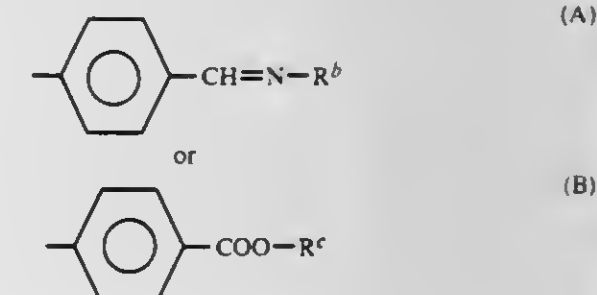
Filed Feb. 19, 1980, Ser. No. 122,482

Int. Cl.³ C09K 3/34; G02F 1/13; C07F 7/10

U.S. Cl. 556—420 14 Claims
1. A liquid crystal compound of the general formula



wherein y is an integer having a value of from 1 to 3; x is an integer having a value of from 0 to 2; the sum of x and y is 3 M is methoxy, ethoxy, chloro or dimethylamino; R¹ is hydrogen, methyl or ethyl; G is alkylene having from 2 to 4 carbon atoms, or arylene or aralkylene having from 6 to 8 carbon atoms; E is —O— or —NH—; and Z is a group of the formula:



wherein R^b is an unsubstituted or substituted phenyl, fluorenyl, fluorenonyl or anthracenyl group; R^c is an unsubstituted or substituted phenyl group; wherein the substituents on said groups can be chloro, nitro, methylthio, bromo, iodo, tertiary

amino, acyl having from 2 to 12 carbon atoms, dialkylamino in which the alkyl group has from 1 to 5 carbon atoms, alkoxy having from 1 to 6 carbon atoms, alkyl having from 1 to 10 carbon atoms, cyano, esters which may contain substituted aryl or aralkyl moieties of from 1 to 12 carbon atoms or carbonates containing an alkyl group of from 1 to 10 carbon atoms.

4,316,042

SUBSTITUTED

CARBOXYALKOXYAMINODIHYDROBENZOPHENONES

Peter Fünfschilling, Basel, Switzerland, assignor to Sandoz Ltd., Basel, Switzerland

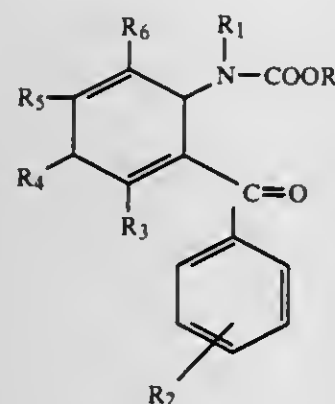
Filed Aug. 15, 1979, Ser. No. 67,070

Claims priority, application Switzerland, Aug. 16, 1978, 8793/78

Int. Cl.³ C07C 125/065

U.S. Cl. 560—27

1. A compound of the formula:



wherein

R₁ is hydrogen, alkyl of 1 to 5 carbon atoms, cycloalkyl of 3 to 6 carbon atoms, alkyl of 1 to 4 carbon atoms substituted by cycloalkyl of 3 to 6 carbon atoms, polyhaloalkyl of 1 to 5 carbon atoms, allyl, propargyl, benzyl or phenyl,

R₂ is hydrogen, halogen, alkyl or alkoxy, each of 1 to 4 carbon atoms, trifluoromethyl, nitro, alkylamino or dialkylamine, wherein the alkyl groups have 1 to 4 carbon atoms, or phenyl,

R₃ is hydrogen, halogen, alkyl or alkoxy, each of 1 to 4 carbon atoms, or phenyl,

R₄ is hydrogen, nitro, halogen, alkyl or alkoxy each of 1 to 4 carbon atoms or phenyl,

R₅ is hydrogen, halogen, alkyl, alkylthio or alkoxy each of 1 to 4 carbon atoms, nitro, trifluoromethyl or phenyl,

R₆ is hydrogen, halogen, alkyl of 1 to 4 carbon atoms, benzyl or phenyl, and

R is alkyl of 1 to 4 carbon atoms.

4,316,043

[(5,6,9A-SUBSTITUTED-3-OXO-1,2,9,9A-TETRAHYDRO-3H-FLUOREN-7-YL)OXY]ALKANOIC ACIDS AND THEIR ANALOGS, ESTERS, SALTS AND DERIVATIVES

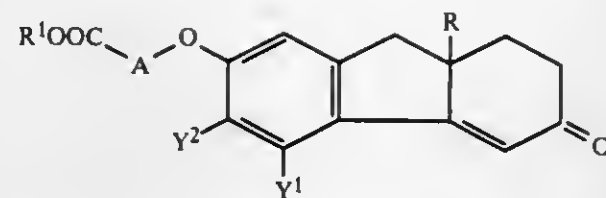
Edward J. Cragoe, Jr., Lansdale; Gerald E. Stokker, Gwynedd Valley, and Norman P. Gould, Lansdale, all of Pa., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Dec. 19, 1980, Ser. No. 218,335

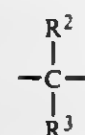
Int. Cl.³ C07C 69/94

U.S. Cl. 560—53

1. A compound of the formula:



wherein R is H, and lower alkyl, branched or unbranched; R¹ is H, lower alkyl, such as methyl, ethyl, propyl, isopropyl, butyl, isobutyl, tert-butyl and the like; lower alkenyl, such as, allyl, 2-butenyl and the like; lower alkynyl, such as propargyl, butynyl and the like; lower cycloalkyl, such as cyclobutyl, cyclopentyl and the like; substituted lower alkyl, where the substituent is carboxy, lower alkoxy, carbonyl, oxo, hydroxy, lower alkoxy, halo, lower acyloxy, lower dialkylamino, sulfamoyl, pyridyl, furyl, tetrahydrofuryl, aryl 1-methylpiperidyl, morpholinyl, substituted cycloalkyl, such as carboxycycloalkyl, and the like; pyrrolidinyl, 1-methylpiperazinyl, thienyl, and the like; heterocyclic, such as imidazolyl, pyridyl, thiazolyl, pyrazinyl, furyl, and the like; aryl, such as phenyl, carboxyphenyl, hydroxymethylphenyl and the like; Y¹ and Y² are independently Cl and CH₃; A is (CH₂)₂ or



where R² is H, methyl or ethyl, R³ is H, F or methyl and R² and R³, may be joined together to form the ring >C(CH₂)_n where n is the integer 2, 3 or 4; and pharmaceutically acceptable salts thereof.

4,316,044

ISOVALERIC ACID DERIVATIVES

Keiichi Ishimitsu, Odawara; Isamu Kasahara, Ohiso; Tomio Yamada, Hiratsuka; Michihiko Matsuda, Ohiso; Hidemitsu Takahashi, and Shuichi Soma, both of Hiratsuka, all of Japan, assignors to Nippon Soda Company Limited, Tokyo, Japan

Filed Aug. 29, 1980, Ser. No. 182,341

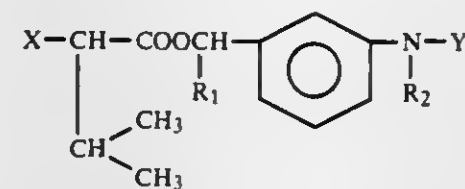
Claims priority, application Japan, Sep. 7, 1979, 54-114235; Jan. 14, 1980, 55-2897; Jan. 15, 1980, 55-48745

Int. Cl.³ C07C 69/76, 69/62; A61K 35/55

U.S. Cl. 560—105

10 Claims

1. A compound of the formula



wherein

X is phenyl substituted with halogen, lower alkyl, lower haloalkyl, lower haloalkoxy, 3,4-methylenedioxy or nitro group, naphthyl, styryl or lower alkenyl substituted with chlorine,

R₁ is hydrogen, cyano or ethynyl,

R₂ is hydrogen, lower alkyl, lower alkenyl or lower alkynyl, and

Y is phenyl or halophenyl.

4,316,045

CATALYTIC PROCESS FOR THE PRODUCTION OF ARYL CARBOXYLATES

Lawrence C. Costa, Nanuet, N.Y., assignor to The Halcon SD Group, Inc., New York, N.Y.

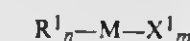
Filed Aug. 29, 1980, Ser. No. 182,512

Int. Cl.³ C07C 67/00

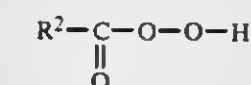
U.S. Cl. 560—130

7 Claims

1. A process for preparing an aryl carboxylate which comprises contacting (a) an arylmetallo carboxylate of the formula:



wherein R¹ is a mono- or polynuclear substituted or unsubstituted aryl group having a total of from 6 to 18 carbon atoms; M is a metal cation in its highest oxidation state selected from the group consisting of Hg, Sn, Tl, Pb and Cd cations; X¹ is a carboxylate group of from 2 to 20 carbon atoms derived from an aliphatic or aromatic mono- or di-carboxylic acid; and n and m are each integers of from 1 to (t-1), wherein t is the valence of the M metal cation, with the proviso that n+m=t, with (b) an organic peracid of the formula:



wherein R² is H, alkyl of from 1 to 20 carbon atoms, aryl of from 6 to 14 carbon atoms, alkaryl or aralkyl of from 7 to 20 carbon atoms, cycloalkyl of from 3 to 12 carbon atoms, and halogenated derivatives of the foregoing groups, in liquid medium in the presence of a catalytic amount of an aryl iodide of the formula:



wherein R³ is mono- or polynuclear aryl having a total of from 6 to 18 carbon atoms to form the corresponding aryl carboxylate.

4,316,046

PROCESS FOR THE PREPARATION OF ARYL CARBOXYLATES

Lawrence C. Costa, Nanuet, N.Y., assignor to The Halcon SD Group, Inc., New York, N.Y.

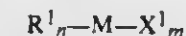
Filed Aug. 29, 1980, Ser. No. 182,529

Int. Cl.³ C07C 67/00

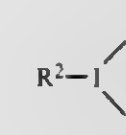
U.S. Cl. 560—130

7 Claims

1. A process for preparing an aryl carboxylate which comprises contacting (1) an arylmetallo carboxylate selected from the group consisting of compounds having the formula:



wherein R¹ is as defined below; M is a metal cation in its high-



est oxidation state selected from the group consisting of Hg, Sn, Tl, Pb and Cd; X¹ is a carboxylate group of from 2 to 20 carbon atoms derived from an aliphatic or aromatic mono- or di-carboxylic acid; and n and m are each integers of from 1 to (t-1), wherein t is the valence of the metal cation, with the proviso that n+m=t, with (2) at least one arylidioso carboxylate selected from the group consisting of compounds of the formula:

wherein R² is as defined below, X² and X³ are the same or different and are each carboxyl groups derived from aliphatic saturated or aromatic monocarboxylic acids having from 2 to 20 carbon atoms, or from aliphatic saturated or aromatic dicarboxylic acids having from 2 to 20 carbon atoms, R¹ and R² being the same or different and being selected from the group consisting of substituted or unsubstituted mono- or polynuclear aryl moieties of 6-18 carbon atoms, the substituents, if present, being selected from the group consisting of alkyl of 1 to 12 carbon atoms, cycloalkyl of 4 to 12 carbon atoms, and heterocyclic having from 6 to 10 member rings containing one or more O or S ring atoms, cyano, keto, having from 2 to 10 carbon atoms, carboxylate having from 1 to 10 carbon atoms and carboalkoxy having from 2 to 10 carbon atoms, said contacting being in liquid medium and at elevated temperature to form the corresponding aryl carboxylate.

4,316,047

PREPARATION OF C₁-C₄ ALKYL PENT-3-ENOATES

Rudolf Kummer, Frankenthal; Franz-Josef Weiss, Weinheim; Heinz-Walter Schneider, and Volker Taglieber, both of Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Jul. 7, 1980, Ser. No. 166,569

Claims priority, application Fed. Rep. of Germany, Aug. 18, 1979, 2933581

Int. Cl.³ C07C 67/38

U.S. Cl. 560—206

3 Claims

1. A process for producing C₁-C₄ alkyl pent-3-enoates which comprises: partially hydrogenating a butadiene-containing hydrocarbon mixture containing more than 0.1% by weight of butynes to reduce the butyne content of the mixture to 0.1% or less by weight and thereafter reacting the so treated mixture with carbon monoxide and an alkanol of 1 to 4 carbon atoms in the presence of a cobalt-carbonyl catalyst and a tertiary nitrogen base having a pK_a of from 3 to 11, at 100°-140° C. and under a pressure of from 300 to 1,000 bar.

ELECTRICAL

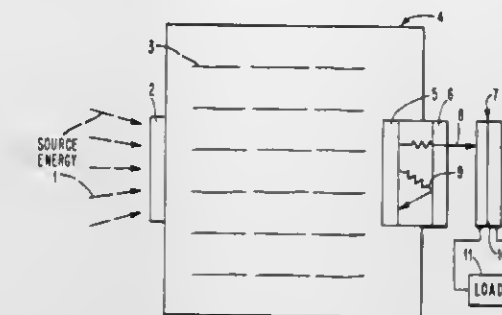
4,316,048

ENERGY CONVERSION

Jerry M. Woodall, Bedford Hills, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Jun. 20, 1980, Ser. No. 161,982
Int. Cl.³ H01L 31/04

U.S. Cl. 136—253

19 Claims



1. An energy system comprising in combination:
a thermally insulated energy storage container;
an energy storage material within said container,
said energy storage material having the combined characteristics of:
a thermal conductance in excess of 0.1 calorie per square centimeter per centimeter per degree per second at room temperature,
a latent heat of fusion of the order of 1 Kilocalorie per mole, and
a melting point in the vicinity of 1300° Kelvin and above;
energy input means for delivering source energy outside said container as thermal energy to said material; and
energy output release means for delivering a portion of the energy stored in said material to a load under conditions responsive to the requirements of said load.

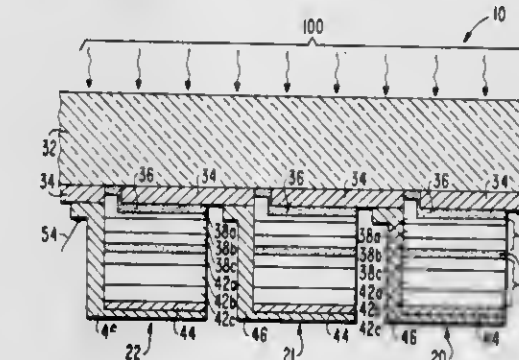
4,316,049

HIGH VOLTAGE SERIES CONNECTED TANDEM JUNCTION SOLAR BATTERY

Joseph J. Hanak, Lawrenceville, N.J., assignor to RCA Corporation, New York, N.Y.
Continuation-in-part of Ser. No. 70,513, Aug. 28, 1979, abandoned. This application Sep. 29, 1980, Ser. No. 192,333
Int. Cl.³ H01L 31/06

U.S. Cl. 136—244

16 Claims



1. An amorphous silicon solar battery comprising:
(a) a transparent substrate having a major surface which is incident to solar radiation and an opposed major surface;
(b) a plurality of spaced apart transparent conductive oxide strips on said opposed major surface;
(c) a plurality of tandem-junction, hydrogenated amorphous silicon solar cells fabricated over and electrically contacting a major portion of each of said transparent conductive oxide strips, said solar cells having a plurality of semiconductor layers of hydrogenated amorphous silicon having regions of differing conductivity type wherein said layers are separated by a tunnel junction, said solar cells having width such that the loss of power is less than the loss of power from the

incorporation of a metallic grid electrode into the transparent conductive oxide; and
(d) means for interconnecting said solar cells in series.

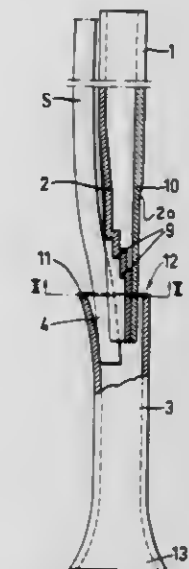
4,316,050

EARTH GROUND ASSEMBLY COMPRISING A DRIVING POINT, A DRIVING ROD, AND A CONTINUOUS CONDUCTOR WIRE

Lars M. Bergmark, Skelleftea, Sweden, assignor to F S Elteknik AB, Skelleftea, Sweden
Continuation of Ser. No. 940,148, Sep. 6, 1978, abandoned. This application Jul. 31, 1980, Ser. No. 174,343
Claims priority, application Sweden, Sep. 14, 1977, 7710314
Int. Cl.³ H01R 4/66

U.S. Cl. 174—7

1 Claim



1. Electrical grounding apparatus comprising an electrical ground conductor in the form of a continuous conductor wire, driving means in the form of a tubular driving rod arranged to be driven into the ground, a tubular driving point surrounding the lower end portion of the driving rod for connecting said wire to said driving rod by clamping the lower end portion of said wire to said lower end portion of said driving rod to thereby carry the wire when the driving rod is driven into the ground, said driving point having an upper portion provided with an outwardly extending lip through which the conductor wire extends and said driving point having a lower portion terminating below the lower end portion of the driving rod, a plurality of joint rod sections for extending the driving rod in length as the latter is driven into the ground with the continuous conductor wire extending along the outside of the driving rod and the connected joint rod sections, said driving rod having at the lower end portion a laterally facing curved depression receiving the lower end portion of the conductor wire, said depression being formed with stepped projections located in sequence in the axial direction of the driving rod and said depression extending axially and decreasing in depth toward zero in a direction opposite to the driving direction, said driving rod having a longitudinally extending portion of reduced cross-section arranged opposite said depression in order to further reduce the cross-sectional area of the driving rod at its end portion, said driving point having a length greater than the length of said portion of reduced cross-section and being formed at its lower end with a planar tip disposed below the lower end of the driving rod and having a width exceeding the width of at least those portions of the driving means along the outside of which the conductor wire extends, said planar tip being arranged in the same plane as said outwardly extending lip in the upper portion of the driving point, said driving point surrounding that portion of the driving rod having said depression and said portion of reduced cross-section, and said driving point also surrounding a straight portion of the conductor wire which is in said depression to jam the

conductor wire firmly against the bottom of said depression and its stepped projections.

4,316,051

PARTITION INSULATOR HAVING A PREDETERMINED RUPTURE BEHAVIOR

Georg-Heinz Krieter, Wurenlos, and Gerhard Mauthe, Birmenstorf, both of Switzerland, assignors to BBC Brown, Boveri & Company, Ltd., Baden, Switzerland

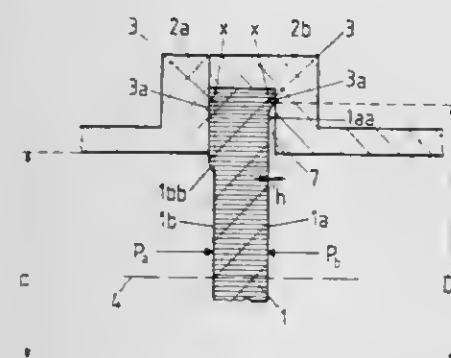
Filed Mar. 12, 1979, Ser. No. 19,601

Claims priority, application Switzerland, Mar. 13, 1978, 2689/78

Int. Cl.³ H01B 17/26; H02B 13/02

U.S. Cl. 174—11 R

15 Claims



1. A partition insulator having a predetermined rupture behavior, especially for use in electrical switchgear, comprising:

- a partition insulator member;
- partition insulator holder means for supporting the partition insulator member at an edge of the partition insulator member;
- a first bearing provided between a first face of the partition insulator member and the partition insulator holder means; and
- a first open slot provided between said first face of the partition insulator member and said partition insulator holder means, said first open slot having an extent corresponding to a predetermined rupture pressure of the partition insulator member.

4,316,052

GAS INSULATED TRANSMISSION LINE HAVING TWO-LEGGED SPACERS DISPOSED IN A RECEIVING STRUCTURE

Setsuyuki Matsuda, Amagasaki, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 17, 1980, Ser. No. 160,246

Claims priority, application Japan, Jun. 25, 1979, 54-80900

Int. Cl.³ H01B 9/06; H02G 5/06

U.S. Cl. 174—14 R

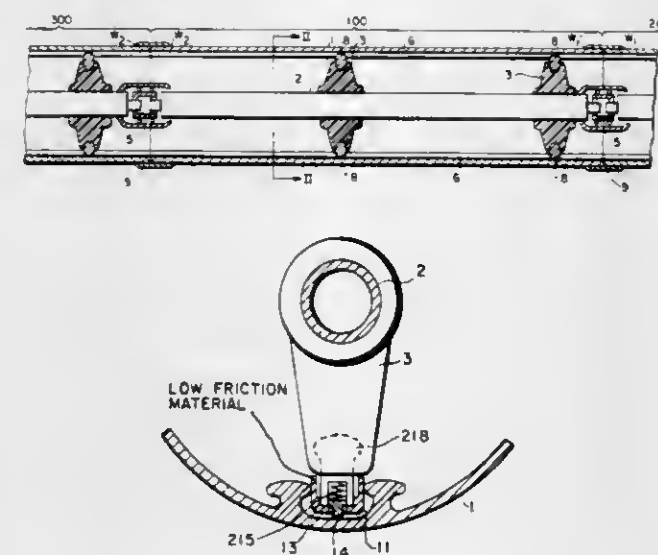
4 Claims

1. A gas insulated transmission line comprising:
- a plurality of cylindrical sheath sections having at least one conductor therein and being lengthwise connected to one another;
 - an electrical insulating gas filling the interior of said sheath sections;
 - a two-leg type insulating spacer, having two ends, mounted to said conductor for insulatably supporting said conductor within said sheath sections; and
 - receiving means disposed in said sheath sections and extending axially throughout the length of the connected sheath sections and normal to said spacer ends and receiving said two ends of said insulating spacer,
- said receiving means comprising grooves formed integrally with each sheath section and extending throughout the length of each sheath section, each groove having two edges with portions which protrude in opposite directions respectively, and impurity capture grooves formed be-

tween said protruding portions and the inner surface of the sheath sections.

2. A gas insulated transmission line comprising:

- a plurality of cylindrical sheath sections having at least one conductor therein and being lengthwise connected to one another;
- an electrical insulating gas filling the interior of said sheath sections;
- a two-leg type insulating spacer, having two ends, mounted to said conductor for insulatably supporting said conductor within said sheath sections, each end of said insulating



spacer being formed of a material different from the material from which the remainder of the insulating spacer is formed; and

receiving means disposed in said sheath sections and extending axially throughout the length of the connected sheath sections and normal to said spacer ends and receiving said two ends of said insulating spacer, each end of the insulating spacer being coated with a material low in coefficient of friction and having a contact member biased into contact with the bottom surface of the respective groove by means of a spring.

4,316,053

PIPE COUPLINGS AND COUPLING GASKETS

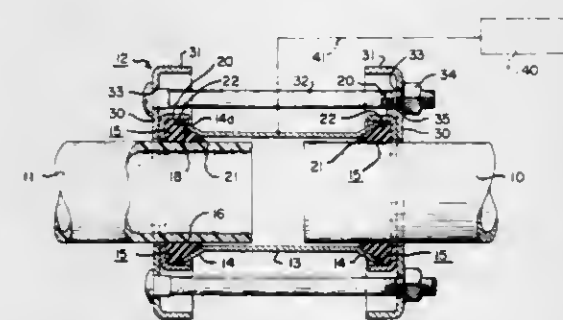
Paul F. Rieffle, Pittsburgh, Pa., assignor to Coupling Systems, Inc., Pittsburgh, Pa.

Filed Sep. 24, 1979, Ser. No. 77,794

Int. Cl.³ H01R 4/64

U.S. Cl. 174—84 S

7 Claims



1. A pipe coupling providing electrical continuity between all parts thereof comprising an elongate cylindrical conductive sleeve having an inner diameter sufficient to permit insert of the ends of two pipes to be coupled, an annular recess at each end of said sleeve, an annular resilient gasket at each recess adapted to fit around the pipe ends being joined and substantially within said recess with a portion extending axially from said recess, said axially extending portion having a radial shoulder generally axially aligned with the end of said sleeve, a

conductive end cap at each end of said sleeve, said end caps having an annular skirt portion encircling said axially extending portion of said gasket and the end of said sleeve and spaced from said sleeve and an end wall portion surrounding the pipe ends being joined and pressing axially on the gasket, compression means acting on said end caps to compress the resilient gasket sealingly into said annular recesses and against the pipe ends being joined, a metallic conductive helix made from metal wire, said wire being of triangular cross section with an apex on the external periphery of the helix in each gasket at a junction of the gasket with the pipe end and sleeve, said helix having a substantial exposed portion free from said resilient gasket and making electrical contact with said sleeve and adjacent pipe end and resilient conductor means in at least one of the junction of an end cap, the sleeve and a radial shoulder on said gasket and a junction of the gasket with the pipe end and end cap, said conductive means having substantial exposed portions free of said resilient gasket and making electrical contact between at least one of said sleeve and end cap and said end cap and pipe end.

4,316,054

CONNECTION BETWEEN CORE AND CASING OF A STRUCTURE HAVING AN AGGLOMERATED FIBRE CORE

Michel Willem, Abrest, France, assignor to Societe Anonyme dite: CERAVIER, Paris, France

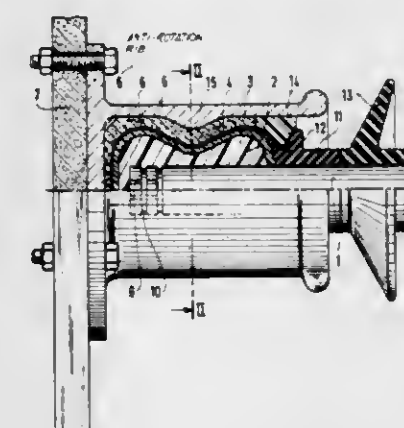
Filed Dec. 17, 1979, Ser. No. 104,228

Claims priority, application France, Dec. 27, 1978, 78 36429

Int. Cl.³ H01B 17/14, 17/42

U.S. Cl. 174—140 S

8 Claims



1. A structure for transmitting high mechanical stresses, said structure having an elongate core, which includes at least one rod made of agglomerated fibres, and at least one fixing means fixed to an end of the core, said fixing means including a casing, a wedging member located on the core and positioned within said casing, said wedging member being flared on either side of an intermediate zone thereof, so as to exert radial compression or jamming stresses on the rod in the casing and to maintain these stresses at least partially in a zone of the structure located in the casing, even when the structure is not subjected to any mechanical loading, characterized in that the wedging member is formed by a mass of resin moulded onto the end of the rod, a resilient cap covering the resin mass, and a thin metal sheathing shrink-fitted over the resilient cap, said wedging member being embedded in said casing, whereby the structure is particularly resistant to high bending stresses.

4,316,055

STREAM/BLOCK CIPHER CRYPTOGRAPHIC SYSTEM

Horst Feistel, Mount Kisco, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 30, 1976, Ser. No. 755,898

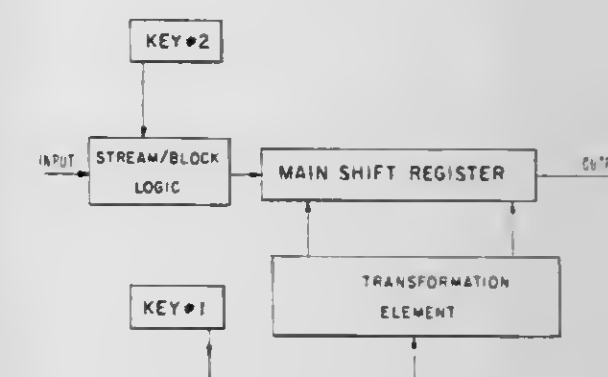
Int. Cl.³ H04L 9/00

U.S. Cl. 178—22.06

14 Claims

1. A key-controlled cryptographic system capable of selectively performing stream or block mode cryptographic trans-

formations on an incoming data set, said system including means for storing a user supplied key, means for entering said data set into said system for cryptographic transformation, a main reconfiguration means comprising a shift register whose input is a function of said user supplied key, a transformation element operatively connected to said main reconfiguration means for cryptographically transforming data located in said main reconfiguration means, means for causing said transfor-



mation element to perform consecutive cryptographic transformations of data located in said main reconfiguration means for a predetermined number of cycles, means for selectively utilizing the complete contents of said main reconfiguration means as a full cryptographically transformed block of data in block mode operation, or a pseudo-random number stream which is combined serially in an inverse mathematical function with said incoming data set in serial mode operation.

4,316,056

CONTROL CIRCUIT FOR ELECTROMAGNETICALLY-OPERATED RECORDERS IN TELEPRINTING DEVICES

Reiner Lichti, Germering, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

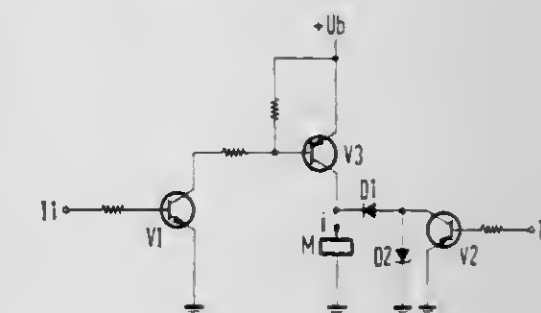
Filed Apr. 24, 1980, Ser. No. 143,200

Claims priority, application Fed. Rep. of Germany, Jun. 1, 1979, 2922521

Int. Cl.³ H04L 21/00; B41J 9/10; H01H 47/32

U.S. Cl. 178—23 R

5 Claims



1. A circuit for controlling an electromagnetic coil-operated device comprising:
- first and second switching transistors respectively operated by first and second base-supplied control signals, each control signal having at least one change-of-state with the change of state of said second control signal occurring after the change of state of said first control signal;
 - a control transistor connected between said coil and an operating voltage source and connected at its base to said first switching transistor for selective energization of said coil when said first switching transistor is conducting; and
 - a first diode connected between the collector of said second switching transistor and said coil,
- whereby current inductively stored in said coil before said change of state of said first control signal flows through said

diode as a maintenance current between said change of state of said first control signal and said change of state of said second control signal and whereby said change of state of said second control signal disconnects said coil.

4,316,057

CIRCUIT ARRANGEMENT FOR THE AUTOMATIC, ADAPTIVE DISTORTION CORRECTION OF RINGINGS OF AT LEAST THREE-STAGE BASE BAND SIGNAL
Volker Ludwig, Gelting, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

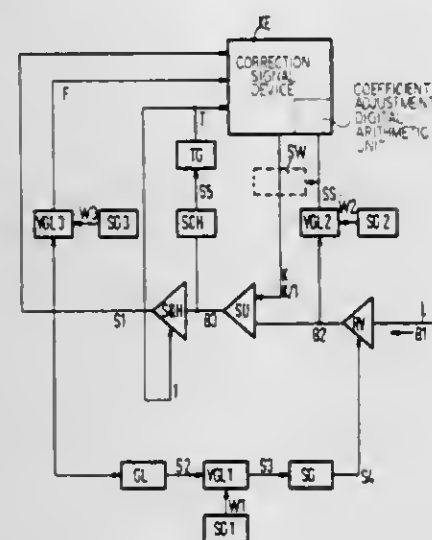
Filed Jul. 4, 1980, Ser. No. 156,409

Claims priority, application Fed. Rep. of Germany, Jul. 13, 1979, 2928424

Int. Cl.³ H04L 25/02

U.S. Cl. 178—63 E

9 Claims



1. A circuit arrangement for the automatic, adaptive, temporal distortion correction of the ringings of an at least three-stage base band signal transmitter over a loaded line, comprising:

- a controlled-gain amplifier including an input connection to the line, a control input and an output;
- a summer including a first input connected to said output of said controlled-gain amplifier, a second input and an output;
- a sample-and-hold circuit including an input connected to said output of said summer and an output;
- first comparison means including a first input connected to said output of said sample-and-hold circuit, a second input connected to a first reference value and an output connected to said control input of said controlled-gain amplifier;
- second comparison means including a first input connected to said output of said first comparison means, a second input connected to a second reference value, and an output;
- and correction signal means including a first input connected to said output of said sample-and-hold circuit and a second input connected to said output of said second comparison means and an output connected to said second input of said controlled-gain amplifier, and operable to produce a correction signal for said summer.

4,316,058

SOUND FIELD TRANSMISSION SYSTEM SURROUNDING A LISTENER

Roy M. Christensen, Titusville, N.J., assignor to RCA Corporation, New York, N.Y.

Filed May 9, 1972, Ser. No. 251,836

Int. Cl.³ H04S 3/00; H04H 5/00

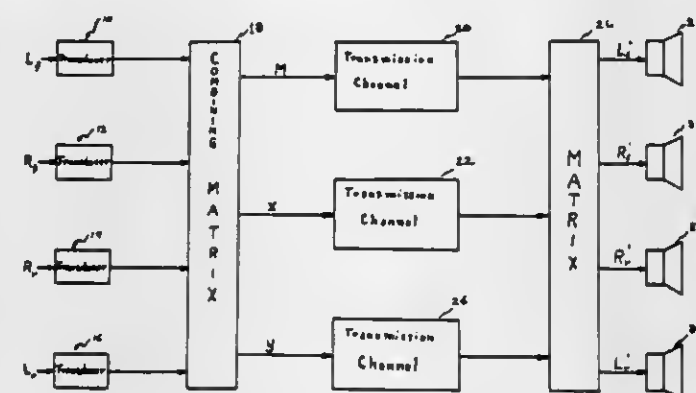
U.S. Cl. 179—1 GQ

13 Claims

1. In a three-channel system for reproduction of sound field information surrounding a listener including a plurality of

sound sources disposed in four spatial quadrants, said system comprising:

- (a) means for providing a first electrical signal (M) representative of the sum of the amplitudes of sound signals produced by said plurality of sources;
- (b) means for providing a second electrical signal (X) representative of the sum of amplitudes of sound source signal components directed along a pair of orthogonal axes in a first pair of adjacent spatial quadrants minus the sum of amplitudes of sound source signal components directed along said axes in a second pair of adjacent spatial quadrants, said second pair of quadrants being adjacent to said first pair;
- (c) means for providing a third electrical signal (Y) representative of the sum of amplitudes of sound source signal components directed along said axes in a first quadrant of said first pair and an adjacent second quadrant of said second pair minus the sum of amplitudes of sound source signal components directed along said axes in a second quadrant of said first pair and an adjacent first quadrant of said second pair, and



(d) only first, second and third signal transmission channels for transmission of sound information from said sources having inputs coupled, respectively, to said means for providing first, second and third electrical signals;

- apparatus comprising the combination of:
- at least four sound signal output terminals suitable for coupling to respectively different ones of an array of sound reproducing loudspeakers, and
- signal combining means responsive to only the outputs of said first, second and third signal transmission channels for supplying to each of said sound signal output terminals a signal proportional to the output of said first channel and for supplying to each of said sound signal output terminals a respectively different linear combination of signals proportional to outputs of said second and third channels, said combinations being determined according to an intended spatial orientation of the loudspeakers of said array relative to the spatial orientation of said orthogonal axes, and weighted relative to said supplied signal proportional to the output of said first channel such that, in reproduction of sound originating from only a single one of said quadrants, sound emanation from the opposed quadrant is substantially suppressed.

4,316,059

GAIN CONTROLLER FOR A TELECONFERENCING BRIDGE

Arpad G. Toth, Ottawa, Canada, assignor to Northern Telecom Limited, Montreal, Canada

Filed Jun. 10, 1980, Ser. No. 158,218

Int. Cl.³ H04M 3/56

U.S. Cl. 179—1 CN

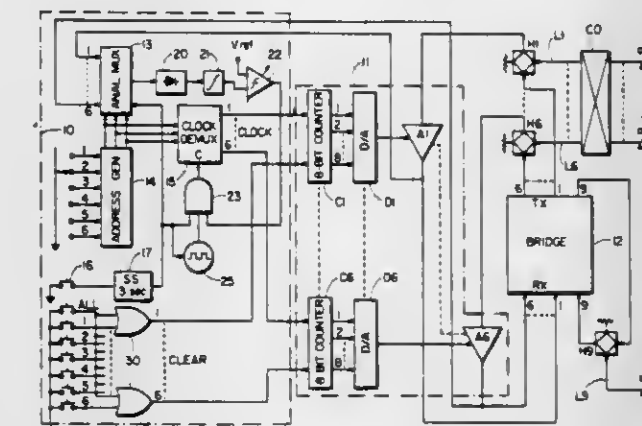
4 Claims

1. A gain controller for normalizing signal levels from a plurality of remote stations, each of which is connected to a teleconferencing bridge; the gain controller comprising:

- a signal multiplexer for connecting a test signal from one of the remote stations to a signal level detector in response to

a selected channel address to generate a control signal which is proportional to the level of the test signal;

- a demultiplexer responsive to the selected channel address for connecting the control signal to a storage circuit associated with said one remote signal;
- an address generator for transmitting the selected channel address to the multiplexer and demultiplexer; and



separate variable gain amplifiers connecting each of the remote stations to the teleconferencing bridge, means for utilizing the control signal in the storage circuit associated with said one remote station to control the variable gain amplifier connecting said one remote station to the teleconferencing bridge, so that the gain of each amplifier is proportional to the magnitude of the control signal stored in the storage circuit so as to normalize the gain of the channels connected to the teleconferencing bridge.

4,316,060

EQUALIZING SYSTEM

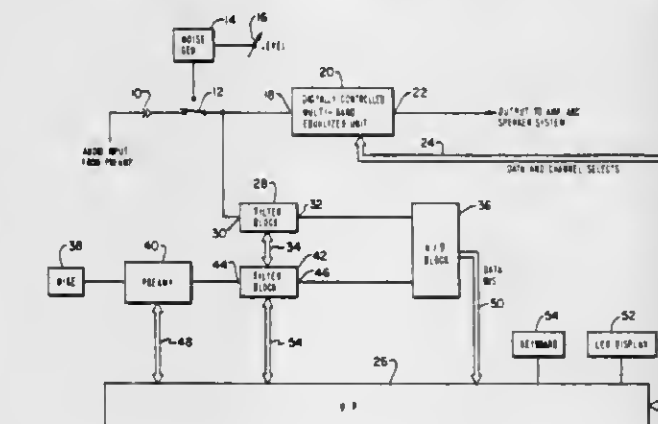
Robert W. Adams, Medford, and Leslie B. Tyler, Newtonville, both of Mass., assignors to DBX, Inc., Newton, Mass.

Filed Jan. 4, 1980, Ser. No. 109,487

Int. Cl.³ H03J 5/24

U.S. Cl. 179—1 D

25 Claims



1. For use in an audio signal processing apparatus of the type including a loudspeaker system, an equalizing system for modifying an input electrical signal to said loudspeaker system to provide a modified signal corrected for the inherent nonflat frequency response of said loudspeaker system and for acoustic effects of the environment in which said loudspeaker system is disposed, said equalizing system comprising:

- input terminal means for receiving said input electrical signal;
- output terminal means for coupling the output of said equalizing system to said loudspeaker system;
- detection means for detecting the acoustic output of said loudspeaker system generated in response to an input electrical signal applied to said input terminal means of said equalizing system and for generating a first electrical signal representative of said acoustic output of said loudspeaker system and as a function of said nonflat frequency

response of said loudspeaker system and the acoustic effects of said environment;

- first means for determining the signal energy content of each of a plurality of frequency bands within a predetermined frequency range of said first electrical signal;
- second means for determining the signal energy content of each of a like plurality of like frequency bands within a like frequency range of the input electrical signal;
- means for comparing the signal energy content of each of said frequency bands of said first electrical signal with the corresponding energy content of the respective like frequency band of said input electrical signal and for generating a correction signal in response to each such comparison; and
- modification means coupled between said input and output terminal means, and responsive to said correction signals for modifying said input electrical signal within each of the corresponding frequency bands thereof so as to produce said modified signal.

4,316,061

MINIMAL DELAY RATE-CHANGE CIRCUITS

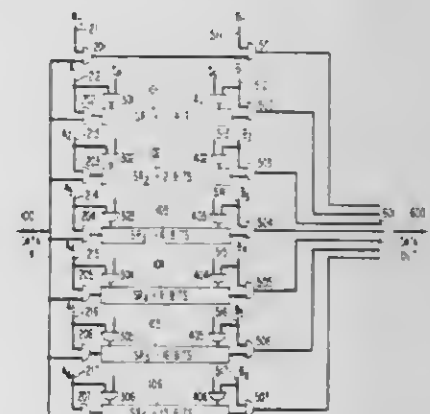
Syed V. Ahamed, 743 Davis Rd., Gillette, N.J. 07933

Filed Nov. 23, 1979, Ser. No. 96,690

Int. Cl.³ H04B 1/66

U.S. Cl. 179—15.55 T

11 Claims



1. Circuitry for transforming an input signal partitioned into blocks of samples to a rate-changed output signal

CHARACTERIZED BY

- means for sequentially storing a plurality of said samples in locations arranged in parallel between said input and said output and having lengths proportional to a geometric progression, and
- means for sequentially gating the contents of said locations during predetermined time intervals to said output.

4,316,062

ELECTROSTATIC ELECTROACOUSTIC TRANSDUCER

Harold N. Beveridge, 505 E. Montecito St., Santa Barbara, Calif. 93103

Filed Dec. 28, 1979, Ser. No. 108,065

Int. Cl.³ H04R 19/00, 31/00

U.S. Cl. 179—111 R

22 Claims



1. An electrostatic electroacoustic transducer including

electrode portions and frame portions, at least one of said frame portions comprising:

a length of metal having at least one face thereon and having a plurality of channels cut into said face; said length of metal being bent to surround one of said electrode portions; and, said channels being adjacent said one electrode portion and adapted to engage an adhesive material for affixing said frame-portion to said one electrode portion.

9. A method of fabricating an electrostatic electroacoustic transducer of the type which includes electrode portions and frame portions, said method comprising the steps of: forming said frame portion from a length of metal; locating a plurality of channels in a face of said frame portion; bending said frame portion to surround one of said electrode portions; placing an adhesive-filler material between said frame portion and said electrode portion so that said adhesive-filler extends into said channels; and permitting said adhesive-filler material to cure to form a frame-electrode assembly.

4,316,063

SWITCH OPERATING DEVICE

Christian Starck, Angoulême, France, assignor to La Telemecanique Electrique, France

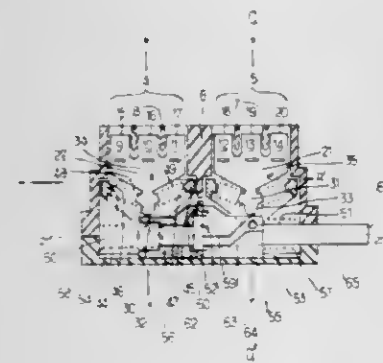
Filed Apr. 17, 1980, Ser. No. 141,089

Claims priority, application France, Apr. 18, 1979, 79 10573

Int. Cl.³ H01H 15/00

U.S. Cl. 200—16 C

4 Claims



1. A switch operating device comprising:

(i) a housing including:

(a) a cover portion having first and second parallel switching chambers placed side by side
(b) a base portion having first and second further chambers

(ii) first and second contact carriers movable in a first direction within the respective first and second switching chambers, and first and second pusher members integrally mounted on the first and second contact carriers and extending into the base portion, respectively

(iii) first and second frames respectively surrounding the first and second pusher members within the base portion and movable in said first direction

(iv) first and second resilient means respectively connecting the first and second pusher members to the first and second frames, said first and second resilient means respectively creating a dead center point for the first and second frames, respectively;

(v) first and second slides movable in a second direction at right angles with the said first direction within said first and second further chambers, each of said slides having first actuating ramps which cooperate with the respective pusher member and second actuating ramps cooperating with the respective frame;

(vi) first and second further resilient means respectively mounted in the first and second further chambers for

normally urging the respective first and second slides one towards the other along said second direction, and

(vii) an elongated control member respectively movable within the base portion along the said second direction, said control member having means for driving the first and second slides in opposite senses away from each other, said control members having an extension located outside the housing.

4,316,064

REMOTE OPERATION DEVICE

Hitoshi Fujino, Furukawa, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan

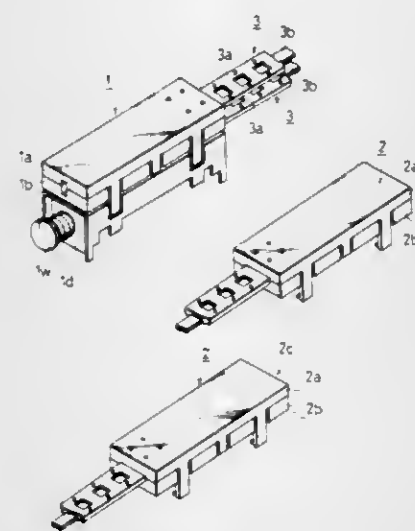
Filed May 30, 1980, Ser. No. 155,145

Claims priority, application Japan, May 31, 1979, 54/73646

Int. Cl.³ H01H 3/00, 15/00

U.S. Cl. 200—17 R

3 Claims



1. A remote operation device for interconnecting a plurality of remote electric components operated by slide elements with a single actuator for operating each of said remote electric components upon operation of said actuator, including a plurality of resilient interconnection members each adapted to engage a respective one of said remote electric components and including a sleeve member slidably receiving a slide member, said sleeve members each including means on one end portion for attaching it to the slide element of a respective electric component and means at its other end portion for attaching it to said actuator, whereby each of said electric components may be widely spaced and yet operated simultaneously by operation of said actuator.

4,316,065

PLUNGER SWITCH

Gerhard H. Rupp, and Hans F. Schneider, both of Radolfzell, Fed. Rep. of Germany, assignors to TRW Inc., Cleveland, Ohio

Filed Nov. 9, 1979, Ser. No. 92,882

Claims priority, application Fed. Rep. of Germany, Nov. 10, 1978, 2848875

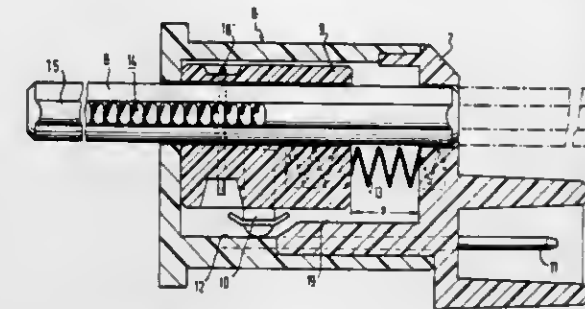
Int. Cl.³ H01H 3/14

U.S. Cl. 200—61.89

10 Claims

1. A plunger switch which is particularly adaptable for use as an automotive vehicle brake light switch comprising a switch housing, a plunger partially disposed both inside and outside the housing, said plunger carrying one of a pawl and a ratchet, electrical terminals mounted in the housing, a movable element mounted on the plunger, said movable element carrying one of a pawl and a ratchet, and a switch contact part mounted on the movable element and engageable with the terminals, said pawl and ratchet being in engagement with one another to couple the movable element to the plunger so that

the element travels reciprocally and linearly relative to the housing responsive to depression and release of the plunger



and the plunger is linearly adjustable relative to and independently of any movement of the movable element.

4,316,066

KEY SWITCH WITH SNAP-ACTION CONTACT AND RESILIENT ACTUATOR

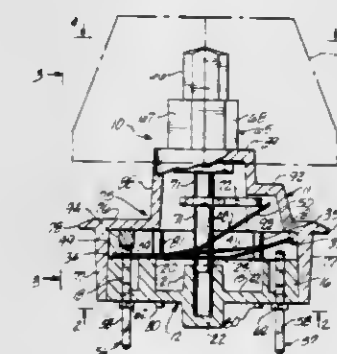
Michael Muller, Newport Beach; Reed A. Palmer, Irvine, and Harry R. Marker, Costa Mesa, all of Calif., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Continuation of Ser. No. 73,994, Sep. 10, 1979, abandoned. This application Nov. 28, 1980, Ser. No. 211,428

Int. Cl.³ H01H 5/20, 13/38

U.S. Cl. 200—670

22 Claims



1. A key switch comprising:

a housing;

first and second terminals secured to the housing, the first terminal having a portion defining a fixed switch contact; a bi-stable snap-action conductive spring secured to the housing and in electrical connection with the second terminal, said snap-action spring being movable between first and second bi-stable positions and having a portion defining a movable switch contact positioned above and normally out of engagement with the fixed contact in said first position;

an actuator spring secured at one end to the housing and having a free end and an intermediate portion located between said one end and said free end, said intermediate portion being disposed above said snap-action spring, said free end being movable downwardly to urge said intermediate portion against the snap-action spring;

a keystone slidably mounted on the housing above said springs and having a portion positioned to bear on the free end of the actuator spring, downward depression of said keystone causing an actuating force to be applied through said intermediate portion of the actuator spring to the snap-action spring to bring said movable switch contact into engagement with said fixed switch contact, the direction of the actuating force being generally parallel to the direction of keystone motion; and said snap-action spring returning by its inherent resilience to said first position when the downward pressure on said keystone is released.

12. A key switch comprising:

a housing including a base and a cover;

a fixed switch contact on said base;

a bi-stable snap-action conductive spring secured to the housing, said snap-action spring being movable between first and second bi-stable positions and having a portion defining a movable switch contact positioned above and normally out of engagement with the fixed contact in said first position;

an actuator spring secured at one end to the housing and having a free end and a second portion, said second portion being closer to said one end than is said free end, said second portion being disposed above said snap-action spring, said free end being movable downwardly to urge said second portion against the snap-action spring;

a keystone slidably mounted on the housing above said springs and having a portion positioned to bear on the free end of said actuator spring, downward depression of said keystone causing an actuating force to be applied through said second portion of the actuator spring to the snap-action spring to bring said movable switch contact into engagement with said fixed switch contact, the direction of the actuating force being generally parallel to the direction of keystone motion;

said snap-action spring returning by its inherent resilience to said first position when the downward pressure on said keystone is released;

said snap-action spring being a generally rectangular sheet of spring metal having a pair of parallel sides and two generally parallel ends;

said sheet being bowed between said sides to provide an upraised intermediate section engageable by said second portion of said actuator spring;

said intermediate section embodying said movable switch contact; and

said ends having grooves formed therein stressing said sheet into said bowed configuration.

4,316,067

SLIDE SWITCH

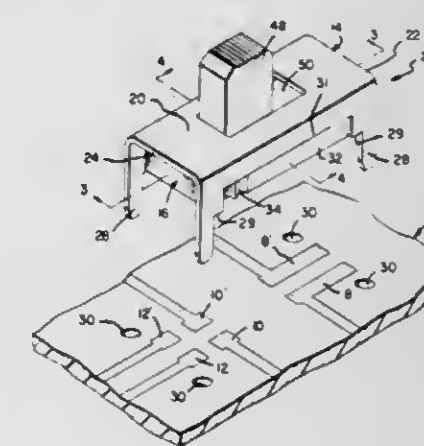
Robert N. Whiteman, Jr., Middletown, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Mar. 31, 1980, Ser. No. 135,815

Int. Cl.³ H01H 9/00, 15/00

U.S. Cl. 200—291

11 Claims



1. A slide switch which is intended for mounting on a circuit board having first and second terminal pads on one surface thereof, said switch comprising:

a switch housing and a slide member, said housing being generally channel-shaped and having a web, sidewalls and means for mounting said housing on said one surface with edge portions of said sidewalls against said one surface and with said web spaced from said one surface, said slide member comprising a block of insulating material slideably contained between said sidewalls for movement parallel to the axis of said housing, said slide member having inwardly and outwardly directed major surfaces, said inwardly directed major surface being opposed to the

internal surface of said web, said outwardly directed major surface facing outwardly from said housing, a contact member mounted on said outwardly directed major surface, said contact member having spaced-apart contact portions and a connecting strip extending between said contact portions, said contact portions being spaced outwardly from said outwardly directed major surface and located proximate to the ends of said slide member, spring means effective between said contact member and said outwardly directed major surface, said spring means serving to bias said contact portions outwardly from said outwardly directed major surface while permitting movement of said contact portions towards said outwardly directed major surface and

interengaging means effective between said housing and said slide member serving to retain said slide member in said housing, said interengaging means permitting sliding movement of said slide member relative to said housing whereby, upon mounting said switch on said circuit board in covering relationship to said terminal pads, said spring means will bias said contact portions against said one surface of said circuit board, and said slide member can be moved between first and second positions in which said contact portions are against both of said terminal pads and are not against both of said terminal pads respectively.

4,316,068

COOKING UTENSIL CONTROLLED BY GAS SENSOR OUTPUT AND THERMISTOR OUTPUT

Takeshi Tanabe, Higashiosaka, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

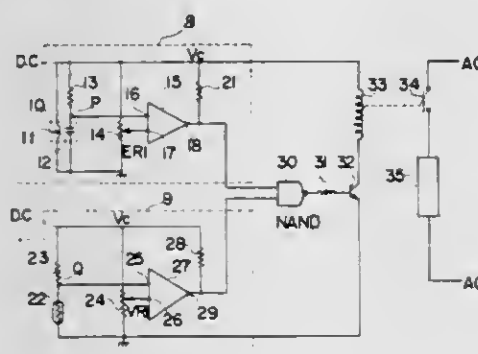
Filed Jan. 17, 1980, Ser. No. 113,073

Claims priority, application Japan, Jan. 25, 1979, 54-7729

Int. Cl.³ H05B 6/68, 1/02

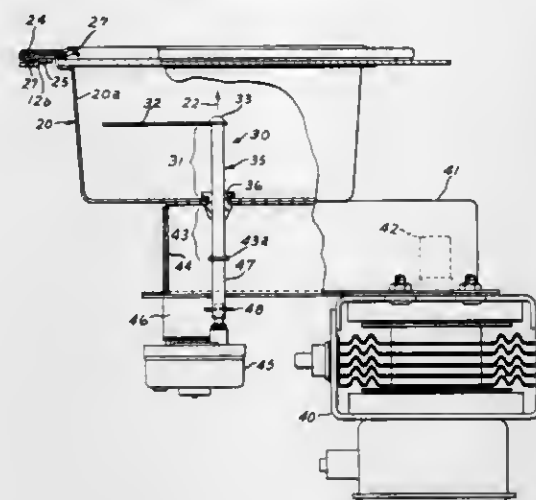
U.S. Cl. 219—10.55 B

5 Claims



1. A cooking utensil comprising: heat generating source means for cooking a foodstuff disposed in the cooking utensil; gas sensor means for detecting the concentration of a gas emitted from the foodstuff being cooked in the cooking utensil and developing a first detection signal when the concentration of said gas exceeds a first reference level; temperature sensor means for detecting the temperature of the foodstuff being cooked in the cooking utensil and developing a second detection signal when the temperature of the foodstuff exceeds a second reference level; and a control circuit for controlling the operation of said heat generating source means, said control circuit comprising: determination means responsive to the first and second detection signals for developing a control signal when both said gas sensor means and said temperature sensor means develop said first and second detection signals, respectively; and driver means responsive to said control signal for terminating the operation of said heat generating source means in response thereto.

4,316,069
MICROWAVE OVEN EXCITATION SYSTEM
Louis H. Fitzmayer, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.
Filed Dec. 3, 1979, Ser. No. 99,454
Int. Cl.³ H05B 6/72
U.S. Cl. 219—10.55 F 16 Claims



1. A microwave oven excitation system for an oven cavity having top, bottom and side walls, the system comprising: a waveguide section adapted to be in microwave energy communication with the oven cavity through one of said walls comprising an entrant wall of the oven cavity; movable antenna means mounted completely within the waveguide section having a first segment parallel to the propagation axis of the waveguide and a second segment orthogonal to said axis; means for moving the antenna; and means for coupling microwave energy to the antenna to excite a moving asymmetric electric field within the waveguide as the antenna is moved, said field having a substantial energy mode parallel to the entrant wall of the oven cavity, whereby said moving asymmetric electric field is coupled through said entrant wall to excite within the oven cavity a time varying electric field pattern of desirable average uniformity during a cooking cycle.

4,316,070
COOKWARE WITH LIQUID MICROWAVE ENERGY MODERATOR

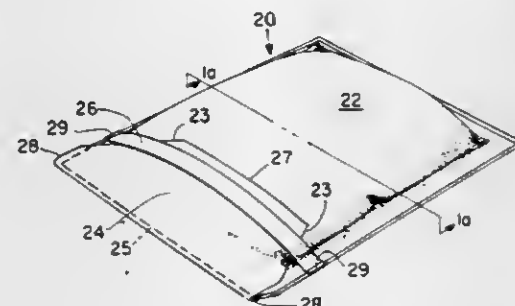
Robert L. Prosser, Algis S. Leveckis, and Charles L. Gunn, all c/o Ivorydale Tech. Center, Cincinnati, Ohio 45217

Filed Aug. 21, 1979, Ser. No. 68,357

Int. Cl.³ H05B 6/80

U.S. Cl. 219—10.55 E

47 Claims



1. Cookware for cooking foods evenly in a microwave oven comprising a vented enclosure transmissive of microwave energy, being microwave oven compatible up to at least 150° C., said enclosure having an inner layer of liquid of from 4 to 120 mg./cm.², retained by a liquid film forming layer held within said enclosure, said enclosure having an adjusted technical evenness of greater than zero for 10 minutes and a technical evenness rating above 0.3.

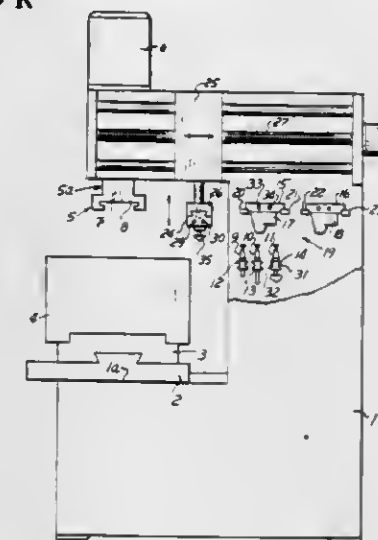
nical evenness of greater than zero for 10 minutes and a technical evenness rating above 0.3.

4,316,071
EDM APPARATUS WITH TOOL CHANGER
Benno I. Bonga, Crans, Switzerland, assignor to Ateliers des Charmilles S.A., Geneva, Switzerland
Filed Feb. 25, 1980, Ser. No. 123,994
Claims priority, application Switzerland, Mar. 9, 1979, 2277/79

Int. Cl.³ B23P 1/12

U.S. Cl. 219—69 R

5 Claims



1. An EDM apparatus for machining by electrical discharges an electrode workpiece by means of a plurality of electrode tools, said apparatus comprising a quill adapted to mount any one of said electrode tools, an electrode tool storage magazine for storing said electrode tools, a tool changer carriage for carrying said electrode tools from said storage magazine to said quill and from said quill back to said storage magazine, and electrode tool holder means on the end of said quill accepting at least two different types of electrode tool supports each in a predetermined position, said electrode tool holder means comprising at least a tapered bore and a plane support surface adapted to co-operate respectively with an electrode tool support having a tapered shank and an electrode tool support having a mounting plate wherein some of the electrode tool supports are one of said different types of supports having a tapered shank and some the other of the electrode tool supports are the other of said different types of supports having a mounting plate, and said electrode tool supports have a portion mating with tool carrying means on said tool changer carriage.

4,316,072
APPARATUS FOR POSITIONING AND SECURING COMPONENTS OF A WORKPIECE
Peter J. Arnoldt, Clairton, Pa., assignor to Ductmate Industries, Inc., Pittsburgh, Pa.

Filed Sep. 17, 1979, Ser. No. 76,207

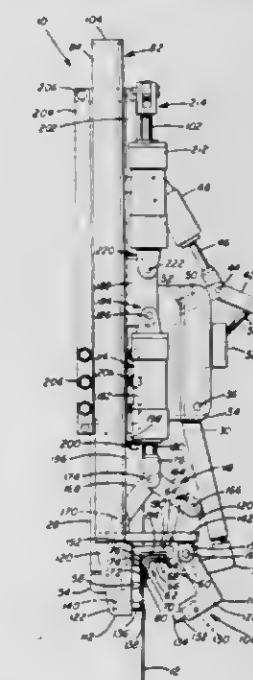
Int. Cl.³ B23K 11/10, 11/32, 37/04

U.S. Cl. 219—86.24

9 Claims

1. Apparatus for positioning and securing components of a workpiece comprising, a welding machine frame, said welding machine frame being fixedly positioned, a welding machine positioned for longitudinal movement on said welding machine frame, said welding machine including a pair of opposed electrode devices adaptable to apply welding pressure to the workpiece components and transmit welding current to the workpiece components for welding the components together, means connected to at least one of said pair of electrode devices and said welding machine for moving one of said pair of electrode devices into and out of welding position, guide means positioned on said welding machine frame for slidably supporting said movable welding machine for

longitudinal movement on said welding machine frame into and out of a predetermined position for welding, clamping means secured to said welding machine frame for engaging a first workpiece component to secure said first workpiece component on said welding machine frame in fixed position relative to the movable welding machine, said clamping means being movable into and out of engagement with said first workpiece component, a positioning member fixedly attached to said movable welding machine and being adapted to abut a second workpiece component, said positioning member being movable with said movable welding machine to move said second workpiece component to a predetermined position relative to said first workpiece component for welding said second workpiece component to said first workpiece component,



actuating means mounted on said frame and operatively connected to said welding machine for advancing said welding machine on said guide means to simultaneously move said welding machine and said positioning member to move said second workpiece component relative to said first workpiece component into said predetermined position for welding said second workpiece component to said first workpiece component, said pair of electrode devices being movable into welding position after said workpiece components are moved into said predetermined position for welding, and said positioning member being arranged to move said second workpiece component relative to said first workpiece component to a preselected location on said first workpiece component for welding while said clamping means engaged to said first workpiece component maintains said first workpiece component fixed relative to said movable welding machine and said positioning member.

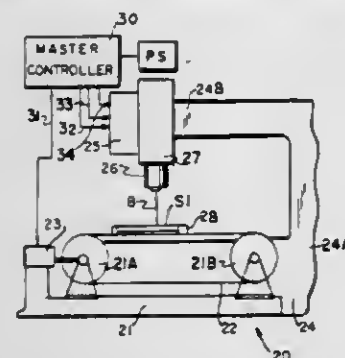
4,316,073
DOCUMENT RECORDING METHOD
Jerome H. Lemelson, 85 Rector St., Metuchen, N.J. 08840
Continuation-in-part of Ser. No. 523,865, Nov. 14, 1974, abandoned. This application Feb. 10, 1978, Ser. No. 831,173
Int. Cl.³ G01D 15/14

U.S. Cl. 219—121 LL

8 Claims

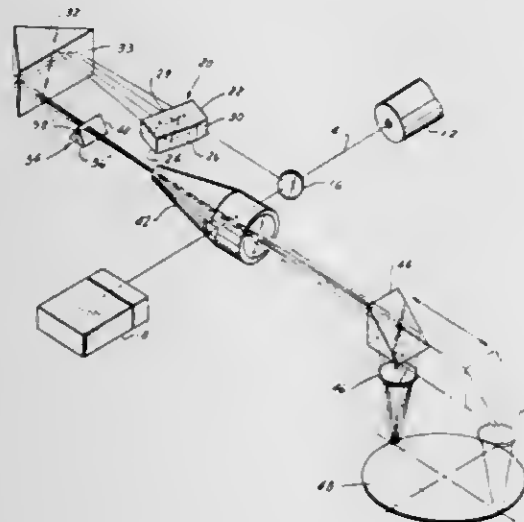
8. A method for producing multiple copies of information comprising the steps of: generating radiation from a source as a beam of sufficient intensity to pass through and change the physical characteristics of a plurality of record sheets, multiple axis deflection controlling said beam by pivoting said source about two mutually perpendicular axes to move said beam in two directions so as to define a scan-

ning path at a recording zone which defines the contours of a plurality of selected characters, predeterminately interrupting said beam by pulsing said beam at its source in synchronization with the multiple axis deflection thereof so as to generate and direct pulses of intense radiation against the surface of a first sheet of record material wherein said beam is interrupted and deflection controlled in such a manner that a plurality of such pulses intersect each character location of said sheet and physically change selected spot-like portions of each of said character locations by means of the heat of said pulsed radiation to effect recordings in said first sheet defining an alphanumeric character at each of said loca-



tions wherein each of said character recordings comprises a plurality of spot-like changes in the physical characteristics of said sheet which spot-like changes are predeterminately located within each character recorded, and disposing a second sheet behind said first sheet and sequentially passing said pulses of beam radiation through said first sheet to said second sheet at sufficient intensity to effect a plurality of character defining recordings in selected locations of said second sheet which recordings are of substantially the same nature and configurations as the recordings defined by the spot-like changes affected by said pulses beam radiation in said selected locations of said first sheet.

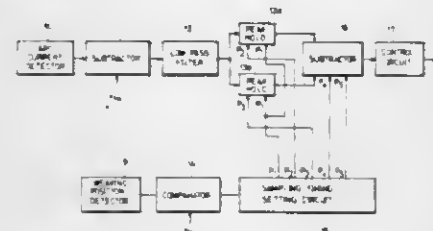
4,316,074
METHOD AND APPARATUS FOR LASER IRRADIATING SEMICONDUCTOR MATERIAL
Richard T. Daly, Huntington, N.Y., assignor to Quantronix Corporation, Smithtown, N.Y.
Filed Dec. 20, 1978, Ser. No. 971,515
Int. Cl.³ B23K 27/00
U.S. Cl. 219—121 L 28 Claims



1. A laser system for treating semi-conductor wafer material, comprising:
a pulsed laser assembly for emitting a beam of sufficient power to treat the semi-conductor material;
a surface upon which at least one semi-conductor target wafer may be placed;
means for directing the beam from said laser assembly to said surface, the directing means including means for permit-

ting the irradiated portions to cool before at least a portion of another beam strikes the same irradiated portion;
means for providing relative rotational movement between said directed beam and said surface in order to irradiate selected portions of the surfaces of the wafers; and
the means for permitting the irradiated portions to cool including means for emitting a plurality of beams in a staggered configuration with respect to one another such that when said means for providing relative movement is actuated, there is sufficient time for an irradiated spot to cool before at least part of another beam strikes the same irradiated spot.

4,316,075
AUTOMATIC WELDING POSITION CONTROL METHOD, AND DEVICE
Toshisuke Isoya, Masayuki Mishiro, and Naohiko Yokoshima, all of Hirakata, Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan
Filed Apr. 8, 1980, Ser. No. 138,292
Int. Cl.³ B23K 9/12
U.S. Cl. 219—124.22 4 Claims

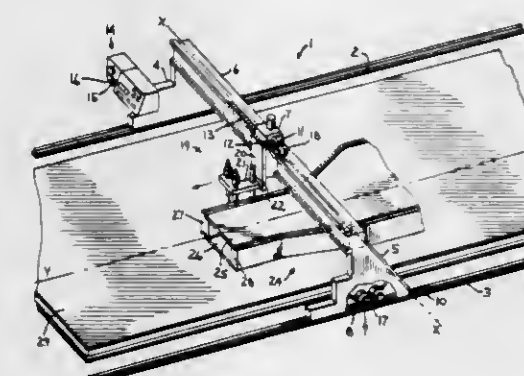


1. An automatic welding position control device comprising:
weaving position detecting means for providing a substantially continuous weaving position signal proportional to the position of a reciprocating welding torch;
arc current detecting means for detecting welding arc current;
means for providing a control pulse when an output level of said weaving position detecting means is larger than a predetermined value;
a sampling timing setting circuit for producing sampling pulses and a subtraction instruction pulse in predetermined time relation to said control pulse;
a pair of holding means for sampling an output of said arc current detecting means in response to said sampling pulses and holding a sampled peak value thereof;
a subtractor for providing a signal proportional to the difference between the outputs of said holding means in response to the subtraction instruction pulse; and
a control circuit for shifting said welding torch to a correct position above the welding line according to said difference.

4,316,076
AUTOMATIC SPEED CONTROL FOR SEAM WELDING
Fredrick J. Balfanz, Waukesha, Wis., assignor to C-R-O, Inc., Menomonee Falls, Wis.
Filed Dec. 31, 1979, Ser. No. 102,521
Int. Cl.³ B23K 9/12
U.S. Cl. 219—124.34 8 Claims

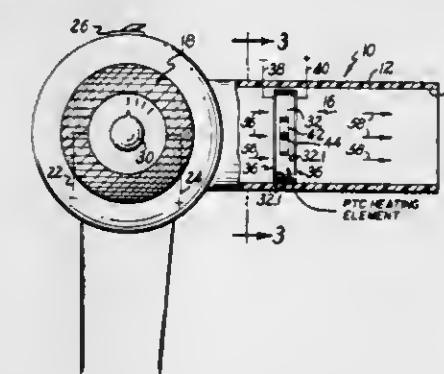
1. In a welding machine for joining first and second metal parts positioned to form a weld groove therebetween and wherein the groove randomly deviates in width from the desired uniform width, the combination comprising:
(a) a machine frame,
(b) a carriage mounted to said frame,
(c) a weld head suspended from said carriage for traversing said groove,
(d) motive means to drive said carriage and weld head at a given speed relative to said groove,
(e) control means suspended from said carriage in advance of said weld head and connected for movement with the latter and responsive to the said random deviations in

groove width to automatically change the drive speed of said motive means in accordance with said deviations,
(f) said control means including first and second sensors engageable separately with each of said first and second metal parts,
(g) said first sensor being disposed to engagingly follow a wall of said groove formed by said first metal part, and with said first sensor being disposed in advance of and connected to said weld head,



(h) position control means responsive to said first sensor for controlling the position of said weld head during traverse of the groove by said head,
(i) said second sensor being disposed to engagingly follow a surface of said second metal part exteriorly of said groove, said second sensor having a portion fixedly connected to a portion of said first sensor,
(j) and speed control means responsive to said second sensor for controlling the drive speed of said motive means.

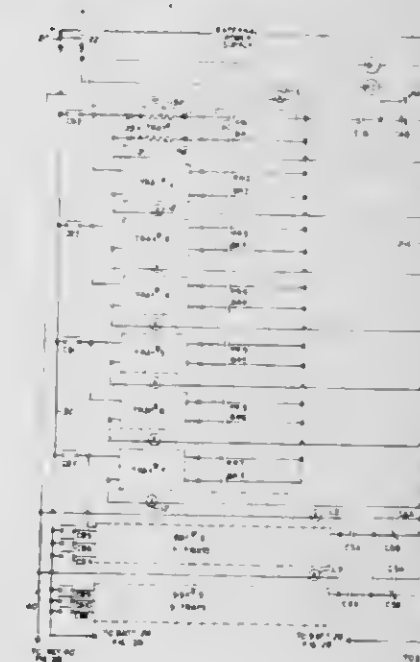
4,316,077
ELASTIC HAIR DRYER HAVING SELECTIVELY VARIABLE AIR OUTPUT TEMPERATURE
Richard H. Carlson, Cumberland, R.I., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Dec. 31, 1975, Ser. No. 645,861
Int. Cl.³ A45D 20/10; F24H 3/04; H05B 3/12
U.S. Cl. 219—370 2 Claims



1. A hair dryer comprising housing means defining an air path having an inlet portion and having an outlet portion shaped to commingle air directed along the path, means moving a stream of air along said path to be directed from said dryer through the outlet portion of the path, a heater body of electrical resistance material of positive temperature coefficient of resistivity adapted to be self-heated when electrical current is directed through the body and to display a sharp increase in electrical resistivity when heated to a selected temperature for limiting said self-heating, said body having a plurality of air flow passages extending through the body, means for directing electrical current through the body, and means mounting the body for movement between a first position in the path permitting a selected proportion of the stream

of air moving in the path to pass in heat-transfer relation to the body through said body passages to withdraw heat from the body for heating said air and for tending to maintain the resistivity of the body material at a relatively low level to enhance heat output by the body and a second position permitting a relatively lesser proportion of the stream of air moving in the path to pass in heat-transfer relation to the body through the body passages and to commingle in the outlet portion of the path with other air moving along the path outside the body passages for regulating the temperature to which the air is heated while moving along the path and while assuring that any resulting reduction in heat-withdrawal from the body results in increased resistivity of the body material for avoiding overheating of the body, said housing means defining said air path with a portion thereof of selected cross-sectional area and said heater body having a disc-shape with broad opposite side surfaces and having said body passages extending through the body between said opposite surfaces, said body being mounted in said air path portion for movement between said first position wherein said broad surfaces extend normal to the longitudinal axis of the path so that substantially all of the stream of air moving in the air path portion passes in heat-transfer relation to the body through the body passages and said second position wherein said body surfaces extend obliquely relative to the longitudinal axis of the path permitting a relatively less proportion of the stream of air moving in the air path portion to pass in heat-transfer relation to the body through the body passages and permitting other air moving in the air path portion to pass around the heater body and to commingle with the air passed through the body passages.

4,316,078
FOOD SERVING SYSTEM
Anthony C. Mack, North Reading; Robert A. Phillips, Wayland, and George K. Shumrak, Natick, all of Mass., assignors to Sweetheart Plastics, Inc., Wilmington, Mass.
Continuation-in-part of Ser. No. 868,072, Jan. 9, 1978, abandoned. This application Dec. 26, 1979, Ser. No. 106,460
Int. Cl.³ H05B 1/02 22 Claims



1. A mobile food serving system for rethermalizing food and maintaining food temperature after rethermalization, said system comprising:
mobile housing means having at least one tray supporting rack,
an electrical energy source carried by and movable with the housing means,
a tray removably supported on the rack and having a supporting surface for food containers,
at least one food heater associated with the supporting sur-

face and in thermal contact with a surface of the tray for good heat transfer thereto, selectable means in series with said heater for enabling coupling of energy source power to the heater, and control means coupled from the energy source for controlling food heating and temperature, said control means including manual mode control switch means having opposite mutually-exclusive single positions including a normal position associated with a normal heating period of the food, and a rethermalization position associated with a rethermalization period, means responsive to the normal operation position for coupling operating power to the food heater at a continuous rate with the switch means set at and maintained at said single normal position throughout said normal operation position, and first means responsive to the rethermalization position and including first timing means for coupling operating power to the food at a continuous rate for a predetermined interval of sufficient length to rethermalize the food at a first temperature range and second means responsive to termination of the predetermined interval for thereafter operating the heater at a lower power level to maintain the food heated to a second temperature range lower than the first temperature range, said switch means being set at and maintained at said single rethermalization position throughout both portions of said rethermalization period.

4,316,079

CONTROL ARRANGEMENT FOR SELF-CLEANING OVEN

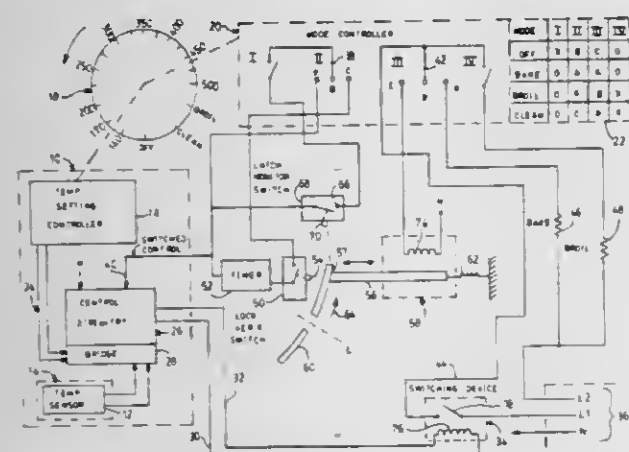
Charles J. Schmitz, Rolling Meadows, Ill., assignor to Harper-Wyman Company, Hinsdale, Ill.

Filed Jan. 21, 1980, Ser. No. 113,733

Int. Cl.³ H05B 1/02

U.S. Cl. 219-413

14 Claims



1. A control arrangement for a self-cleaning oven, said control arrangement comprising: control means for controlling the selective operation of an oven cavity heat generating apparatus, said control means comprising a temperature sensing element arranged to sense oven cavity temperatures and selector means manually settable by an operator for selecting oven cavity temperatures in a normal cooking mode and a self-clean mode, said selector means further comprising means for determining operational oven modes including at least one normal cooking mode, a self-clean mode and an oven door unlock mode, said control means further comprising electrical circuit means responsive to said temperature sensing element and said selector means for outputting a control signal having a first output state when said sensed oven cavity temperature is below the temperature selected by said selector means and a second output state when said sensed temperature is above the temperature selected by said selector means, said control means further comprising means responsive to said selector means for providing a temperature set point input to said electrical circuit means; lock means including a lock control input for selectively

locking a door latching arrangement in the closed position of an oven door when the oven door is closed and the door latching arrangement is operated; and lock and temperature mode means responsive to said control signal of said electrical circuit means and connected to said lock control input of said lock means and to the heat generating apparatus for controlling said lock means and the heat generating apparatus in accordance with said sensed temperature, said lock and temperature mode means also being responsive to said selector means to control said lock means when said selector means is in the oven door unlock mode and to control the heat generating apparatus when said selector means is in the normal cooking mode or the self-clean mode.

4,316,080

TEMPERATURE CONTROL DEVICES

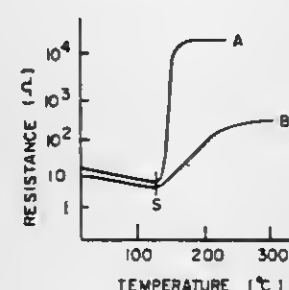
Theodore Wroblewski, 46 Reservoir Dr., Danvers, Mass. 01923

Filed Feb. 29, 1980, Ser. No. 125,799

Int. Cl.³ H05B 1/02

U.S. Cl. 219-505

8 Claims



1. An automatic temperature control circuit adapted to connect to a source of electrical current, said circuit comprising a resistive heating element and a thermistor having a positive temperature coefficient shunting at least a portion of said heating element, said thermistor further being characterized as having a base resistance below a selected temperature and a relatively low proportional rate of increase of resistance with increasing temperature over the entire temperature operating range above the selected temperature for automatically proportionally controlling the heat provided by said heating element when the temperature is above the selected temperature.

4,316,081

ELECTRONIC DIGITAL TAPE MEASURE HAVING FLEXIBLE MEASURING TAPE

Isamu Washizuka, Soraku, and Iwao Tateishi, Yamatokoriyama, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

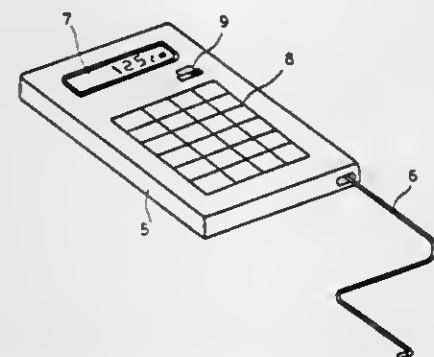
Filed Feb. 28, 1979, Ser. No. 16,077

Claims priority, application Japan, Mar. 2, 1978, 53-27156[U]

Int. Cl.³ G01B 3/12; G06M 3/14

U.S. Cl. 235-92 DN

7 Claims



1. An electronic digital tape measure comprising: an extensible and flexible tape including a plurality of discrete magnetic members, and

a plurality of discrete nonmagnetic members alternately disposed between said magnetic members, said nonmagnetic members spacing said magnetic members at predetermined intervals from each other; detector means for sensing the presence of each of said magnetic members which pass said detector means as said tape is extended and for generating a signal in response thereto; and counter means responsive to the signal generated by said detector means for accumulating a count representative of the number of magnetic members sensed by said detector, said count being representative of the length of said tape.

4,316,082

COMPUTER CONTROL APPARATUS

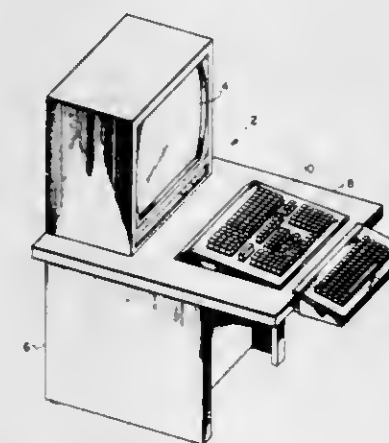
John R. Fritz, Phoenix, Ariz., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Feb. 6, 1980, Ser. No. 119,125

Int. Cl.³ G06C 7/02

U.S. Cl. 235-146

4 Claims



1. A computer interface control console arranged to interface with a digital computer, said console comprising: a base member having a top member, an operator's keyboard mounted on the surface of said top member of said base member for connection to said computer to effect operational control interface with said computer, an engineer's keyboard for connection to said computer to enable the making of engineering changes in said computer operation, mounting means for movably mounting said engineer's keyboard on said top member for movement between an operational position in front of said top member and a retracted stored position at the underside of said top member, said mounting means including a mounting bracket secured to the underside of said top member, a pair of support guide members secured to said mounting bracket, said engineer's keyboard includes a pair of cantilever support arms extending therefrom, and guide means carried by said support arms in engagement with said guide members on said mounting bracket for movably supporting said engineer's keyboard through said two positions.

4,316,083

LOGIC CONTROL SYSTEM FOR A BISTABLE MAGNETIC WIRE BADGE READING SYSTEM

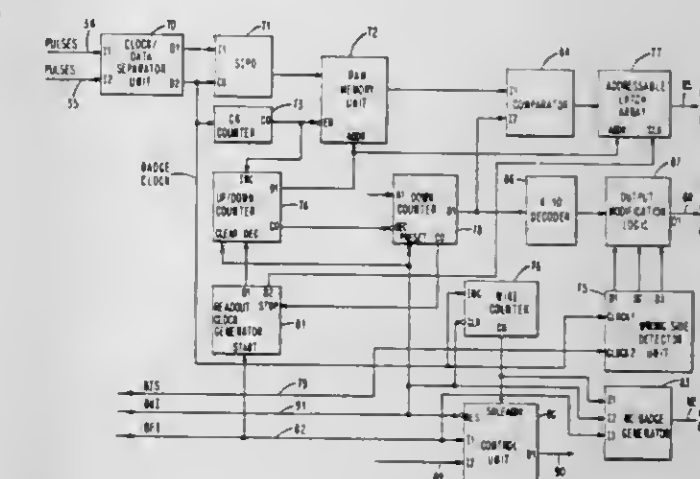
Richard G. Harris, Franklin, and Neil W. Harman, Marlboro, both of Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Aug. 5, 1980, Ser. No. 175,462

Int. Cl.³ G06K 7/08, 19/08

U.S. Cl. 235-449

3 Claims



1. A logic control system for a bistable magnetic wire badge reading system in electrical communication with a local controller, said badge reading system including sensor means for detecting the progress of a badge along an insertion path of a badge receiving means internal to said reading system, bistable magnetic wire detector means for sensing bistable magnetic wire logic patterns in said badge and generating binary coded information streams representative of said logic patterns, said logic control system which comprises:

- pulse discrimination means receiving said information streams from said bistable magnetic wire detector means for forming therefrom a data pulse stream and a logic control pulse stream;
- data formatting means responsive to said logic control pulse stream for reforming said data pulse stream into a two-dimensional data matrix row and column format for processing by said local controller;
- badge orientation detection means in electrical communication with said pulse discrimination means and said sensor means for interrogating said logic control pulse stream in time relation with logic signals received from said sensor means to signal the occurrence of data error conditions to said local controller; and
- counter means responsive to said logic control pulse stream for counting the number of bistable magnetic wire logic patterns detected by said bistable magnetic wire detector means in passing through registration with said badge and issuing a logic equivalence signal upon the occurrence of a predetermined count to indicate the presence of a valid badge to said local controller.

4,316,084

LIGHT TRACKING DETECTORS AND HOUSING THEREFOR

Alton H. Stout, 9730 S. Sheridan Rd., Fenwick, Mich. 48834

Filed Dec. 17, 1979, Ser. No. 104,268

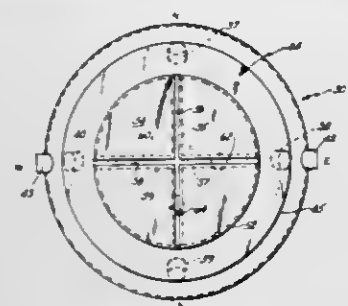
Int. Cl.³ G01J 1/20

U.S. Cl. 250-203 R

14 Claims

1. A sensor for a light tracking device comprising: a mounting base; a plurality of light detectors mounted to said base in spaced relationship to one another; shade means mounted to said base for shading light directed toward said detectors; and target means positioned on said base between said light detectors, said target means including a pair of elongated

recesses formed downwardly therein and extending in orthogonal relationship to one another, said target means



including a recessed light detector mounted under each recess to receive light falling only within its associated recess.

4,316,085

AUTOMATIC FOCUSING ADJUSTOR DEVICE

Takeo Saito; Hiroaki Ishida; Takashi Segawa; Shinji Nagaoka, and Yuzuru Takazawa, all of Shikawatahshi, Japan, assignors to Seiko Koki Kabushiki Kaisha, Tokyo, Japan

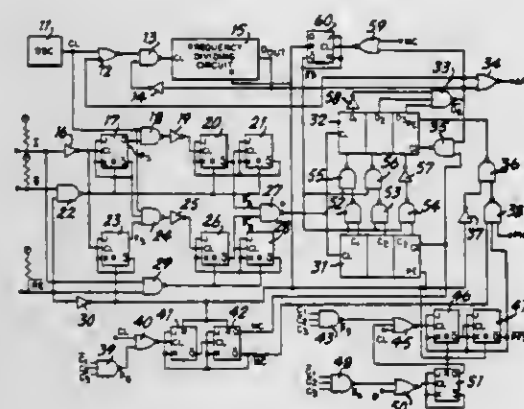
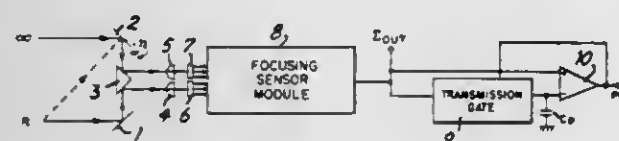
Filed May 16, 1980, Ser. No. 150,666

Claims priority, application Japan, May 17, 1979, 54-60819

Int. Cl.³ G03B 13/20

U.S. Cl. 250-204

8 Claims



1. An automatic focusing adjustor device comprising: a focus sensor device having a fixed mirror and a movable mirror in which optical images reflected from each of the mirrors are photoelectrically compared with each other to generate a focusing sensor signal corresponding to the distance to an object to be photographed; and adjusting means responsive to a condition when said focusing sensor signal is not obtained and responsive to a brightness signal representative of an object to be photographed for performing distance adjustment in two steps.

4,316,086 METHOD AND APPARATUS FOR MEASURING NEUTRON CHARACTERISTICS OF MATERIAL SURROUNDING A BOREHOLE

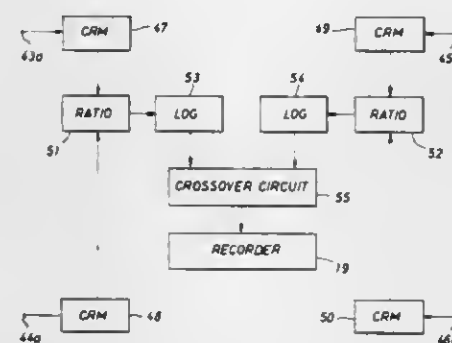
Eric C. Hopkinson, Houston, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Jul. 28, 1980, Ser. No. 172,605

Int. Cl.³ G01V 5/00

U.S. Cl. 250-262

19 Claims



1. A method for logging the formations surrounding a borehole, comprising the steps of: pulsedly irradiating said formations with discrete bursts from a source of high energy neutrons; detecting radiations emanating from said irradiated formations at a detector spaced from said source; generating from said detected radiations first and second measurements of the macroscopic thermal neutron absorption cross-section of said formations; and selectively recording one of said measurements based upon a functional relationship to a predetermined reference value.

4,316,087

METHOD OF PHOTOGRAPHING ELECTRON MICROSCOPE IMAGES ON A SINGLE PHOTOGRAPHIC PLATE AND APPARATUS THEREFOR

Takashi Yanaka, Hino, and Kohei Shiota, Akikawa, both of Japan, assignors to International Precision Incorporated, Hachioji, Japan

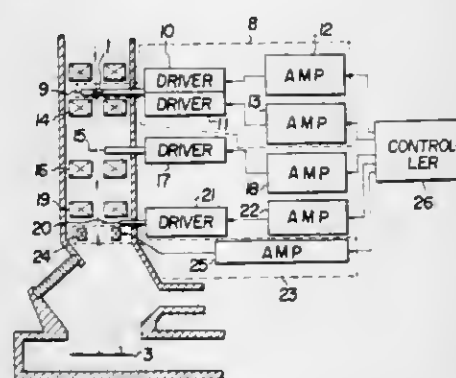
Filed Oct. 30, 1979, Ser. No. 89,371

Claims priority, application Japan, Nov. 1, 1978, 53-133774

Int. Cl.³ G01N 23/00

U.S. Cl. 250-307

9 Claims



1. A method of photographing electron microscope images of different portions of a specimen included in the view of the observation, one after another, on corresponding portions of a

single photographic plate, which method comprises the steps of:

selecting a portion of said specimen as a section of observation, and obtaining only the electron beam which emerges from said selected portion of the specimen; applying the electron beam emerging from the selected portion of said specimen to an intermediate lens and a projector lens, on or near the axis thereof; selecting a portion of the photographic plate as a sectional position of exposure which corresponds to the position relative to the view of the observation where said selected portion of the specimen should be imaged, and deflecting the electron beam passed through the intermediate lens and projector lens at a position between the projector lens and the photographic plate to said selected portion of the photographic plate; exposing the electron beam emerging from said selected portion of said specimen to said selected portion of the photographic plate; and repeating the above steps by selecting other portions of the specimen different from said portion, one after another, applying the electron beam emerging from a selected other portion of said specimen to the intermediate lens and the projector lens, deflecting the electron beam passed through the intermediate lens and the projector lens at the position between the projector lens and the photographic plate to another selected portion of the same photographic plate as that used in the former exposing step, and exposing the deflected electron beam.

4,316,088

PROCESS AND DEVICE FOR MEASURING BY INFRARED THERMOMETRY THE TEMPERATURE OF A WIRE, BAR OR TUBE, OR A METAL

Robert Corbier, Lyons, and Robert Arnaud, La Celle Saint Cloud, both of France, assignors to I.R. Tec, France

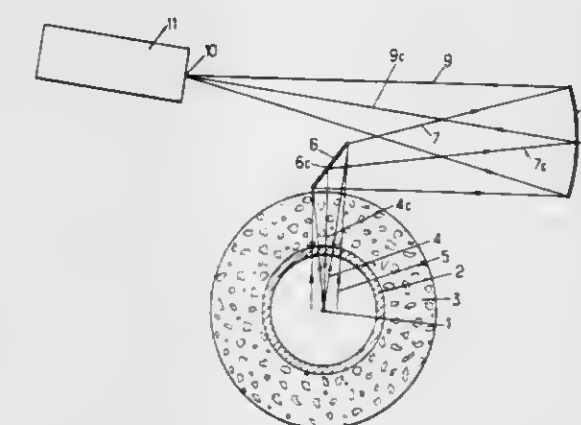
Filed Jan. 22, 1980, Ser. No. 114,282

Claims priority, application France, Jan. 23, 1979, 79 01664; Jan. 11, 1980, 80 00646

Int. Cl.³ G01J 1/00; G01N 23/00

U.S. Cl. 250-338

20 Claims



1. A device for measuring, by infrared thermometry, the temperature of a body having in at least one direction a small dimension, said device comprising:

black body cavity means having an aperture formed therein to permit the escape of infrared radiation to be measured; infrared measuring means disposed for making a first set of measurements; each measurement of said first set being a measurement of the sum of the total amount of infrared radiation which is incident on a first solid angle and which comes from a portion of the body that is intercepted by said first solid angle and the total amount of infrared radiation which is incident on said first solid angle and which comes from a first portion of the interior wall of said cavity means that is intercepted by said first solid angle; and said infrared measuring means being disposed for making a second set of successive measurements alter-

nating with said first set of measurements, such measurement of said second set being a measurement of the total amount of infrared radiation which is incident in a second solid angle equal to said first solid angle, which radiation comes from a second portion of said interior wall of said cavity means that is intercepted by said second solid angle; and means for generating an electrical signal representative of the difference between said sum and said total amount of infrared radiation that is incident on said second solid angle.

4,316,089

METHOD OF STABILIZING OPERATION OF A HYBRID SPARK CHAMBER

Takahiko Aoyama, Nagoya, Japan, assignor to Nagoya University, Nagoya City, Japan

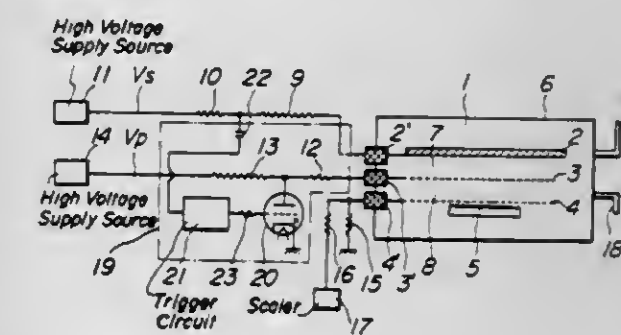
Filed Jun. 20, 1980, Ser. No. 161,251

Claims priority, application Japan, Jun. 26, 1979, 54/79616

Int. Cl.³ G01T 1/185

U.S. Cl. 250-385

2 Claims



1. A method of stabilizing the operation of a gas-flow type self-triggering hybrid spark chamber having a spark chamber portion and a proportional chamber portion, and in which electrons produced by radiation are multiplied in the proportional chamber portion and generate sparks in the spark chamber portion, said method comprising connecting a high speed discharge circuit to the proportional chamber portion and utilizing the discharge of said circuit to lower the electric field intensity of said proportional chamber portion below a threshold value at the above which it is solely possible for a spark to be induced in said proportional chamber portion by a spark generated in said spark chamber portion, said discharge being initiated in response to each spark generated in said spark chamber portion and before the instant at which a surrounding induced spark in said proportional chamber portion would otherwise occur.

4,316,090

MICROWAVE PLASMA ION SOURCE

Noriyuki Sakudo, Ohme; Katsumi Tokiguchi, Hachioji; Hidemi Koike, Tokorozawa, and Ichiro Kanomata, Fuchu, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 30, 1980, Ser. No. 154,824

Claims priority, application Japan, Jun. 4, 1979, 54/68952

Int. Cl.³ H01J 27/00

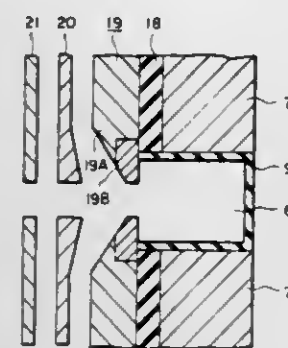
U.S. Cl. 250-423 R

8 Claims

1. In a microwave plasma ion source having a discharge chamber, means to produce a microwave discharge plasma within said discharge chamber, and an ion extracting electrode system to extract ions from the microwave discharge plasma in said discharge chamber;

said ion extracting electrode system comprising an extractor electrode which lies in contact with said discharge chamber and which has an aperture through which ions are extracted from said discharge chamber, said extractor electrode being divided into a first part which is substantially exposed to the plasma in said discharge chamber and

a remaining second part which is mainly not exposed to the plasma, both said first and second parts being individ-



ual elements of electrically-conductive material in electrical contact with each other.

4,316,091 CT SCANNER

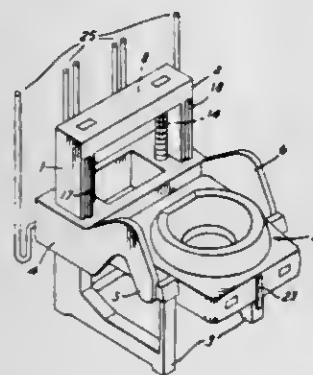
Richard T. Bernardi, Prospect Heights, Ill., assignor to EMI Limited, Middlesex, England

Filed Nov. 15, 1979, Ser. No. 94,723

Int. Cl.³ G01N 21/34

U.S. Cl. 250-445 T

10 Claims



1. A CT scanner having an aperture housing containing data acquisition components for acquiring data relating to the attenuation suffered by X-radiation on traversing each of many substantially linear paths across a cross-sectional slice of a patient's body, a support structure supporting said housing and moving means for moving said housing relative to said support structure, said moving means disposing said housing with its aperture either generally vertical, to receive a recumbent patient, or generally horizontal, to receive an upright patient.

4,316,092

X-RAY IMAGE CONVERTERS UTILIZING RARE EARTH ADMIXTURES

Jacob G. Rabatin, Chardon, Ohio, assignor to General Electric Company, Schenectady, N.Y.

Continuation-in-part of Ser. No. 6,681, Jan. 26, 1979, abandoned, which is a continuation-in-part of Ser. No. 864,389, Dec. 27, 1977, abandoned, which is a continuation of Ser. No. 749,881, Dec. 13, 1976, abandoned. This application Aug. 25, 1980, Ser. No. 180,845

Int. Cl.³ G01J 1/58

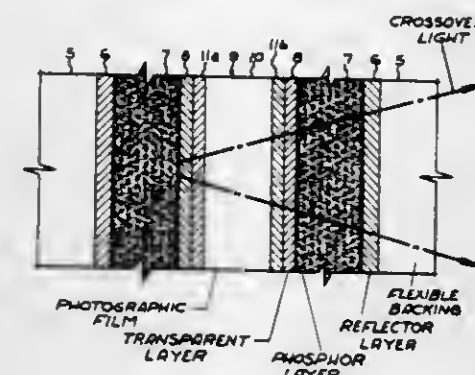
U.S. Cl. 250-483

8 Claims

1. An improved multi-layer x-ray screen construction which comprises:

- a photographic film having emulsion layers disposed on each major surface and separated by an optically transparent support,
- a pair of phosphor layers being positioned on each side of said photographic film to form a sandwich configuration, and
- each of said phosphor layers comprising an admixture of polyhedral terbium activated gadolinium oxysulfide phos-

phor crystals having an average particle size in the range of approximately 6 to about 20 microns in combination with plate-like crystals having an average particle size in the range from approximately 2 to about 12 microns having the general formula:



wherein

Ln is one or more of La and Gd,

X is one or more of Cl and Br, and

Tm is present as an activator ion from about 0.05 to about 1 mole percent,

said phosphor admixture exhibiting improved resolution capability and reduced crossover problem.

4,316,093

SUB-100A RANGE LINE WIDTH PATTERN FABRICATION

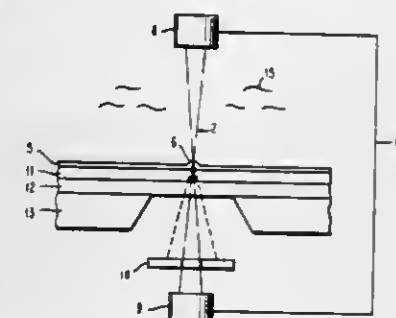
Alec N. Broers, Purdys Station; Jerome J. Cuomo, Lincolnale; Robert B. Laibowitz, Peekskill, and Walter W. Molzen, Jr., Patterson, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 11,360, Feb. 12, 1979, Pat. No. 4,197,332, which is a continuation-in-part of Ser. No. 845,527, Oct. 26, 1977, abandoned. This application Oct. 4, 1979, Ser. No. 81,760

Int. Cl.³ B05D 3/06

U.S. Cl. 250-492.1

3 Claims



1. Apparatus for forming patterns comprising in combination:

- an electron backscattering control support having an electron backscattering control workpiece supporting substrate thereon,
- a controllable beam source of electrons focused on said substrate,
- electron beam monitoring means operable to sense a change in quantity of electrons passing through said substrate,
- communication means responsive to said monitor means and operable to control said beam source; and aperture means operable to shield said electron beam monitoring means from electrons deflected by a forming resist.

4,316,094

SUNLAMP AND SOURCE OF ULTRAVIOLET RADIATION THEREFOR

Friedrich Wolff, Lindenring 17, D-6000 Frankfurt am Main 50, Fed. Rep. of Germany

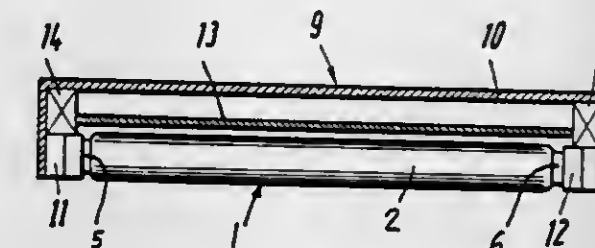
Continuation-in-part of Ser. No. 958,613, Nov. 8, 1978, Pat. No. 4,194,125. This application Mar. 19, 1979, Ser. No. 21,910 Claims priority, application Fed. Rep. of Germany, Oct. 16, 1978, 2844967

The portion of the term of this patent subsequent to Mar. 18, 1997, has been disclaimed.

Int. Cl.³ G01J 1/00

U.S. Cl. 250-504 R

10 Claims



1. A source of ultraviolet light, particularly in the UVA region, comprising a hollow elongated tubular body having first and second end portions; a plug at each of said end portions, the combined length of said tubular body and said plugs being between 1770 and 1850 mm; and electric contact means extending from each of said plugs.

4,316,095

ENGINE STARTING APPARATUS

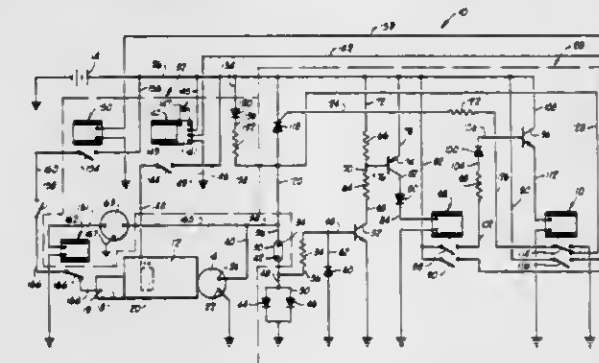
Perry D. Laffoon, 21 Janice, Yukon, Okla. 73099, and John A. Shannon, 525 N. Peniel, Oklahoma City, Okla. 73108

Filed Aug. 27, 1979, Ser. No. 69,799

Int. Cl.³ H02J 3/00

U.S. Cl. 290-38 R

6 Claims



1. An apparatus for starting an internal combustion engine having an electrical system including an ignition system, a battery and an alternator driven by the engine to maintain the battery in a charged state and having a starter motor connectable to the battery for starting the engine at such times that electrical power is supplied to the ignition system of the engine, comprising:

- a receptacle for receiving an electrical load, said receptacle having a first terminal connected to the output terminal of the alternator and a second terminal connected to an alternator ground;
- means for providing a unidirectional conducting path from one terminal of the battery to the first terminal of the receptacle, the conduction direction of said path opposing an electrical current from the output terminal of the alternator to the battery, and the other terminal of the battery being connected to the alternator ground;
- a switching circuit having a portion interposed between the second terminal of the receptacle and the alternator ground, whereby an electrical load connected between the terminals of the receptacle will complete an electrical

circuit with the battery via the means for providing a unidirectional current path, comprising:

at least one switching relay, each switching relay having at least one set of normally open contacts; and means for actuating the switching relays to close the normally open contacts thereof in response to a current through an electrical load connected between the terminals of the receptacle;

means connected to one set of normally open contacts of one of the switching relays, for connecting the ignition system to the battery so as to enable the engine to operate in a closed condition of said one set of normally open contacts; and

means connected to one other set of normally open contacts of a switching relay for connecting the starter motor to the battery so as to operate the starter motor in response to closure of said one other set of normally open contacts at such time that the engine is in a non-operating condition.

4,316,096

WIND POWER GENERATOR AND CONTROL THEREFOR

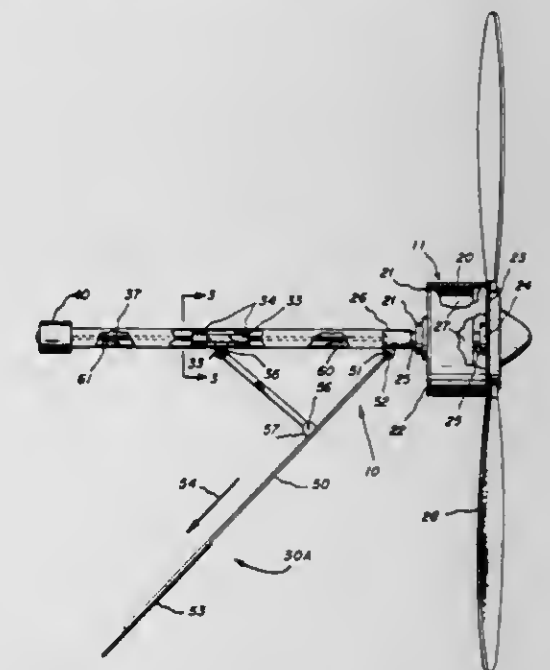
Charles D. Syverson, 2007 Roe Crest Dr., North Mankato, Minn. 56001

Filed Oct. 10, 1978, Ser. No. 950,009

Int. Cl.³ F03D 7/02

U.S. Cl. 290-44

27 Claims



1. A wind powered generating system for producing electric power comprising a generator assembly having a rotatable portion and producing an electrical output, means to mount said generator assembly about a generally vertical rotational axis, means to provide wind powered rotation of said rotatable portion of said generator assembly, and a tail control assembly mounted to said generator assembly including a frame and a wind oriented vane adjustably mounted relative to said frame for changing the orientation of the axis of rotation of the rotatable portion relative to the wind direction comprising means to pivotally mount said vane relative to said frame generally about an upright axis, and means between said frame and vane to control the angle of said vane about said upright axis relative to said frame comprising a motor mounted on said frame, a link coupled to said vane at location spaced from the upright axis, drive means coupling said motor to said link to control said link to cause the vane to pivot about the upright axis and means to selectively power said motor as a function of a measured condition including means to connect the motor to be powered by said electrical output.

4,316,097

BACKUP POWER CIRCUIT

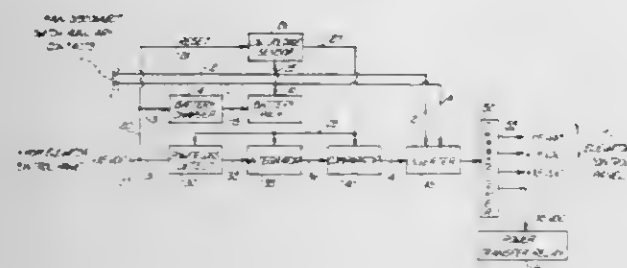
William R. Reynolds, c/o Electronic Systems & Components, Inc., 110 Summit Ave., Chatham, N.J. 07928

Filed Dec. 14, 1979, Ser. No. 103,735

Int. Cl.³ B66B 5/02

U.S. Cl. 307—66

9 Claims



1. A backup power circuit for automatically energizing a multi-power requirement load upon failure of its primary power source comprising:

- a direct current source;
- a power loss detection circuit connected to monitor a power parameter of the load, a predetermined change in the power parameter from its normal condition causing the power loss detecting circuit to generate a fault signal;
- solid state timer means responsive to the fault signal, the timer means providing a trigger signal a predetermined time period after the generation of the fault signal, the triggering signal continuing for a predetermined time period subsequent to the termination of the fault signal generation by the power loss detection circuit;
- solid state inverter means connected to the direct current source and responsive to the trigger signal, the inverter means providing an alternating current output during the generation of the trigger signal by the timer means;
- step-up transformer means connected to the alternating current output of the inverter, the transformer means providing alternating current to the load at a voltage exceeding that of the alternating current output of the inverter;
- rectifier means connected to the transformer means, the rectifier means providing direct current to the load at a voltage exceeding that of the direct current source; and
- relay means responsive to operation of the inverter means, the relay means being actuated generally simultaneously with energization of the inverter means to disconnect from the primary power source those portions of the load energized by the current outputs of the transformer and rectifier means.

4,316,098

GAS SPRING ARRANGEMENT OPERATING AS AN ELECTRICAL CONNECTION

Herbert Freitag, Koblenz-Metternich, and Klaus Schnitzius, Rheinbrohl, both of Fed. Rep. of Germany, assignors to Stabius GmbH, Koblenz-Neuendorf, Fed. Rep. of Germany

Filed Oct. 17, 1978, Ser. No. 952,092

Claims priority, application Fed. Rep. of Germany, Oct. 28, 1977, 2748376

Int. Cl.³ H01H 3/16

U.S. Cl. 307—119

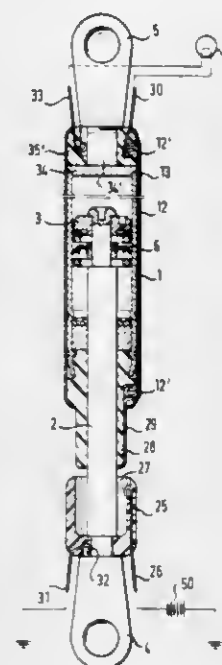
21 Claims

1. In a gas spring arrangement through which an electrically conductive current path is provided, comprising:

- (a) a cylinder member having an axis and being formed with a cavity, said cylinder member including an annular end wall transverse to said axis;
- (b) a body of gas under superatmospheric pressure in said cavity;
- (c) a piston rod member axially movable inward and outward of said cavity in sealing engagement with said end wall between two terminal positions;
- (d) fastening means attached to respective, axially spaced

portions of said members outside said cavity for fastening said members to respective objects;

- (e) a first electrically conductive terminal on said cylinder member accessible from outside said cavity;
- (f) a second, electrically conductive terminal on said piston rod member accessible from outside said cavity; and
- (g) conductive means connecting said terminals during a portion of the movement of said piston rod member between said positions, said conductive means including:



- (1) a first contact element on said cylinder member adjacent said end wall and outside said cavity of said cylinder, and
- (2) a second contact element on an axially terminal portion of said piston rod member which does not enter said cavity of said cylinder, said second element engaging said first element outside of said cavity of said cylinder when said piston rod member approaches one of said terminal positions in a direction inward of said cavity.

4,316,099

PERMANENT MAGNET STATOR FOR D.C. MOTORS

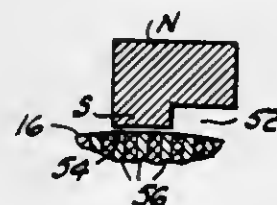
Elmer B. Mason, 901 Vickie Dr., Del City, Okla. 73115

Continuation-in-part of Ser. No. 2,262, Jan. 10, 1979, Pat. No. 4,221,984. This application Jul. 21, 1980, Ser. No. 171,502

Int. Cl.³ H02K 23/04

U.S. Cl. 310—154

3 Claims



1. A motor assembly, comprising:
- magnetic motor support means including a pair of nonmagnetic spaced-apart plates having coaxial bearing equipped central apertures;
- at least one rotor journaled by said bearings, said rotor being characterized by a winding having a plurality of axially extending segments and a commutator having a like plurality of segments and including a pair of commutator brushes each transversely spanning a plurality of commutator segments; and,
- magnetic field producing means including at least one pair of opposing permanent magnets connected with at least one said plate, normal to the plane thereof, and projecting toward the opposite said plate parallel with the rotor axis for establishing a magnetic flux circuit across said rotor,

each said magnet being characterized by a transverse surface facing the winding segments of the rotor, the transverse dimension of said transverse surface being no greater than the transverse dimension of a plurality of rotor winding segments equal in number to the number of commutator segments spanned by the respective brush.

4,316,100

CHARGE TRANSFER DEVICE WITH OUTPUT DETECTED WITHIN DYNAMIC RANGE

Tatsuo Sakaue, and Tetsuya Iida, both of Yokohama, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

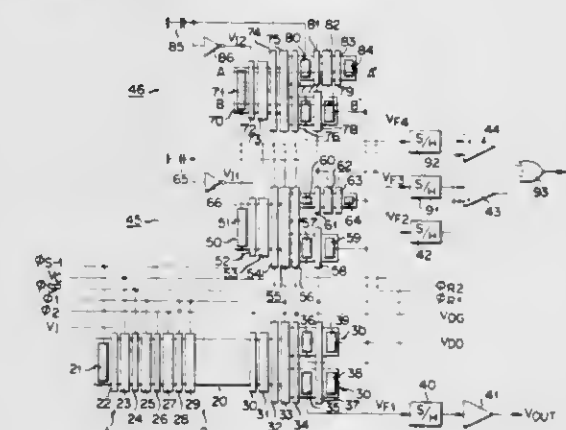
Filed Apr. 23, 1980, Ser. No. 143,130

Claims priority, application Japan, Apr. 27, 1979, 54-52330; Apr. 27, 1979, 54-52338

Int. Cl.³ G11C 19/28; H01L 29/78; H03H 15/02; H04N 5/21

U.S. Cl. 307—221 D

3 Claims



1. A charge transfer device comprising:
- a charge transfer channel with first and second branched output ports;
- first and second output detecting means which are coupled with said first and second output ports and detect output signal charge packets in said charge transfer channel to produce output voltages corresponding to the detected output signal charge packets;
- first and second reference voltage generating means for producing first and second reference voltages; and
- comparing means coupled with said second output detecting means and said first and second reference voltage generating means for comparing the output voltage of said second output detecting means corresponding to the detected output signal charge packet with said first and second reference voltages thereby to detect if a signal charge transferred through said charge transfer channel falls within a given range or not.

4,316,101

CIRCUIT FOR SWITCHING AND TRANSMITTING ALTERNATING VOLTAGES

Willy Minner, Schwaigern, Fed. Rep. of Germany, assignor to Licentia-Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Fed. Rep. of Germany

Filed Nov. 28, 1979, Ser. No. 97,910

Claims priority, application Fed. Rep. of Germany, Nov. 30, 1978, 2851789

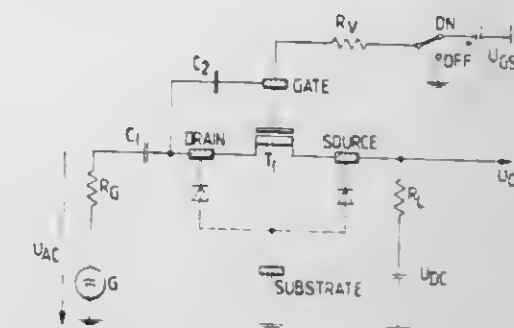
Int. Cl.³ H03K 17/60

U.S. Cl. 307—578

8 Claims

1. In a circuit for switching and transmitting alternating voltages having an MOS transistor provided with a gate and further provided with source and drain regions surrounded by pn-junctions, biasing means connected to bias both junctions in their blocking direction in the driven condition of the transistor, and circuit means connected for substantially synchronizing the gate voltage changes, in the driven condition of the transistor, with the alternating voltage to be transmitted, the improvement wherein said circuit means comprise a capaci-

tance connected between the transmission path of said MOS transistor and said gate for causing the instantaneous potential



difference between the gate voltage and the alternating voltage to be transmitted to correspond to the switching voltage which is required in order to drive said transistor.

4,316,102

INPUT STAGE USING JUNCTION FIELD EFFECT TRANSISTORS FOR BIASING

James R. Butler, San Jose, Calif., assignor to Fairchild Camera and Instrument Corp., Mountain View, Calif.

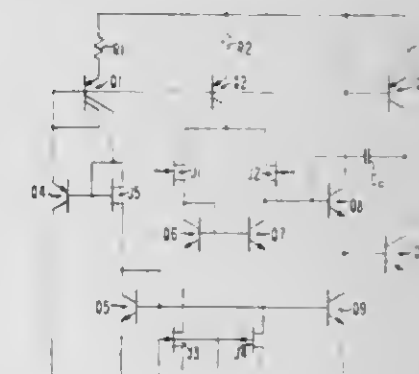
Division of Ser. No. 807,602, Jun. 17, 1977, Pat. No. 4,194,136.

This application Sep. 13, 1979, Ser. No. 75,435

Int. Cl.³ H03K 17/00, 17/687

U.S. Cl. 307—296 R

2 Claims



1. A bias circuit comprising:
- at least a pair of bipolar transistors, the bases of said pair of bipolar transistors being connected to each other;
- a first junction field effect transistor, the source of which is connected to the emitter of one of said pair of bipolar transistors; and
- a second junction field effect transistor, the source of which is connected to the emitter of the other of said pair of bipolar transistors;
- wherein the gate electrodes of said first and second junction field effect transistors are connected to a low impedance node and the drain electrodes of said first and second junction field effect transistors are connected to a common bus.

4,316,103

CIRCUIT FOR COUPLING SIGNALS FROM A SENSOR

Harvey C. Nathanson, Pittsburgh, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed May 15, 1979, Ser. No. 39,416

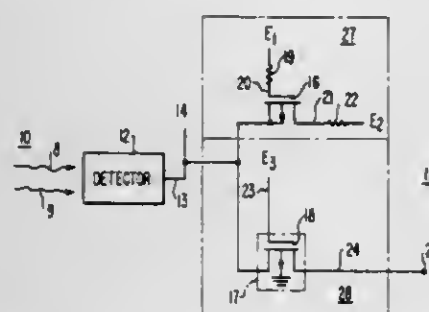
Int. Cl.³ H03K 3/353

U.S. Cl. 307—304

9 Claims

1. A circuit for providing an output signal above a predetermined frequency in response to an input signal that may include portions having a frequency below said predetermined frequency, comprising:
- means for coupling to an input signal;
- a first field effect transistor having a source, drain, gate and body;

a second field effect transistor having a source, gate and body;
said source and body of said first transistor and said source of said second transistor being commonly coupled to said input signal coupling means;
said gate of said first transistor having a predetermined capacitance and coupled through a first resistor to its respective gate voltage source whereby said predetermined frequency is determined by the value of said gate capacitance and said first resistor;
said drain of said first transistor coupled through a second resistor to a drain voltage source;



said gate of said second field effect transistor coupled to its respective gate voltage source;
means operative to govern the transconductance of said first transistor to be greater than the transconductance of said second transistor whereby greater amounts of signal current below said predetermined frequency conduct through said first transistor than conduct through said second transistor and greater amounts of signal current above said predetermined frequency conduct through said second transistor than conduct through said first transistor and means for deriving an output signal from said signal current passing into said second transistor.

4,316,104

MONOLITHICALLY INTEGRATED DIGITAL SEMICONDUCTOR CIRCUIT

Helmut Rösler, Munich; Heimbart U. Irmer, Gladbeck, and Klaus-Dieter Bigall, Vaterstetten, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

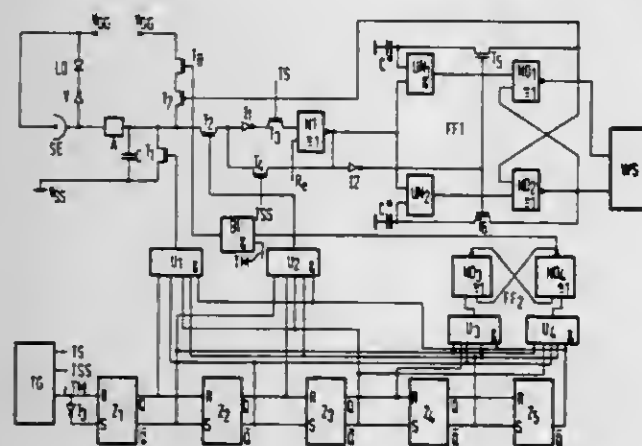
Filed Apr. 28, 1980, Ser. No. 144,035

Claims priority, application Fed. Rep. of Germany, Apr. 30, 1979, 2917596

Int. Cl.³ H01V 3/38; H03K 3/26

U.S. Cl. 307—308

20 Claims



1. Monolithically integrated digital semiconductor circuit formed on a semiconductor body and having MIS field-effect transistors and an electric terminal as signal input in the semiconductor body, comprising respective means for applying two operating potentials to the digital semiconductor circuit, a manually actuatable sensor switch connecting said respective means to the electric terminal for applying one of said operat-

ing potentials thereto, one of the MIS field-effect transistors having a source drain path and a control gate, the transistor being rendered conductive by an electric pulse applied to said gate thereof and said electric terminal being connected in the semiconductor body to said means for applying the other of said operating potentials thereto through the source-drain path of the transistor, an additional circuit component forming part of the digital semiconductor circuit and representing an AND function, said additional circuit component having at least one terminal connected to said electric terminal and being activatable by an electric pulse applied thereto, and a pulse generating system connected to said gate of said transistor and to said additional circuit component for generating a respective pulse for activating said transistor and said additional circuit component, respectively.

4,316,105

COMPARATOR

Albert L. Fowler, Kirkcaldy, Scotland, assignor to Hughes Aircraft Company, Culver City, Calif.

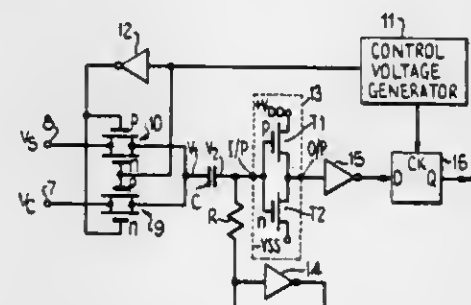
Filed Mar. 19, 1979, Ser. No. 21,877

Claims priority, application United Kingdom, Apr. 12, 1978, 14419/78

Int. Cl.³ H03K 5/24

U.S. Cl. 307—362

2 Claims



1. A comparator for comparing the magnitude of first and second voltages, comprising inputs for receiving said voltages respectively, a capacitor, switching means arranged to apply from the inputs to the capacitor said first voltage during a sequence of first periods and said second voltage during a sequence of second periods each occurring after a respective one of said first periods, an inverter having its input connected to the capacitor, biasing means arranged to apply a bias voltage to the input of the inverter in such a manner as to cause the output from the inverter to assume a predetermined voltage during said first periods and to assume during said second periods a voltage either greater or less than said predetermined voltage in dependence upon whether said first voltage is greater or less than said second voltage, said biasing means comprising an inverter having its input and output connected together in a feedback loop, and means defining a resistor interconnecting the inputs of the inverters, the inverters constituting a matched pair sharing the same thermal environment, and a flip-flop arranged to be either set or reset in response to the output of the inverter being either greater or less than said predetermined voltage during said second periods whereby the set or reset condition of the flip-flop is indicative of whether the magnitude of said first voltage is greater or less than the magnitude of said second voltage.

4,316,106

DYNAMIC RATIOLESS CIRCUITRY FOR RANDOM LOGIC APPLICATIONS

Ian A. Young, Farmers Branch; David B. Hildebrand, Bedford, and Charles B. Johnson, Carrollton, all of Tex., assignors to Mostek Corporation, Carrollton, Tex.

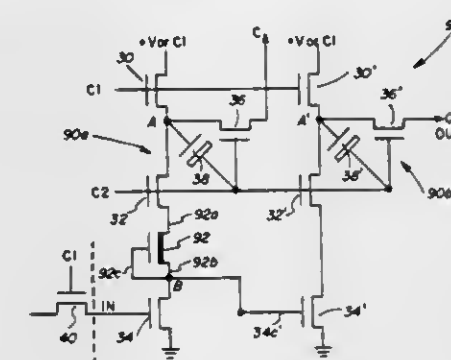
Filed Jan. 11, 1980, Ser. No. 111,274

Int. Cl.³ H03K 19/096, 19/20, 19/003, 17/687
U.S. Cl. 307—481

7 Claims

1. A logic circuit for receiving an input signal and for gener-

ating a delayed output signal being clocked by first and second non-overlapping clock phases comprising:
voltage supply means;
precharge transistor means interconnected to said voltage supply means and being clocked by the first clock phase;
discharge transistor means interconnected to said precharge transistor means thereby defining a first node and being clocked by the second clock phase to conditionally discharge said first node, said precharge transistor during the first clock phase precharges said first node;
input logic means interconnected to said discharge transistor means thereby defining a second node for providing a



discharge path from said first node to a ground voltage potential, said input logic means connected to receive the input signal;
output transistor means interconnected to said first node for generating the delayed output signal, said output transistor means being clocked by the second clock phase;
capacitor means interconnected to said first node and said output transistor means and being clocked by the second clock phase for maintaining said first node at a predetermined voltage level by a bootstrapping operation; and
resistor means interconnected between said discharge transistor means and said second node for limiting current flow through said discharge transistor means.

4,316,107

MULTIPLIER CIRCUIT

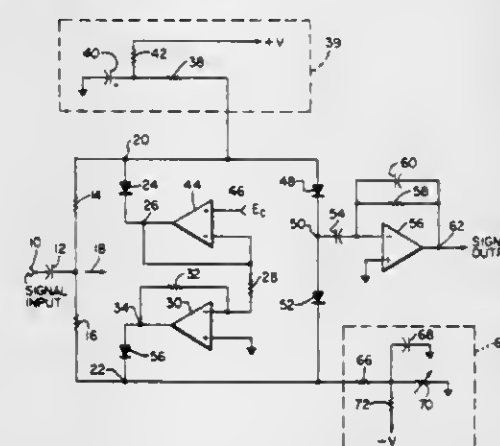
Daniel B. Talbot, Hudson, Mass., assignor to DBX, Inc., Newton, Mass.

Filed Feb. 28, 1979, Ser. No. 16,148

Int. Cl.³ G06G 7/24, 7/12

U.S. Cl. 307—492

6 Claims



1. A multiplier circuit comprising, in combination:
an input terminal for receiving an electrical input signal;
four diode elements connected together to form a diode bridge of two logarithmic responsive elements coupled together to form one side of said bridge and to provide a first junction therebetween, and two antilogarithmic responsive elements coupled together to form the other side of said bridge and to provide a second junction therebetween, said diode bridge being coupled to said input termi-

nal so that a log signal is produced at said first junction as a logarithmic function of said input signal;
means, responsive to a control signal, for shunting the two logarithmic responsive elements at said first junction as a function of said control signal and for producing a signal at said second junction as a function of the sum of said input signal and said control signal; and
amplification means coupled to said second junction and responsive to signal at said second junction, for producing an output signal as a function of the antilog of the sum of said log signal and said control signal.

4,316,108

TRACKING FILTER FOR FM THRESHOLD EXTENSION

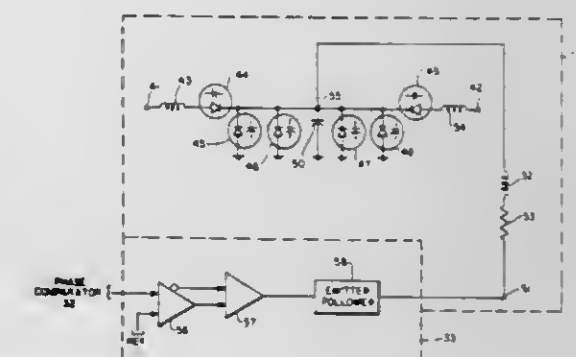
Walter M. Rogers, Jr., 679 Oakridge Dr., Indialantic, Fla. 32903

Filed Sep. 25, 1979, Ser. No. 78,906

Int. Cl.³ H03L 7/04

U.S. Cl. 307—521

16 Claims



1. A tracking filter circuit comprising:
a bandpass filter the center frequency of which is adjustable to follow the frequency of an input signal applied thereto and including means for providing a prescribed phase shift to an input signal applied thereto;
a phase comparator, coupled to the input and output of said bandpass filter, for comparing the phase between said input signal and the output of said bandpass filter and for producing a control signal representative of the phase difference between said input signal and the output of said bandpass filter; and
means, coupled between said phase comparator and said bandpass filter, for applying said control signal to said filter to adjust the center frequency of said bandpass filter to follow the frequency of said input signal; and wherein said phase shift providing means operates such that, in response to a change in the frequency of said input signal, said phase comparator produces a control signal for changing the center frequency of said bandpass filter, and said prescribed phase shift provided by said bandpass filter at the center frequency to which said bandpass filter was previously tuned is the same as that at the changed center frequency to which said bandpass filter is newly tuned.

4,316,109

STATOR FOR MULTIROTOR D.C. MAGNETIC MOTORS

Elmer B. Mason, 901 Vickie Dr., Del City, Okla. 73115

Continuation-in-part of Ser. No. 2,262, Jan. 10, 1979. This

application Jul. 21, 1980, Ser. No. 170,438

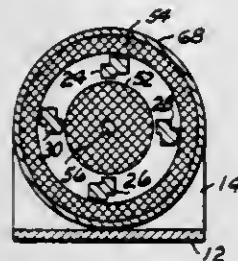
Int. Cl.³ H02K 23/00

U.S. Cl. 310—114

2 Claims

1. A motor assembly, comprising:
an elongated nonmagnetic base;
a pair of spaced-apart plates transversely secured to said base intermediate its ends and normal to the plane thereof;
an end wall secured to one end of said base parallel with said plates; concentric rotors, having an annular space therebe-

tween extending between and journaled by said end wall and one said plate, each rotor being characterized by a winding having a plurality of axially extending segments and a commutator having a like plurality of segments and including a pair of commutator brushes each transversely spanning a plurality of commutator segments; at least one pair of opposing pole pieces, one said pole piece being connected with said one plate and the other said pole piece being connected with the other said plate, said pair of pole pieces projecting toward said end wall parallel with the axis of said rotors and within the annular space therebetween,



with pole pieces each being characterized by a transverse surface facing the winding segments of the respective rotor, the transverse dimension of said transverse surface being no greater than the transverse dimension of a plurality of rotor winding segments equal in number to the number of commutator segments spanned by the respective brush; and, magnetic field producing means connected with said plates for establishing a magnetic field, whereby said plates and their respective pole piece are magnetized with respectively different polarities to produce a magnetic flux circuit across the respective rotor windings.

4,316,110 SIGNAL GENERATING DEVICE

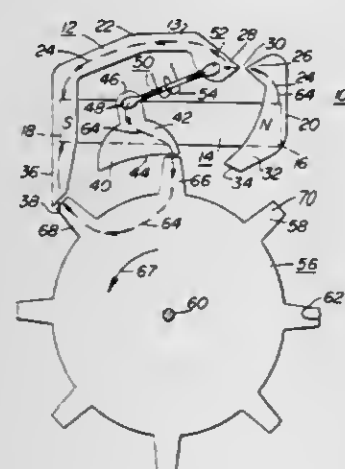
Richard A. Latblan, Hatfield, Pa., assignor to TRW, Inc., Cleveland, Ohio

Filed Dec. 26, 1978, Ser. No. 972,865

Int. Cl.³ H02K 21/38

U.S. Cl. 310-155

26 Claims



1. A signal generating device comprising a bistable magnetic device which alters its magnetic state when the density of magnetic flux to which it is subject passes through a predetermined value, detecting means providing an output signal responsive to a change in magnetic state of said bistable device, conducting means for magnetic flux comprising a first portion providing a first path of high permeability and a second portion, said bistable device being connected between the first and

second portions of said conducting means for conducting magnetic flux therebetween and being subjected to the conducted magnetic flux, the second portion providing second and third paths through said bistable device each having a respectively alterable permeance for varying in an opposite relationship the respective reluctance of the second and third paths of said conducting means and the density and sense of magnetic flux to which said bistable device is subject, and energizing means for providing magnetic flux of a given polarity to said conducting means for altering the state of said bistable device with the reluctance variations of said conducting means.

4,316,111 LAMINATED SALIENT FIELD POLE PIECE FOR DYNAMOELECTRIC MACHINES

Josef Merki, Würenlingen; Hans-Werner Stankowski, Wettlingen, and Franz Stöckli, Birrhard, all of Switzerland, assignors to BBC Brown, Boveri & Company, Ltd., Baden, Switzerland

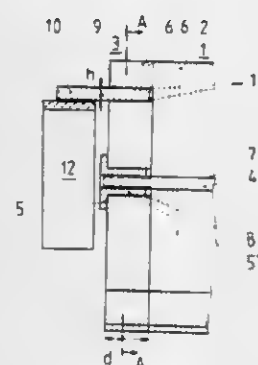
Filed Nov. 7, 1979, Ser. No. 91,199

Claims priority, application Switzerland, Dec. 14, 1978, 12713/78

Int. Cl.³ H02K 1/28

U.S. Cl. 310-218

8 Claims



1. A laminated pole for a dynamoelectric machine having salient poles, said pole comprising: a laminated pole body defining first and second axial ends and comprising a plurality of first sheets axially layered one against another in unbonded relationship; first and second laminated pole end plates juxtaposed with said first and second axial ends, respectively, of said pole body, each of said end plates comprising a plurality of second sheets, having substantially the same outer contour as said first sheets and being of approximately three millimeters or less in thickness, axially layered one against another and fixedly bonded together to provide a plate thickness of between approximately forty and sixty millimeters; and pre-stressing means for urging said first and second end plates together and thereby pressing said first sheets together.

4,316,112 ELECTRICITY GENERATOR

John M. Waldron, Ivanhoe; Frederick J. Nott, Pascoe Vale South; Laurence C. Harrison, Aspley; Graham D. Johnson, East Keilor, and Malcolm D. Green, Lyons, all of Australia, assignors to The Commonwealth of Australia, Department of Productivity, Canberra, Australia

Filed May 10, 1979, Ser. No. 37,607

Claims priority, application Australia, May 10, 1978, PD4343

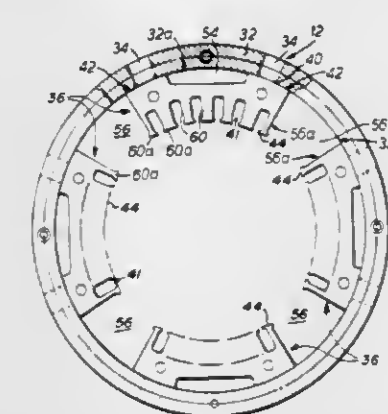
Int. Cl.³ H02K 1/12

U.S. Cl. 310-258

9 Claims

1. An electrical generator of the inductor-alternator type comprising a stator in the form of an annular magnetic core assembly, a rotor coaxially mounted for rotation within said stator, said core assembly having a plurality of parallel lengthwise slots defined about the inner periphery thereof, field and armature windings of said generator being mounted in said

slots, said core assembly comprising an outer annular yoke formed from material having a high magnetic permeability and a plurality of separate lengthwise extending stacks of laminations of material having high magnetic permeability arrayed about the inner periphery of said annular yoke, said stacks being spaced apart from each other in the circumferential direction of said core assembly so as to form a plurality of lengthwise extending slots therebetween extending from the



inner peripheries of adjacent pairs of stacks to the inner periphery of said yoke for receiving said field windings, said yoke having a plurality of parallel lengthwise extending slots there-through in alignment with said stacks whereby said slots are covered at the inner periphery of said yoke by the outer peripheries of said stacks, and said stacks being affixed to said yoke by welds disposed within the lengthwise extending slots in said yoke.

4,316,113 ELECTRIC ROTARY MACHINE

Masaki Sato; Hironori Okuda; Motoya Ito; Yuji Makino; Yasuyuki Wachi; Noriyoshi Takahashi, and Masatoshi Watanabe, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

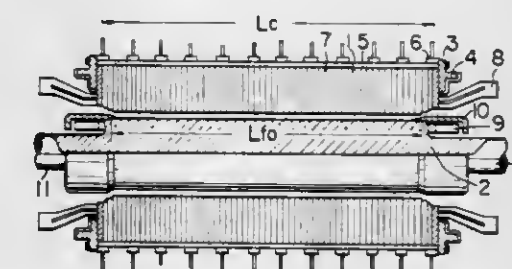
Filed May 23, 1979, Ser. No. 41,647

Claims priority, application Japan, May 24, 1978, 53/61007

Int. Cl.³ H02K 1/22

U.S. Cl. 310-262

4 Claims



1. An electric rotary machine comprising: a stator having an annular stator core of laminated steel sheets, slots formed to axially extend in peripheral portion of said stator core, and insulated stator windings disposed in said slots and a rotor having a rotor axis, a block like rotor core integrally formed with said rotor axis, slots formed to axially extend in peripheral portion of said rotor core, rotor windings fitted in said slots and having end portions axially projecting over the end portion of said rotor core, and a hold ring for supporting the winding end portions against a centrifugal force applied thereto when the rotor is driven, said rotor being axially movable with thermal expansion or shrinkage and/or temperature change of said rotor or a prime-mover directly coupled to said rotor, wherein the axial length of said rotor core is shorter than the axial length of said stator core so that any end of said rotor core is prevented from projecting over the corresponding end of said stator core during its operation at one of maxi-

mum load and a sudden change of load and, when said electric rotary machine is driven at normal operation, the end portion of said rotor core is recessed from the end of said stator core by a distance substantially equal to a gap between said rotor and said stator.

4,316,114 LOCKING STRUCTURE FOR ROTOR END WINDING OF A DISTRIBUTED POLAR ELECTRIC MACHINE

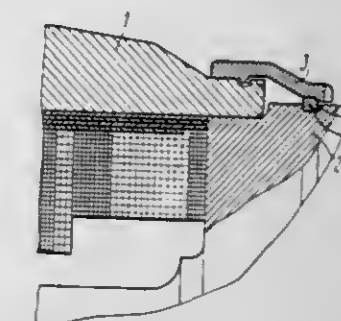
Galina A. Zagorodnaya; Garri M. Khutoretsky, both of Altaiskaya ulitsa, 20, kv. 5., and Gurgun P. Vartanian, Budapeshtskaya ulitsa, 15, korpus 2, kv. 29., all of Leningrad, U.S.S.R.

Filed Apr. 26, 1979, Ser. No. 33,477

Int. Cl.³ H02K 3/46

U.S. Cl. 310-270

1 Claim



1. In a locking structure for the rotor end winding of a distributed polar electric machine, comprising a retaining ring embracing the rotor end winding, a locking ring embracing said retaining ring and serving to fix it on the rotor body, said locking ring having bayonet joint portions on its inner surface at one end face thereof and a bead at its other end face, serving as a thrust for a ring key, the improvement residing in that the outer surface of the retaining ring has bayonet joint portions dimensioned and configured to mate with said bayonet joint portions of said locking ring, while the ring key is located on the rotor body.

4,316,115 POLYMERIC PIEZOELECTRIC MICROPROBE WITH DAMPER

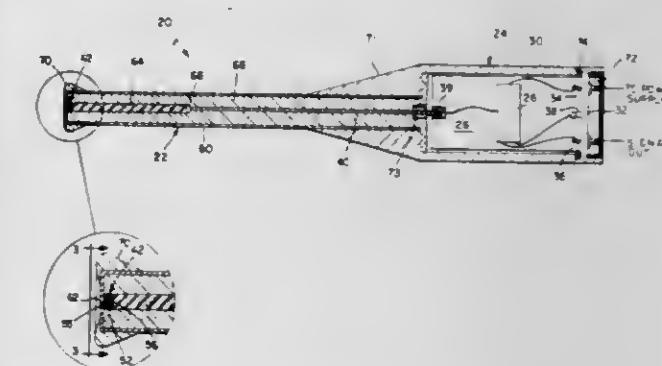
David T. Wilson, Billerica; Roger H. Tancrrell, Cambridge, and Joseph Callarame, Lexington, all of Mass., assignors to Raytheon Company, Lexington, Mass.

Filed Dec. 3, 1979, Ser. No. 99,438

Int. Cl.³ H01L 41/08

U.S. Cl. 310-327

15 Claims



1. A transducer assembly comprising: a polymeric piezoelectric element having front and back surfaces thereof; an elongated housing enclosing said piezoelectric element and having a substantially transparent acoustic window at an end thereof in contact with said first surface of said piezoelectric element; an elongated sound absorbing member in contact with said second surface of said piezoelectric element; a spacer member disposed circumferentially around said

sound absorbing member and located between said sound absorbing member and said housing, said piezoelectric element having an acoustic impedance substantially equal in magnitude to the impedance of a medium to which said transducer assembly is acoustically coupled for the detection of sonic signals propagating in said medium; and means for isolating said polymeric piezoelectric element from sound waves diffracted from the edge of said acoustic window.

4,316,116

TRIPLE-COIL INCANDESCENT FILAMENT

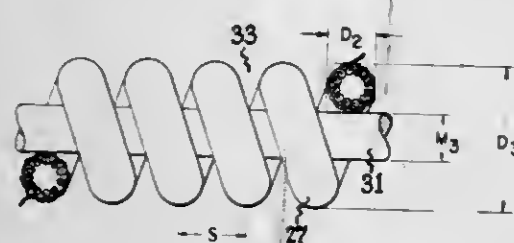
James A. Graves, Highland Hts., and Gilbert H. Reiling, Chardon, both of Ohio, assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 19, 1979, Ser. No. 105,580

Int. Cl.³ H01K 1/14

U.S. Cl. 313—344

5 Claims



1. An incandescent lamp comprising an electrically conductive base having a hermetically sealed light-transmissive envelope attached thereto; means for structurally and electrically mounting a filament within said envelope; and a triple-coil filament electrically connected to and supported by said means for mounting wherein at least two of the coils of the triple-coil filament have mandrel ratios less than 1.0.

4,316,117

BASEPLATE ASSEMBLY FOR FLAT PANEL DISPLAY DEVICES

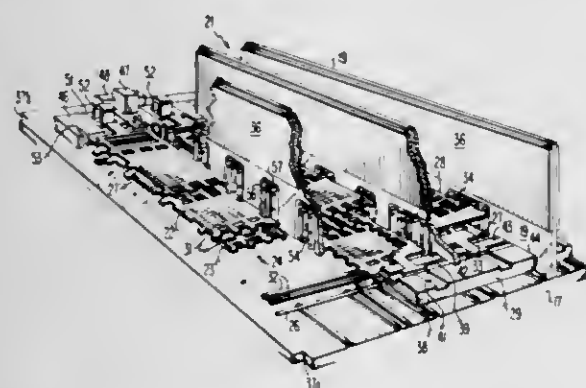
Charles B. Carroll, Trenton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Jan. 28, 1980, Ser. No. 116,251

Int. Cl.³ H01J 29/72, 29/02

U.S. Cl. 313—422

8 Claims



1. In a flat panel display device having an evacuated envelope divided into channels by a plurality of vanes and including a front wall and a baseplate arranged substantially parallel and connected by side walls, an improved baseplate assembly comprising:

a plurality of reference notches in said baseplate; a modulator support accurately affixed to said baseplate with respect to said reference notches and extending transversely across said baseplate substantially perpendicular to said channels and located at the proximal ends of said channels; a plurality of beam guide assemblies arranged in said chan-

nels for propagating electron beams longitudinally along said channels, said beam guide assemblies including proximal retention tabs and distal retention tabs;

beam guide proximal retention recesses arranged in said modulator support for engaging said proximal retention tabs to prohibit longitudinal and transverse motion of the proximal ends of said beam guide assemblies with respect to said modulator support;

proximal vane support slots spaced along the length of said modulator support for loosely receiving said vanes and holding said vanes substantially perpendicular to said baseplate;

distal guide support means positioned along the distal ends of said channels and substantially parallel to said modulator support, said distal guide support including distal retention recesses for engaging said distal retention tabs to retain the transverse location of said beam guide assemblies with respect to said reference notches;

distal vane support slots spaced along the length of said distal guide support means and aligned with said proximal support slots for loosely receiving said vanes and holding said vanes substantially perpendicular to said baseplate.

4,316,118

GUIDED BEAM DISPLAY DEVICE

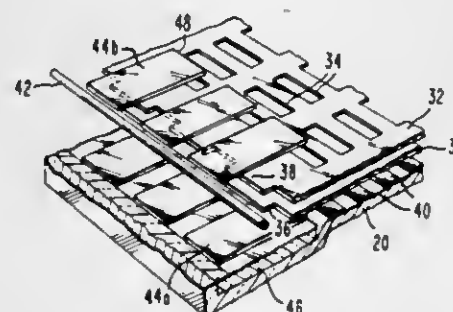
Charles H. Anderson, Rocky Hill; Thomas L. Credelle, East Windsor, and Wieslaw W. Siekanowicz, Lawrenceville, all of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Jul. 3, 1978, Ser. No. 921,267

Int. Cl.³ H01J 29/56

U.S. Cl. 313—422

3 Claims



1. In a display device having an evacuated envelope with substantially parallel front and back walls, an electron beam guide, a line cathode extending across one end of the electron beam guide, and a cathodoluminescent screen on the front wall; the improvement comprising:

a pair of parallel modulation electrodes positioned with said line cathode extending therebetween, each of said modulation electrodes partially overlapping said beam guide.

4,316,119

TILTED UNITARY DEGAUSSING COIL ARRANGEMENT

John C. Cooper, Lititz, Pa., assignor to RCA Corporation, New York, N.Y.

Continuation of Ser. No. 12,810, Feb. 16, 1979, abandoned. This application Jan. 27, 1981, Ser. No. 228,869

Int. Cl.³ H04N 9/29

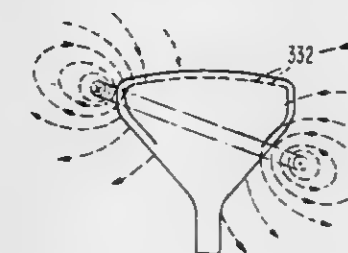
U.S. Cl. 315—8

5 Claims

1. A degaussing arrangement for a color television picture tube, said picture tube comprising an envelope comprising a portion in the general form of the frustum of a cone and having large and small ends, a faceplate portion adjacent said large end, and a neck portion coaxial with said frustum and joined to said small end, said picture tube further comprising a shadow-mask enclosed within said envelope adjacent said faceplate portion and an electron gun assembly enclosed within said neck portion of said envelope, said picture tube further com-

prising a magnetic shield enclosed within said envelope and in the general form of the frustum of a cone and having large and small ends, said shield being adjacent said frustum-shaped portion of said envelope, said degaussing arrangement comprising:

a single degaussing coil encircling said frustum-shaped portion of said envelope, with the axis of said degaussing coil tilted relative to the axis of said frustum-shaped envelope portion in such manner as to dispose a first segment of the circumference of said coil in a position overlying a region of said envelope adjacent a portion of the periphery of



said shadow-mask, and as to dispose a second segment of the circumference of said coil, diametrically opposed to said first segment, in a position which is contiguous with a region of said envelope adjacent said small end of said shield and which is located more remotely from said axis of said frustum-shaped envelope portion than is the adjoining periphery of the opening at said small end of said shield; and

means for supplying a variable alternating current solely to said single degaussing coil to effect degaussing of said shadow-mask and said magnetic shield.

4,316,120

CIRCULAR FLUORESCENT LAMP UNIT

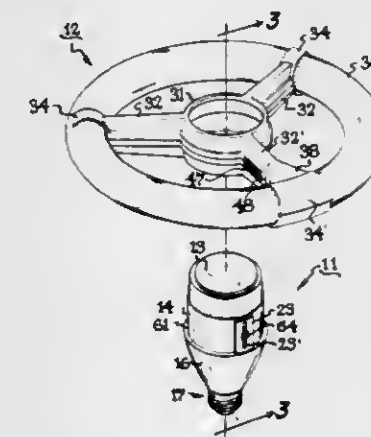
Ronald N. Cotman, Chesterland, and Gustino J. Lanese, South Euclid, both of Ohio, assignors to General Electric Company, Schenectady, N.Y.

Continuation of Ser. No. 47,988, Jun. 13, 1979, abandoned. This application Oct. 22, 1980, Ser. No. 199,495

Int. Cl.³ H01J 7/44, 17/34, 19/78; H01K 1/62

U.S. Cl. 315—58

6 Claims



1. A circular lamp unit comprising a central hub and a detachable circular lamp assembly, said hub having an outside diameter of given size and comprising means for connection to a source of electrical power and said circular lamp assembly comprising a circular light bulb having an inside diameter larger than said diameter of the central hub, attachment means for surrounding and providing detachable connection to said hub, and a plurality of individual spokes extending outwardly from said attachment means and supporting said circular light bulb, said spokes defining spaces therebetween through which a lamp harp can pass, said circular lamp assembly being an

integral replaceable unit, and said hub containing ballast means for said light bulb.

4. A hub for a circular lamp unit, comprising a housing containing a ballast and provided with an electrical connector base at an end thereof, said housing being devoid of spokes or brackets attached thereto and extending therefrom for holding a lamp.

4,316,121

INTEGRALLY BALLASTED FLUORESCENT LAMP UNIT

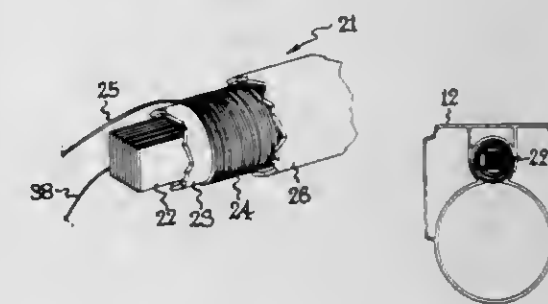
Edward E. Hammer, Mayfield Village, and Eugene Lemmers, Cleveland Heights, both of Ohio, assignors to General Electric Company, Schenectady, N.Y.

Filed Nov. 1, 1979, Ser. No. 90,500

Int. Cl.³ H01J 7/44, 17/34, 19/78, 23/16

U.S. Cl. 315—62

2 Claims



1. A ballasted discharge lamp unit comprising a ballast connected in series with an elongated discharge lamp, said ballast comprising an elongated magnetizable core wound with a single winding which provides both inductive and resistive components of total ballast impedance, said ballast being positioned alongside and extending along substantially the entire length of said lamp, said inductive and resistive components being of such values that each contributes substantially to the ballasting of the discharge lamp when operating to produce light.

4,316,122

HIGH PRESSURE SODIUM VAPOR DISCHARGE LAMP

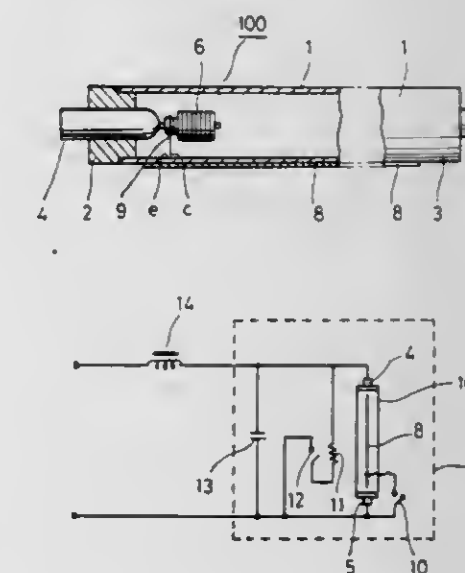
Haruo Yamazaki, Moriyama; Yoshiro Ogata, Ibaraki, and Hidezob Akutsu, Kobe, all of Japan, assignors to Matsushita Electronics Corporation, Kadoma, Japan

Filed Oct. 3, 1979, Ser. No. 81,557

Int. Cl.³ H01J 7/44, 17/34, 19/78, 23/16

U.S. Cl. 315—74

5 Claims



1. A high pressure sodium vapor discharge lamp comprising an outer bulb enclosing a discharge tube in an evacuated space

therein, said discharge tube comprising a translucent and chemically stable tube envelope of alumina containing therein sodium, xenon gas, a buffer gas which is at least one member selected from the group consisting of mercury and cadmium, and discharge electrodes sealed in both end parts of said tube envelope, characterized in that

at least one of said discharge electrodes has a projection conductor which is disposed extending therefrom towards and in proximity to an inside surface of a side wall of said tube envelope with a predetermined gap inbetween, that a starting aid conductor is disposed lengthwise on the outside surface of said side wall in a manner to face the outer end part of said projection conductor via said side wall, said starting aid conductor having a connection which impresses a potential substantially identical to that of the other discharge electrode, and that said xenon gas is sealed to have a pressure of 150 Torr or more, and that said predetermined gap between the outer end of said projection conductor and the inside surface of said side wall is between 0.3 mm to 0.7 mm.

4,316,123

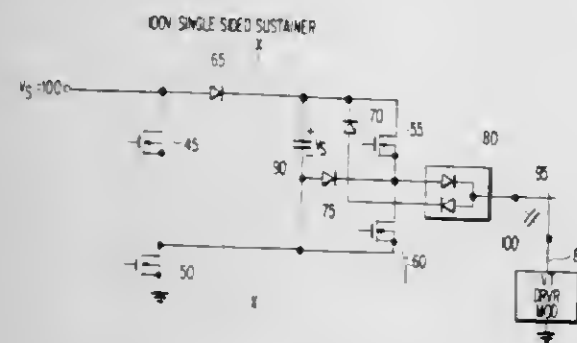
STAGGERED SUSTAIN VOLTAGE GENERATOR AND TECHNIQUE

Bergert G. Kleen; William R. Lamoureux, both of Kingston, and William J. Martin, Lake Katrine, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Jan. 8, 1980, Ser. No. 110,313

Int. Cl.³ H05B 41/30

U.S. Cl. 315—169.4

3 Claims



1. A circuit for providing a plurality of sustain voltage waveforms to selected portions of a gas discharge display panel comprising:

- (a) a common module having first (45) and second (50) switches each having an input, output and control port, the output of said first switch connected to the input of said second switch, the output of said second switch applied to ground, a first diode connected at one end thereof to the input of said first switch and providing at the other end of said first diode a first common signal, the input of said second switch receiving a second common signal, and a voltage source applied to the input of said first switch;
- (b) a plurality of individual modules for providing said plurality of sustain voltage waveforms, each said individual module having third (55) and fourth (60) switches each having an input, output and control port, the input of said third switch receiving said first common signal, the output of said third switch and the input of said fourth switch each operatively connected to an axis output, the output of said fourth switch providing said second common signal, and capacitor means connected at one end thereof to the input of said third switch and at the other end thereof to the output of said fourth switch;
- (c) whereby said axis output of each said plurality of individual modules provides an alternating waveform having a preselected frequency to selected portions of said gas discharge display panel, the phases of said alternating outputs of each said individual modules being displaced

from each other to thereby distribute avalanche currents in said discharge display panel.

4,316,124

MIXED LIGHT ARRANGEMENT

Jozef K. P. Verwimp, and Gabriël Deloddere, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

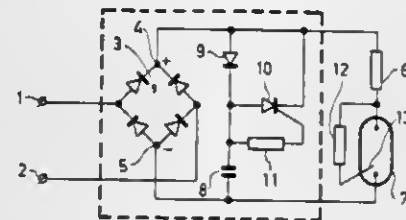
Filed Sep. 24, 1979, Ser. No. 78,524

Claims priority, application Netherlands, Oct. 2, 1978, 7809907

Int. Cl.³ H05B 41/16; H01J 61/56, 61/96

U.S. Cl. 315—205

6 Claims



1. A mixed-light arrangement comprising two input terminals for connection to an a.c. voltage source having a frequency below 100 Hz, a rectifier bridge having inputs respectively connected to said input terminals and outputs interconnected by a series arrangement of an incandescent filament and a discharge tube, the series arrangement being shunted by a branch comprising a capacitor connected in series with a rectifier and a controlled rectifier connected in anti-parallel, and a control circuit coupled to the controlled rectifier which renders the controlled rectifier conductive towards the end of each half cycle of the a.c. voltage source in the operating condition of the mixed light arrangement.

4,316,125

POWER SUPPLY FOR A FLASH TUBE

Koichi Noguchi, Tokyo, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

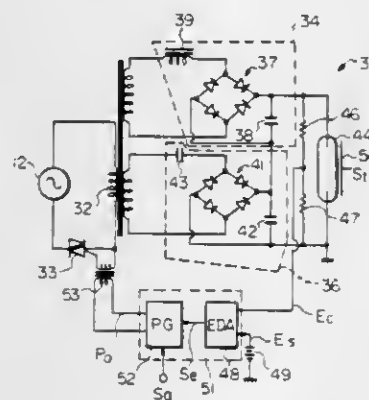
Filed Oct. 18, 1979, Ser. No. 87,601

Claims priority, application Japan, Oct. 18, 1978, 53-128017

Int. Cl.³ H05B 41/30

U.S. Cl. 315—241 R

6 Claims



1. A power supply apparatus comprising:

- a flash tube;
- first rectifier means;
- first smoothing filter means connected between an output of the first rectifier means and the flash tube;
- second rectifier means;
- second smoothing filter means connected between an output of the second rectifier means and the flash tube;
- switch means for connecting the first and second rectifier means to an A.C. power source in a unitary manner;
- sensor means for sensing a voltage across the flash tube and

turning on the switch means when the sensed voltage is below a predetermined value and turning off the switch means when the sensed voltage is above a predetermined value;

- a current limiting inductance means connected between the switch means and the first rectifier means;
- a current limiting capacitance means connected between the switch means and the second rectifier means, an inductance of the inductance means and a capacitance of the capacitance means being selected in such a manner that a power factor of the power supply is substantially unity; and
- a transformer having a primary winding connected to the power source through the switch means, a first secondary winding connected to the first rectifier means through the inductance means and a second secondary winding connected to the second rectifier means through the capacitance means.

4,316,126

COLOR TELEVISION PICTURE TUBE WITH COLOR-SELECTION STRUCTURE AND METHOD OF OPERATION THEREOF

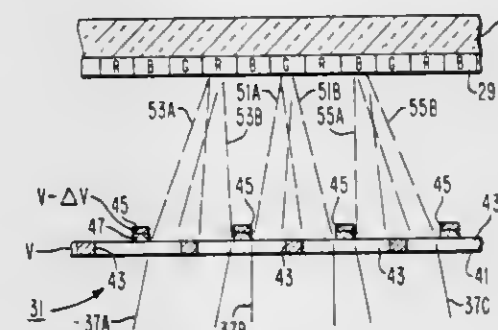
Eric F. Hockings, Princeton, and Carmen A. Catanese, Rocky Hill, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Nov. 23, 1979, Ser. No. 96,974

Int. Cl.³ H01J 29/80

U.S. Cl. 315—375

12 Claims



1. In a color television picture tube including

- (a) a target comprising an array of substantially parallel phosphor stripes of three different emission colors arranged in cyclic order in adjacent triads, each triad comprising a stripe of each of said three different emission colors,
- (b) means for producing three convergent in-line electron beams directed towards said target in a plane that is substantially normal to said stripes, and
- (c) a color-selection structure positioned between said target and said beam-producing means, said structure comprising (i) a metal masking plate having therein an array of apertures arranged in columns that are substantially parallel to said phosphor stripes, and (ii) an array of narrow conductors extending substantially parallel to said stripes and insulatingly spaced from said masking plate, with each conductor being substantially centered over the apertures of one of said columns, said masking plate and said conductors defining an array of windows for transmitting therethrough portions of said electron beams, there being two columns of windows between adjacent conductors, the improvement wherein said conductors are opposite and spaced from the boundaries between adjacent triads.

4,316,127
PROCESS FOR MAINTAINING AN ELECTRIC OSCILLATION CIRCUIT AND HORIZONTAL DEFLECTION DEVICE FOR A CATHODE-RAY TUBE
André Lamoureux, Brunoy, France, assignor to Videocolor, S.A., Montrouge, France

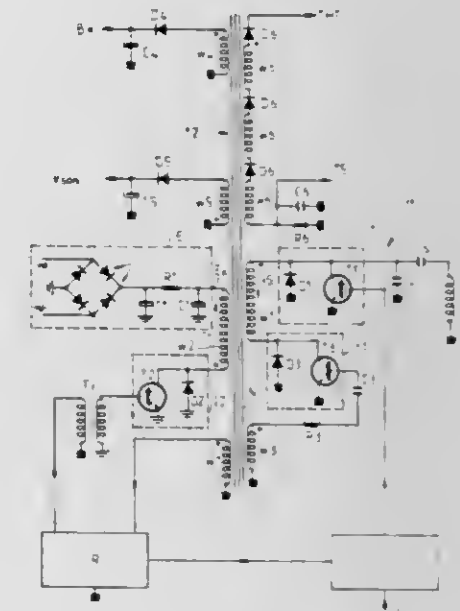
Filed Feb. 2, 1981, Ser. No. 230,827

Claims priority, application France, Jan. 31, 1980, 80 02055; Nov. 5, 1980, 80 23586

Int. Cl.³ H01J 29/70, 29/76

U.S. Cl. 315—408

16 Claims



1. A process for maintaining an electric oscillation circuit with two sequentially commutable oscillation frequencies for the line sweep of a cathode-ray tube, of the type inducing the keep-alive energy level in a first inductive winding connected to said electric oscillation circuit at the common terminal of two of that circuit's condensers, with the lowest oscillation frequency being established for the sweep trace period of the sweep cycle when that condenser is short-circuited and the highest oscillation frequency being established during the retrace period of the sweep when that condenser is not short-circuited, said process being characterized by the fact that, by means of a second inductive winding which may be connected to a source of continuous voltage and coupled to said first winding with a high electromagnetic coupling coefficient by means of a magnetic circuit, it consists in:

interconnecting the aforesaid second winding to the terminals of said continuous voltage source during each sweep trace period referred to above until a predetermined energy level is reached in said magnetic circuit, while keeping the aforesaid first winding disconnected;

disconnecting said second winding when said energy level is reached, preferably while simultaneously connecting said first winding to the terminals of the aforesaid short-circuited condenser until the end of the said sweep trace period if the energy level referred to is reached before the end of that sweep trace period;

breaking the short-circuit at the terminals of said condenser during the entire retrace period, while keeping the aforesaid first winding connected during at least part of that retrace period; and

again disconnecting the aforesaid first winding, preferably at the end of the retrace, and connecting the aforesaid second winding to the terminals of said source of continuous voltage.

4,316,134

FAULT INDICATING CIRCUIT FOR AN AUTOMOTIVE ALTERNATOR BATTERY CHARGING SYSTEM

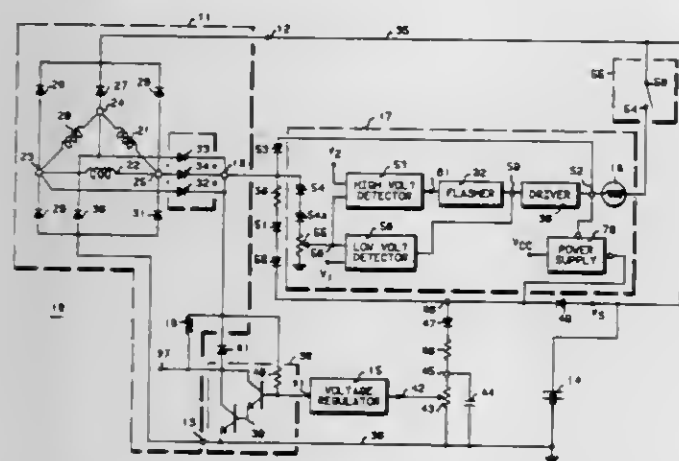
Isadore Balan, Schaumburg, and Kirk A. Sievers, Roselle, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Apr. 4, 1980, Ser. No. 137,332

Int. Cl.³ H02J 7/14

U.S. Cl. 322-99

12 Claims



1. A fault indicating circuit for an automotive alternator battery charging system, comprising:

low voltage detector means for illuminating a display device to provide one visual indication in response to a sensed alternator output signal, related to a rectified alternator output charging signal, having a magnitude below a first predetermined reference voltage magnitude; and

high voltage detector means for illuminating said display device to provide a different visual indication in response to said sensed alternator output signal having a magnitude above a second predetermined reference voltage magnitude greater than said first predetermined reference voltage magnitude, said display device being non-illuminated when said sensed alternator output signal is between said first and second reference voltage magnitudes, whereby said fault indicating circuit utilizes a single display device to provide different distinct visual indications indicative of high and low alternator output modes of failure for an alternator battery charging system,

wherein said display device comprises a lamp, and wherein said circuit includes circuitry for serially coupling said lamp and a field coil of said alternator such that said lamp supplies initial excitation current for said field coil when said alternator output charging signal and said sensed alternator output signal are substantially zero.

4,316,135

CIRCUIT ARRANGEMENT FOR FEEDING MODULES IN USER STATIONS

Bernhard Rall, Ulm, Fed. Rep. of Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Fed. Rep. of Germany

Filed Aug. 6, 1980, Ser. No. 175,852

Claims priority, application Fed. Rep. of Germany, Aug. 7, 1979, 2931922

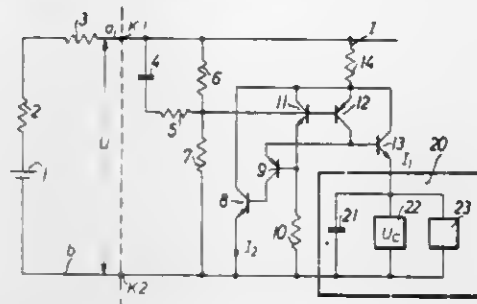
Int. Cl.³ G05F 1/46

U.S. Cl. 323-265

3 Claims

1. A circuit arrangement for feeding a module containing a component requiring a constant operating voltage in a user station fed by a current-conducting connection path, comprising: current control means connected for controlling the current in said connection path; resistance control means connected for controlling the alternating current resistance presented by said circuit arrangement to said connection path; means defining a first current conducting branch connected for feeding current supplied by said connection path to said module; and means defining a second current conducting branch

connected for conducting current supplied by said connection path in a manner to bypass said module only when the voltage



between two selected points in said connection path falls below the constant operating voltage required by the module.

4,316,136

SWITCHING REGULATOR CONTROL

Jürgen Saxarra, Backnang, and Erich Pivt, Allmersbach, both of Fed. Rep. of Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Fed. Rep. of Germany

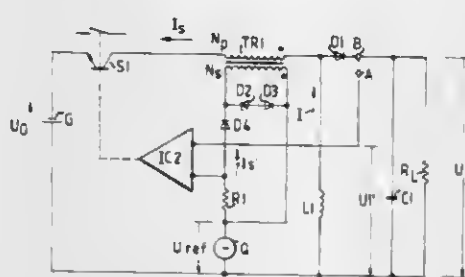
Filed May 16, 1980, Ser. No. 150,660

Claims priority, application Fed. Rep. of Germany, May 18, 1979, 2920165

Int. Cl.³ G05F 1/56

U.S. Cl. 323-282

3 Claims



$$T_1: U_0 = L_1 \frac{dI_1}{dt}$$

$$T_2: U_1 = L_1 \frac{dI_2}{dt}$$

$$\frac{U_0}{T_1} = \frac{U_1}{T_2}$$

1. In a method for controlling a switching regulator composed of a controllable electronic switch and a transformer, in which the electronic switch forms a series path with the transformer primary, the series path is connected in series between a direct voltage source and a load, and the amplitude of the current flowing through the switch constitutes a criterion for controlling the load voltage, which method includes periodically causing the switch to assume one switching state at regular intervals occurring with a predetermined frequency, comparing the value of a comparison voltage corresponding to the load voltage and having a selected nominal value with a second voltage value, and causing the switch to assume its opposite switching state when a predetermined relation exists between the comparison voltage value and the second voltage value, the improvement comprising: providing a constant reference voltage; providing a control voltage which varies as a function of the current induced in the transformer secondary by current through the switch subsequent to closing of the switch and while the switch remains closed; providing a time-varying voltage having a sawtooth waveform and varying between an initial value at the start of each regular interval and a final value at the end of each regular interval; and giving the constant voltage, the control voltage and the time-varying voltage values such that the sum of the constant voltage value, the value which the control voltage would have at the end of an interval if the switch were closed during the entire interval, and the final value of the time-varying voltage is greater than the sum of the nominal value of the comparison voltage and the maximum permissible value of a jump in the comparison voltage corresponding to a maximum acceptable interfering voltage jump in the load voltage, and the sum of the constant

voltage value, the value of the control voltage at the start of an interval and the initial value of the time-varying voltage is less than the difference between the nominal value and the maximum permissible jump value of the comparison voltage; with the second voltage value being defined by the sum of the values of the constant reference voltage, the control voltage and the time-varying voltage.

4,316,137

COMPLETELY INSULATED, METAL-ENCAPSULATED ELECTRICAL SWITCHING SECTION

Manfred Osterloh, Rüsselsheim; Otto Putz, Maintal, and Walter Stecker, Heusenstamm, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

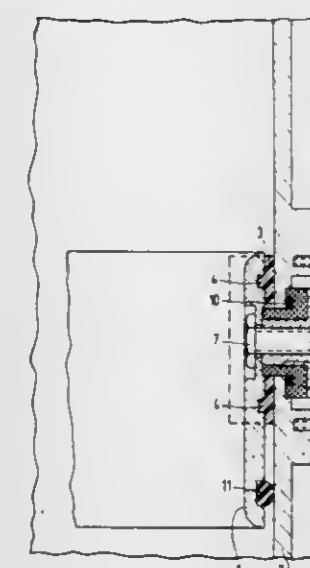
Filed Sep. 5, 1980, Ser. No. 184,477

Claims priority, application Fed. Rep. of Germany, Sep. 26, 1979, 2939006

Int. Cl.³ H03H 1/00

U.S. Cl. 323-364

7 Claims



1. In a completely insulated, metal encapsulated electrical switching section including disposed therein a tube in the form of a large-area electrode arranged coaxially in a tubular jacket of the metal encapsulation, the tube being fastened electrically insulated to the tubular jacket, the tube in cooperation with a conductor arranged centered in the tubular jacket forming a capacitor of a capacitive voltage transformer, the improvement comprising an insulating tube section disposed between the tube and the tubular jacket, an insulating bushing extending through the wall of the insulating tube section and through the wall of the tubular jacket, a metallic bushing on which the insulating bushing is seated, a screw received in the metallic bushing for clamping the insulating tube section between the tube and the tubular jacket, the insulating bushing having a flange portion clamped between the outside of the tubular jacket and a flange portion of the metallic bushing, and a voltage take-off connected to the metallic bushing.

4,316,138

ELECTRIC SWITCHING SECTION

Erich Adolph, Frankfurt am Main; Ünal Bayrak, Bischofsheim, and Walter Stecker, Heusenstamm, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Sep. 5, 1980, Ser. No. 184,472

Claims priority, application Fed. Rep. of Germany, Sep. 26, 1979, 7927354[U]

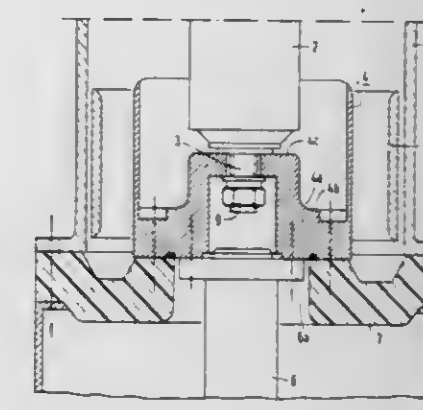
Int. Cl.³ H03H 1/00

U.S. Cl. 323-364

2 Claims

1. In an electric switching section with a metal encapsulation which contains insulating gas and, for each phase, at least one transformer and a vacuum switching tube which is enclosed by the transformer, the tube having a stationary terminal con-

nected to a cable terminal, the improvement comprising a transformer which includes a cup-shaped electrode forming the inner electrode of a capacitive voltage transformer, the cup-shaped electrode having a bottom which is detachably connected to the stationary terminal of the vacuum switching



tube and to an extension of the cable terminal, a feedthrough plate being arranged below the cup-shaped electrode to which the cup-shaped electrode is detachably fastened, the cable terminal having an extension which passes through the feed-through plate.

4,316,139

METHOD AND APPARATUS FOR DETERMINING THE LOCATION OF AN ARC IN A WAVEGUIDE TRANSMISSION LINE OR THE LIKE

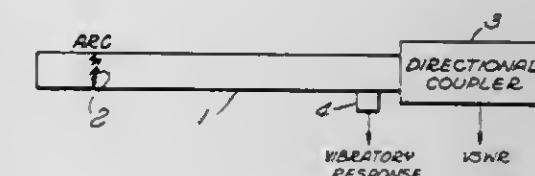
Errol L. Root, Simi Valley, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Jun. 13, 1979, Ser. No. 48,093

Int. Cl.³ G01R 31/08

U.S. Cl. 324-52

16 Claims



8. Apparatus for locating an arc in a waveguide comprising: (a) first means for detecting standing waves at an arbitrary point along said waveguide said standing waves corresponding to initiation of an electromagnetic disturbance in said waveguide resulting from said arc; (b) second means for detecting a vibratory disturbance corresponding to said electromagnetic disturbance in the waveguide resulting from said arc, said second means being disposed at a predetermined location along said waveguide and in acoustic contact therewith; (c) counter means responsive to said first and second means for measuring the time interval between initiation of said electromagnetic disturbance and detection of said vibratory disturbance; and (d) third means for calculating the distance between the location of the arc and said predetermined location based upon the measured time interval and the speed of vibratory disturbances in said waveguide.

4,316,140

CHARGE-FLOW TRANSISTORS

Stephen D. Seoturia, Boston, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Sep. 17, 1979, Ser. No. 76,037

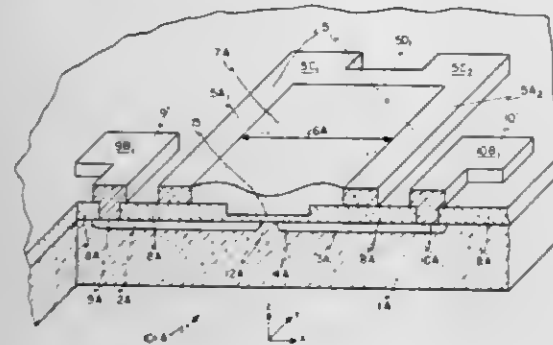
Int. Cl.³ G01N 27/00; H01L 29/78, 29/84

U.S. Cl. 324-71 SN

10 Claims

1. A charge-flow transistor comprising a semiconductor substrate, a source region in the substrate, a drain region in the

substrate, and electrically sensitive region in the substrate between the source region and the drain region, gate means comprising a pair of interconnected highly conductive fingers with a gap between the fingers and a gap material having much less conductance than the highly conductive fingers disposed in said gap, said gap material being electrically connected to the highly conductive fingers to permit charge flow therebetween, a gate insulator sandwiched between the gap material



and the electrically sensitive region, said electrically sensitive region being electrically sensitive to any bias electric field applied through the gate insulator, said bias electric field being created in said charge-flow transistor substantially totally by charge patterns in the gap material at and near the interface between the gap material and the gate insulator to provide a charge-flow transistor whose TURN-ON time t_{on} is about equal to the TURN-OFF t_{off} thereof.

4,316,141

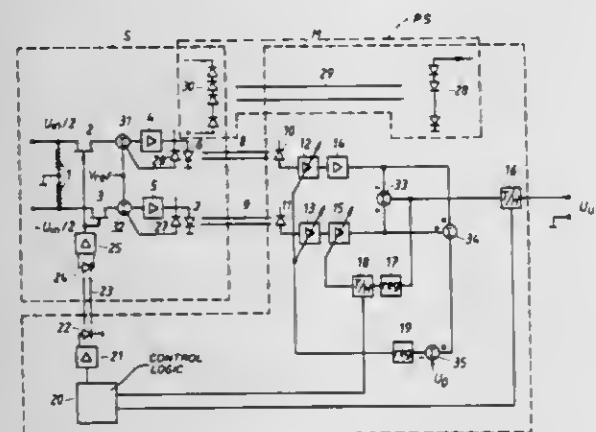
MEASURING DEVICE WITH OPTICAL SIGNAL TRANSMISSION

Morgan Adolfssohn, and Torgny Brogårdh, both of Vesterås, Sweden, assignors to ASEA Aktiebolag, Vesterås, Sweden
Filed Oct. 24, 1979, Ser. No. 87,773

Claims priority, application Sweden, Oct. 27, 1978, 7811165
Int. Cl.³ G01R 31/00; H04B 9/00

U.S. Cl. 324-96

14 Claims



I. Measuring device for providing output signals representative of input measuring signals, comprising:

a transmitter for combining input measuring signals with a reference signal and forming at least two different signals therefrom;
a receiver responsive to said at least two different signals for forming output signals representative of said input measuring signals;
at least two optical transmission channels for transmitting said at least two different signals from said transmitter to said receiver; and

said receiver including at least one variable gain amplifier responsive to the transmission output from one of said at least two optical transmission channels, compensation means for generating at least one reference signal from said at least two different signals, and the gain of said variable gain amplifier being controlled by said at least

one reference signal such that said output signals are independent of drift and instability in the transmitter, receiver and at least two optical transmission channels.

4,316,142

CLAMP TYPE AMMETER

Takeo Kuramoto, Tokyo, Japan, assignor to Kyoritsu Electrical Instruments Works, Ltd., Tokyo, Japan

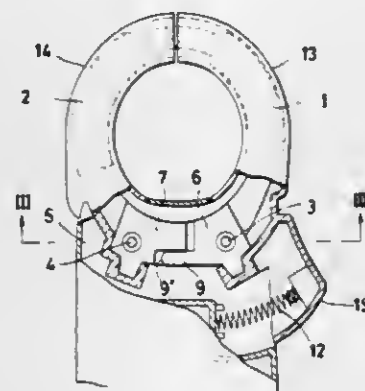
Filed May 13, 1980, Ser. No. 149,340

Claims priority, application Japan, Nov. 20, 1979, 54-159892

Int. Cl.³ G01R 1/22; H01F 17/06

U.S. Cl. 324-127

3 Claims



I. A clamp type ammeter, comprising:

a laterally symmetrical pair of magnetic cores each pivotally attached to a support shaft,

first actuating means provided at a basal portion pivotally attached to the first of said pair of magnetic cores, said first actuating means possessing a fitting portion adapted to join the basal portion of the first magnetic core and an actuating piece protruding from one lateral lower side of the fitting portion,

second actuating means provided at a basal portion pivotally attached to the second of said pair of magnetic cores, said second actuating means possessing a fitting portion adapted to join the basal portion of the second magnetic core and a receiving piece protruding from one lateral upper side of the fitting portion, said receiving piece of the second actuating means being underlaid by said actuating piece of the first actuating means,

spring means adapted to produce an energizing force such as to keep said pair of magnetic cores in a closed state, and a trigger adapted to act upon said first magnetic core in the direction of bringing the pair of magnetic cores into an opened state.

4,316,143

SPEED DEVIATION DETECTOR FOR SERVO CONTROLLED DISC MASTERING TURNTABLE

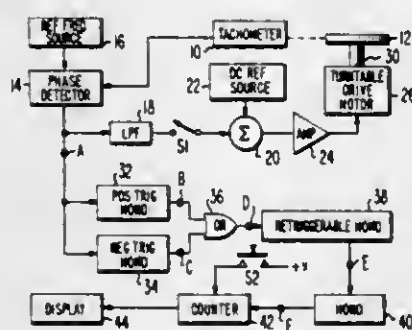
Richard M. Castle, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed May 29, 1980, Ser. No. 154,599

Int. Cl.³ G01P 3/46

U.S. Cl. 324-161

5 Claims



I. A detector for detecting speed errors of a PLL servo

controlled turntable, said PLL servo having a given phase lock range, said detector comprising:

phase detector means in said PLL servo responsive to a reference signal and a turntable speed indicating signal supplied thereto for producing a control signal for regulating the speed of said turntable, said control signal exhibiting symmetry variations characteristic of said speed errors; and

symmetry deviation detection means responsive to said control signal for providing a first output signal manifestation when said symmetry variations are within predetermined limits and a second output signal manifestation when said symmetry variations exceed said predetermined limits, said predetermined limits lying within said given phase lock range of said PLL servo.

4,316,144

INTEGRAL MECHANICAL AND ELECTRICAL VEHICLE SPEED SENSOR

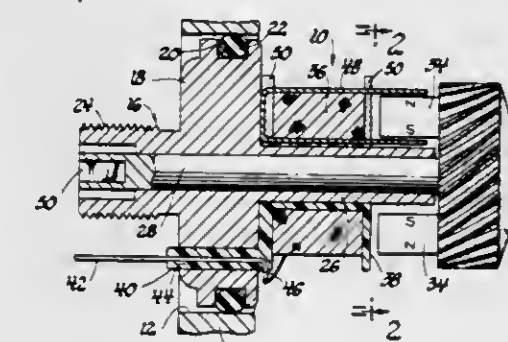
Wayne A. Levijoki, Clio, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 23, 1979, Ser. No. 96,847

Int. Cl.³ G01P 3/48, 3/54

U.S. Cl. 324-174

2 Claims



I. A combined electrical and mechanical speed sensor for mounting in the speedometer cable drive port of a vehicle transmission housing for driving engagement with a transmission driving gear therein to produce an electrical speed signal and a rotary mechanical speed output, comprising

a sleeve member adapted for mounting in a transmission housing cable drive port including an inner portion adapted to extend into the housing,

a shaft rotatably journaled in the sleeve member and having an inner end adapted to extend into the housing and an outer end adapted to connect to a speedometer cable, a driven gear fixed on the inner end of the shaft adjacent the said sleeve member inner portion and adapted to drivingly couple the shaft to the said transmission driving gear, an annular sensing coil surrounding the inner portion of the sleeve member and mounted thereon,

at least one magnet mounted on the driven gear for rotation therewith in a path adjacent the sensing coil, and at least one polepiece extending through the sensing coil and to the magnet path for coupling magnetic flux from the magnet to the sensing coil,

whereby a pulsed electrical signal having a frequency proportional to the rotational speed of the driven gear is induced in the sensing coil and a mechanical speed output is provided at the outer end of the shaft.

4,316,145

FLUID PRESSURE ACTUATOR WITH PROXIMITY POSITION SENSOR

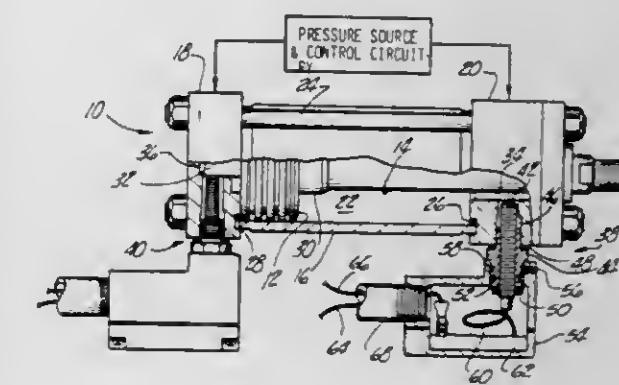
David Tann, Detroit, Mich., assignor to Electro-Mechanical Products, Detroit, Mich.

Continuation of Ser. No. 728,555, Oct. 1, 1976, abandoned. This application Jul. 13, 1978, Ser. No. 924,326

Int. Cl.³ G01B 7/14; H01H 9/00

U.S. Cl. 324-208

5 Claims



I. A fluid pressure actuator including:

a fluid pressure cylinder;

a movable piston member slidably disposed in said cylinder; a pair of end caps, one each mounted to said cylinder to cover either end of said cylinder to define a fluid pressure chamber in said cylinder, with said piston moving into abutment with either end cap during movement in said cylinder;

a piston rod mounted to said piston to form a piston and rod assembly and extending through said cylinder and a bore formed in one of said end caps;

at least one cushioning plug adjacent said piston and forming a part of said piston or said piston rod, said cushioning plug forming a localized change in diameter portion of said piston and rod assembly immediately adjacent said piston;

at least one axially extending cushioning plug chamber formed in at least one of said end caps positioned and configured to receive said at least one cushioning plug as said piston approaches said end cap;

means for pressurizing said fluid pressure chamber so as to cause said piston member to be reciprocated in said fluid pressure chamber;

at least one opening formed in said at least one end cap extending laterally into said at least one cushioning chamber;

electrical proximity sensor means sensing the position of said cushioning plug within said fluid pressure chamber at at least one position in said movement, said proximity sensor means including a threaded proximity sensor plug adjustably mounted in said opening for selective movement toward and away from said one cushioning chamber and extending into said one cushioning chamber, said proximity sensor means generating a signal by movement of said cushioning plug into said at least one cushioning chamber; circuit means associated with said electrical proximity sensor so as to generate said signal generated upon movement of said cushioning plug into said at least one cushioning chamber;

a nut member threadedly receiving said threaded sensor plug and releasably securing said threaded sensor plug against movement relative to said one cushioning chamber;

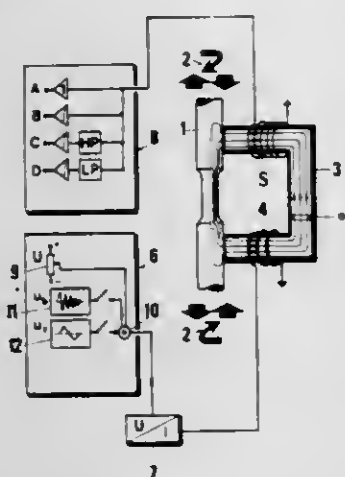
a junction housing disposed along side said at least one end cap mounted on said nut member with said sensor plug extending into said junction housing interior;

further including electrical leads secured to said proximity sensor extending through said threaded plug into said junction housing and wherein said circuit means is con-

tained within said junction housing electrically connected to said proximity sensor means by said electrical leads.

4,316,146 METHOD AND DEVICE FOR MEASURING AND DETECTING A CHANGE IN THE MECHANICAL STATE OF A BODY

Leif A. Jilken, S-58252, Linköping, Sweden
Filed Aug. 20, 1979, Ser. No. 68,183
Claims priority, application Sweden, Dec. 12, 1977, 7714053
Int. Cl.³ G01B 7/24; G01R 33/18, 33/12; G01N 27/72
U.S. Cl. 324—209 5 Claims



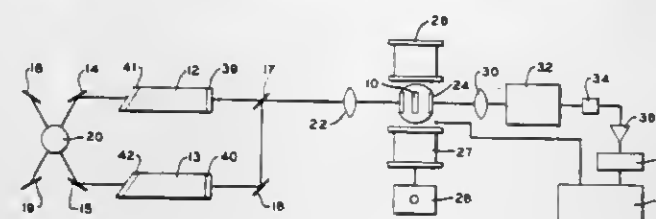
1. A method for measuring or detecting a change in the mechanical state such as a change in the mechanical load, yielding, crack initiation, crack propagation, separation within the material or vibration or the time derivative of the change in the mechanical state in a body showing magnetostrictive effects, when, under the influence of a driving magnetizing force (H) an associated magnetic flux is generated in at least a part of the body, on which flux the change in the mechanical state via the magnetization (M) acts as a measurable or detectable disturbance, characterized in that the driving magnetizing force (H₀) and the average length (l) of the magnetic circuit are kept essentially constant and independent of the change in the mechanical state, the flux consists partly of a main flux (Φ₀) associated with the driving magnetizing force (H₀) having a definite direction and being of such a magnitude that the magnetic properties of the body depart from the region of irreversibility and partly of an alternating gradually vanishing flux (Φ_v) superposed upon the main flux, the alternating gradually vanishing flux must have such an initial magnitude that saturation is obtained in both directions of the alternating gradually vanishing flux (Φ_v), so that, a point on the anhysteretic curve of the body is reached when the alternating flux (Φ_v) has vanished, thereafter the disturbance generated through the change in the mechanical state is indicated or registered as a voltage, which is induced by the change in flux corresponding to the disturbance.

4,316,147 APPARATUS FOR DETERMINING THE COMPOSITION OF MERCURY-CADMIUM-TELLURIDE AND OTHER ALLOY SEMICONDUCTORS

Muhammad A. Khan, Bloomington; Paul W. Kruse, Jr., and John F. Ready, both of Edina, all of Minn., assignors to Honeywell Inc., Minneapolis, Minn.
Filed Mar. 3, 1980, Ser. No. 126,633
Int. Cl.³ G01N 27/00

U.S. Cl. 324—300 10 Claims
1. Apparatus for determining the composition of a quantity of mercury-cadmium-telluride, comprising:
means for producing a pair of colinear laser beams of different frequencies;
means for positioning a sample of mercury-cadmium-telluride having the formula $Hg_{1-x}Cd_xTe$;
means directing said beams onto said sample for passage

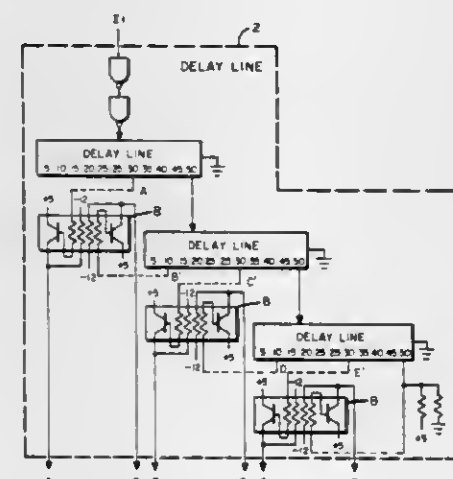
therethrough to produce an emission beam resulting from four-photon mixing;
magnetic field means for producing a magnetic field at said sample and for varying the magnetic field from substantially below to substantially above the resonance field of



said sample to produce a four-photon mixing signal having a peak;
and, detector means receiving said emission beams to identify the resonance signal peak from which the spin-level splitting factor can be measured.

4,316,148 VARIABLE FREQUENCY LOGIC CLOCK

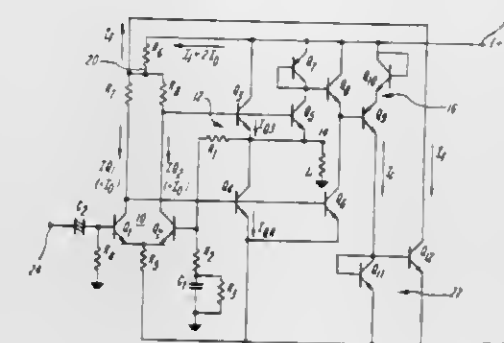
David G. Kaminski, Bloomington, Minn., assignor to Sperry Corporation, New York, N.Y.
Filed Sep. 4, 1979, Ser. No. 71,810
Int. Cl.³ H03K 3/017
U.S. Cl. 328—55 4 Claims



1. A clock signal generator, comprising:
delay line means having an input terminal and a plurality of output terminals for producing a plurality of time variant output signals on said output terminals as an input signal propagates down said delay line;
a decoder comprising,
means for feedback coupling one of said output terminals to said input terminal, thereby producing a cyclical clock signal and
means for dividing the period of said cyclical clock signal into at least first and second time intervals; and
means for selectively controlling which of said output terminals is feedback coupled to said input terminal from cycle to cycle of said clock signal, thereby controlling the period of said clock signal and the duration of the first and second time intervals for each cycle of said clock signal.

4,316,149 POWER AMPLIFIER

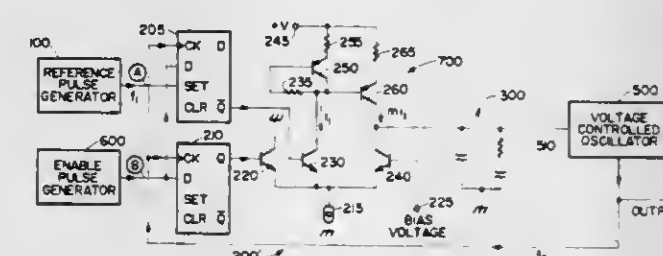
Hiroyasu Yamaguchi, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Japan
Filed Mar. 28, 1980, Ser. No. 135,128
Claims priority, application Japan, Mar. 31, 1980, 54-38637
Int. Cl.³ H03F 3/26
U.S. Cl. 330—268 12 Claims



1. A power amplifier comprising:
(a) a preamplification stage;
(b) an output stage driven by said preamplification stage and having power transistors each coupled to a common output terminal;
(c) current detecting transistors connected in parallel at their base-emitter paths to the base-emitter paths of said power transistors for detecting currents flowing through said power transistors, respectively;
(d) an operating circuit coupled to said current detecting transistors, said operating circuit generating a feed back current which has a function related to the product of the respective currents through said power transistors; and
(e) means for feeding back said feed back current from said operating circuit to said preamplification stage for keeping said feed back current constant.

4,316,150 PHASE LOCKED LOOP INCLUDING PHASE DETECTOR SYSTEM CONTROLLED BY ENABLE PULSES

Philip S. Crosby, Portland, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.
Filed Jan. 9, 1980, Ser. No. 110,561
Int. Cl.³ H03L 7/08; H03K 5/26
U.S. Cl. 331—1 A 7 Claims

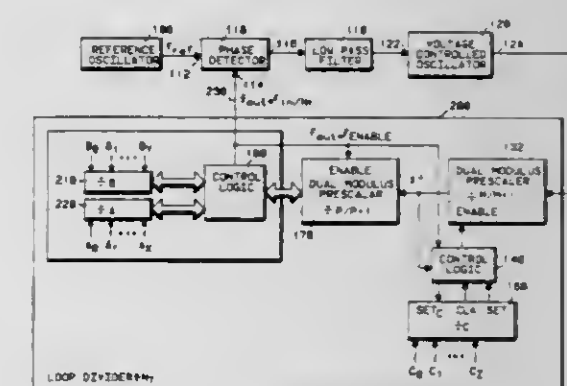


1. A system for providing a second signal at a second frequency in accurate-timed relation with a first signal at a first frequency, comprising:
controlled signal generating means for generating the second signal;
enable pulse generating means for generating an enable pulse independent of the second signal and in fixed phase relationship with said first signal; and
phase detecting means for comparing the first signal with the second signal and controlling said controlled generating means in response to the comparison for maintaining the second signal in accurate timed relation with the first signal, said phase detecting means being activated for the interval of the enable pulse from said enable pulse generating means.
2. A phase detector system for comparing the phase of a first

signal at a first frequency with a second signal at a second frequency, comprising:
enable pulse generating means for generating an enable pulse;
a first flip-flop circuit having a clock input connected to receive the second signal, a D input to receive the output of said enable pulse generating means, a SET input connected to receive the first signal, and a Q output;
a second flip-flop circuit having a clock input connected to receive the second signal, a D input to receive the output of said enable pulse generating means, and a Q output;
current amplifying means for providing a switchable error current; and
switching means responsive to said Q and said Q outputs for switching said error current.

4,316,151 PHASE LOCKED LOOP FREQUENCY SYNTHESIZER USING MULTIPLE DUAL MODULUS PRESCALERS

William J. Ooms, Hazelcrest, Ill., assignor to Motorola, Inc., Schaumburg, Ill.
Filed Feb. 13, 1980, Ser. No. 121,333
Int. Cl.³ H03K 21/36; H03L 7/18
U.S. Cl. 331—1 A 9 Claims



1. An improved frequency synthesizer comprising:
(a) a reference signal source for generating a reference signal;
(b) a phase comparator, having a first input coupled to the signal source, a second input and an output, for producing at the output a control signal representative of the phase difference of signals received at the first and second input;
(c) a signal controlled oscillator for producing an oscillator signal of frequency f at its output in response to the phase comparator control signal; and
(d) divider means for frequency dividing the controlled oscillator signal by a divisor N and applying the divided signal to the second input of the phase comparator including,
first prescaler means for frequency dividing the controlled oscillator signal by one of two predetermined integer divisors M and M' and producing a divided output signal,
means for counting the output signals from the first prescaler and producing an output signal when C signals have been counted when said counting means is enabled,
second prescaling means for frequency dividing the output signal of the first prescaling means by one of two predetermined integer divisors P and P', and producing a divided output signal,
frequency dividing means, coupled to the second prescaler, for frequency dividing the output signal of the second prescaler to produce an output signal of frequency f/N at an output, and
means for controlling the first prescaler and the counting means such that the counting means is enabled when the first prescaler is dividing the input signal by M' and

such that the first prescaler is actuated from its M' divisor to its M divisor in response to the output signal from the counter means, and such that the first prescaler is actuated from its M divisor to its M' divisor in response to the output signal of the frequency dividing means.

6. A high speed frequency divider responsive to a source of input signals of frequency f, comprising:

first prescaling means for frequency dividing the input signal by one of two predetermined integer divisors M and M' and producing a divided output signal;

means for counting the output signals from the first prescaler and producing an output signal when C signals have been counted when the counting means is enabled;

second prescaling means for frequency dividing the output signal of the first prescaling means by one of two predetermined integer divisors P and P' and producing a divided output signal;

frequency dividing means, coupled to the second prescaler, for frequency dividing the output signal of the second prescaler to produce an output signal of frequency F divided by N; and

means for controlling the first prescaler and the counting means such that the counting means is enabled when the first prescaler is dividing the input signal by M', and such that the first prescaler is actuated from its M' divisor to its M divisor in response to the output signal from the counter means, and such that the first prescaler is actuated from its M divisor to its M' divisor in response to the output signal from the frequency dividing means.

4,316,152

DATA TRACKING PHASE LOCKED LOOP

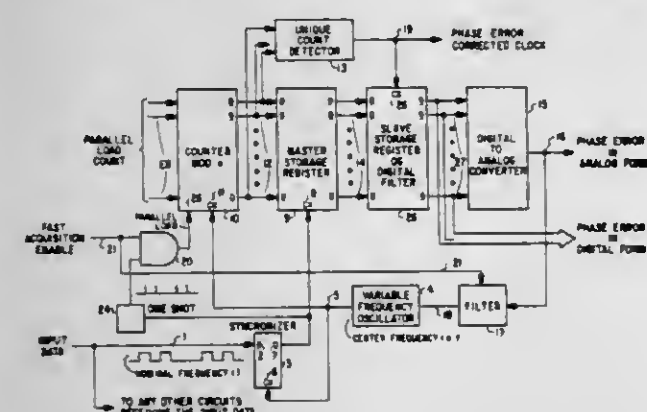
Gerald L. Meyer, Loveland, Colo., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Sep. 24, 1979, Ser. No. 77,980

Int. Cl.³ H03L 7/08

U.S. Cl. 331-1 A

8 Claims



7. A method of tracking phase variations in a data signal having a nominal frequency comprising the steps of:

counting by a modulus n the cycles of a variable frequency oscillation having a center frequency n times greater in frequency than the nominal frequency of the input data;

capturing the value of the count of the variable frequency oscillation each time a cycle of the input data occurs;

storing the captured value each time the count of the variable frequency oscillation attains a selected value between zero and n-1; and

controlling in relation to the stored value the frequency at which the variable frequency oscillation occurs, such that increases in the captured value reduce the frequency of the variable frequency oscillation, and decreases in the captured value increase the frequency of the variable frequency oscillation.

4,316,153

PASSIVE MASERS HAVING OSCILLATOR AND CAVITY CONTROL LOOPS

Giovanni Busca, Neuchatel, and Helmut-Hugo Brandenberger, Sugiez, both of Switzerland, assignors to Ebauches, S.A., Switzerland

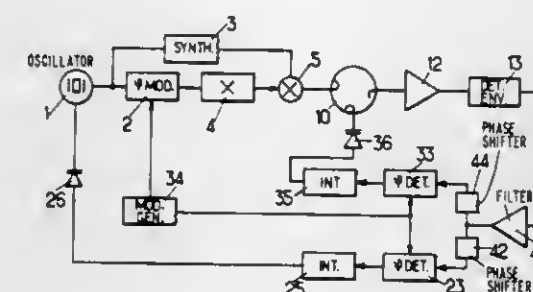
Filed Feb. 5, 1980, Ser. No. 119,138

Claims priority, application France, Mar. 9, 1979, 79 06104

Int. Cl.³ H03L 7/26

U.S. Cl. 331-3

5 Claims



1. A process for controlling a passive maser having a resonant cavity which contains a medium capable of stimulated emission, and which is excited by an injected phase-modulated signal, comprising the steps of producing from a signal picked off from the cavity a first error signal representing the difference between the carrier frequency of the injected signal and the frequency of the stimulated emission, using the first error signal to adjust the said carrier frequency, producing from the picked-off signal a second error signal representing the difference between the resonance frequency of the cavity and the said carrier frequency, and using the second error signal to adjust the resonance frequency of the cavity, wherein the phase modulation of the injected signal is effected at a single frequency.

4,316,154

AUTOMATIC SWEEP AND ACQUISITION CIRCUIT FOR A PHASE LOCKED LOOP

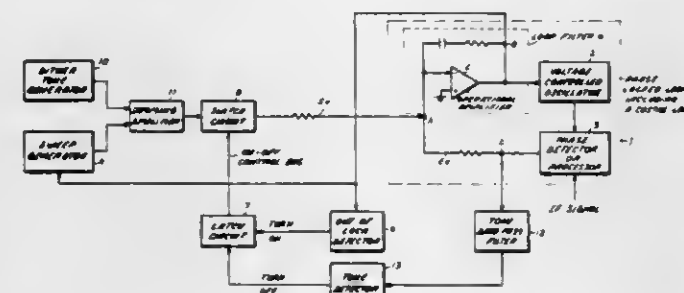
Irving A. Krause, Nutley, N.J., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Apr. 7, 1980, Ser. No. 137,882

Int. Cl.³ H03L 7/00

U.S. Cl. 331-4

41 Claims



1. An automatic sweep and acquisition circuit for a phase locked loop comprising:

first means coupled to said loop to detect an out-of-lock condition of said loop;

second means coupled to said loop and said first means responsive to said out-of-lock condition to inject a sweep voltage and a tone simultaneously into said loop; and

third means coupled to said loop and said second means to detect said tone indicating a locked condition of said loop and to disconnect said second means from said loop when said tone is detected.

4,316,155

VOLTAGE CONTROLLED OSCILLATOR HAVING RATIOMETRIC AND TEMPERATURE COMPENSATION

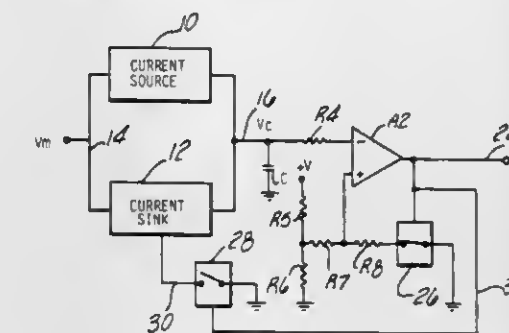
John C. P. Hanisko, Southfield, Mich., assignor to The Bendix Corporation, Southfield, Mich.

Filed Sep. 5, 1979, Ser. No. 72,799

Int. Cl.³ H03L 7/00

U.S. Cl. 331-18

8 Claims



1. A voltage controlled oscillator circuit for generating first and second level output signals dependent upon the magnitude of an input parameter signal and independent of supply voltage and temperature variations, said circuit comprising:

means adapted to receive a supply voltage of a single polarity;

timing means;

a voltage controlled current source responsive to the input parameter signal for charging said timing means at a rate proportional to the magnitude of the input parameter signal and ratiometrically with variations in said supply voltage for generating an increasing ramp of a sawtooth signal;

a voltage controlled current sink having substantially twice the current capacity of said current source and responsive to the input parameter signal and the second level output signal for controlling the discharging of said timing means at a rate proportional to the magnitude of the input parameter signal and ratiometrically with variations in said supply voltage for generating a decreasing ramp of a sawtooth signal;

threshold signal generating means responsive to the first level output signal for generating a first value threshold signal ratiometrically with variations in said supply voltage and including switch means responsive to the second level output signal for generating a second value threshold signal ratiometrically with variations in said supply voltage; and

a single comparator means having said timing means electrically connected to one input and said threshold signal generating means electrically connected to another input and operative in response thereto for generating a first and second level magnitude output signal at a frequency independently of said supply voltage and dependent upon the magnitude of the input parameter signal.

4,316,156

OPTICAL REPEATER INTEGRATED LASERS

Donald R. Scifres, Los Altos; William Streifer, Palo Alto, and Robert D. Burnham, Los Altos Hills, all of Calif., assignors to Xerox Corporation, Stamford, Conn.

Filed Jul. 12, 1979, Ser. No. 56,765

Int. Cl.³ H01S 3/19

U.S. Cl. 372-50

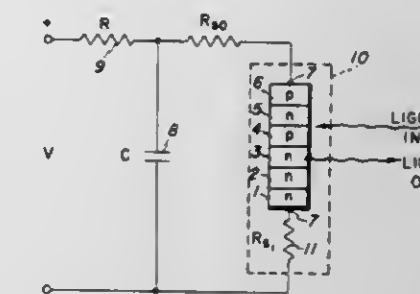
5 Claims

1. In a plural layer semiconductor diode laser which is electrically biased to the point wherein light input causes the laser to commence lasing such that the improvement is characterized by:

a first substrate layer (1) of a semiconductive crystal, a second layer (2) of a semiconductive crystal with a predetermined bandgap,

a third layer (3) of a semiconductive crystal with a bandgap relatively smaller than that of said second layer,

a fourth layer (4) of a semiconductive crystal with a bandgap similar to that of said second layer, a fifth layer (5) of a semiconductive crystal with a bandgap between that of said second layer and said third layer, a sixth layer (6) of a semiconductive crystal with a bandgap similar to that of said second layer,



wherein when said electrical bias (V) is slightly less than the breakdown voltage of the back biased junction between the fourth and fifth layers thereof, and external light (8, 9) is supplied to the fourth or fifth layers, said back biased junction between said fourth and fifth layers becomes forward biased so as to stimulate the emission of laser light from the third layer.

4,316,157

GAS RECIRCULATION SYSTEM FOR CARBON DIOXIDE LASERS

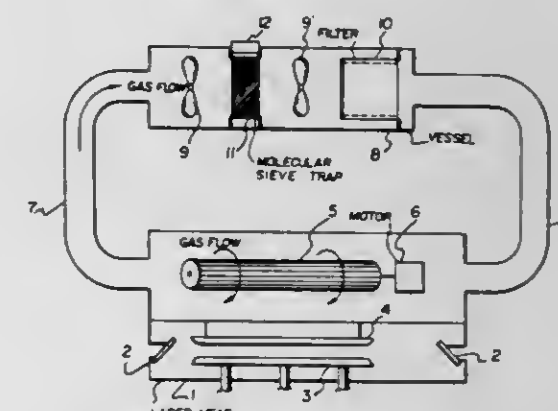
Mahendra K. Dosi, Ottawa; Douglas J. James, and Anthony W. Pasternak, both of Kanata, all of Canada, assignors to Canadian Patents & Development Ltd., Ottawa, Canada

Filed Aug. 13, 1979, Ser. No. 66,176

Int. Cl.³ H01S 3/14

U.S. Cl. 372-59

11 Claims



1. In a method of operating a laser with a gas mixture having CO₂ within the laser, wherein the CO₂ dissociates to produce O₂, the steps including:

(a) adding a reducing gas to the gas mixture to produce an oxygen-product with the O₂ within the laser; and

(b) removing the oxygen-product from the laser.

4,316,158

R-C OSCILLATORS USING PLURAL INVERTERS

Sigeyuki Akita, and Hiroaki Tanaka, both of Okazaki, Japan, assignors to Nippon Soken, Inc., Nisbio, Japan

Filed Jan. 7, 1980, Ser. No. 109,916

Claims priority, application Japan, Jan. 17, 1979, 54-4650

Int. Cl.³ H03K 3/03, 3/354

U.S. Cl. 331-111

9 Claims

1. In an oscillator circuit including: a first inverter connected to an electric DC power source; a second inverter connected to said electric DC power source and having an input terminal connected to an output terminal of said first inverter;

a resistor connected in series with said first inverter to form a closed circuit; and

a capacitor connected at one end thereof with an output terminal of said second inverter and at the other end thereof with the output terminal of said first inverter through said resistor such that said first and second inverters are inverted opposite to each other with a time period defined by a resistance value of said resistor and a capacitance of said capacitor;

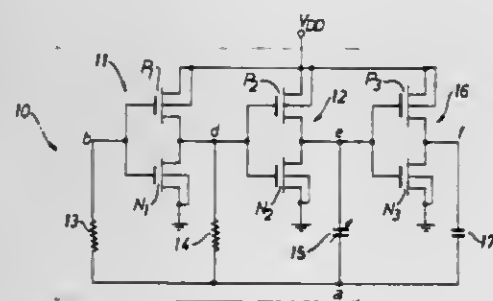
the improvement comprising:

a third inverter connected to said electric DC power source and connected at its input terminal to the output terminal of said second inverter; and

a capacitor connected at one end thereof with an output terminal of said third inverter and at the other end thereof with the output terminal of said second inverter through said first-named capacitor such that said second-named capacitor is biased by an inverter function of said third inverter in voltage polarity opposite to that of said first-named capacitor.

6. An oscillator circuit comprising:

a first inverter connected to an electric DC power source; and a second inverter connected to said electric DC power



source and having an input terminal connected to an output terminal of said first inverter;

a first capacitor connected in series with said first inverter to form a closed circuit;

a resistor connected at one end thereof with an output terminal of said second inverter and at the other end thereof with the output terminal of said first inverter through said first capacitor such that said first and second inverters are inverted oppositely to each other with a time period defined by a capacitance of said first capacitor and a resistance value of said resistor;

a third inverter connected to said electric DC power source and having an input terminal connected to the output terminal of said second inverter;

a fourth inverter connected to said electric DC power source and having an input terminal connected to an output terminal of said third inverter; and

a second capacitor connected at one end thereof with an output terminal of said fourth inverter and at the other end thereof with the output terminal of said second inverter through said resistor such that said second capacitor is biased by each inverter function of said third and fourth inverters in voltage polarity opposite to that of said first capacitor.

4,316,159

REDUNDANT MICROWAVE SWITCHING MATRIX

Pang T. Ho, Mountain View, Calif., assignor to RCA Corporation, New York, N.Y.

Filed Jan. 22, 1979, Ser. No. 5,385

Int. Cl.³ H01P 1/15;

U.S. Cl. 333-104

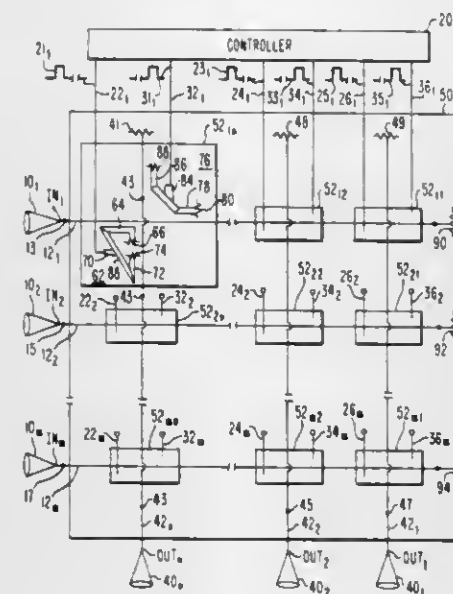
5 Claims

1. A redundant microwave switching matrix that distributes the power from a plurality of input microwave signals equally to a plurality of output paths, said matrix comprising:

a plurality of strip transmission lines spaced from each other

and arranged in rows and columns, the crossings of which form coordinates of said matrix;

a pair of controllable microwave power couplers positioned diametrically opposite each other at each coordinate of said matrix, each of said power couplers responsive to a control signal for coupling according to a given power ratio a given amount of power of said input signal propagating along an associated row oriented transmission line



to an associated column oriented transmission line and responsive to the absence of said control signal for interrupting said coupling, said power ratio being greater than zero and being the same for all couplers; and

means for providing said control signal to either one of said pair of power couplers whereby in the event of failure of one of the pair of power couplers at any coordinate the other power coupler at that coordinate provides the coupling at the same power ratio.

4,316,160

IMPEDANCE TRANSFORMING HYBRID RING

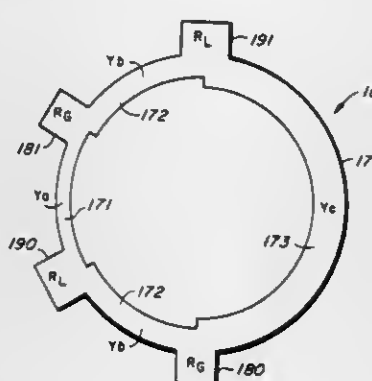
Michael Dydyk, Scottsdale, Ariz., assignor to Motorola Inc., Schaumburg, Ill.

Filed Jul. 28, 1980, Ser. No. 173,239

Int. Cl.³ H01P 5/22; H03F 3/60

U.S. Cl. 333-120

12 Claims



1. An impedance matching hybrid ring having a selectable power division ratio, K, between output ports comprising:

a first and a second input port;

a first and a second output port;

a non-uniform impedance ring further comprising:

a first quarter wavelength ring section having a characteristic admittance Y_a ;

second and third quarter wavelength ring sections each having a characteristic admittance Y_b ;

a three-quarter wavelength section having a characteristic admittance Y_c , said first quarter wavelength section being located between said first input port and said first output

port, said second quarter wavelength section being located between said second input port and said first output port, said third quarter wavelength section being located between said first input port and said second output port, said three-quarter wavelength section being located between said second input port and said second output port; and wherein Y_a is not equal to Y_c .

4,316,161

WIDEBAND LOW TRIPLE TRANSIT DELAY LINE

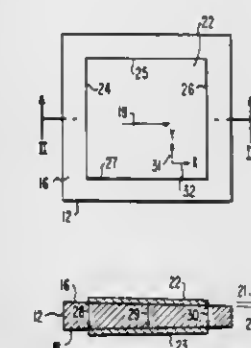
Robert A. Moore, Arnold, and Robert N. Sundelin, Hanover, both of Md., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Continuation of Ser. No. 56,372, Jul. 10, 1979, abandoned. This application Sep. 8, 1980, Ser. No. 185,043

Int. Cl.³ H03H 9/36, 9/125

U.S. Cl. 333-141

16 Claims



1. Electroacoustic apparatus for delaying signals and for providing wideband triple transit suppression about a predetermined center frequency comprising:

a substrate having an upper and lower surface, said substrate comprised of material suitable for propagating bulk acoustic waves,

a first transducer mounted on said upper surface for generating bulk acoustic waves toward said lower surface,

a second transducer mounted on said lower surface and positioned for receiving bulk acoustic waves from said first transducer,

said first and second transducers having a plurality of spacings between each other, and having a maximum spacing between themselves which is less than $2d^2/3\lambda$ where d is the maximum width of one side of said first transducer and λ is the wavelength of the ultrasonic elastic wave in the transmission medium at said predetermined center frequency.

4,316,162

MAGNETOSTATIC WAVE DEVICE CONTAINING ATTENUATION MEANS AND THE WAY OF MAKING IT

Gerard Volluet, and Daniel Cohen, both of Paris, France, assignors to Thomson-CSF, Paris, France

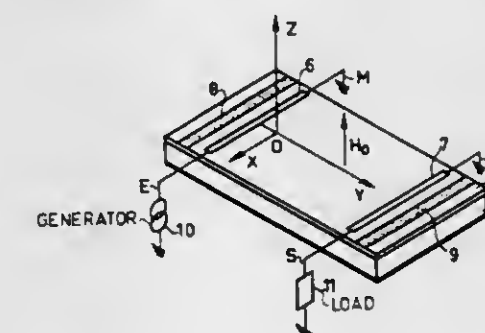
Filed Jun. 2, 1980, Ser. No. 155,676

Claims priority, application France, Jun. 6, 1979, 79 14439

Int. Cl.³ H03H 2/00

U.S. Cl. 333-201

11 Claims



1. A magnetostatic wave device comprising attenuator means localized on a ferrimagnetic substrate for receiving the

magnetostatic waves coming from transducers formed by thread-like filamentary electrodes; said attenuator means including at least one area in which the attenuation has been considerably increased by a local treatment that produces defects in the surface of said substrate resulting from the impacts by local action of a jet of abrasive particles.

4,316,163

THERMAL-MAGNETIC CIRCUIT BREAKER

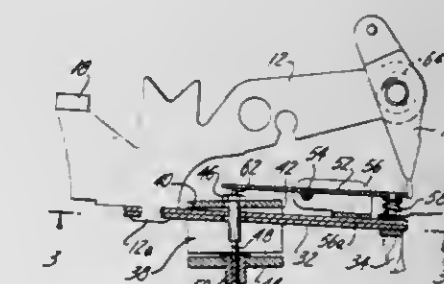
Nilendu Roy, Stafford, and Arnold Horton, Essington, both of England, assignors to Federal Pacific Electric Company, Newark, N.J.

Filed Jun. 22, 1978, Ser. No. 910,786

Int. Cl.³ H01H 75/12

U.S. Cl. 335-37

2 Claims



1. A circuit breaker of the type having a case of molded insulation and a mechanism including:

a pivoted unit mainly comprising an elongated contact arm having a pivotal support between the ends thereof and having a movable contact at one end thereof, an actuator pivoted to the opposite end of the contact arm, and an overcurrent release device constituting latching means for said pivoted actuator, said release device including a short-circuit responsive electromagnet and an elongated overcurrent responsive bimetal fixed at one end thereof to the contact arm,

a handle pivoted in said case and link means articulated to said actuator and acting with said handle to form an operating toggle for said pivoted unit,

an opening spring biasing the contact arm in the opening direction and,

a companion contact engageable by said movable contact when the handle is operated to close the circuit breaker,

that improvement wherein said electromagnet comprises a core and an armature encircling the bimetal, said core being fixed to said pivoted unit adjacent said fixed end of the bimetal, means supporting said armature at the side of the bimetal remote from the contact arm and said supporting means limiting the gap between said core and said armature, and a medially pivoted latch lever carried by said bimetal and disposed between the bimetal and the contact arm, one end of the latch lever acting as a latch normally obstructing said actuator and the opposite end of the latch lever being operated by said armature all arranged so that overcurrent in the bimetal causes displacement of the pivot and the latch end of the latch lever to release the actuator and so that short-circuit current in the bimetal causes pivoting of the latch lever to release the actuator.

4,316,164

ELECTROMAGNETIC RELAY WITH SNAP-IN YOKE

Richard Essler, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

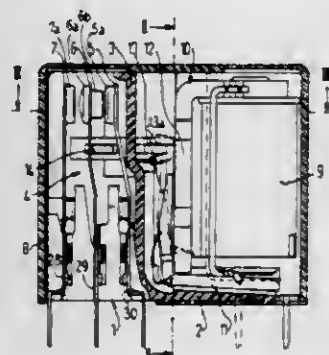
Filed Feb. 14, 1980, Ser. No. 121,423

Claims priority, application Fed. Rep. of Germany, Mar. 30, 1979, 7909135[U]

Int. Cl.³ H01H 50/02

U.S. Cl. 335—202

5 Claims



1. In an electromagnetic relay having a magnetic system energizable in response to a received signal, a yoke-and-armature assembly for transmitting movement of said armature to a movable contact element to make and break electrical connections between said movable contact element and at least one fixed contact element, and an insertable insulating member having a base which forms the bottom of said relay and a vertical wall disposed between said magnetic system and said contacts which divides the interior of said relay into essentially non-communicating portions to prevent arcing therebetween, the improvement of:

a pair of opposed lateral parallel walls disposed in orthogonal relation to said vertical wall and said base which partially surround said magnetic system, at least one of said lateral walls having at least one recess therein extending through said one of said walls; and
a yoke for said yoke-and-armature assembly having a downwardly extending generally vertical leg,
at least one projection extending from a side of said leg, said projection in registry with and received in said recess in said lateral wall to position and support said leg, said recess having greater vertical dimensions than said projection received therein to permit limited vertical movement of said projection within said recess, said yoke connected to said plunger such that positioning of said projection within said recess positions the entire magnetic system within said relay.

4,316,165

ELECTROMAGNETIC RELAY WITH ADD-ON CONDUCTOR CAPABILITY

Helmut Moeller, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Jan. 16, 1980, Ser. No. 112,457

Claims priority, application Fed. Rep. of Germany, Mar. 30, 1979, 7909155[U]

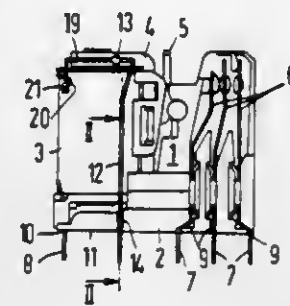
Int. Cl.³ H01H 9/12

U.S. Cl. 335—202

7 Claims

1. An electromagnetic relay, comprising: an insulating material base member which forms a base; the base member bearing an armature magnet system with coil, yoke and armature as well as coil winding and contact connecting pins guided through perforations of the base to a connection side of the relay base; a protecting cap encompassing the relay; and an additional connection conductor electrically connected with the yoke positioned on the magnet system along an interior side wall of the protecting cap to and within a groove at an

exterior side edge of the base which corresponds at least to a thickness of the connection conductor, and also along the



connection side of the base to a connection pin pattern point and there is bent to form a connection pin.

4,316,166

SELF-CONVERGING DEFLECTION YOKE AND WINDING METHOD AND APPARATUS THEREFOR

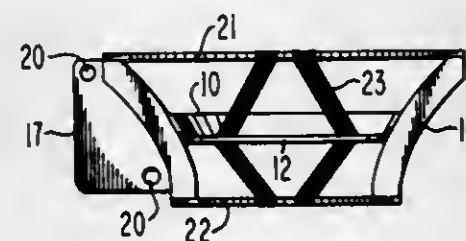
George A. Simmons, and Kenneth W. McGlashan, both of Lancaster, Pa., assignors to RCA Corporation, New York, N.Y.

Filed Aug. 28, 1980, Ser. No. 181,997

Int. Cl.³ H01H 1/00

U.S. Cl. 335—213

3 Claims



1. A winding form for use in toroidally winding about a core a deflection coil having a double bias configuration, said form insertable into said core and comprising:
a ring-shaped base dimensioned to be positioned within the interior of said core;
a plurality of spacing members extending radially inward from said base; and
a pair of removable guide members, coupled to said spacing members, each of said guide members forming a pair of circumferentially extending channels between said guide members and said base, said channels dimensioned to receive the wire turns of said toroidally-wound deflection coil, said guide members removable from said spacing members upon completion of the winding of said deflection coil.

4,316,167

ELECTROMAGNET WITH A MOVING SYSTEM AND PERMANENT MAGNET, ESPECIALLY FOR CONTACTORS

Gerard N. Koehler, Ville D'Avray, France, assignor to La Telemecanique Electrique, Nanterre, France

Filed Sep. 25, 1980, Ser. No. 190,509

Claims priority, application France, Sep. 28, 1979, 79 24147

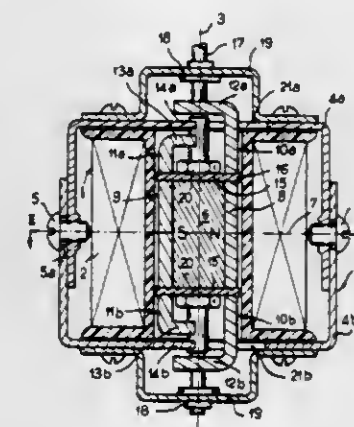
Int. Cl.³ H01F 7/08

U.S. Cl. 335—229

10 Claims

1. An electromagnet especially for contactors and comprising a moving system constituted by at least one permanent magnet and two flux-conducting pole-pieces attached respectively to each pole face of said magnet at right angles to the axis of magnetization of the magnet, said pole-pieces being provided with arms which project from the pole faces, at least one of the pole-pieces being provided with arms whose ends are bent back at right angles so as to define two air-gap zones with at least one arm of the other pole-piece, said air-gap zones

being adapted to cooperate with a yoke mounted on a coil unit which cooperates magnetically with the magnet, said air-gap zones being located on each side of the magnetization axis, wherein said moving system is placed within the interior of the coil unit, guiding means being provided so as to permit translational displacement of said system along the axis of the coil unit in such a manner as to constitute a sliding armature, wherein the space inside the coil unit has a substantially rectangular cross-section occupied by the magnet and the pole-pieces, the



axis of magnetization being perpendicular to the axis of the coil unit, wherein the air-gap zones are located at the two ends of the coil unit, and wherein the stationary yoke surrounds the two ends of the coil unit, flat portions of the yoke which are parallel to the axis of magnetization being each adapted to penetrate respectively into one air-gap zone so that, in at least one stable position of the armature, one flat portion of the yoke is in contact with one of the pole-pieces whilst the other flat portion is in contact with the other pole-piece.

4,316,168

ELECTRICAL CIRCUIT BREAKER HAVING A BIMETAL PLATE MEMBER OF RECTANGULAR CONFIGURATION

Junichi Nakaho, Ichinomiya, and Takao Ougimoto, Gifu, both of Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Nishi, Japan

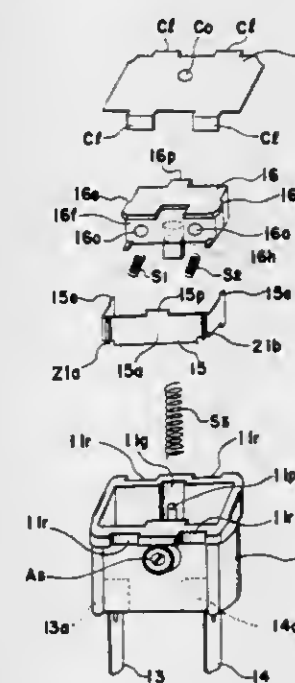
Filed Oct. 6, 1980, Ser. No. 194,276

Claims priority, application Japan, Oct. 12, 1979, 54-141921[U]

Int. Cl.³ H01H 37/52, 37/74

U.S. Cl. 337—359

11 Claims



1. An electrical circuit breaker which comprises a housing having a plurality of terminal plates fixed therein, a bimetal plate member of approximately rectangular configuration

having, at opposite ends on one surface thereof, corresponding contacts respectively contacting said terminal plates, a holder member holding said bimetal plate member so as to apply contact pressure to portions on the other surface of the bimetal plate member corresponding to said contacts and reciprocatingly movable in a direction normal to the direction of application of said contact pressure, engaging means which is arranged to be engaged with said bimetal plate member during flowing of rated current for retaining said bimetal plate member in position to electrically connect said terminal plates and to be disengaged from said bimetal plate member through deflection of said bimetal plate member upon flowing of over-current, and spring means which normally urges the holder member in one direction and which, upon disengagement between the engaging means and bimetal plate member, causes the bimetal plate member to move in the one direction together with the holder member for cutting off electrical connection between said terminal plates, said bimetal plate member, holder member, engaging means and spring means being operably accommodated in said housing.

4,316,169

WINDINGS FOR ELECTRICAL INDUCTIVE APPARATUS

Tsuneharu Teranishi, and Takeshi Higuchi, both of Yokohama, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

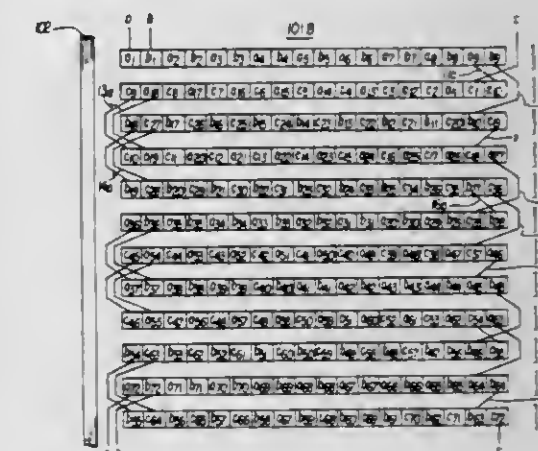
Filed Nov. 18, 1980, Ser. No. 207,998

Claims priority, application Japan, Nov. 19, 1979, 54-148837

Int. Cl.³ H01F 15/14

U.S. Cl. 336—70

7 Claims



1. A winding for electrical inductive apparatus, comprising: a plurality of first pairs of disc coil sections, each of said plurality of first pairs of sections including a first section and a second section arranged in a stack;
a plurality of second pairs of disc coil sections, each of said plurality of second pairs of sections including a third section and a fourth section arranged in said stack;
wherein each of said second pairs of disc coil sections are disposed between said first pairs of disc coil sections;
wherein each of said first, second, third and fourth sections include two conductors wound in parallel with each other;
wherein each of two conductors at an inner end of said first section are connected to each of two conductors at an inner end of said third section, respectively;
wherein each of two conductors at an inner end of said second section are connected to each of two conductors at an inner end of said fourth section, respectively;
wherein a first conductor at an outer end of said third section is connected to a first conductor at an outer end of said second section;
wherein a second conductor at the outer end of said third section is connected to a first conductor at an outer end of

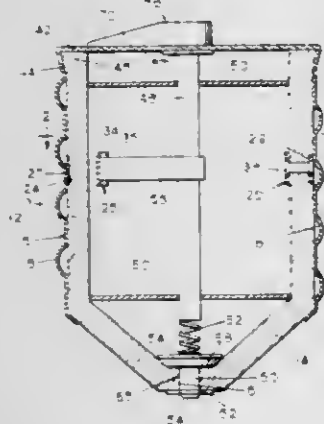
a first section in a first pair of disc coil sections disposed adjacent to said second pair of disc coil sections; wherein a first conductor at an outer end of said fourth section is connected to a second conductor at the outer end of said adjacently disposed first section; and wherein a second conductor at the outer end of said fourth section is connected to a first conductor at an outer end of a second section in said adjacently disposed first pair of disc coil sections.

4,316,170 SELECTOR FUSE

Edgar H. Smyth, Box 49245, Chicago, Ill. 60649
Filed Feb. 15, 1980, Ser. No. 122,236
Int. Cl.³ H01H 85/22

U.S. Cl. 337—257

5 Claims



1. A selector fuse plug comprising, a main cup-shape body of insulating material, an external sheath on the body, of electrical conducting material, and forming threads for threading the fuse plug into a fuse socket, a plurality of fuse members in the interior of the fuse body and in electrical contact with the sheath, an end contact element on the closed end of the body, exposed exteriorly and interiorly thereof, a rotatable shaft in the fuse body having an end in constant engagement with the end contact element, and a radial finger engageable with the fuse members successively in response to rotation of the shaft, the shaft establishing electrical conduction between the particular fuse member engaged by its finger and the end contact element, the shaft having a first direction of rotation and the extended end of the radial finger moving through a predetermined ambit, and the fuse members being constituted by spring fingers fixedly secured at one end in the wall of the body and having a free end extending generally circumferentially in said first direction of rotation, and projecting within said ambit, whereby the outer end of the radial finger necessarily engages each fuse member upon rotation of the shaft, and the fuse members yield pursuant to rotational engagement by the radial finger but are biased into constant engagement with the radial finger.

4,316,171 NON-LINEAR RESISTANCE ELEMENTS AND METHOD FOR MANUFACTURING SAME

Susumu Miyabayashi, Misatoshi, and Takeyuki Kaji, Nikaho, both of Japan, assignors to TDK Electronics Co., Ltd., Tokyo, Japan

Filed Feb. 1, 1980, Ser. No. 117,817
Claims priority, application Japan, Feb. 9, 1979, 54-13869
Int. Cl.³ H01C 7/10

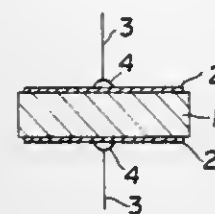
U.S. Cl. 338—21

8 Claims

1. A non-linear resistance element which comprises (a) a sintered body mainly composed of titanium dioxide, (b) at least one electrode made of a metallic material and

bonded to the surface of the sintered body forming ohmic contact therewith,

(c) a layer of a first solder-receptive metallic material covering at least part of the outer surface of the electrode, and



(d) a layer of a second solder-receptive metallic material covering the layer of the first solder-receptive material and the surface of the electrode not covered by the layer of the first solder-receptive material.

4,316,172 RESISTOR SUCH AS FOR DYNAMIC BRAKING OF ELECTRIC MOTORS

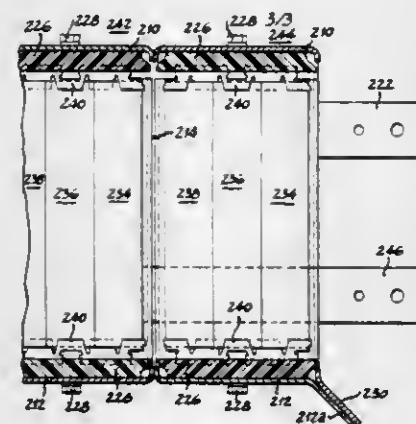
William R. Luy, Colgate, Wis., assignor to Eaton Corporation, Cleveland, Ohio

Filed Jun. 25, 1980, Ser. No. 162,964

Int. Cl.³ H01C 3/00

U.S. Cl. 338—280

2 Claims



1. A resistor, such as for use in dynamic braking of electrical motors, comprising in combination:

a pair of supporting frames each having two end frame members and two side frame members connected together, said end frame members being parallel to each other;

like insulating blocks formed of hot-molded organic material immovably secured directly to the opposing faces of said end frame members;

a layer of continuous reflexed resistance ribbon comprising segments running from one of said opposing faces to the other, said segments connected by reflexes in proximity to but separated from said insulating blocks in each of said frames;

support clips between said insulating blocks and said reflexes for providing individual support to each of said reflexes and holding said ribbon within the space defined by said supporting frame;

terminal means connected to said ribbon for connecting the latter to a source of electric current;

flanges on said side frame member through which said pair of frames are rigidly secured to one another so that said end frame members of the respective frames are in abutting relation;

and lateral ridges on said insulating blocks overlying the edges of the associated end frame members to prevent conductive material from being lodged therein and short-

circuiting said resistor ribbon to said end frame member, and said ridges on the insulating blocks of adjacent connected frames being in close proximity to one another to prevent conductive material from falling therebetween into short-circuiting contact with said end frame members.

4,316,173 DOPPLER RADAR VEHICLE SPEED SENSING SYSTEM INCLUDING MEANS FOR CHECKING SYSTEM OPERATION BASED ON THE DETECTION OF LOW FREQUENCY DOPPLER FREQUENCY COMPONENTS

Akira Matsumura, Yokosuka; Akira Endo, Katsuta, and Kenji Sekine, Tokyo, all of Japan, assignors to Hitachi, Ltd and Nissan Motor Co., Ltd., both of Tokyo, Japan

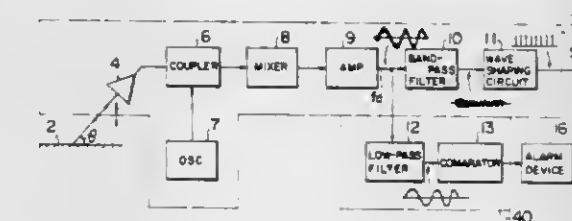
Filed Jun. 5, 1980, Ser. No. 156,814

Claims priority, application Japan, Jun. 15, 1979, 54-74725

Int. Cl.³ G08G 29/00; G01S 7/40

U.S. Cl. 340—32

4 Claims



1. A vehicle speed sensing apparatus with means for checking its operation, comprising:

a Doppler radar unit on a vehicle for directing RF energy to a surface over which a vehicle travels and receiving reflected RF energy from the surface to produce a Doppler signal related to the speed of the vehicle, the unit including a circuit for producing a speed signal from the Doppler signal;

means connected with the radar unit for extracting from the Doppler signal low frequency components the frequencies of which are lower than such a Doppler signal frequency which corresponds to a minimum vehicle speed, said low frequency components being representative of vehicle motion in a direction substantially vertical to the vehicle travel surface; and

safety means connected with said extracting means for producing an operation check signal.

4,316,174 THRESHOLD DETECTOR FOR A CONDITION INDICATION

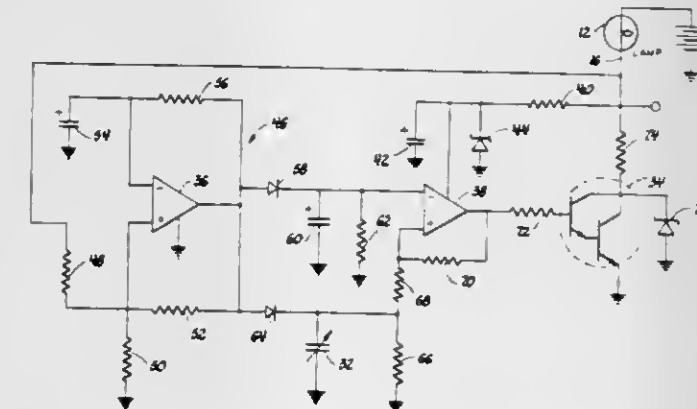
Stephen J. Sutton, Fenton; John E. Creager, Linden, and Robert B. Golenius, Davison, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Dec. 26, 1979, Ser. No. 106,932

Int. Cl.³ G08B 21/00

U.S. Cl. 340—52 R

2 Claims



1. A threshold detector for providing an indication of a predetermined condition in an automotive vehicle having an

electrical power supply grounded to the vehicle and subject to voltage changes throughout a large range, the detector comprising:

an incandescent indicating lamp having a first terminal connected to the power supply and located in view of a vehicle operator, the lamp having the property of decreased resistance when the voltage applied thereacross is decreased,

an electronic detection circuit grounded to the vehicle and containing components operable at voltages substantially below the low end of the power supply voltage range and located remotely from the indicating lamp for sensing the said condition and producing a lamp energizing signal when the predetermined condition is detected,

a single conductor connected between a second terminal of the lamp and the detection circuit to connect the detection circuit in series with the lamp for supplying operating voltage to the detection circuit and for carrying the lamp energizing signal to the lamp, thereby serially connecting the power supply and the lamp to the detection circuit by a single conductor,

whereby when the lamp is energized, any decrease of power supply voltage is partially offset by an accompanying lamp resistance decrease to partially regulate the operating voltage supplied to the detection circuit to maintain the operating voltage at an adequate level when the power supply voltage is at a low level.

4,316,175 METHOD FOR THE ADVANCE INDICATION OF DAMAGE TO WHEEL BEARINGS

Joachim Körber, Weinheim an der Bergstrasse; Günter Bange, Mannheim; Walter Poll, Senefeld; Volker Bensberg Kaltenbach, and Hans Pittroff, Schweinfurt, all of Fed. Rep. of Germany, assignors to SKF Kugellagerfabriken GmbH, Schweinfurt, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 912,345, Jun. 5, 1978, which is a continuation of Ser. No. 710,387, Aug. 2, 1976, abandoned.

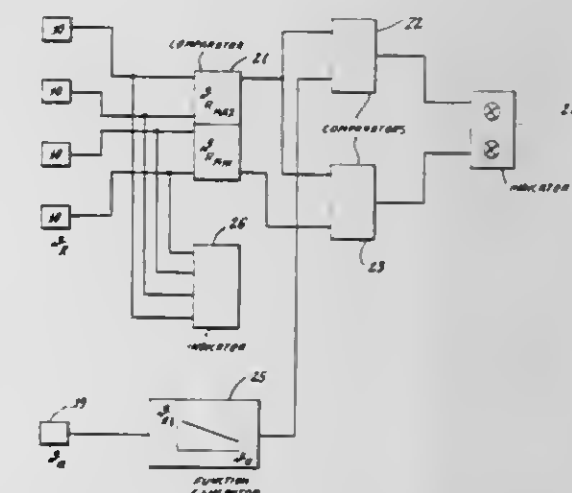
This application Jun. 29, 1978, Ser. No. 920,147

Claims priority, application Fed. Rep. of Germany, Jan. 26, 1977, 2703071; Austria, Jan. 12, 1978, 226

Int. Cl.³ G01K 7/16; G08B 21/00

U.S. Cl. 340—57

26 Claims



1. In a method for advance indication of the possibility of damage occurring to wheel bearings of vehicular means having a plurality of wheels, including the steps of monitoring the temperature of the wheel bearings with temperature detectors fixedly mounted at the wheel bearings, and producing indication signals when a temperature detected by a temperature detector exceeds a determinable value; the improvement wherein said step of monitoring comprises monitoring the temperature of a plurality of wheel bearings of said vehicular means, deriving a selected value from said plurality of monitored temperatures, obtaining, as an inverse function of ambi-

ent a further temperature reference value of said vehicular means monitored by one temperature detector mounted on said vehicular means spaced from wheel bearings thereof, and comparing said derived selected value with said further temperature reference value to produce said advance indication signal.

4,316,176

TIRE PRESSURE MONITOR AND SELF CHECK SYSTEM THEREFORE

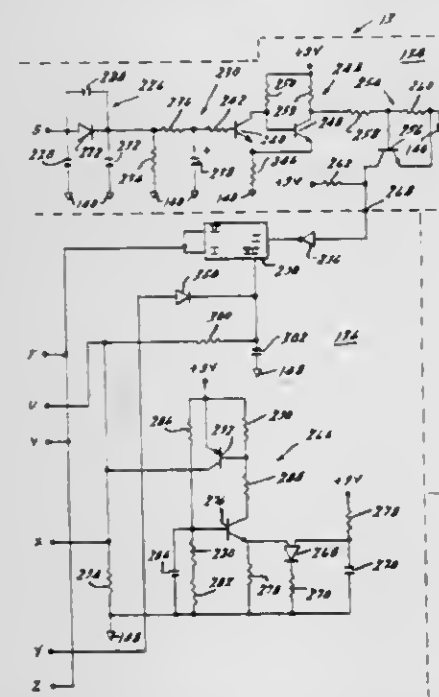
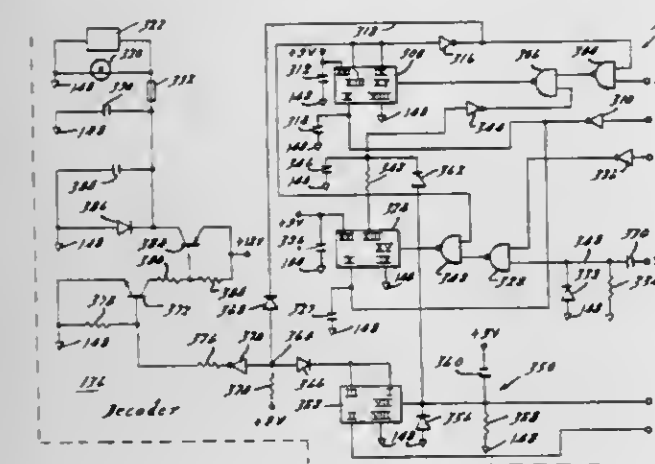
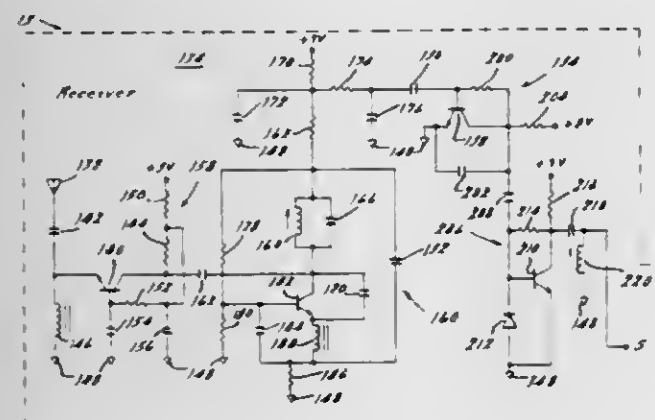
Thomas A. Gee, Allen Park, and Joseph A. Tremba, Farmington Hills, both of Mich., assignors to Eaton Corporation, Cleveland, Ohio

Filed Dec. 26, 1979, Ser. No. 106,783

Int. Cl.³ B60C 23/02; G08B 21/00

U.S. Cl. 340—58

29 Claims



1. A tire pressure monitoring system comprising: radio transmitter means operative to monitor fluid pressure within a pneumatic tire and to generate a uniformly timed

succession of tire inflation condition signals when said pressure falls within a predetermined operating range; and means operative to receive and count said tire condition signals and to generate an operator alerting signal when less than a predetermined number of said tire condition signals are received during a prestablished increment of time.

4,316,177

DATA CLASSIFIER

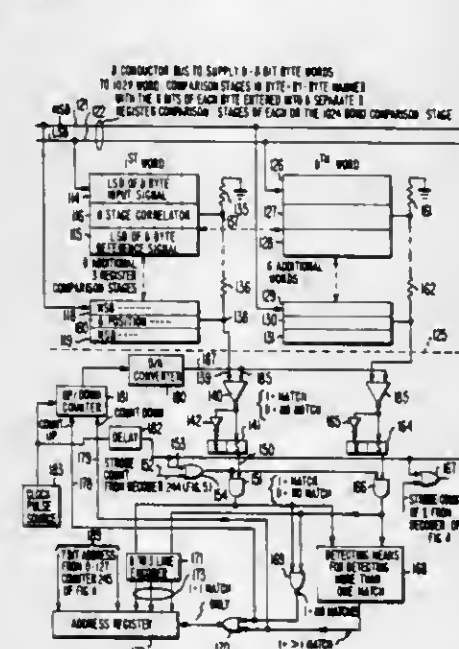
Daniel Hampel, Westfield, and Kalman J. Prost, East Windsor, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Dec. 3, 1979, Ser. No. 99,323

Int. Cl.³ G06F 7/34; G05B 7/03

U.S. Cl. 340—146.2

11 Claims



1. A system for classifying digitized data words into one or more of several categories each defined by a group of digitized file words and comprising:

a plurality of groups of comparison means with each group constructed to compare each received data word with each file word in a different one of said groups of file words to produce comparison pulses in response to each comparison of said received data word with a file word; means for generating a variable threshold signal; means for comparing each comparison pulse with said threshold signal; means responsive to said threshold signal and each of said comparison pulses individually to change the amplitude of said threshold signal to a value at which not more than one comparison pulse from each group of comparison means will exceed the amplitude of the threshold signal in a given polarity direction to produce a comparison match; and means for polling each group of comparison means to identify each file word producing a comparison match.

10. A method for determining which of a plurality of groups of file words a data word most closely compares and comprising the steps of:

simultaneously comparing each file word with the data word to produce a comparison pulse for each comparison; simultaneously comparing each comparison pulse with a variable threshold signal; adjusting said variable signal until not more than one comparison resulting from the comparison of each separate group of file words with the data word exceeds the variable threshold signal in a given polarity direction; and polling the comparison pulses of each group of file words to

identify which of said file words produce one of said one comparison pulses.

4,316,178

DIGITAL-TO-ANALOG CONVERSION SYSTEM WITH COMPENSATION CIRCUIT

Akinori Shibayama, Tokyo; Kenji Maio, Hinode; Masao Hotta, Hachioji, and Norio Yokozawa, Huchu, all of Japan, assignors to Nippon Telegraph & Telephone Public Corp. and Hitachi, Ltd., both of Tokyo, Japan

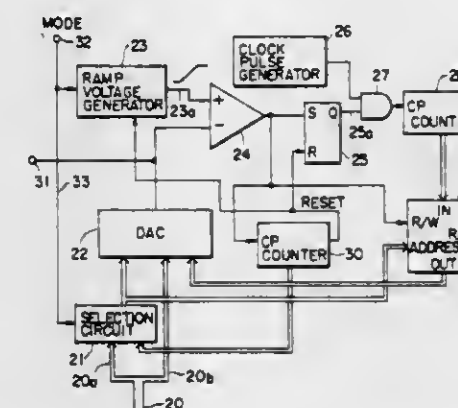
Filed Jan. 21, 1980, Ser. No. 113,674

Claims priority, application Japan, Jan. 29, 1979, 54/8231

Int. Cl.³ H03K 13/02

U.S. Cl. 340—347 DA

7 Claims



1. A digital-to-analog converter system comprising selection means responsive to a selection signal to apply to an output thereof either a digital signal to-be-converted or a digital input signal, conversion means to convert into an analog signal the digital signal at the output of said selection means, arithmetic means connected to receive said analog signal for generating signal quantities corresponding to an error in the analog signal produced by said conversion means, memory means to store said signal quantities corresponding to such errors at locations designated by the digital output of said selection means, and means for reading out said signal quantities from said memory means and for applying the read out signal quantities to said conversion means when the selection signal effects application of the digital signal to-be-converted to said conversion means; said arithmetic means including first generation means for generating a ramp voltage, second generation means for generating a clock pulse signal, first counting means for counting said clock pulse signal, comparison means for comparing the ramp voltage to the analog output of said conversion means and for generating an output pulse each time the absolute value of the ramp voltage becomes greater than the absolute value of said analog signal of said conversion means and second counting means driven by said output pulses for producing said digital input signal.

4,316,179

FIRE DETECTION SYSTEM

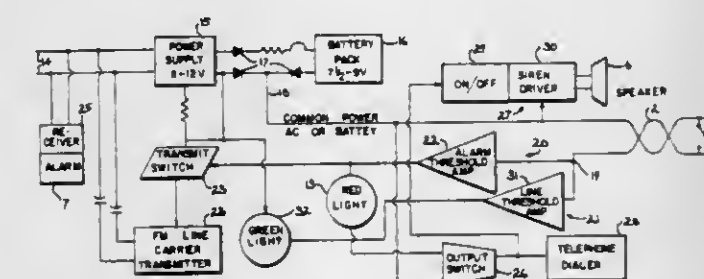
Timothy R. Bliss, P.O. Box 466, Darien, Wis. 53114, and Richard T. Canepa, 837 Victoria Pl., Janesville, Wis. 53545

Filed Jun. 11, 1980, Ser. No. 158,465

Int. Cl.³ G08B 1/08; H04Q 1/30; G08B 17/06

U.S. Cl. 340—538

1 Claim



1. A fire detection system for use in a barn or like enclosure

having electrical appliances and an electrical service panel providing electrical power to the structure, said system comprising:

- means for sensing rate of rise of heat in the barn;
- heat detecting cable for sensing a predetermined temperature in the barn said cable being located in the vicinity of the electrical service panel and the electrical appliances;
- control means operably connected to said rate of rise sensor and said heat detecting cable whereby upon detection of a predetermined rate of rise or a predetermined temperature said control means produces an output signal;
- a first audible warning device for mounting outside of the barn, said first warning device operable by said output signal produced by said control means;
- a second warning device for mounting in a structure remote from the barn; said second warning device comprising a FM signal receiving unit adapted for plugging into an electrical outlet of the electrical power lines servicing the structure and the barn whereby said second warning device may be moved to any room having an electrical outlet in said structure said second warning device operable by an FM signal produced by said control circuitry and transmitted to the power lines.

4,316,180

DIRECTIONAL DETECTOR OF CHANGES IN A LOCAL ELECTROSTATIC FIELD

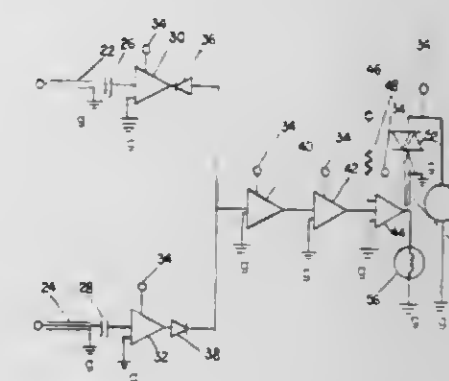
Francis E. LeVert, 7233 S. Luella, Chicago, Ill. 60649

Filed Apr. 9, 1979, Ser. No. 28,247

Int. Cl.³ G08B 13/26; G01R 29/12

U.S. Cl. 340—562

1 Claim



1. A detector of disturbances in an electrostatic field comprising:

- a first flat coil antenna with two terminal points;
- a first plane sheet of electrical insulator disposed parallel to the flat coil antenna and bonded thereto in physical contact therewith;
- a plane sheet of electrical conductor disposed parallel to the first plane sheet of insulator material and bonded thereto in physical contact therewith;
- a second plane sheet of electrical insulator material disposed parallel to the plane sheet of electrical conductor and bonded thereto in physical contact therewith;
- a second flat coil antenna with two terminal points disposed parallel to the second plane sheet of electrical insulator material and bonded thereto in physical contact therewith;
- means of electrically connecting the plane sheet of electrical conductor to an electrical ground thereby electrostatically decoupling the two parallel flat coil antennas;
- means of completing an electrical circuit between one terminal point of each of the flat coil antennas and two separate electrical input channels of a typical signal conditioning circuit and for completing a electrical connection between the remaining terminal points of both antennas to an electrical ground;
- means of, within the signal conditioning circuit of, using the

induced electrical current in either of the flat coil antennas as a reference current source; and means of electrically connecting the output of a typical conditioning circuit to an ordinary enunciator unit.

4,316,181

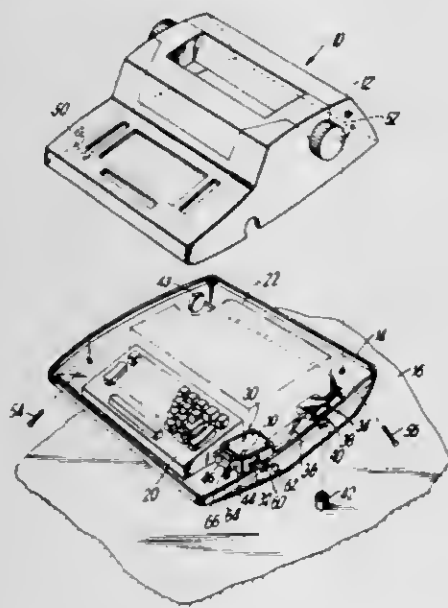
THEFT PREVENTION SYSTEM FOR BUSINESS MACHINES

James Primont, 205 Ramapo Ave., Staten Island, N.Y. 10309; Joseph Williams, 11 Greencroft Ave., Staten Island, N.Y. 10308, and Paul Zazzera, Jr., 641-90th St., Brooklyn, N.Y. 11228

Filed Nov. 17, 1980, Ser. No. 207,454
Int. Cl.³ G08B 13/14

U.S. Cl. 340—571

14 Claims



1. A theft prevention system for use with a business machine, said business machine having a housing including a base, adapted to rest on a planar surface, and a removable cover, and wherein said base includes an aperture, said theft prevention system comprising:

alarm means disposed within said housing, said alarm means being capable of generating a warning signal;
first switch means operatively connected to said alarm means and including a spring biased plunger, said first switch means being disposed such that said plunger projects downwardly through said aperture provided in the base of said housing, said plunger being in abutting contact with said planar resting surface such that said plunger is biased into an upward inactive position whereby when said housing is lifted upwardly from said planar surface, said plunger is biased downwardly actuating said alarm means thereby generating a warning signal; and

guard means associated with said first switch means, said guard means including an elongated protective sleeve with one distal end thereof fixedly connected to said planar surface and with the other distal end thereof projecting upwardly into said aperture of said base and surrounding said plunger whereby said plunger is shielded from manipulation.

4,316,182

VENTILATOR DISCONNECTION ALARM

William R. Hodgson, 36 Ashley St., Chatswood, New South Wales, Australia

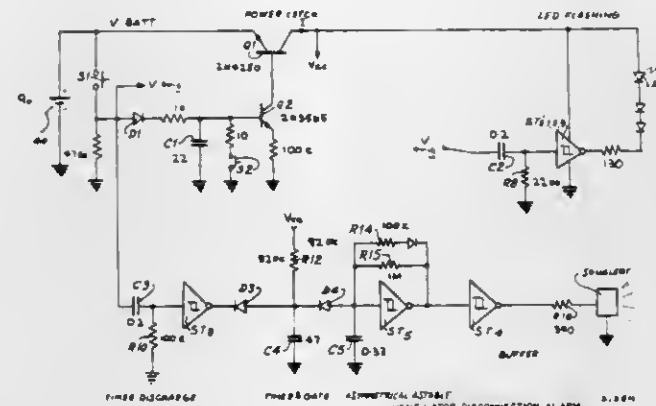
Filed Feb. 27, 1980, Ser. No. 125,766
Claims priority, application Australia, Feb. 28, 1979, PD7858
Int. Cl.³ G08B 21/00; A61M 16/00

U.S. Cl. 340—606

6 Claims

1. A ventilator disconnection alarm for monitoring a patient connected to a ventilator, said ventilator disconnection alarm comprising

warning means for producing an audible warning;
a source of power;
a first switch operated by each breath delivered to a patient connected to the ventilator;
a control circuit including said first switch and connected to said source of power and coupled to said warning means for initiating operation of said warning means when operation of said first switch due to occurrence of a breath of the patient fails to occur at predetermined short intervals of time;



an actuating circuit connected to said source of power and to said warning means and between said control circuit and said warning means, said actuating circuit being connected to said first switch in a manner whereby operation of said first switch results in said actuating circuit placing said warning means in operable condition by connecting said source of power to said warning means; and
a second manually-operable switch connected to said actuating circuit for placing said warning means in inoperable condition by disconnecting said source of power from said warning means.

4,316,183

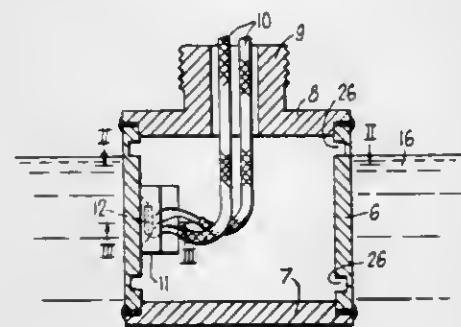
LIQUID LEVEL SENSOR

Stuart B. Palmer, Hull, and Gregory J. Primavesi, Theale, both of England, assignors to Bestobell Mobrey Limited, Slough, England

Filed Oct. 24, 1980, Ser. No. 200,519
Int. Cl.³ G08B 21/00; G01F 23/00

U.S. Cl. 340—621

10 Claims



1. A liquid level sensor comprising a hollow probe which has a tubular peripheral wall with radially inner and outer surfaces and made of a material capable of conducting an ultrasonic signal and which is adapted to be fitted to a liquid container with at least said outer wall surface exposed to the interior of said container; a transmitting transducer and a receiving transducer accommodated within said probe and coupled to said inner wall surface at angularly spaced positions so that an ultrasonic signal can be transmitted from said transmitting transducer to said receiving transducer along a path around said peripheral wall; means for energizing said transmitting transducer; and means coupled to said receiving transducer for distinguishing between a level of received signal corresponding to exposure of said peripheral wall to liquid and

a level of received signal corresponding to exposure of said peripheral wall to gas, and for producing a corresponding electrical output.

4,316,184

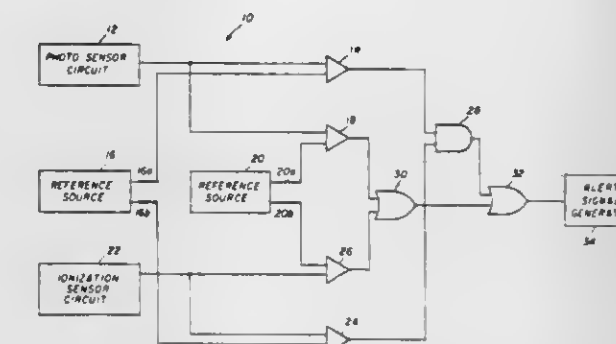
COMBINATION COMBUSTION-PRODUCTS DETECTOR

Richard A. Nagel, Chicago, Ill., assignor to Pittway Corporation, Aurora, Ill.

Filed Jul. 27, 1979, Ser. No. 61,366
Int. Cl.³ G08B 17/10

U.S. Cl. 340—628

6 Claims



1. A combination combustion-products detector comprising first combustion-products sensor means for producing a first sensor signal having an amplitude related to the quantity of combustion products sensed thereby, second combustion-products sensor means for producing a second sensor signal having an amplitude related to the quantity of combustion products sensed thereby, first circuit means coupled to both of said sensor means and being responsive to each of the first sensor signal and the second sensor signal exceeding a first level to provide a first output signal, second circuit means coupled to both of said sensor means and being responsive to either of the first sensor signal or the second sensor signal exceeding a second higher level to provide a second output signal, and alerting-signal generating means coupled to both of said circuit means and being responsive to either of the output signals to produce an alerting signal.

4,316,185

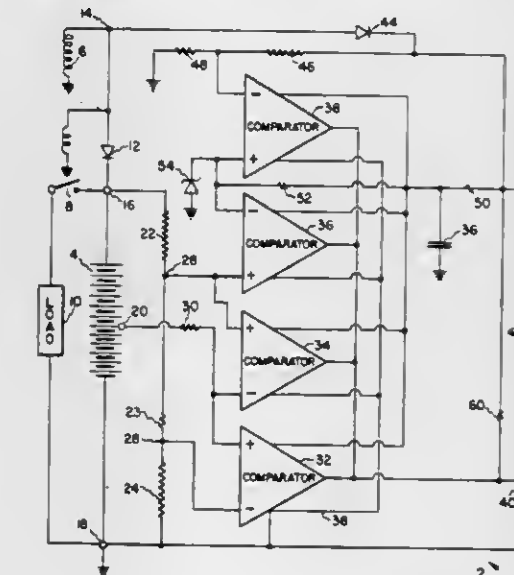
BATTERY MONITOR CIRCUIT

Donald L. Watrous, Liverpool, and Richard C. Weischedel, Camillus, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Jul. 17, 1980, Ser. No. 169,738
Int. Cl.³ G08B 21/00; H03K 5/153

U.S. Cl. 340—636

6 Claims



1. A battery monitor circuit for a multicell rechargeable battery having a high voltage terminal and a reference terminal

1015 O.G.—38

at opposite ends and an intermediate terminal that divides the cells of the battery into two groups comprising:

a. resistive voltage divider coupled across said high voltage and reference terminals, said voltage divider comprising first and second large resistance components joined by a relatively small third resistance component, a first voltage magnitude being derived from the junction of said first and third resistance components, and said second voltage magnitude being derived from the junction of said second and third resistance components, said first and second voltage magnitudes defining the limits of a voltage range;
b. means for coupling to said intermediate terminal so as to provide a third voltage magnitude corresponding to the voltage between said intermediate and reference terminals, said first and second voltage magnitudes being nominally offset to either side of said third voltage magnitude; and
c. comparison means including

1. a first comparator network responsive to said first and third voltage magnitudes for detecting battery cell low impedance deterioration in one group of cells and high impedance deterioration in the other group of cells;
2. A second comparator network responsive to said second and third voltage magnitudes for detecting battery cell high impedance deterioration in said one group of cells and low impedance deterioration in said other group of cells;
3. a third comparator network responsive to one of said first or second voltage amplitudes and a reference voltage for detecting battery cell low impedance deterioration in both groups of cells;

said comparison means generating an error signal when the respective input voltage magnitudes to any of said first, second, and third comparator networks experience a reversal in relative magnitude.

4,316,186

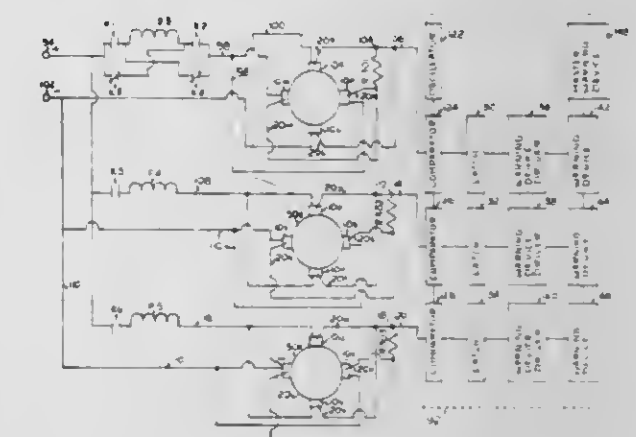
BRUSH WEAR DETECTION AND WARNING SYSTEM

James A. Purdy, Sylvania, Ohio, and Carl K. Dudley, Petersburg, Mich., assignors to Eltra Corporation, Toledo, Ohio

Filed Feb. 6, 1980, Ser. No. 118,945
Int. Cl.³ G08B 21/00

U.S. Cl. 340—648

8 Claims



1. A system for detecting and indicating brush wear of a plurality of brushes in a plurality of dynamoelectric machines each having a rotatable rotor contact surface, comprising:
at least two opposite-polarity brushes within each said dynamoelectric machine;
each said brush having electrical contact means protruding therein for a first predetermined distance, and an electrically conductive wear detecting wire protruding therein for a second predetermined distance, said second predetermined distance being larger than said first predetermined distance;
each said wear detecting wire having insulation about the circumference thereof and at a tip thereof for insulating said wire from said brush;

said wear detecting wires of like polarity brushes within each said dynamoelectric machine being joined together at first and second common points;
 an isolating resistor being connected between said first and second common points;
 a single interconnecting wire being attached to said first common point at a first end thereof for connecting each said dynamoelectric machine to said brush wear indicating device;
 said brush wear indicating device providing a separate first indication of a voltage being connected to each said interconnecting wire, and a second indication of a voltage being connected to any one of said interconnecting wires, said voltage being connected to said interconnecting wires when said brush having a wear detecting wire electrically connected to said interconnecting wire is worn by frictional contact with said rotor contact surface so that said insulation is abraded from said tip by said armature rotor surface, thereby connecting said wear detecting wire to said rotor contact surface.

4,316,187

CURRENT RATING VERIFICATION SYSTEM

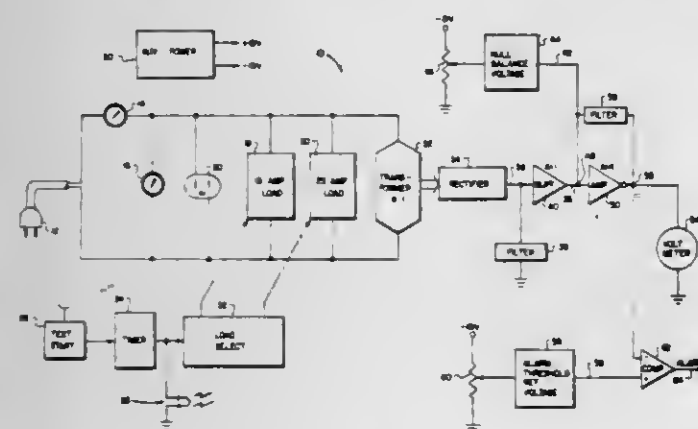
George A. Spencer, Rte. 2, Box 158-B8, Plano, Tex. 75074

Filed Jan. 9, 1981, Ser. No. 223,748

Int. Cl.³ G08B 21/00; G01R 27/02

U.S. Cl. 340—664

13 Claims



1. A method for verifying the load rating of an active alternating current distribution circuit at a power outlet comprising the steps:

- generating a direct current analog waveform proportional to the amplitude of the no-load line voltage delivered by the power distribution circuit at the power outlet;
- summing the no-load direct current analog waveform with a direct current reference waveform having the opposite polarity;
- adjusting the amplitude of the direct current reference waveform to a null balance level until said sum is zero;
- connecting a resistance load across the distribution circuit at the power outlet station;
- generating a direct current analog waveform proportional to the amplitude of the loaded circuit line voltage delivered by the power distribution circuit at the power outlet; and,
- measuring the sum of the loaded circuit direct current analog waveform and the null balance waveform.

7. A tester for verifying the load rating of an active electrical power distribution circuit at a power outlet comprising, in combination:

- means for generating a direct current analog waveform proportional to the amplitude of the line voltage delivered by the power distribution circuit at the power outlet;
- a reference generator for producing an adjustable amplitude, direct current reference waveform having a polarity opposite to the polarity of the direct current waveform;
- an adding circuit having a first input coupled to the rectifier circuit for receiving the direct current analog waveform and a second input coupled to the reference generator for receiving the opposite polarity reference waveform, and

having an output for conducting the sum of those waveforms;
 an amplifier having an input coupled to the output of said adding circuit for receiving and amplifying the sum of said waveforms;
 detector means coupled to said amplifier for registering the amplified sum;
 a resistance load; and,
 switching means coupled to the auxiliary resistance load for disconnecting said load from said distribution circuit during a no-load balancing operation, and for connecting said load across the distribution circuit at the power outlet station during a load testing operation.

4,316,188

MULTIPLE FONT DISPLAY CONTROL

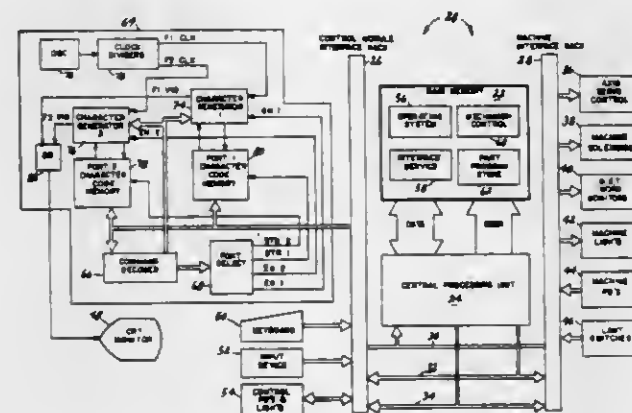
Maurice V. Cancasci, Jr., Mason, Ohio, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio

Filed May 27, 1980, Ser. No. 153,640

Int. Cl.³ G06K 15/20

U.S. Cl. 340—735

10 Claims



1. An apparatus for mixed display of dot matrix characters of a plurality of matrix sizes, represented by character code signals of a plurality of fonts, each font corresponding to one of the matrix sizes, the display being produced by impingement of a sweeping electron beam on a phosphorescent screen of a cathode ray tube, the apparatus comprising:

- (a) timing means for producing a plurality of timing signals of different frequencies from a single clock source;
- (b) a plurality of storing means for storing character code signals representing characters of a plurality of fonts, each storing means storing character code signals of only one font;
- (c) a plurality of character generating means, each generating means being coupled to one of the storing means and being responsive to one of the timing signals to produce a video signal for controlling the duty cycle of the cathode ray tube electron beam, whereby a plurality of video signals are produced; and
- (d) means for controlling the cathode ray tube electron beam with the plurality of video signals.

4,316,189

ELECTROMECHANICAL DISPLAY APPARATUS

Robert H. Sturges, Jr., Pittsburgh, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed May 8, 1980, Ser. No. 147,800

Int. Cl.³ G09F 13/36; H04N 7/18

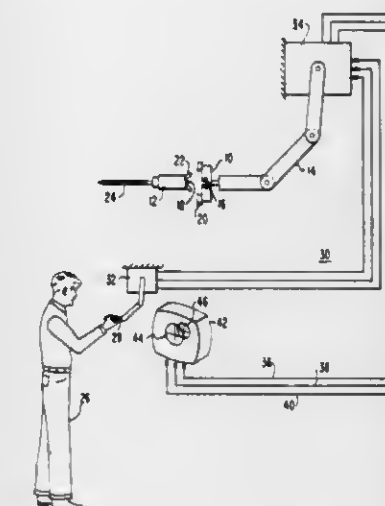
U.S. Cl. 340—870.34

6 Claims

1. In an apparatus for displaying the position of a movable first member relative to the position of a second member and operative with a position sensor for providing a plurality of signals in accordance with three respective cartesian coordinates of the relative separation between the first member and the second member, the combination of:

- means providing a first image in accordance with the position of the first member, and

means providing a second image in accordance with the position of the second member,
 with said first image providing means being movable and including a first screen having a reticule and cooperative with an iris member responsive to a first of said signals for



projecting a first image and including first drive means responsive to a second of said signals for moving the first image along one of said coordinates and second drive means responsive to a third of said signals for moving the first image along another of said coordinates.

4,316,190

SECONDARY SURVEILLANCE RADAR

Henry W. Cole, Billerica, England, assignor to The Marconi Company Limited, Chelmsford, England

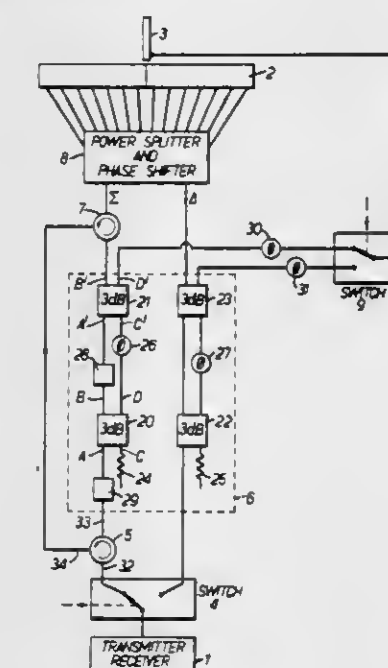
Filed May 28, 1980, Ser. No. 153,940

Claims priority, application United Kingdom, Jun. 5, 1979, 19502/79

Int. Cl.³ G01S 13/78

U.S. Cl. 343—6.5 R

10 Claims



1. A secondary surveillance radar including an antenna arrangement consisting of an omni-directional antenna and a directional antenna capable of being operated in sum and difference modes; means for routing a sequence of pulses to the antenna arrangement, for transmitting the first pulse of the sequence via the directional antenna as a sum pattern and via the omni-directional antenna, for transmitting the second pulse via the omni-directional antenna and via the directional antenna as a difference pattern, and for transmitting the third pulse of the sequence via the directional antenna as a sum pattern.

4,316,191

LOW ANGLE RADAR PROCESSING MEANS

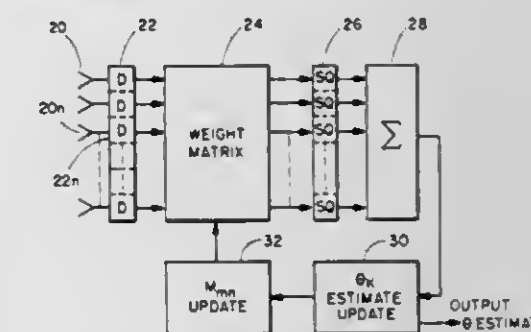
Takeo Sawatari, Birmingham; Patrick N. Keating, Bloomfield; Ronald F. Steinberg, Livonia, all of Mich., and Rolf K. Mueller, Stillwater, Minn., assignors to The Bendix Corporation, Southfield, Mich.

Filed Apr. 14, 1980, Ser. No. 140,032

Int. Cl.³ G01S 3/06

U.S. Cl. 343—16 R

4 Claims



1. Radar equipment for processing electromagnetic signals from a low elevation target including radar means for receiving said electromagnetic signals from said low elevation target directly and via ground bounce comprising:

- an N element array antenna for receiving said electromagnetic signals;
- a set of N detectors of the received electromagnetic signals, each said detector being arranged in a separate channel;
- demodulator means for converting the detected electromagnetic signals into a set of N complex electrical signals X_m , one said electrical signal being contained in each said channel;
- a matrix of complex weights M_{mn} responsive to said set of N complex electrical signals X_m for generating a set of N complex electrical signals X_n' where:

$$X_n' = \sum_m M_{mn} X_m$$

means for determining the total power represented by said set of N complex electrical signals X_n' ; and,
 means for iteratively adjusting said complex weights M_{mn} to minimize said total power.

4,316,192

BEAM FORMING NETWORK FOR BUTLER MATRIX FED CIRCULAR ARRAY

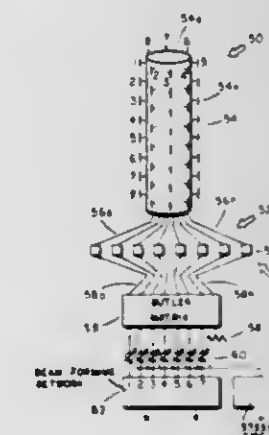
Joseph H. Acoraci, Phoenix, Md., assignor to The Bendix Corporation, Southfield, Mich.

Filed Nov. 1, 1979, Ser. No. 90,836

Int. Cl.³ G01S 1/14; H01Q 3/36, 3/40

U.S. Cl. 343—100 SA

2 Claims



1. A beam forming network for an antenna array including: a first input terminal (100); first means (108) responsive to excitation of said first input

terminal for generating a first set of weights corresponding to a sum pattern antenna beam having omnidirectional side lobes;

a second input terminal (101);

second means (110) responsive to excitation of said second input terminal for generating a first subset of weights corresponding to a difference pattern antenna beam;

third means (106) responsive to excitation of said second input terminal for generating a second subset of weights corresponding to an omnidirectional antenna beam;

means for combining (112, 114, 116, 118) the weights generated by said first, second and third means;

N output terminals (120-1 to 120-8) connected to receive the weights from said combining means; and,

means unidirectionally coupling (102, 104) excitation energy from said second input terminal (101) to said first input terminal (100) but not coupling excitation energy from said first input terminal to said second input terminal, whereby excitation of said first input terminal causes said first set of weights to be generated but said first and second subsets are not generated so that the weights corresponding to a sum pattern antenna beam having omnidirectional side lobes are received at said N output terminals and whereby excitation of said second input terminal causes said first input terminal also to be excited so that weights corresponding to difference pattern antenna beam having omnidirectional side lobes are received at said N output terminals.

4,316,193

SERVO LOOP PROCESSOR

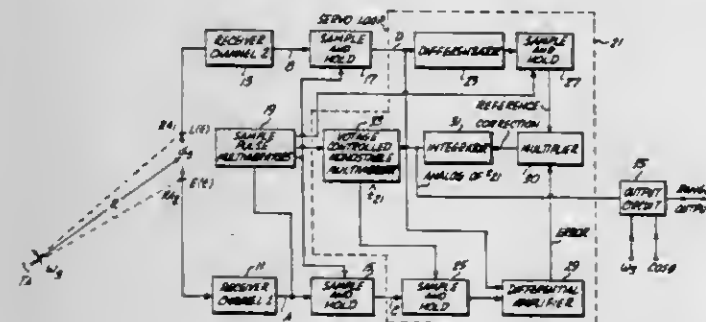
Philip Jones, Bothell, and Moorfield Storey, Jr., Seattle, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Continuation-in-part of Ser. No. 488,401, Jul. 15, 1974, abandoned. This application Oct. 1, 1979, Ser. No. 80,533

Int. Cl.³ G01S 3/02

U.S. Cl. 343—112 D

22 Claims



1. A servo loop processor suitable for use in determining the time shift between first and second like signals, said first signal occurring in time prior to said second signal, said servo loop processor comprising:

controllable delay means, connected to receive said first signal, for delaying said first signal, said controllable delay means having a delay control input;

comparison means for receiving said second signal and being coupled to the output of said delay means for receiving said delayed first signal, and for comparing said delayed first signal with said second signal and generating an error signal relating to the difference therebetween;

reference producing means for receiving said second signal, and for producing a reference signal in accordance therewith;

multiplier means, coupled to outputs of said comparison means and said reference producing means, for multiplying said error signal by said reference signal and for producing a correction signal in accordance therewith; and,

delay control means, coupled to an output of said multiplier means and to the delay control input of said controllable delay means, for controlling said controllable delay means so that said first signal is delayed by an amount intended to

bring it into time correspondence with said second signal at which point said error signal reduces to zero.

4,316,194

HEMISPHERICAL COVERAGE MICROSTRIP ANTENNA

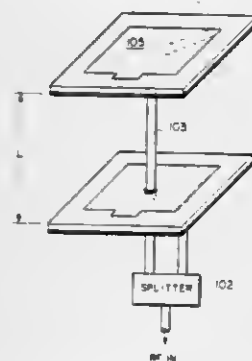
Charles M. De Santis, Neptune, and John R. Wills, Ocean Grove, both of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Nov. 24, 1980, Ser. No. 209,809

Int. Cl.³ H01Q 13/10, 1/28

U.S. Cl. 343—700 MS

9 Claims



1. An antenna having hemispherical coverage with circular polarization comprising:

two or more patch units positioned plane parallel, stacked, with space between less than a half wavelength each patch unit comprising a thin metallic patch having at least one discontinuity in the symmetry of its perimeter, the patch mounted on a larger sized plane of metal-backed dielectric material, feedlines each connected to a patch on the patch units,

a phase delay device in one of said feedlines, whereby the patches are driven from the same source with proper phasing of one line and a hemispherical pattern with circular polarization is propagated from said antenna structure.

4,316,195

ROTATING DUAL FREQUENCY RANGE ANTENNA SYSTEM

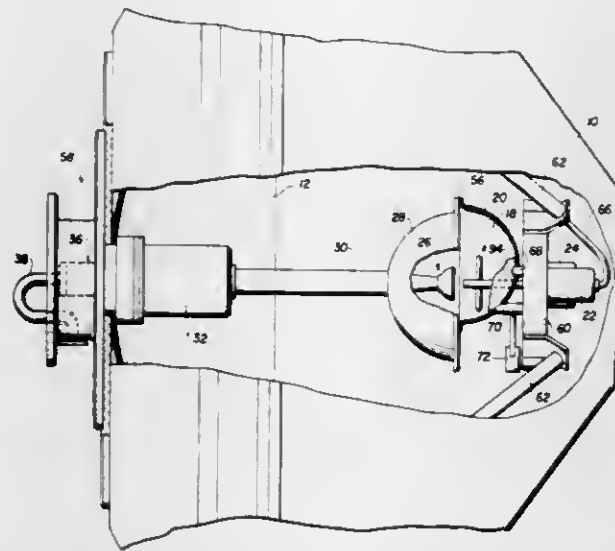
Leonard J. Steffek, Centereach, and Stanley Drake, Blue Point, both of N.Y., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Sep. 19, 1980, Ser. No. 188,798

Int. Cl.³ H01Q 3/00

U.S. Cl. 343—758

15 Claims



1. A conical scan antenna system simultaneously operable at two different frequencies, comprising, in combination:

a parabolic reflector;

a first stationary feed of first frequency RF signals positioned along an axis through the vertex of said parabolic reflector;

rotatable RF reflector means for said first stationary feed facing said parabolic reflector from behind said first feed and being offset from said axis through said vertex;

a second stationary feed of second frequency RF signals positioned along said axis substantially at the vertex of said parabolic reflector and adjacent said first stationary feed;

rotatable RF lens means for said second stationary feed located intermediate said second feed and said parabolic reflector, facing said RF reflector means and being axially aligned with said axis through said vertex;

means attaching said reflector means to said lens means in face-to-face relationship; and

scan drive means coupled to at least one of said rotatable means for rotating both said means about said axis through said vertex to effect conical scanning of both feeds simultaneously.

4,316,196

ILLUMINATION AND LIGHT GATE UTILIZATION METHODS AND APPARATUS

John H. Jacobs, Altadena, Calif., assignor to Bell & Howell Corporation, Chicago, Ill.

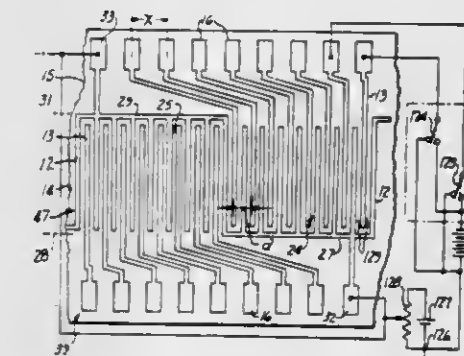
Division of Ser. No. 925,132, Jul. 17, 1978, abandoned, which is a continuation of Ser. No. 776,157, Mar. 10, 1977, abandoned.

This application Mar. 27, 1979, Ser. No. 24,486

Int. Cl.³ G01D 15/14

U.S. Cl. 346—1.1

8 Claims



1. In a method of recording varying electric signals with a plurality of electrically actuable light gates, the improvement comprising in combination the steps of:

illuminating said light gates with light of a first intensity above zero light intensity;

providing a light-sensitive recording medium sensitive to illumination levels at light intensities including said first light intensity and starting at a second light intensity below said first intensity and above zero light intensity;

preconditioning said light gates to subsequent opening in response to said varying electric signals by electrically biasing said light gates to an initially open condition wherein said gates pass light from said illumination at an intensity above zero light intensity and below said second light intensity;

exposing said recording medium to said light passed by said preconditioned gates in said initially open condition whereby said recording medium is exposed to light below said second intensity;

selectively energizing and further opening said preconditioned light gates in response to said varying electric signals to pass light from said illumination at at least said second light intensity and provide a luminous representation of said varying electric signals; and

exposing said recording medium to said passed illumination at at least said second light intensity and recording said luminous representation of said varying electric signals on said recording medium.

4,316,197

EASILY REMOVABLE INSTRUMENT PEN TIP

James R. Hubbard, Moorestown, and William A. Tallerico, Willingboro, both of N.J., assignors to Graphic Controls Corporation, Cherry Hill, N.J.

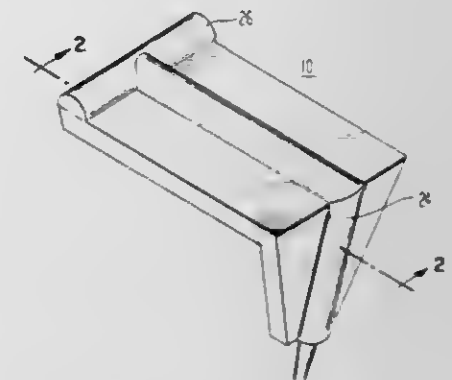
Continuation of Ser. No. 886,722, Mar. 15, 1978, abandoned.

This application Aug. 20, 1979, Ser. No. 67,813

Int. Cl.³ G01D 15/16

U.S. Cl. 346—140 R

12 Claims



1. One piece removable and replaceable instrument pen tip body formed of resilient plastic, said body having an ink transmitting passageway therethrough, one end of which is adapted to receive and sealingly engage an ink supply tube associated with a pen arm and a remote ink supply and the other end of which is adapted to receive and sealingly engage a straight section of an elongated nib element in alignment therewith, said body having a relatively flat shaped portion, said passageway being open from said tube to said nib element, at least a portion of said passageway having an axis lying in the plane of said flat shaped portion, said body also having at least one locator on its outer surface to ensure positive positioning of said body on mounting means therefor.

4,316,198

ELECTROGRAPHIC RECORDING

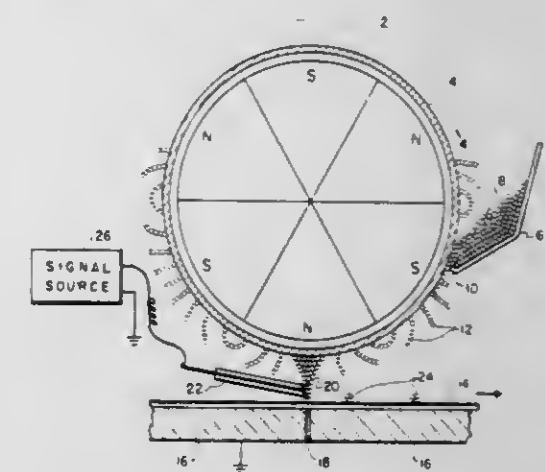
Roger D. Erickson, Denver, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

Filed May 23, 1980, Ser. No. 152,599

Int. Cl.³ G01D 15/06; G03G 15/09

U.S. Cl. 346—150

4 Claims



1. An electrographic recording system for recording on a first surface of an electrographic recording medium, said system comprising:

a non-magnetic, back-up platen positioned to engage the opposite surface of said recording medium;

a multipolar magnetic structure, said magnetic structure being fixed in position;

a non-magnetic electrically non-conductive shell surrounding said magnetic structure, and mounted for rotary motion about said magnetic structure;

said shell being spaced a predetermined small distance above the plane of the surface of said recording medium;
hopper means for toner particles positioned adjacent the periphery of said shell to enable toner particles to be drawn from said hopper means onto said shell by magnetic fields produced by said magnetic structure;
a magnetically permeable strip member positioned in juxtaposition with portions of said back-up platen, to extend along a line coextensive with said shell and parallel to the axis thereof at a position defining a recording station, said magnetically permeable strip forming a concentration of a magnetic field produced by said magnetic structure and forming a dynamic bridge of said toner particles between said drum and said first surface of said recording medium at said recording station;
a portion of the back-up plate being electrically conductive and positioned to electrically engage the surface of the recording medium opposite said toner bridge; and
an array of recording electrodes positioned in the space between the periphery of said shell and said recording medium with at least the extremities of said recording electrodes in electrical contact with said toner particles in said bridge at said recording station.

4,316,199

GRAPHIC FORMS OVERLAY APPARATUS

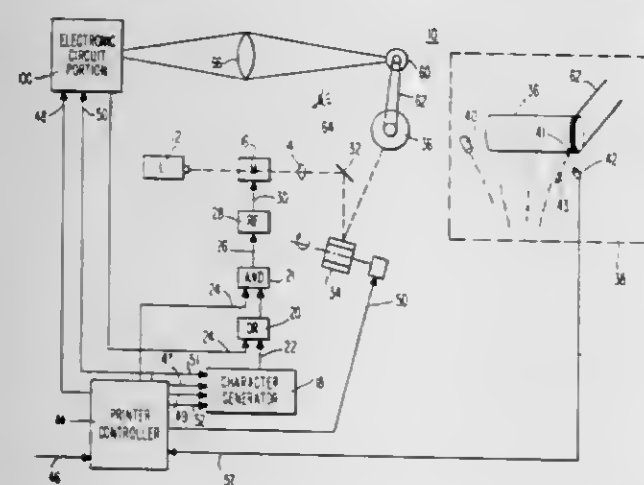
Nelson L. Greenig, Norristown, and Richard M. Shelton, Oregon, both of Pa., assignors to Sperry Corporation, New York, N.Y.

Filed Jan. 7, 1980, Ser. No. 110,286

Int. Cl.³ G01D 15/14; H04N 1/22

U.S. Cl. 346-160

6 Claims



1. A forms overlay apparatus to be used with a light sensitive, rotational printing member of a printing system to enable said printing member to print a graphic forms pattern and information data in a single printing operation, and which printing system includes circuitry means to accept and transform information data from a data information source into representative electrical signals, and includes further circuitry means to generate first control signals, comprising in combination:

rotating mounting means formed to have a graphic forms master disposed thereon, said rotational mounting means coupled to said rotational printing member to rotate in a predetermined relationship therewith;
light source means disposed to transmit light to said rotating graphic forms master to create reflected light images thereof;
light sensitive logic means for receiving linear light images and for generating simultaneously a plurality of image electrical signals representative thereof;
optical means disposed to receive a linear portion of said reflected light images for focusing said linear portion or said light sensitive logic means;
first logic circuitry means coupled to said light sensitive

logic means for generating second control signals for operation of said light sensitive logic means;
second logic circuitry means connected to said light sensitive logic means, said first logic circuitry means, and said printing system to receive and merge image electrical signals and information data electrical signals in response to said first and second control signals;
light source-optical system means disposed to selectively affect incremental light transmissions to said light sensitive printing member in response to electrical signals applied thereto; and
circuitry means connecting said second logic circuitry means to said light source-optical system means.

4,316,200

CONTACT TECHNIQUE FOR ELECTRICAL CIRCUITRY

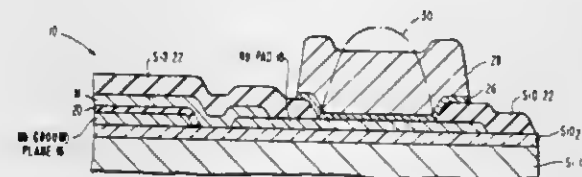
Irving Ames, Peekskill; Wilhelm Anacker, Katonah; Kurt R. Grebe, Beacon, and Charles J. Kircher, Yorktown Heights, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 7, 1980, Ser. No. 128,219

Int. Cl.³ H01L 39/22

U.S. Cl. 357-5

12 Claims



1. A superconductive device circuit, comprising in combination:
a substrate having thereon superconducting devices and a superconducting electrical line for carrying electrical currents to said devices,
a bonding layer which must be electrically connected to said superconducting electrical line, said bonding layer and said superconducting electrical line being comprised of components which readily interdiffuse into one another, a metallic diffusion barrier layer located between said bonding layer and said superconductive electrical line, said bonding layer contacting said diffusion barrier at a first portion thereof and said superconducting electrical line contacting said diffusion barrier at a second portion thereof laterally displaced from said first portion, there being a layer of electrically insulating material located over said diffusion barrier layer and separating said first and second portions from one another.

4,316,201

LOW-BARRIER-HEIGHT EPITAXIAL GE-GAAS MIXER DIODE

Aristos Christou, Springfield, and John E. Davey, Alexandria, both of Va., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 8, 1980, Ser. No. 147,992

Int. Cl.³ H01L 29/48

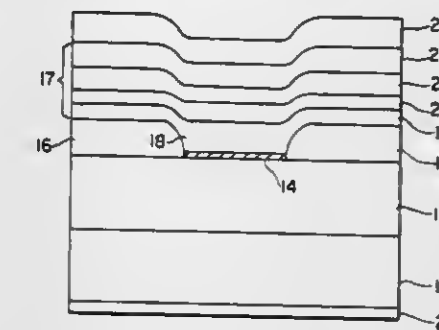
U.S. Cl. 357-15

14 Claims

1. In a gallium arsenide (GaAs) mixer diode having a low Schottky-barrier height in the range of approximately 0.40 eV-0.55 eV for operating at high frequencies (X-band and above) at low local oscillator power levels (about 0.25 mW-0.75 mW), the mixer diode having a GaAs substrate, a GaAs epitaxial layer on the GaAs substrate, a refractory metal overlayer structure, a conducting layer of metal on the overlayer structure, and an ohmic contact to the GaAs substrate, the improvement comprising:

a thin heterojunction epitaxial layer of germanium on the GaAs epitaxial layer, said refractory metal overlayer structure being on the epitaxial layer of germanium, the thickness of the epitaxial layer of germanium being suffi-

cient for tunneling of electrons from the metal overlayer to the GaAs and for producing an effective lowering of the Schottky barrier height, the GaAs being maintained at a temperature, during deposition of the epitaxial germa-



nium on the GaAs, sufficient to develop an epitaxial growth for completely covering and uniformly wetting the GaAs, and the epitaxial germanium being deposited on the GaAs at a rate sufficient for epitaxial growth.

4,316,202

SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE HAVING A SCHOTTKY BARRIER DIODE

Susumu Mori, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Japan

Continuation of Ser. No. 972,725, Dec. 26, 1978, abandoned.

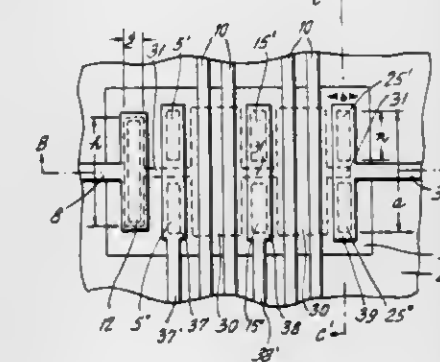
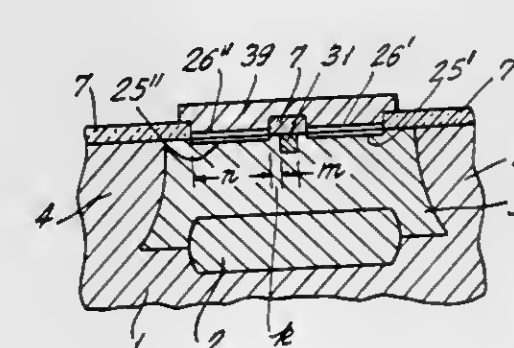
This application Feb. 17, 1981, Ser. No. 234,848

Claims priority, application Japan, Dec. 27, 1977, 52-158855

Int. Cl.³ H01L 29/48, 29/56, 29/64

U.S. Cl. 357-15

10 Claims



1. A semiconductor integrated circuit device, comprising:
a semiconductor substrate having a surface and having an impurity region of one conductivity type adjacent said surface;
a plurality of metallic layers formed of a first metallic material and located on said surface and spaced apart from each other so as to form a gap located over said impurity region, each of said metallic layers being at a respective position over said impurity region and having a predetermined contact surface area contacting said surface of said substrate and defining a respective Schottky barrier;
first electrode electrically connected directly to said metallic layers and bridging the gap between said metallic layers

above said impurity region, whereby said Schottky barriers formed between said metal layers and said substrate operate as a single Schottky diode;
a first high impurity concentration region of said one conductivity type having a higher impurity concentration than said impurity region and located in said impurity region and adjacent said surface of said substrate; and
electrode means in ohmic contact with said first high impurity concentration region; each of said contact surface areas being sufficiently small that it lies within a range of values in which it is related in a non-linear manner to at least one of: (1) the series resistance of the Schottky barrier of which it forms a part; and (2) the forward current at zero forward voltage of the Schottky barrier of which it forms a part such that the total forward drop of said Schottky diode defined by said separate Schottky barriers is less than the total drop of a Schottky diode formed of a single Schottky barrier having the same area as the total area of said Schottky barriers defining said Schottky diode.

4,316,203

INSULATED GATE FIELD EFFECT TRANSISTOR

Ryoiku Tohgei, Machida, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

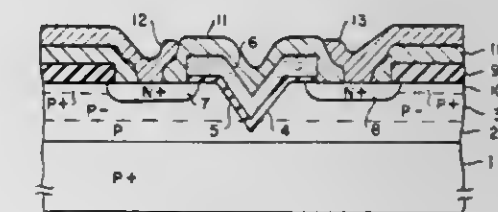
Continuation of Ser. No. 42,493, May 24, 1979, abandoned. This application Dec. 31, 1980, Ser. No. 224,197

Claims priority, application Japan, May 29, 1978, 53-64067

Int. Cl.³ H01L 29/78

U.S. Cl. 357-23

12 Claims



terminating at a point within said first semiconductor layer, said recess separating said source and drain regions and exposing portions of said first and second semiconductor layers.

a gate region extending between said source region and said drain region on said uppermost surface of said second semiconductor layer and on said exposed portions of said first and second semiconductor layers, said gate region comprising first and second depletion mode gate portions located in said second semiconductor layer adjacent to said source region and said drain region, respectively, and an enhancement mode gate portion located in said first semiconductor layer between said first and second depletion mode gate portions and adjacent thereto, said enhancement mode gate portion comprising said terminating point of said recess in said first semiconductor layer.

4,316,204

OPTOELECTRONIC SEMICONDUCTOR DEVICE

Nobuhiro Inagaki, Eiichi Kitamura, and Ryosuke Namazu, all of Yokohama, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

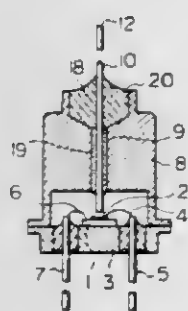
Filed Feb. 6, 1980, Ser. No. 118,973

Claims priority, application Japan, Feb. 9, 1979, 54-14471

Int. Cl.³ H01L 27/14

U.S. Cl. 357—30

6 Claims



1. An optoelectronic semiconductor device for communication with light signals and comprising:

an optoelectronic semiconductor element for selectively receiving and generating said light signals;
an element housing which seals and covers said element;
an optical fiber arranged through a through hole which is formed in said element housing, one end of said fiber facing said optoelectronic semiconductor element and the other end projecting out of said element housing by a predetermined length, said optical fiber having a core and a clad layer around the core; and

a light absorbing material disposed around said clad layer of said optical fiber within said element housing, said light absorbing material having a higher index of refraction than said clad layer and said light absorbing material substantially absorbing the light of said signals being transmitted by said optical fiber between said optoelectronic semiconductor element and the exterior of said device.

4,316,205

SOLID-STATE IMAGING DEVICE

Masakazu Aoki, Hachioji; Iwao Takemoto, Kodaira; Masaharu Kubo, Hachioji, and Ryuichi Izawa, Kokubunji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 7, 1980, Ser. No. 119,383

Claims priority, application Japan, Feb. 19, 1979, 54-17340

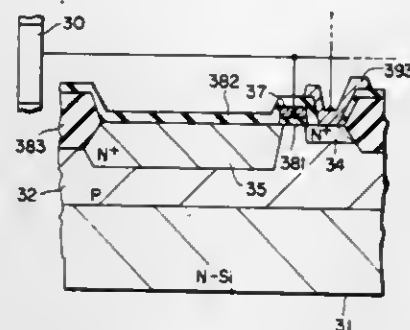
Int. Cl.³ H01L 27/14

U.S. Cl. 357—30

30 Claims

1. In a solid-state imaging device having in one major surface region of a monolithic semiconductor body, photodiodes which are arrayed in two dimensions, vertical switching MOS transistors and horizontal switching MOS transistors which address the photodiodes, MOS transistors which constitute vertical and horizontal scanning circuits for turning "on" and "off" the switching MOS transistors, and MOS transistors

which constitute other peripheral circuitry, the photodiodes being constructed of source regions of the vertical switching MOS transistors and the semiconductor body; a solid-state imaging device characterized in that the source region of said each vertical switching MOS transistor has a surface impurity concentration lower than, and a junction depth deeper than, those of an impurity region of at least one of (1) a drain region



of said each vertical switching MOS transistor, (2) a source or drain region of said each horizontal switching MOS transistor, (3) a source or drain region of said each MOS transistor of said horizontal scanning circuit, (4) a source or drain region of said each MOS transistor of said vertical scanning circuit, and (5) a source or drain region of said each MOS transistor of said other peripheral circuitry.

4,316,206

TWO COLOR NARROW BANDWIDTH DETECTOR

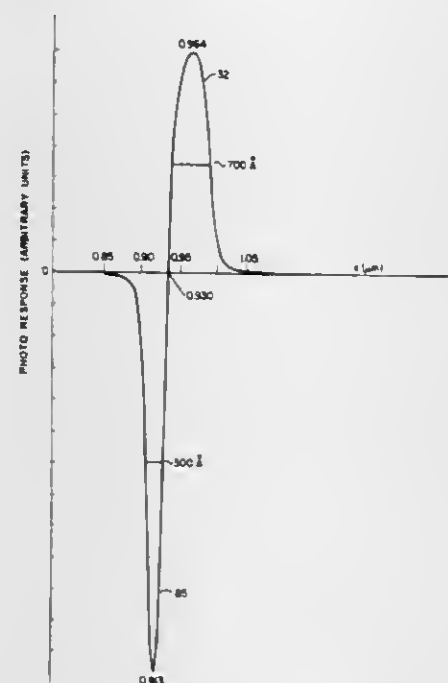
Nicholas Bottka, and Marian E. Hills, both of Ridgecrest, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 14, 1980, Ser. No. 140,398

Int. Cl.³ H01L 27/14

U.S. Cl. 357—30

7 Claims



1. A narrow band two color detector with current inversion comprising:

a substrate having a band gap which filters wavelengths of light shorter than λ_{BG} , which is the wavelength of light with energy equal to the band gap of said substrate;
a plurality of epitaxial layers placed on the filtered side of said substrate which have gap energies smaller than said substrate, said epitaxial layers having a built in field between two of said plurality of layers due to interface traps; and

electrical contacts placed on the unfiltered side of said substrate and on the outermost layer of said plurality of epitaxial layers for creating a predetermined voltage across

said detector, such that light absorbed on one side of said interface traps produces an inverted photoelectric current from light absorbed on the opposite side of said interface traps.

4,316,207

V-GROOVE SEMICONDUCTOR MEMORY DEVICE

Takashi Matsumoto, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

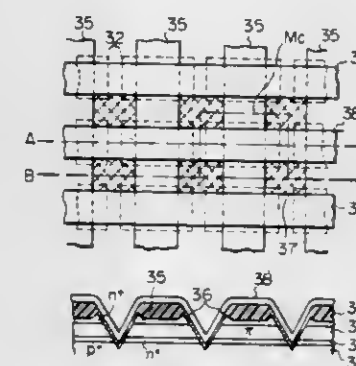
Filed Feb. 11, 1980, Ser. No. 120,093

Claims priority, application Japan, Feb. 19, 1979, 54-18256

Int. Cl.³ H01L 27/02, 29/78, 29/06; G11C 11/24

U.S. Cl. 357—41

7 Claims



1. In a semiconductor device in which gates are formed at the sides of V-shaped grooves that are formed in a semiconductor bulk of a first conductivity type, the gates being part of VMIS transistors for controlling information by transferring electric charge to the junction capacitance of plural capacitors that are embedded in the vicinity of the tips of the V-shaped grooves, the improvement comprising

each said capacitor consisting of a single respective portion of a respective one of at least one embedded layer of semiconductor of the opposite conductivity type, each said embedded layer extending uniformly over a respective extended area of said substrate under each of said V-shaped grooves, and each said single respective portion extending between an adjacent pair of said V-shaped grooves, and

each said single embedded layer being divided into a plurality of said capacitors of equal area and capacitance by the tips of the V-shaped grooves.

4,316,208

LIGHT-EMITTING SEMICONDUCTOR DEVICE AND METHOD OF FABRICATING SAME

Hiroyuki Kobayashi, and Masafumi Hashimoto, both of Kawasaki, Japan, assignors to Matsushita Electric Industrial Company, Limited, Osaka, Japan

Continuation of Ser. No. 916,253, Jun. 16, 1978, abandoned.

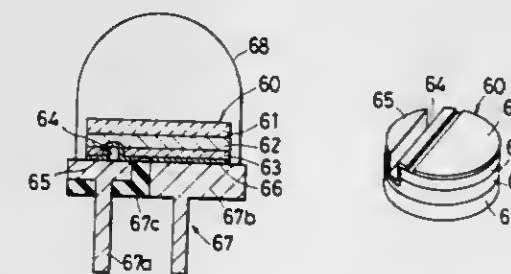
This application May 30, 1980, Ser. No. 155,007

Claims priority, application Japan, Jun. 17, 1977, 52-72417

Int. Cl.³ H01L 29/06, 23/48, 29/44

U.S. Cl. 357—55

16 Claims



1. A light-emitting semiconductor device comprising:
a substrate;

a first semiconductor layer which is formed on said substrate; said first semiconductor layer being continuous;
a second semiconductor layer which is different in conductivity from said first layer and is formed on the outer surface of said first layer, said second layer being formed with a recess which is deeper than the thickness of said second layer, said recess being formed by removal of a surface portion of said first layer such that surfaces of said second layer are exposed and a subsurface portion of said first layer is uncovered and serves as the bottom of said recess;
a first electrode layer selectively covering the outer surface of said second semiconductor layer and extending into said recess so as to cover the exposed surfaces of said second semiconductor layer and said subsurface portion of said first semiconductor layer;

a second electrode layer selectively covering the outer surface of said second semiconductor layer so as to be separated from said first electrode layer;
a first solder bump built up on said first electrode layer and filling up said recess; and
a second solder bump built up on said second electrode layer and being separated from said first solder bump.

4,316,209

METAL/SILICON CONTACT AND METHODS OF FABRICATION THEREOF

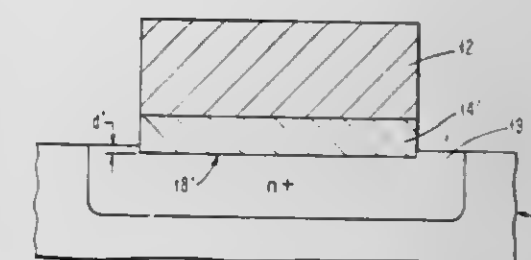
Paul S. Ho, Chappaqua, N.Y.; Uwe Köster, Bochum, Fed. Rep. of Germany; Tung-Sheng Kuan, Shrub Oak, N.Y.; Iwao Ohdomari, Yokohama, Japan, and Arnold Reisman, Yorktown Heights, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 31, 1979, Ser. No. 71,528

Int. Cl.³ H01L 23/48, 29/46, 29/62

U.S. Cl. 357—67

5 Claims



1. A contact for making an electrical connection between an aluminum conductor and a silicon substrate comprising:
aluminum alloyed with at least one noble metal from the group Pd and Pt to form a resultant alloy wherein at least one region of said resultant alloy is further alloyed with silicon; and
wherein the ratio of Al to said noble metals is in the atomic ratio of between about 3 to 2 and 2 to 3.

4,316,210

VIDEO SIGNAL PROCESSING APPARATUS

James H. Wharton, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Aug. 28, 1980, Ser. No. 181,989

Int. Cl.³ H04N 5/76

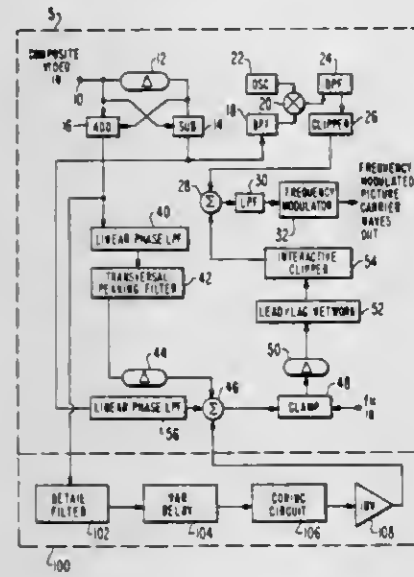
U.S. Cl. 358—4

23 Claims

1. Apparatus for minimizing clipping distortion in a video signal processor of the type including a preemphasis means for boosting the high frequency content of an input luminance signal and clipping means for limiting the amplitude of the resultant preemphasized luminance signal to a predetermined level, said apparatus comprising:

detail filter means responsive to said input luminance signal for producing a detail signal having an amplitude representative of transitions of said input luminance signal;

delay means in said video signal processor for delaying said luminance signal by a predetermined time period prior to the application thereof to said clipping means; circuit means for subtractively combining said detail signal and the delayed luminance signal in a timed relationship such that the detail component of the resultant combined



signals precedes the luminance component of the resultant combined signals by a predetermined time and is of a sense relative to that of transitions of said luminance component to cause the resultant signal to exhibit preshoot and reduced overshoot; and means for applying said resultant signal to said clipping means.

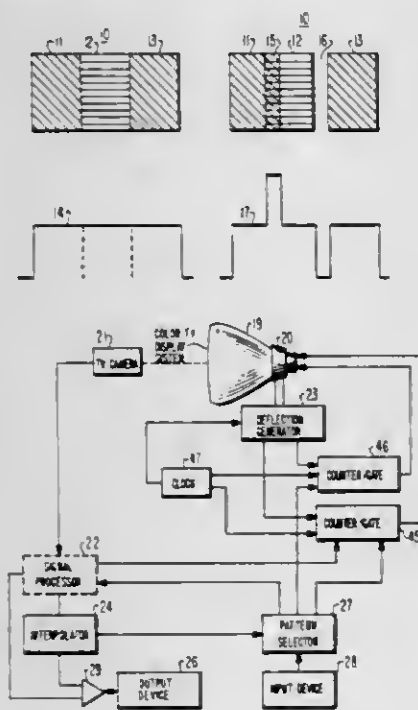
4,316,211

COLOR KINESCOPE CONVERGENCE MEASURING SYSTEM

Donald Mackey, Haddonfield, and Ernest D. Fox, Cherry Hill, both of N.J., assignors to RCA Corporation, New York, N.Y.
Filed Sep. 30, 1980, Ser. No. 192,362
Int. Cl.³ H04N 9/62

U.S. Cl. 358—10

11 Claims



1. A convergence measurement apparatus for use with a color television display system, said display system comprising a kineoscope having a display screen and incorporating three electron beam producing means, and a deflection yoke for deflecting said beams in horizontal and vertical directions to form a raster on said display screen, said apparatus comprising: means for activating one of said electron beam producing

means to generate a first beam display area on said kineoscope display screen; means for activating another of said beam producing means to generate second and third beam display areas on said kineoscope display screen, said second and third display areas occurring on opposite boundaries of said first display area and contiguous with said first display area upon occurrence of the convergence of said one and said other of said beams in the vicinity of said display areas, said first display area overlapping one of said second or third display areas to form an overlap zone and an associated gap zone upon occurrence of the misconvergence of said one and said other of said beams; scanning means for detecting the light emitted from said first, second and third display areas, and from said overlap and gap zones, if any, in a predetermined order; means, responsive to the output of said scanning means, for developing a signal indicative of the order of occurrence of said overlap and gap zones, if any, and having an amplitude representative of the width of said overlap and gap zones; means, responsive to said developed signal, for modifying one of said means for activating said beam producing means so as to effect a movement of said first beam display area with respect to said second and third beam display areas in a direction tending to reduce the amplitude of said developed signal; and means for indicating the amount of relative motion of said display areas needed to minimize the amplitude of said developed signal.

4,316,212

METHOD FOR ADJUSTING THE BIAS OF A KINESCOPE IN A COLOR TELEVISION RECEIVER AND APPARATUS TO FACILITATE SAME

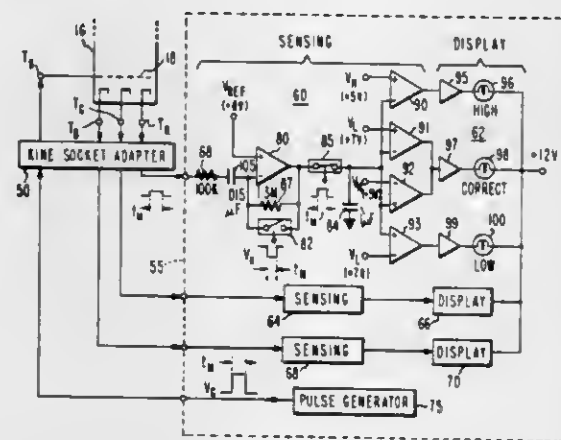
William E. Rodda, Trenton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Sep. 25, 1980, Ser. No. 190,596

Int. Cl.³ H04N 9/62

U.S. Cl. 358—10

15 Claims



1. Apparatus for use with a color television receiver including an image reproducing kineoscope with an intensity control electron gun having a cathode electrode and an associated grid electrode; deflection means for providing horizontal and vertical scanning control of said kineoscope; means for adjusting the bias of said electron gun; a video signal channel for supplying image representative video signals to said kineoscope electron gun; and switch means coupled to said video channel and to said deflection means, said switching means having a first position for rendering said video channel and said deflection means normally operative in a normal operating mode of said receiver, and a second position for rendering said video channel inoperative to couple video signals to said kineoscope and for rendering said deflection means inoperative to provide vertical deflection scanning of the kineoscope in a service operating mode of said receiver when it is desired to adjust the operating characteristics of said kineoscope; said apparatus

4,316,214

KEYING SIGNAL GENERATOR WITH INPUT CONTROL FOR FALSE OUTPUT IMMUNITY

Thomas D. Yost, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Aug. 29, 1980, Ser. No. 182,752

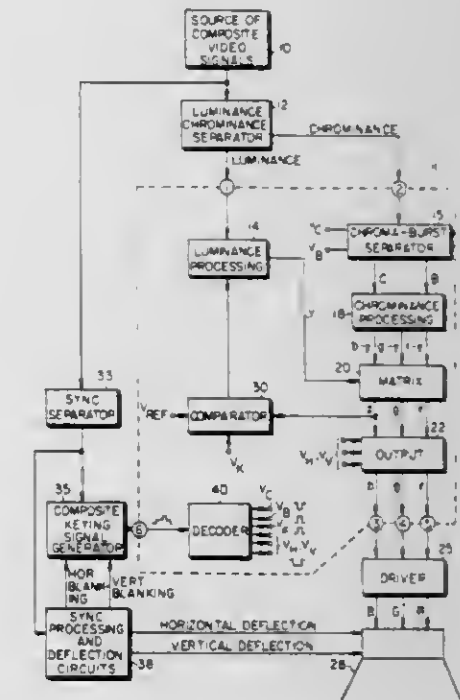
Int. Cl.³ H04N 5/44, 9/46

U.S. Cl. 358—21 R

10 Claims

facilitating the adjustment of the blanking current conducted by said electron gun when said receiver is in said service operating mode, and comprising:

means for energizing said kineoscope electron gun during periodic monitoring intervals to produce a cathode output signal representative of the current conduction level of said cathode; sampling means electrically coupled to said cathode electrode for providing a sample of said cathode output signal; means for comparing said sample with a reference signal to determine the status of said current conduction level of said cathode as being less than, greater than, or substantially equal to a desired current conduction level; and display means coupled to said comparing means for providing a visual indication of said status of said current conduction level.



4,316,213

VIDEO PROCESSOR EMPLOYING VARIABLE AMPLITUDE COMPRESSION OF THE CHROMINANCE COMPONENT

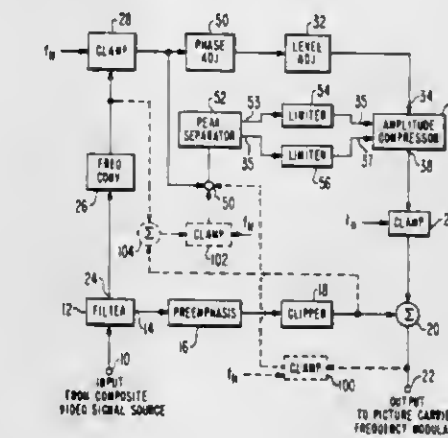
James H. Wharton, and Jack E. James, both of Indianapolis, Ind., assignors to RCA Corporation, New York, N.Y.

Filed Sep. 23, 1980, Ser. No. 190,082

Int. Cl.³ H04N 9/493, 9/38, 9/535

U.S. Cl. 358—11

7 Claims

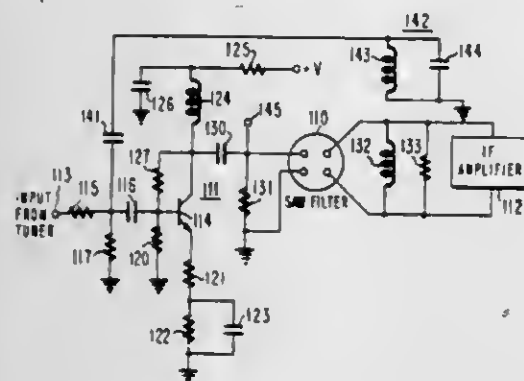


1. Video signal processing apparatus, comprising: filter means for separating a composite video input signal into a luminance component and a chrominance component; first signal processing means for preemphasizing said luminance component of said input signal; second signal processing means for compressing said chrominance component in response to peaks in excess of a given value of a control signal supplied thereto; means for summing the preemphasized luminance component produced by said first signal processing means with the controllably compressed chrominance component produced by said second signal processing means to produce an output composite video signal for application to a frequency modulator means; and means for deriving said control signal from a selected one of (1) said chrominance component of said composite video input signal, (2) a sum of said chrominance component of said composite video input signal and said preemphasized luminance signal and (3) said output composite video signal.

1. In a television receiver for processing a composite television signal containing image information within periodic horizontal image intervals, and horizontal image sync information within periodic image blanking intervals, said receiver including a source of reference signals representative of said sync information; a source of switching signals comprising image and blanking interval components in synchronism with said image and blanking interval components of said television signal; and keyed video signal processing circuits; apparatus for generating keying signals during said blanking intervals, comprising:

an input signal coupling path coupled to said source of reference signals and including timing means responsive to said reference signal for providing a timing signal corresponding to a translated version of said reference signal; keyed means normally subject to switching between first and second switching states in response to said timing signal for generating output keying signals during said blanking intervals, and undesirably subject to switching between said first and second states in response to spurious input signals coupled via said input path during said image intervals; means for coupling output signals from said keyed means to said keyed signal processing circuits; and control means for inhibiting false keying signal outputs from said keyed means during said image intervals, said control means being coupled to said input coupling path and responsive to said switching signals for enabling said input coupling path during said blanking intervals, and for disabling said input coupling path during said image intervals so that said timing means is isolated from said source of reference signals and from said source of switching signals during said image intervals.

at said output circuit a signal provided in accordance with a third frequency response characteristic corresponding to



the sum of said second frequency response characteristic and said first frequency response characteristic.

4,316,221

APPARATUS FOR SEQUENTIAL ROW INJECTION READOUT OF CID IMAGERS

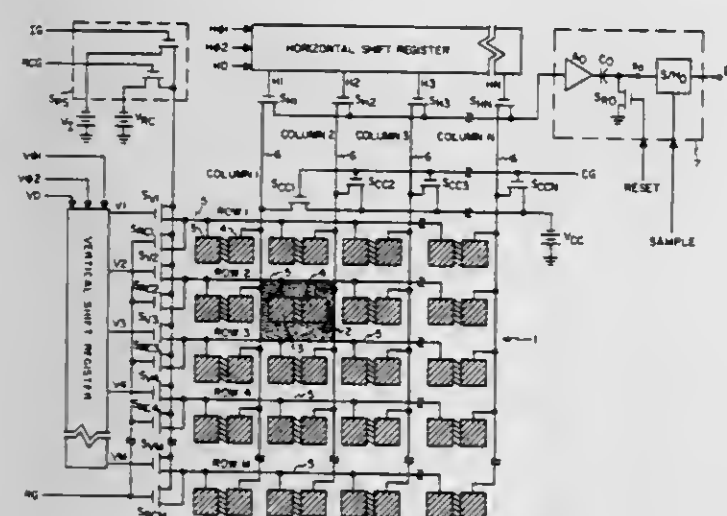
John M. Swab, Baldwinsville, N.Y., assignor to General Electric Company, Syracuse, N.Y.

Filed Aug. 5, 1980, Ser. No. 175,625

Int. Cl.³ H04N 5/30, 3/14

U.S. Cl. 358—213

6 Claims



1. Apparatus for periodically reading image intensity information from M rows x N columns of charge storage sites in a CID array imager, said reading being accomplished by sensing the magnitudes of signal charges collected at the charge storage comprising a substrate of semiconductor material supporting a layer of insulating material on which are formed at each site a conductive row pad and a conductive column pad, each pad defining a capacitive cell comprising the pad itself and the underlying portions of the insulating layer and the semiconductor substrate, the row pads for each row of sites being interconnected by a conductive row line and the column pads for each column of sites being interconnected by a conductive column line, said apparatus comprising:

(a) means for applying ROW COLLECTION and COLUMN COLLECTION potentials to the row and column lines prior to sensing the signal charge at each site, said means including:

- (1) a source of the ROW COLLECTION potential,
- (2) a source of the COLUMN COLLECTION potential,
- (3) M switches each connected between a respective row line and said source of ROW COLLECTION potential, and
- (4) N switches each connected between a respective column line and said source of COLUMN COLLECTION potential,

said ROW COLLECTION and COLUMN COLLECTION potentials establishing charge storage capacities at

the row and column cells of each site which are collectively sufficient to hold both a bias charge of predetermined magnitude and the signal charge collected between successive readings, said potentials further establishing a predetermined distribution of the bias charge between the row and column cells of each site; and

(b) means for sensing the magnitude of the signal charge at each site and producing an output voltage representative thereof, said means including:

- (1) measuring means for measuring the difference between first and second potentials successively developed on each column line connected thereto,
- (2) N column select switches each connected between a respective column line and the measuring means,
- (3) means for sequentially closing the N column select switches,

(4) a source of INJECTION potential which, when applied to a row cell of any site while the charge storage capacity established at the site's column cell by the previously applied COLUMN COLLECTION potential exists, reduces the charge storage capacity in said site to a magnitude sufficient to hold the bias charge only, distributed between the row and column cells, and thereby causes injection of the signal charge contained in the site,

(5) voltage producing means for alternately connecting the sources of the INJECTION potential and the ROW COLLECTION potential to an output thereof,

(6) M row select switches each connected between a respective row line and the output of the voltage producing means, and

(7) means for sequentially closing the M row select switches during the closure of each column select switch and thus individually connecting the row lines to the output of the voltage producing means, each row select switch closure being maintained until the INJECTION potential and then the ROW COLLECTION potential are successively applied to the connected row line, thereby causing injection of the signal charges in the sites of the selected row followed by re-establishment of the predetermined bias charge distribution in said sites,

said measuring means producing each output voltage by measuring the difference between the potential on the connected column line prior to injection of the charge in each site in the column and the potential on said line after the predetermined distribution of bias charge has been re-established in the site.

4,316,222

METHOD AND APPARATUS FOR COMPRESSION AND DECOMPRESSION OF DIGITAL IMAGE DATA

Ambati Subramaniam, Waterloo, Canada, assignor to NCR Canada Ltd. - NCR Canada LTEE, Mississauga, Canada

Filed Dec. 7, 1979, Ser. No. 101,347

Int. Cl.³ H04N 7/12, 1/00

U.S. Cl. 358—261

22 Claims



1. An apparatus for the processing of digital data derived from an image, comprising:

- means for converting said digital data into varying run lengths of a first type data indicia and a second type data indicia;
- means for counting said first and second types of data indicia of each run length;
- means responsive to said counting means, for forming a plurality of groups, with each of said groups comprising a

section of data representing said first type data indicia and a section of data representing said second type data indicia, said groups constituting digital symbols representative of each of said groups;

storage means for storing a plurality of code words which are representative of each of said symbols;

means for causing said code words to be generated from said storage means;

and means for outputting said generated code words over a transmission medium.

4,316,223

RECORDING OF DIGITAL SIGNALS

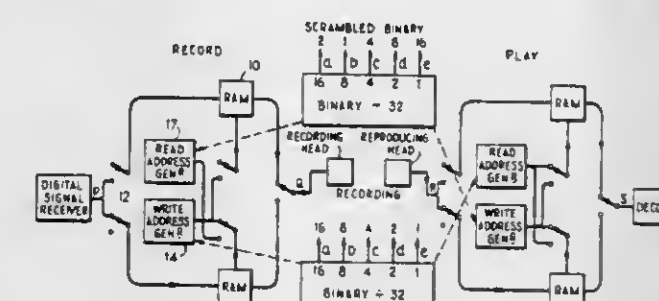
John L. E. Baldwin, 65 Lakewood Rd., Chancellors Ford, Eastleigh, Hampshire, and John G. S. Ive, 22 Radley Lodge, 25 Inner Pk. Rd., London SW19, both of England

Continuation-in-part of Ser. No. 923,973, Jul. 12, 1978, abandoned. This application Mar. 10, 1980, Ser. No. 128,861. Claims priority, application United Kingdom, Jul. 14, 1977, 29691/77

Int. Cl.³ G11B 5/09

U.S. Cl. 360—39

14 Claims



1. Apparatus for recording digital signals in the form of words comprising

- (a) means for receiving incoming digital signals;
- (b) memory means (10,11) connected with said receiving means;
- (c) write address generator means (14) for causing the incoming digital signals to be stored in said memory means in the form of words in a first sequence;
- (d) read address generator means (17) for causing the digital signals in said memory means to be read out from said memory means in a second sequence different from the first sequence, said read and write address generator means each including dividing circuits (40,42) each having a divisor which is a function of the number of digital signals in a block of said signals;
- (e) control means for selectively connecting said write address generator means and said read address generator means sequentially to said memory means; and
- (f) recording means connected with said memory means for recording on a given medium the digital signals read out from said memory.

4,316,224

MAGNETIC TAPE REPRODUCER-RECORDER WITH MEANS FOR TAPE SEGMENT IDENTIFYING AND LOCATING

Jens Hansen, and Thomas Schäfer, both of Hildesheim, Fed. Rep. of Germany, assignors to Blaupunkt-Werke GmbH, Hildesheim, Fed. Rep. of Germany

Filed Jul. 23, 1979, Ser. No. 59,661

Claims priority, application Fed. Rep. of Germany, Jul. 22, 1978, 2832337

Int. Cl.³ G11B 5/02, 27/32; H04N 5/795

U.S. Cl. 360—72.2

2 Claims

1. A magnetic-tape-using recorder-reproducer apparatus for information signals having means for recording and for playing back information signals at a first predetermined tape transport velocity, including means for transporting the tape at said first velocity, and also means for transporting the tape selectively in

forward or reverse direction at a velocity much higher than said first velocity, and further comprising:

means for recording additional signals of an alternating current of the same constant frequency but of different pulse lengths at different tape segments for identifying different portions of said information signals respectively recorded on said tape segments in such a manner that the frequency spectrum of said additional signals is substantially entirely below the lower limit of the frequency spectrum of the playback of said information signals when said information signals are played back at said first velocity of tape transport;

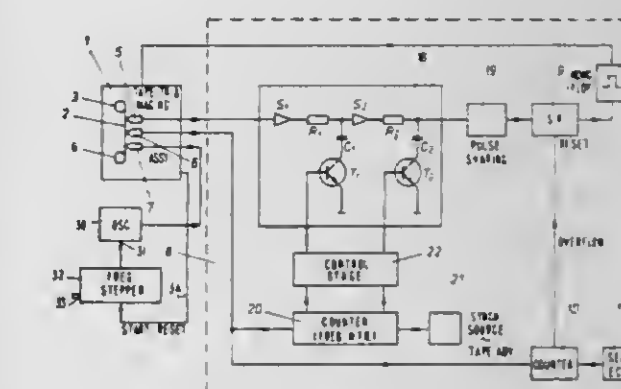
means (5) for picking up the recorded additional signals during operation of said tape transporting means at said higher velocity in either direction of transport, and means including a settable count state standard (17a) for storing an indication of the pulse length of additional signals corresponding to a tape segment to be located;

means (17) for comparing additional signals picked up by said additional signal pick-up means using said count state standard (17a) as a pulse length criterion to provide a recognition signal;

switching means (8) connected to said tape transporting means for interrupting the operation of said higher veloc-

ity tape transporting means in response to said recognition signal and then putting into forward operation said first-velocity tape transporting means,

said comparing means including a resettable counter (13), a resettable shift register (14) and a buffer store (16) for measuring the pulse length of said additional signals as picked up by said picking up means, said shift register (14) being connected for being advanced by synchronizing pulses of a frequency higher than any of said additional signals and corresponding, in repetition interval, to the displacement of the tape by said tape transport means, said picked up additional signals being furnished as a counting input to said counter (13) and as resetting signals to said shift register (14), the output of said shift register being furnished as resetting signals to said counter and being supplied to an input of said buffer store (16) so as to cause the latter to store the count state of said counter (13) existing immediately before resetting thereof, said comparing means being connected to compare the content of said count state standard (17a) with the content of said buffer store (16) for causing said switching means (8) to switch over the tape transport from said higher velocity tape transport means to said first velocity tape transport means.



4,316,225

ROTARY HEAD ASSEMBLY FOR MAGNETIC RECORDING AND REPRODUCING DEVICE

Teruo Maruyama, Neyagawa; Minoru Koda, Hirakata; Masato Morimoto, Kadoma, and Toshitsugu Inoue, Kyoto, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

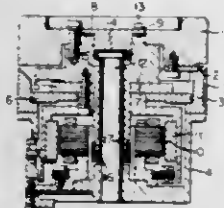
Filed May 29, 1980, Ser. No. 154,288

Claims priority, application Japan, Jun. 5, 1979, 54-70919

Int. Cl.³ G11B 5/52, 15/60, 21/04

U.S. Cl. 360—107

1 Claim



1. A rotary head assembly for a magnetic recording and reproducing device of the type having a stationary center shaft whose one end is securely fixed, comprising:

a stationary cylinder having a cylindrical surface coaxial with said center shaft,

a rotary cylinder which has a coefficient of thermal expansion different from that of said center shaft, being positioned adjacent to the end face of said stationary cylinder, having a cylindrical surface which is coaxial with said cylindrical surface of said stationary cylinder and having the same diameter as said cylindrical surface of said stationary cylinder, and rotating about the axis of said center shaft,

a means for driving said rotary cylinder, and a head mounted on said rotary cylinder adjacent to a tape which is transported relative to said cylindrical surfaces of said stationary and rotary cylinders in contact with them, said stationary center shaft being securely fixed to said stationary cylinder,

said rotary cylinder being provided with a bearing hole which receives said center shaft so that said rotary cylinder is rotatably supported by said center shaft,

a lubricating liquid contained between said bearing hole and said center shaft, thereby providing a hydraulic bearing, the portion of said hydraulic bearing in the vicinity of its thrust load carrying point being sealed,

characterized in that

the end face of said stationary cylinder opposite to the end face thereof in opposed relationship with said rotary cylinder is selected as a reference position or surface (S); and dimensions and materials of component parts of said rotary head assembly are so selected that the following condition can be satisfied:

$$\Delta H < \epsilon$$

where ΔH is the thermal expansion between said head and said thrust load carrying point and is expressed by

$$\Delta H = \Delta l_3 - \Delta l_2 - \Delta l_4 - \Delta l_1 \mu m/^{\circ}C.$$

where

H is the distance between said head and said reference point or surface,

l_1 is the distance between said head and said thrust load carrying point,

l_2 is the distance between a fixed point on said center shaft and said reference point or surface,

l_3 is the axial length of said center shaft between said fixed point and said thrust load carrying point, and

l_4 is a width of said stationary cylinder which contributes to said thermal expansion ΔH , and

ϵ is equal to $8.57 \times 10^{-3} \times T_p \mu m/^{\circ}C$.

where T_p is the track pitch of the tape.

4,316,226

HEAD ADJUSTMENT MEANS FOR A TAPE RECORDER

Niro Nakamichi, Higashikurume, and Hideo Kawachi, Ichikawa, both of Japan, assignors to Nakamichi Corporation, Tokyo, Japan

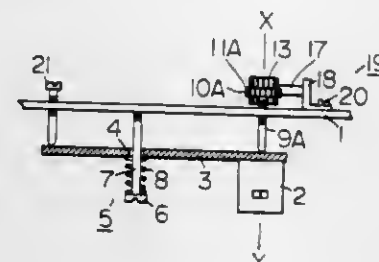
Filed Dec. 26, 1979, Ser. No. 107,422

Claims priority, application Japan, Dec. 26, 1978, 53/181083[U]

Int. Cl.³ G11B 5/56, 5/48, 21/24

U.S. Cl. 360—109

9 Claims



1. Head adjustment means for a tape recorder having a base plate and a magnetic head comprising:

a pair of adjusting screws having the same pitch and disposed in a plane substantially corresponding to a gap defining plane of a magnetic head and threadedly acting between said magnetic head and the base plate,

the separate rotation of said adjusting screws adjusting the tilt of said magnetic head relative to the surface of a magnetic tape which is to engage said magnetic head; and connecting means having an engagement portion removably engaged with engagement portions of said adjusting screws to adjust the vertical position of said magnetic head relative to said magnetic tape by the simultaneous rotation of said adjusting screws by said connecting means.

4,316,227

MULTITRACK MAGNETIC HEAD EMPLOYING DOUBLE HELIX STRUCTURE

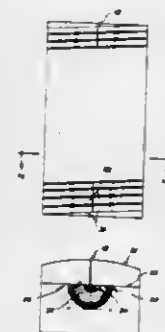
James U. Lemke, Del Mar, and William W. French, Cardiff-by-the-Sea, both of Calif., assignors to Eastman Technology, Inc., Rochester, N.Y.

Filed Oct. 9, 1979, Ser. No. 83,036

Int. Cl.³ G11B 5/27, 5/20, 5/12

U.S. Cl. 360—121

11 Claims



1. A multitrack magnetic head comprising:

(a) first and second discrete gapped cores each of which has respective first and second core poles, each of said cores being so twisted about a common axis that the core poles which define the core gaps are displaced with respect to each other along said axis, the core poles of said first core being separated from each other and disposed to reside in two different planes that are perpendicular to said axis, and the core poles of said second core being also separated from each other and disposed to reside in two different planes that are perpendicular to said axis; and

(b) a pole tip piece comprising first and second pairs of pole tips which together define a high reluctance transducer gap line,

said first pair of pole tips being in skewed relation with respect

to said gap line and being magnetically coupled respectively via low reluctance paths to the poles of the first core, and the second pair of poles tips being also in skewed relation with respect to said gap line and being magnetically coupled respectively via low reluctance paths to the poles of the second core.

4,316,228

MAGNETIC HEAD

Hideo Fujiwara, Tachikawa; Mitsuhiro Kudo, Hamuramachi; Teizou Tamura, Katsuta; Nobuyuki Sugishita, Yokosuka; Yoshihiro Shiroishi, Higashimurayama; Takeshi Kimura, Kokubunji; Kiminari Shinagawa, Shiroyamachi, and Noriyuki Kumasaka, Ohme, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

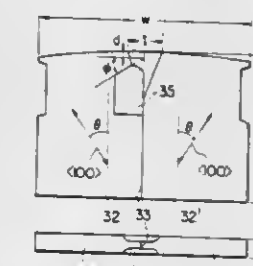
Filed Dec. 3, 1979, Ser. No. 100,027

Claims priority, application Japan, Mar. 23, 1979, 54/33316

Int. Cl.³ G11B 5/251, 5/14

U.S. Cl. 360—127

7 Claims



1. A magnetic head comprising two magnetic blocks of high permeability which oppose to each other with a gap intervening therebetween, at least one of said magnetic blocks of high permeability being made of a single-crystal Mn-Zn ferrite, a {110} plane of the at least one single-crystal Mn-Zn ferrite being made substantially parallel to a principal magnetic circuit-forming plane, an angle θ between a $\langle 100 \rangle$ direction existent within said {110} plane and a plane forming said gap being made 5° - 40° or 80° - 120° , a glass being attached by fusion onto at least surfaces of the high-permeability magnetic block in the vicinities of sides of said gap, said glass having a lower contraction rate than said ferrite in a case of lowering the temperatures thereof from a glass setting temperature to a room temperature, and wherein a magnetocrystalline anisotropy constant K_1 of said single-crystal Mn-Zn ferrite is -2×10^4 to 1×10^4 erg/cc.

4,316,229

ELECTRIC CURRENT DETECTOR CIRCUIT

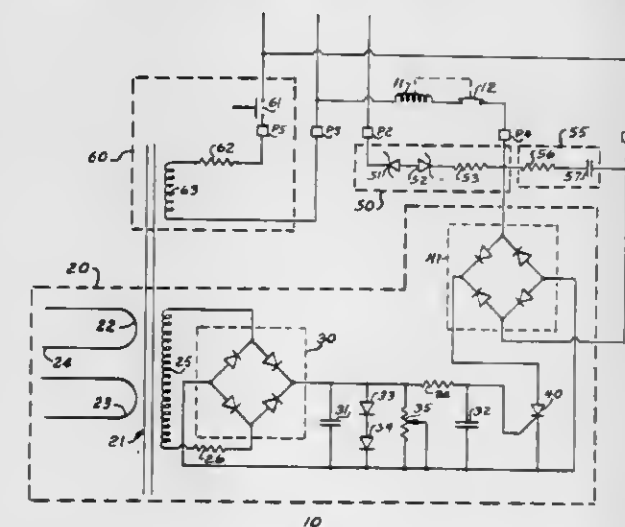
William F. Helwig, Jr., Downers Grove, Ill., assignor to Avtec Industries, Inc., Downers Grove, Ill.

Filed Jul. 16, 1979, Ser. No. 57,944

Int. Cl.³ H02H 3/16

U.S. Cl. 361—42

4 Claims



1. An electric current detector circuit for controlling the operation of equipment comprising:

detector means for sensing a leakage of current and providing a first signal indicative of the current leakage condition;

said detector means operatively positioned with respect to at least one wire for initiating said first signal;

switching means connected to a source of electrical power and responsive to said first signal to generate a second signal;

said switching means includes a silicon controlled rectifier adapted to receive said first signal;

said switching means further includes a full-wave bridge coupled to said silicon controlled rectifier which upon the reception of said first signal functions as an ac switch to thereby generate said second signal;

disabling means responsive to said second signal for deactivating the operation of the equipment;

reception means operatively coupled to receive a warning signal;

said reception means being connected to said disabling means and acting to generate a warning control signal for alternatively deactivating the operation of the equipment; and

said reception means including diode means to limit the voltage of the warning signal applied thereto.

4,316,230

MINIMUM SIZE, INTEGRAL, A.C. OVERLOAD CURRENT SENSING, REMOTE POWER CONTROLLER WITH RESET LOCKOUT

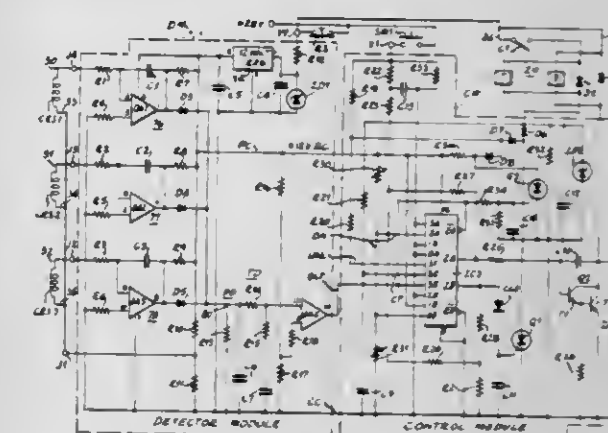
James E. Hansen, Oak Creek, and Walter L. Rutchik, Wauwatosa, both of Wis., assignors to Eaton Corporation, Cleveland, Ohio

Filed Oct. 9, 1979, Ser. No. 83,159

Int. Cl.³ H02H 3/093

U.S. Cl. 361—114

6 Claims



1. In combination with an electrical system supplying a load device from an electrical power supply line having overload current sensing power control means for disconnecting said load device from said power supply line including a latching relay having contacts for controlling connection of said line to said load device and set and trip coils and a cutthroat contact in circuit with said coil that closes when said relay is set and reopens when said relay is tripped, means responsive to an overload current on said line for providing an overload trip signal, and control circuit means comprising a set switch and an integrated circuit dual multiplexer having first and second parts including sets of multiplexer inputs associated with first and second multiplexer outputs, respectively, a low enable input, and a pair of common select inputs for controlling said first and second multiplexer outputs, said first part of said dual multiplexer being operable to control setting of said relay in response to the Boolean equation:

$$SET = UNL \cdot CT \cdot OLT \cdot ON$$

wherein UNL is a combined status "on" signal indicative that the system has not latched into its tripped state and said set switch is "on", and CT is a cutthroat contact open indica-

tive signal at said common select inputs, \overline{OLT} is an overload trip "off" indicative signal at said low enable input, and ON is a set switch "on" indicative signal at the correspondingly selected input of said first set multiplexer inputs, and said second part of said dual multiplexer inputs, and said second part of said dual multiplexer being operable to control tripping of said relay in response to the Boolean equation:

$$TRIP = UNL \cdot CT + \overline{OLT} + \overline{UNL} \cdot \overline{CT} + ON + \overline{UNL} \cdot CT$$

wherein UNL is said combined status signal and CT is a cut-throat contact closed indicative signal at said common select inputs and OLT is an overload trip "on" signal at the correspondingly selected input of said second set of multiplexer inputs or wherein UNL is a combined status "off" signal indicative that the system has either latched into its tripped state or said set switch is "off" and CT is said cutthroat contact open indicative signal at said common select inputs and ON is said set switch "on" indicative signal; or wherein said signals UNL and CT are at said common select inputs, the improvement comprising:

reset lockout means incorporated in said control circuit means for preventing resetting of said relay from said set switch following an overload trip comprising: means responsive to an overload trip signal for introducing a reset lockout signal that alters said combined status "off" signal UNL to a modified combined status "off" signal UNL' additionally indicative that the system has latched into its reset lockout state, thus inhibiting said set combined status signal UNL at the corresponding select input of said multiplexer and rendering said set switch ineffective to cause resetting of said relay;

a reset switch;

and means responsive to momentary operation of said reset switch for disabling said inhibiting means while said set switch is held open thereby to re-establish the effectiveness of said set switch closure to reset said relay after an overload trip.

4,316,231

PROTECTIVE TRANSFER ASSEMBLY FOR SEMICONDUCTOR DEVICES

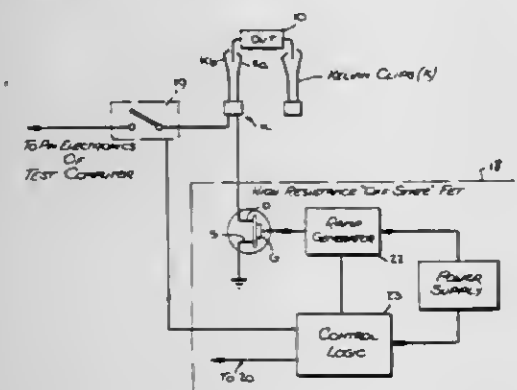
Thomas J. Michel, Miami, Fla., assignor to Santeck, Inc., Hollywood, Fla.

Filed Jun. 13, 1980, Ser. No. 159,179

Int. Cl.³ H05F 3/02

U.S. Cl. 361-212

10 Claims



1. A transfer assembly interposable between a storage tube containing semiconductor devices having leads extended therefrom and a processing station therefor to effect a controlled static discharge of each device taken from the tube to prevent a destructive discharge, said assembly comprising:

- An insulating track for receiving semiconductor devices from the storage tube;
- A set of contacts mounted on the track to engage the leads of each device received thereby; and
- A static discharge system having a field effect transistor whose high-impedance drain-source channel is connected between a respective track contact and ground, and means to apply to the gate of the transistor a ramp voltage at a

predetermined slew rate, causing the impedance of said channel to go from its normally high value to a low value to provide a controlled discharge path for any static charge carried by the engaged lead.

4,316,232

ELECTRIC FENCE CONTROLLERS

Dougald S. M. Phillips; Carol L. E. Phillips, and David L. D. Phillips, all of 45 Fifth Ave., Hamilton, New Zealand

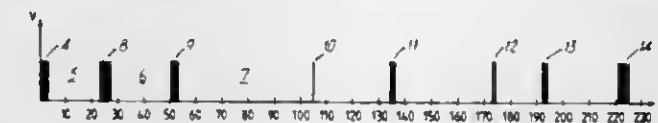
Filed May 5, 1980, Ser. No. 146,603

Claims priority, application New Zealand, May 7, 1979, 190389; Jul. 31, 1979, 191177

Int. Cl.³ H05C 1/04

U.S. Cl. 361-232

9 Claims



1. An electric fence energiser capable of supplying pulse sequence to one or more electric fences, said electric fence energiser including controlling means to provide in use during normal operation an irregular pulse sequence the composition of which is unpredictable to an animal.

4,316,233

SINGLE PHASE ELECTROHYDRODYNAMIC PUMP

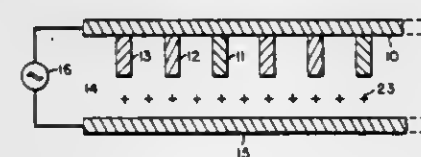
John C. Chato, 714 W. Vermont Ave., Urbana, Ill. 61801, and Joseph M. Crowley, 506 S. Elm St., Champaign, Ill. 61820

Filed Jan. 29, 1980, Ser. No. 116,498

Int. Cl.³ B05B 5/02

U.S. Cl. 361-233

8 Claims



1. An apparatus for inducing pumping of a charged medium, said apparatus consisting of an electrically conducting electrode connected to a source of varying voltage, and separated at least partially from said medium by a non-uniform semi-insulating covering arranged so that the electrical relaxation time of said covering increases from lower to higher values over some finite section of said covering in such a way as to set up a travelling electric field which exerts a Coulombic force on said medium.

4,316,234

ENCLOSED SWITCHBOARDS

Masamoto Takagi, Hachioji; Mitsuo Ogaki, Fuchu, and Sadao Hikita, Hachioji, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

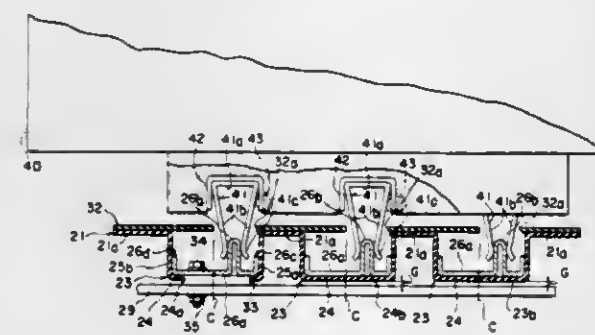
Filed Jun. 12, 1980, Ser. No. 158,905

Claims priority, application Japan, Jun. 22, 1979, 54-78041

Int. Cl.³ H02B 1/04

U.S. Cl. 361-342

9 Claims



1. In an enclosed switchboard having a vertical bus bar supported by an insulating cover and unit chambers situated in

front of said vertical bar and tiered one above the other and accommodating unit devices, each unit device having a stab-type connector including a tongue-shaped contact which establishes electrical contact with said vertical bus bar, the improvement in which said insulating cover includes a vertically extending channelled portion having a bed and side walls to define a bus way on the front side of said insulating cover, said vertical bus bar includes a web in flat engagement with the front face of said bed of said channelled portion, a vertically extending protrusion protruding from said web forwardly, and a flange extending from one of the edges of said web and being in flat engagement with the inner face of one of said side walls of said channelled portion, said protrusion being positioned close to said flange so that as said contact moves sidewardly away from said protrusion due to a short circuit current flowing through said contact it is brought into contact with said flange.

4,316,235

MOVABLE PRINTED CIRCUIT BOARD DISPLAY

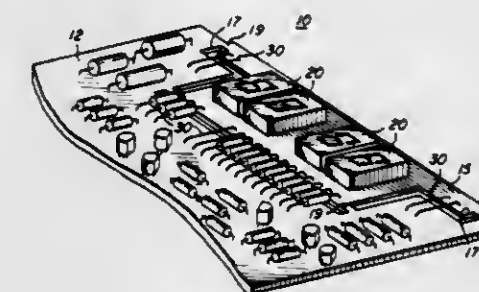
Leonard Latasiewicz, Hoffman Estates, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Mar. 31, 1980, Ser. No. 136,010

Int. Cl.³ H05K 1/18

U.S. Cl. 361-408

4 Claims



1. An improved printed circuit board arrangement with a movable display module comprising in combination: a printed circuit board having a breakaway section of generally T-shaped configuration having a base and spaced apart ends; display means supported by and electrically connected to said breakaway section; a plurality of jumper members interconnecting said printed circuit board and said breakaway section along the base and ends of the T-shaped breakaway section; and said jumper members being arranged in a substantially parallel array such that said breakaway section with said display means can be moved to a different parallel plane relative to said board member in parallelogram fashion after said breakaway section has been physically broken away from said printed circuit board so as to selectively control the viewing of said display means apart from said board member.

4,316,236

HINGED SUPPORT FOR ELECTRICAL DEVICES

Ernst-Friedrich Lechner; Otto Meusel, both of Erlangen, and Meinhardt Müller, Grossenseebach, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Sep. 6, 1979, Ser. No. 72,638

Claims priority, application Fed. Rep. of Germany, Sep. 27, 1978, 2842034

Int. Cl.³ H05K 7/20

U.S. Cl. 361-429

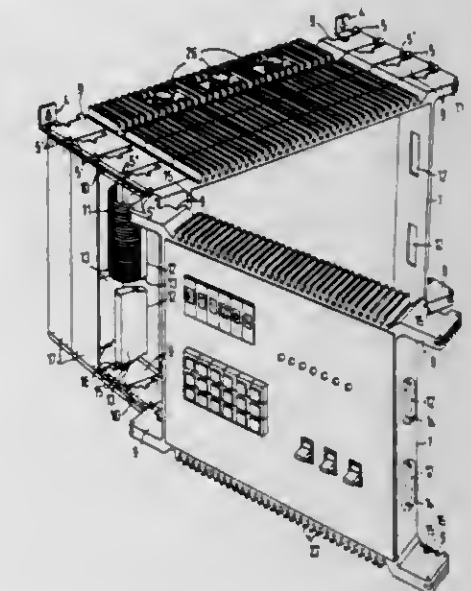
15 Claims

1. A swinging mounting for electronic and electrical devices comprising:

- at least two structurally similar rectangular frames adjacent to each other in spaced parallel relationship, each frame comprising a top leg, a bottom leg and two side legs, defining a plane, and
- plural hinge joints connecting each side of one frame to the adjacent side of the other frame, each joint comprising:

at least a first right-angled lug mounted on one frame, second and third right-angled lugs mounted on the second frame opposite the first lug, the second and third lugs being spaced apart to provide a slot for receiving a hinge bar, each of the lugs extending laterally outward in the plane of the frame on which the lug is mounted, matching holes in the lugs,

a hinge bar interconnecting the right-angled lugs in each joint, each hinge bar comprising two ends and having a hole in each end which matches the holes in the right-angled lugs and one end of the hinge bar extending into the slot, and



first and second pivot pins in the holes in each hinge bar for connecting one end of the hinge bar to the first lug and the other end of the hinge bar to the second and third lugs, the first pin in each hinge bar on one side of the frame being easily removable and the second pin in each hinge bar on said one side of the frame being either fixed against removal or easily removable, and the pins in each hinge bar at the other side of the frame being either fixed against removal or easily removable.

4,316,237

LIGHTING FIXTURE FOR USE IN MEDICAL OPERATIONS AND THERAPEUTIC TREATMENT

Isao Yamada; Mitsuyuki Ikeda, and Yumiko Komori, all of Tokyo, Japan, assignors to Yamada Iryo Shomei Kabushiki Kaisha, Tokyo, Japan

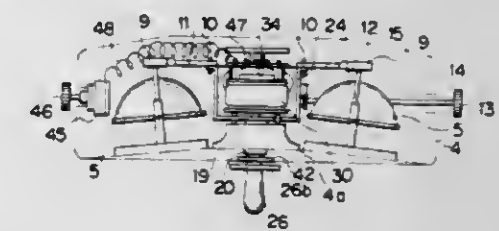
Filed Mar. 27, 1980, Ser. No. 134,580

Claims priority, application Japan, Jun. 11, 1979, 54-78336[U]; Sep. 26, 1979, 54-132007[U]

Int. Cl.³ F21V 19/02; F21S 1/14

U.S. Cl. 362-33

7 Claims



1. A multiple lamp lighting fixture for use in therapeutic treatment, said lighting fixture comprising:

- lamp housing supporting means having a lamp housing tiltably attached thereto for supporting said lamp housing thereon and allowing movement of said lamp housing relative to said lamp housing supporting means;
- a plurality of lamps mounted concentric to the vertical axis of said lamp housing within said lamp housing, said lamps being adjustable with respect to the vertical axis of said lamp housing;
- a centrally located focus adjusting shaft vertically se-

- cured along the central axis of said lamp housing within said lamp housing;
- (d) a rotatable transformer housing having said focus adjusting shaft running vertically through the center thereof and being attached to said focus adjusting shaft;
- (e) a plurality of drive rods connecting said rotatable transformer housing to corresponding ones of said lamps for simultaneously tilting said lamps to focus light beams which are emitted by said lamps along the central axis of said lamp housing when said transformer housing is rotated;
- (f) a manipulating handle having engagement means for being detachably attached to said focus adjusting shaft for rotating said transformer housing and thereby causing said plurality of lamps within said lamp housing to tilt; and
- (g) a transformer mounted within said transformer housing, said transformer having a voltage regulator connected thereto and said voltage regulator having a control knob connected thereto and mounted on the outside of said lamp housing for controlling the light intensity of said plurality of lamps.

4,316,238

LIGHT FIXTURE AND ELEVATOR THEREFOR

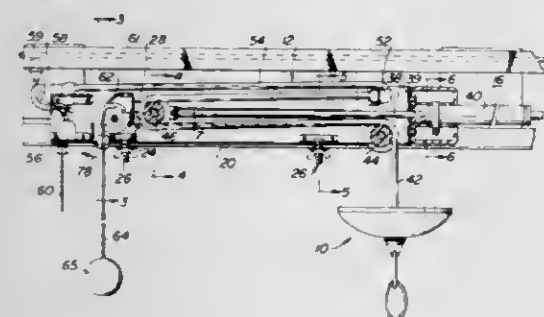
Donald A. Booty, Frankfort, Ill., and David Weisburg, Elkins Park, Pa., assignors to Kidde Consumer Durables Corp., Bala Cynwyd, Pa.

Filed Nov. 19, 1979, Ser. No. 95,836

Int. Cl.³ F21S 1/02

U.S. Cl. 362—147

14 Claims



1. Apparatus comprising a frame adapted to be attached to a ceiling, said frame supporting a light fixture elevator, said elevator including a horizontally reciprocal carriage, a light fixture supported by said carriage and being in an elevated position when the carriage is in a first position and being at a lower elevation when the carriage is in a second position, a flexible conductor having one end connected to said fixture and an intermediate portion extending around a part of said carriage so that movement of the carriage controls the elevation of the fixture, means biasing said carriage to said first position, and said elevator including means for guiding said carriage as it moves between said positions.

4,316,239

TRUNK LAMP ASSEMBLY

Louis G. Cass, Detroit; Nicholas Poleschuk, Farmington, and Samuel Purdy, Ortonville, all of Mich., assignors to Beta Manufacturing Corp., Warren, Mich.

Filed Jul. 16, 1979, Ser. No. 57,575

Int. Cl.³ B60Q 3/06; H01H 35/02, 29/20

U.S. Cl. 362—155

12 Claims



1. A trunk lamp assembly comprising a housing having a first generally tubular part having open ends,

- said first part having an axially extending slot, a bracket having an offset portion extending into said slot, said bracket having means exposed to the interior of said first part whereby it may receive an electric bulb and hold the bulb in position in the first part with its axis along the axis of said first part,
- a second part,
- said second part being generally tubular and having a closed end wall,
- said first and second part having interengaging means for holding said parts in assembled relation,
- said second part having a portion engaging said bracket to hold said bracket in position in said slot of said first part,
- said second part having an opening in a wall thereof, a terminal extending through said opening,
- said terminal having a contact portion,
- a contact positioned in said second part,
- said contact having a first portion extending axially into said first part for engaging with the base of a lamp bulb,
- said contact having a second contact portion for providing a contact with a capsule type mercury switch,
- and a capsule type mercury switch engaging said contact portion of said terminal and said second contact portion of said contact,
- said mercury switch having its axis extending transversely to the axis of said first and second parts of said housing and said bulb.

4,316,240

INNER LAMP MOUNT ASSEMBLY FOR VEHICULAR HEADLAMP AND SIMILAR LIGHTING APPARATUS

Elam Pitkjaan, Cedar Grove, and James F. Endler, East Hanover, both of N.J., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

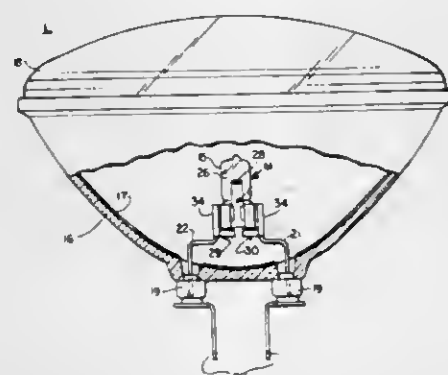
Division of Ser. No. 881,473, Feb. 27, 1978, Pat. No. 4,241,391.

This application May 6, 1980, Ser. No. 146,996

Int. Cl.³ F21V 29/00

U.S. Cl. 362—267

6 Claims



1. An integral lamp-mount assembly for use in a vehicular headlamp and similar lighting units that have a concave reflector component, said lamp-mount assembly comprising:
- a pair of substantially rigid main conductors that (a) are adapted to be fastened to terminal means carried by the reflector component of the headlamp and (b) have end portions which are disposed in spaced side-by-side relationship,
- a baseless type incandescent lamp of compact size having an envelope that contains a filament and is terminated by a hermetic seal from which a pair of substantially rigid lead-in wires extend, said lead-in wires being anchored in the hermetic seal and connected to the filament and said hermetic seal having a pair of side edges, and
- means mechanically and electrically coupling the compact incandescent lamp to the end portions of the main conductors comprising a pair of spaced clip-like holders of sheet metal that are disposed in snug interfitted embracing relationship with the respective side edges of the hermetic seal, are fastened to the end portions of the respective main conductors, and have segments that extend laterally

along the end face of the hermetic seal, the laterally-extending segments of each of said clip-like holders being seated against the end face of the hermetic seal and also being fastened to the respective lead-in wires of the compact lamp and thereby serving as positioning and electrical-connector means for the compact incandescent lamp.

4,316,241

METHOD AND APPARATUS FOR CONTROLLING REFLECTED ENERGY INCLUDING DUAL LIGHT TRANSMITTING MEANS FOR PRODUCING A SPOT TO FLOOD CONFIGURATION

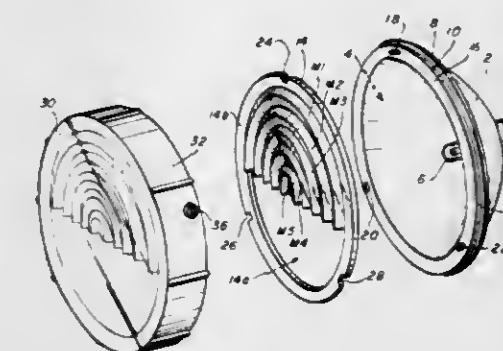
John E. Gulliksen, Shrewsbury, Mass., assignor to Koehler Manufacturing Company, Marlborough, Mass.

Filed Dec. 13, 1979, Ser. No. 103,097

Int. Cl.³ F21V 13/04; F21L 23/00; F21V 17/02

U.S. Cl. 362—268

8 Claims



1. Luminaire apparatus for controlling reflected radiant energy to produce a spot to flood configuration, said apparatus comprising a housing body having a reflector surface, lamp means mounted in the reflector body at the focal point of the reflector surface, a dual light transmitting unit supported at an outer side of the housing body, said dual light transmitting unit including a light transmitting disk component of circular shape fixed to the housing and a disk cover component mounted for rotative movement about the central axis of the housing and in constantly maintained relationship against the disk component, said light transmitting disk component being formed throughout more than 180° of its extent with truncated arcuate mating portions which present V-shaped surfaces whose crests occur in concentrically spaced apart relation to one another, said rotatably mounted disk cover component formed at an inner side thereof throughout more than 180° of its extent with truncated arcuate mating portions, said mating portions having V-shaped surfaces which are complementary to the V-shaped surfaces of the disk component and which are rotatable into and out of full engagement with the V-shaped surfaces of the disk component to provide for at least some portions of the V-shaped surfaces being in constantly maintained relationship against the disk component.

4,316,242

WIDE INPUT RANGE, TRANSIENT-IMMUNE REGULATED FLYBACK SWITCHING POWER SUPPLY

Dominick Colangelo, Camillus; George F. Pfeifer, Liverpool, and Gary B. Schumacher, Syracuse, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Sep. 4, 1980, Ser. No. 184,062

Int. Cl.³ H02M 3/335

U.S. Cl. 363—21

15 Claims

1. A regulated flyback switching mode power supply for operation from an unfiltered DC voltage source, said power supply comprising:

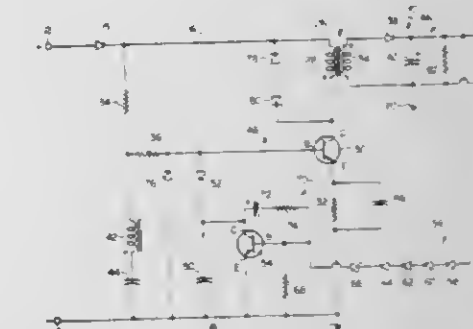
- a transformer having at least a primary winding;
- a controlled switching element having a pair of main electrodes and a control electrode, said switching element main electrodes being connected in series with said primary winding so as to controllably energize said primary winding from the voltage source;
- biasing circuitry connected to said control electrode for initially causing said switching element to turn ON such

that an increasing current flows through said primary winding and a correspondingly increasing magnetic field is produced by said primary winding, the rate of increase being at least determined by the source voltage and the inductance of said primary winding;

an element for sensing the amount of current flow through said transformer primary winding when said switching element is ON;

circuitry coupled to said control electrode for establishing a variable current limit value;

circuitry responsive to said element for sensing current flow and being connected to said control electrode for causing said switching element to turn OFF when sensed current reaches the established current limit value, such that the magnetic field produced by said primary winding collapses and said power supply is readied for another switching cycle, said power supply continuously oscillating with a period and duty cycle determined by the source



voltage, the primary winding inductance, and the current limit value;

an output network connected to said transformer, said output network including a filter capacitor and a rectifier polarized to draw current from said transformer to charge said filter capacitor to an output voltage from voltage induced when said switching element turns OFF; and

a negative feedback arrangement responsive to the output voltage and coupled to said circuitry for establishing a variable current limit value, said negative feedback arrangement varying the established current limit value as an inverse function of output voltage.

4,316,243

POWER FET INVERTER DRIVE CIRCUIT

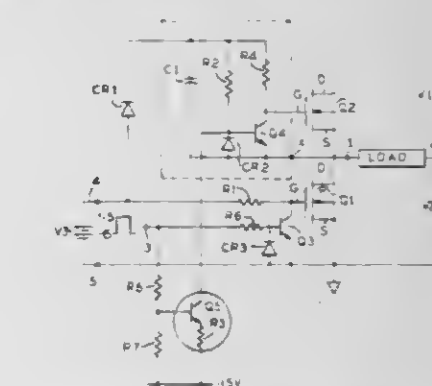
William R. Archer, Fort Wayne, Ind., assignor to General Electric Company, Salem, Va.

Filed Dec. 17, 1979, Ser. No. 104,013

Int. Cl.³ H02M 7/537; H03K 17/687

U.S. Cl. 363—132

8 Claims



1. In an inverter including at least first and second enhancement type, N-channel power FETs, each FET having a gate electrode, a source electrode, and a drain electrode, the first and second FETs being connected in push-pull relation such that the drain electrode of the first FET and the source electrode of the second FET are connected in common to an inverter output terminal; the source electrode of the first FET

an arithmetic circuit which performs operations on said data in response to said control signals;
a clock circuit for simultaneously and repetitively generating a plurality of clock phases during a cycle, means for coupling said clock phases to said read-only memory circuit, said random-access memory circuit, said arithmetic circuit and said control circuit;
a halt input terminal circuit coupled to said clock circuit for stopping said clock circuit from generating said clock phases and responsive to a halt input and one of said clock phases representing the time which allows the maintenance of information contained in said system without continued operation of said clock circuit, whereby the only power required during the stopping of said clock circuit is to refresh said random-access memory thereby conserving power.

4,316,248

MEMORY REFRESH MEANS INCLUDING MEANS FOR PROVIDING REFRESH ADDRESSES DURING POWER FAILURES

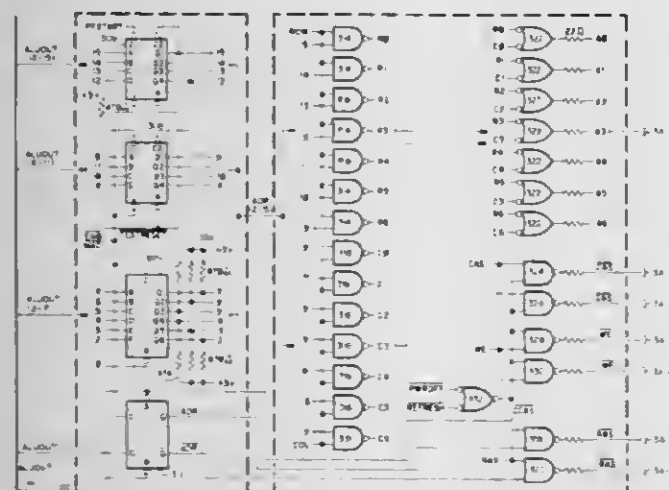
Charles T. Retter, Framingham, Mass., assignor to Data General Corporation, Westboro, Mass.

Division of Ser. No. 967,041, Dec. 6, 1978. This application Nov. 5, 1979, Ser. No. 91,318

Int. Cl.³ G06F 13/00; G11C 7/00

U.S. Cl. 364—200

2 Claims



1. A digital computer system comprising processor means for processing digital data signals; memory means including a plurality of storage locations for storing at least instructions employed by said processor means in controlling said system and having an output connected to an input of said processor means for providing said at least instructions to said processor means; processor output bus means connected from an output of said processor means and to an addressing input of said memory means for conducting memory input signals from said processor means to said memory means in response to at least said instructions, said memory input signals including addressing signals representing said memory means storage locations; main power supply means having power outputs connected to power inputs of said processor means and said memory means for providing electrical power to said processor means and said memory means, and having an output indicating whether a failure is about to occur in said main power supply means; back-up power supply means having an output connected to at least said power input of said memory means and an input connected from said main power supply failure indicating output and responsive to said failure indicating output for providing power to at least said memory means when a failure occurs in said main power supply means; memory refresh means comprising:

- means for measuring successive refresh time intervals and providing an output representing said successive refresh time intervals;
- means having a first input connected from said failure indicating output and a second input connected from said

measuring means output and responsive to operation of said main power supply means and to operation of said measuring means for providing an output indicating each one of a sequence of first certain said time intervals wherein said failure has occurred in said main power supply means;

means having an input connected from said measuring means output and responsive to operation of said measuring means for providing successive said memory input addressing signals representing successive said memory means storage locations, at least one said memory input addressing signals, occurring during each of said time intervals; and

memory address means having inputs connected from said measuring means output, said indicating means output and said processor output bus means and an output connected to said memory means addressing input and responsive to operation of said measuring means and said indicating means during each one of said time intervals other than said first certain said time intervals for

- (a) receiving and storing representations of said each one of said memory input addressing signals, and
- (b) providing said stored representations of said memory input addressing signals to said memory means for refreshing corresponding said memory means storage locations, and

responsive to operation of said measuring means and said indicating means during said sequence of said first certain said time intervals for

- (a) receiving and storing a representation of said memory input addressing signals occurring during the first said first certain said time interval of said sequence,
- (b) successively incrementing said stored representation of said memory input addressing signals during each said first certain said time interval following said first said first certain said time interval of said sequence, and
- (c) providing said stored and incremented representation of said memory input addressing signals to said memory means for refreshing said corresponding said storage locations;

whereby said memory input addressing signals are provided to said memory means from said processor means and through said memory address means to refresh said storage locations during each of said time intervals other than said first certain time intervals, and

whereby upon occurrence of said failure of said main power supply means said memory input addressing signals received by said memory addressing means during said first said first certain said time intervals is stored in said memory addressing means and successively incremented by said memory addressing means to provide said memory input addressing signals to said memory means from said memory addressing means to refresh said storage location during occurrence of said failure.

4,316,249

AUTOMATIC HIGH SPEED HOLTER SCANNING SYSTEM

Stuart L. Gallant, Pikesville; Paul R. Caron, Columbia, both of Md.; Stanley M. Dunn, West Lafayette, Ind.; Walter E. Palmer, Baltimore, Md.; Ernest G. Schmitt, Ellicott City, Md., and Michael Taddeo, Columbia, Md., assignors to Hittman Corporation, Columbia, Md.

Continuation-in-part of Ser. No. 79,988, Sep. 28, 1979. This application Nov. 9, 1979, Ser. No. 92,925

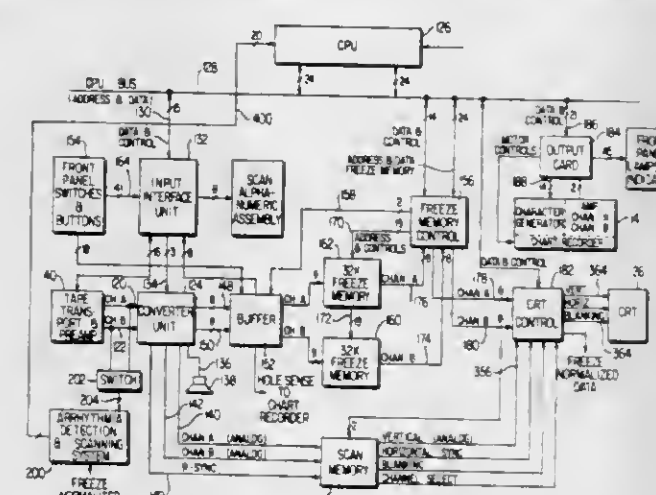
Int. Cl.³ G06F 15/42

U.S. Cl. 364—417

14 Claims

- 1. An adaptive cardiac diagnostic system for receiving electrocardiogram signals which have been prerecorded in dissimilar formats having different known parameters and for processing same in accordance with operator input, comprising: selector means responsive to said operator input for selecting

one of said prerecorded electrocardiogram signals of dissimilar format;
playback means for reproducing said selected one of said prerecorded electrocardiogram signals to develop reproduced signals;
scanning and converting means for scanning and converting the reproduced signals to produce information signals;
analyzing means for analyzing said information signals; and



processor means for controlling said scanning and converting means and said analyzing means, said processor means being responsive to said operator input for variably controlling said scanning and converting means and said analyzing means in accordance with each dissimilar format based upon the different parameters of said format for said selected one of said prerecorded electrocardiogram signals.

4,316,250

DIP DETERMINATION BY STATISTICAL COMBINATION OF DISPLACEMENTS

Philippe Vincent, Chilly Mazarin, France, assignor to Schlumberger Technology Corporation, New York, N.Y.

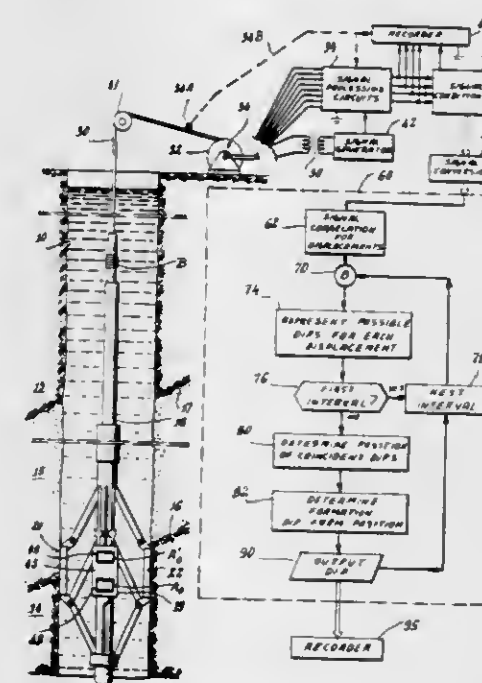
Continuation of Ser. No. 544,421, Jan. 27, 1975, abandoned. This application Nov. 15, 1979, Ser. No. 94,596

Claims priority, application France, Jan. 30, 1974, 74 03003

Int. Cl.³ G06F 15/20; E21B 47/00

U.S. Cl. 364—422

26 Claims



1. In the art of well logging, a process for converting well logging signals which comprise records of the amplitude of subsurface characteristics versus depth in a borehole into a

map of the dips of one or more subsurface earth formation features comprising the machine-implemented steps of:

- a. utilizing well logging signals derived from respective passes of investigating devices along the wall of a borehole through a subsurface formation to produce signals determined by the likely displacements between the respective reflections of respective subsurface features on said well logging signals in at least two different depth spans in the borehole;
- b. producing a map record which conforms to a plane transverse to the borehole axis and contains a number of map line representations the position of each of which on the map record conforms to a range of dips consistent with a respect one of said displacement signals;
- c. wherein said displacement signals relate to respective borehole depths within a selected depth interval of the borehole which is small as compared to the depth of the entire borehole; and
- d. wherein a predominant locus of intersections of such line representations on the map record determines a likely dip of a subsurface feature which is in the borehole depth interval to which said depth displacement signals correspond.

4,316,251

ELECTRIC CONTROL METHOD FOR AUTOMOBILE AIR CONDITIONER

Atsunori Saito; Masanaori Naganoma, both of Kariya; Yasuhiro Iwata, Aichi, and Kiyoshi Usami, Obu, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

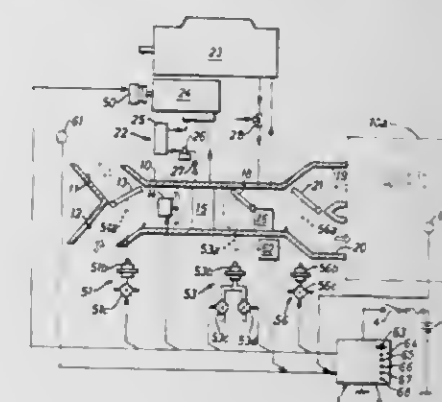
Continuation of Ser. No. 79,260, Sep. 27, 1979, abandoned. This application Oct. 23, 1980, Ser. No. 199,920

Claims priority, application Japan, Oct. 2, 1978, 53-121855

Int. Cl.³ G06F 15/20; B60H 3/00

U.S. Cl. 364—424

9 Claims



1. An electric control method for an automobile air conditioner including an air duct for allowing the flow of air into a passenger compartment of the automobile, an evaporator arranged within said air duct and connected with a refrigerant compressor for cooling the air flowing therethrough, a heater arranged within said air duct for warming a portion of the cooled air flowing through said evaporator into said compartment, an air-blend door arranged between said evaporator and said heater for controlling an amount of the cooled air flowing through said heater and controlling an amount of the cooled air directly flowing into said compartment, and control means for controlling the opening degree of said air-blend door to direct the actual in-car temperature toward a desired temperature, said method comprising the steps of:

- producing a first electric binary signal indicative of the actual in-car temperature;
- producing a second electric binary signal indicative of the actual temperature outside the automobile;
- calculating a value indicative of an estimated temperature required to direct the actual in-car temperature toward the desired temperature by a digital computer programmed to calculate said value from a function describing a desired relationship between the estimated temperature

ture and an in-car temperature in consideration with a temperature outside the automobile, the calculation being performed by using the first and second binary signals; calculating a deviation between the desired temperature and the estimated temperature by said digital computer programmed to calculate the deviation on the basis of the previous calculated value; producing an output signal from said digital computer when the deviation is out of a first predetermined range and ceasing the output signal when the deviation is in the first predetermined range, the output signal being applied to said control means to direct the actual in-car temperature toward the desired temperature; discriminating by said digital computer whether or not a difference between the desired temperature and the actual in-car temperature is in a second predetermined range when the rate of change of the actual in-car temperature is below a predetermined value, said digital computer being programmed to perform the discrimination by using the first binary signal; compensating the estimated temperature to direct the temperature difference into said second predetermined range; and continuously repeating the above sequence of steps for controlling the actual in-car temperature in response to any changes in said electric binary signals.

4,316,252

APPARATUS FOR DETERMINING THE POSITION OF AN AIRCRAFT WITH RESPECT TO THE RUNWAY

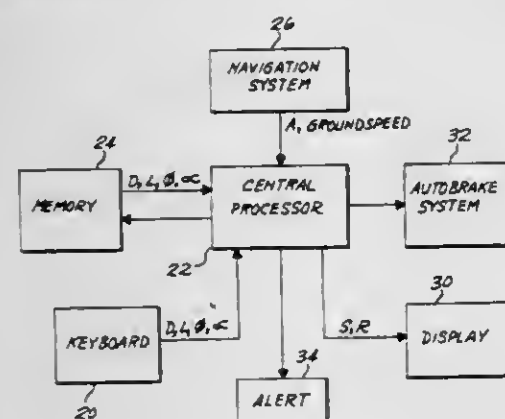
Michael G. Cooper, Repton, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Aug. 10, 1979, Ser. No. 65,404

Int. Cl.³ G05D 1/06; G06F 15/50

U.S. Cl. 364-428

8 Claims



1. Apparatus for determining the position of an airplane, having a groundspeed indicator, with respect to a runway comprising:

- means for determining the glideslope angle ϕ of the plane with respect to the runway;
- means for determining that the plane is a specified altitude A above the runway on said glideslope; processing means including means for:
- calculating the ground distance d of the airplane from the intersection of the glideslope with the runway from the equation $d = A/\tan \phi$;
- calculating the ground distance S_0 of the airplane from the beginning of the runway during the instance of the airplane being at the altitude A from the equation $S_0 = d - D$, where D is the predetermined distance from the beginning of the runway to the intersection of the glideslope with the runway;
- integrating airplane ground speed to produce an indication of airplane relative position; and
- updating said distance S_0 by said relative position to produce a continuous indication S of the distance of the airplane from the beginning of the runway.

4,316,253 APPARATUS FOR POSITIONING A BODY BY MEANS OF A MAGNETIC FIELD

Gilles Possémé, Paris, France, assignor to Thomson-CSF, Paris, France

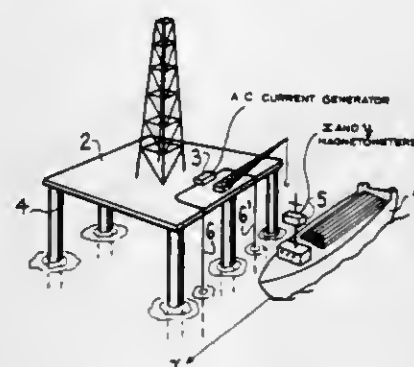
Filed Nov. 14, 1979, Ser. No. 94,187

Claims priority, application France, Nov. 17, 1978, 78 32537

Int. Cl.³ G06G 7/70; B63H 25/00

U.S. Cl. 364-432

8 Claims



1. An apparatus for positioning a moving body at a desired X and Y location in a plane referenced by axis OX and OY comprising:

- fixed magnetic field producing means including an electrical generator for producing an alternating current at frequency f in at least one conductor wire rectilinear and perpendicular to the plane OXY, the current flow in said wire producing a magnetic field with components H_x and H_y along axes X and Y; and wherein on said moving body are mounted:
- at least one pair of magnetometers for measuring the amplitude of the components of said magnetic field on mobile axis O'x and O'y;
- orientation measuring means for producing a signal indicating the angle of orientation θ of said moving body;
- motors for displacing said moving body;
- a memory for storing values indicating the desired X and Y location;
- signal processing means including means for receiving the values of θ , H_x and H_y from said orientation measuring means, and from said magnetometers and calculating values indicating the current X and Y location and comparison means for comparing the calculated and stored values and producing a signal for operating said motors to position said body at the desired X and Y location.

4,316,254

PORTABLE PHASE ANGLE METER INSTRUMENT

Harry P. Levin, of N. Hollywood, Calif., assignors to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed May 25, 1979, Ser. No. 42,671

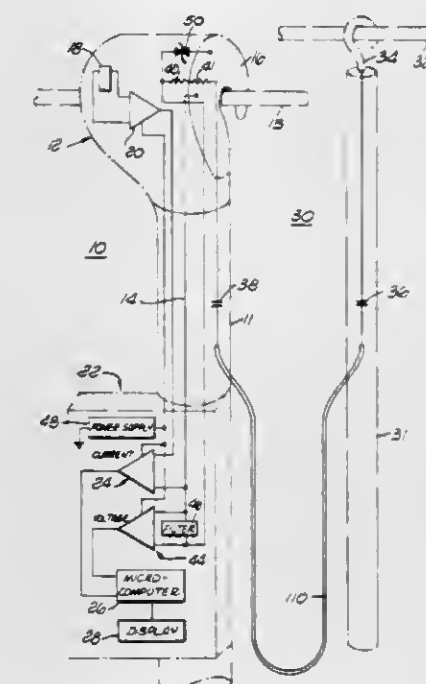
Int. Cl.³ G06F 15/20; G01R 25/00

U.S. Cl. 364-481

15 Claims

- 1. A portable sensor instrument for interconnection between a first conductor and a reference conductor comprising:
- a potential probe comprising:
- first contact means for making electrical contact with the first conductor, and
- a first capacitor;
- a current probe comprising:
- a sensing head having a second contact means for making electrical contact with the reference conductor and a current sensing assembly for generating a current signal which is substantially in phase with the current in the reference conductor, and
- a second capacitor;
- a cable for interconnecting the first capacitor and the second capacitor;

an impedance means, the first contact means, the first and second capacitors, the impedance means and the second contact means interconnected in series for generating a voltage signal across the impedance means which is substantially in phase with the voltage between the first conductor and the reference conductor; and processing means coupled for receiving the current signal and the voltage signal, comprising:



means for digitizing the current signal and the voltage signal,

means for combining the digitized current signal and the digitized voltage signal and generating therefrom a measure of the phase difference

between the current signal and the voltage signal, and

means for displaying the measure of the phase difference.

4,316,255

FRACTIONAL DISTILLATION PROCESS CONTROL

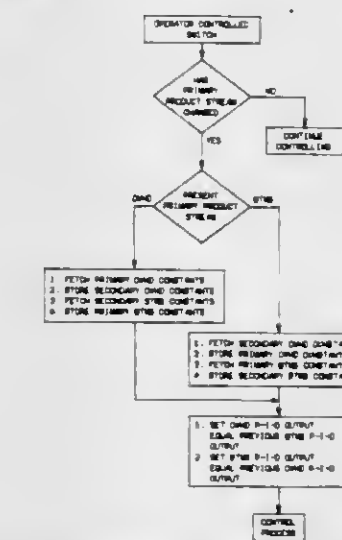
Bruce A. Jensen, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Sep. 8, 1980, Ser. No. 184,845

Int. Cl.³ B01D 3/42

U.S. Cl. 364-501

10 Claims



1. Apparatus for controlling a fractional distillation process in which the desired composition of a primary product stream is maintained by manipulating a primary process variable and the desired composition of a secondary product stream is maintained by manipulating a secondary process variable, the fractional distillation apparatus and control apparatus comprising:

- a fractional distillation column means;

means for supplying heat to said fractional distillation column means;

means for withdrawing a first product stream from said fractional distillation column means;

means for withdrawing a second product stream from said fractional distillation column means;

means for establishing a first signal representative of the concentration of at least one component in said first product stream;

means for establishing a second signal representative of the desired concentration of said at least one component in said first product stream;

a first controller means for comparing said first signal and said second signal and for establishing a third signal responsive to the difference between said first signal and said second signal;

means for establishing a fourth signal representative of the concentration of at least one component in said second product stream;

means for establishing a fifth signal representative of the desired concentration of said at least one component in said second product stream;

a second controller means for comparing said fourth signal and said fifth signal and for establishing a sixth signal responsive to the difference between said fourth signal and said fifth signal;

means for establishing primary first tuning constants for said first controller means for use when said first controller means is controlling said primary process variable, for establishing secondary first tuning constants for said first controller means for use when said first controller means is controlling said secondary process variable, for establishing primary second tuning constants for said second controller means for use when said second controller means is controlling said primary process variable and for establishing secondary second tuning constants for said second controller means for use when said second controller means is controlling said secondary process variable;

memory means for storing said primary first tuning constants, said secondary first tuning constants, said primary second tuning constants and said secondary second tuning constants;

means for manipulating said primary process variable in response to said third signal when said first product stream is designated as the primary product stream, said primary first tuning constants being supplied to said first controller and said secondary first tuning constants being retained in said memory means when said primary process variable is being manipulated in response to said third signal;

means for manipulating said secondary process variable in response to said sixth signal when said first product stream is designated as the primary product stream, said secondary second tuning constants being supplied to said second controller means and said primary second tuning constants being retained in said memory means when said secondary process variable is being manipulated in response to said sixth signal;

means for manipulating said primary process variable in response to said sixth signal when said second product stream is designated as the primary product stream, said primary second tuning constants being supplied to said first controller means and said primary first tuning constants being retained in said memory means when said secondary process variable is being manipulated in response to said third signal,

wherein the switching of said primary first tuning constants

first register and thereafter shifting the content of said first register by one bit;

(f) inputting to the accumulator, when a branch or a contact from the previous row is present in the decoded branch information, the bit content of the column register corresponding to the stored bit position of said second register and thereafter shifting the content of said second register by one bit, and

(g) performing a logical operation on the condition signal inputted to said input means, a signal from said accumulator and a signal obtained by decoding of said contact-state information in said instruction so as to produce a display information signal to be applied to said CRT display means.

4,316,261

DATA PROCESSING SYSTEM FOR A COM

Tsutomu Kimura, Asaka, Japan, assignor to Fuji Photo Film Co., Ltd., Minami-asbigara, Japan

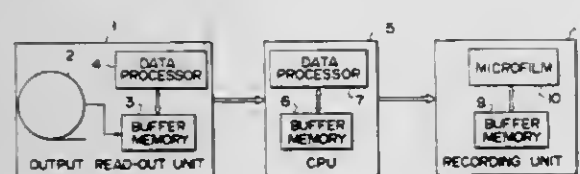
Filed Aug. 13, 1980, Ser. No. 177,604

Claims priority, application Japan, Aug. 14, 1979, 54/103393

Int. Cl.³ G06F 3/06

U.S. Cl. 364—900

3 Claims



1. A system for processing output data from a computer in a computer output microfilm, said system comprising a computer output read-out unit having a data processor and a buffer memory for storing the output data from the computer, a central processor unit having a buffer memory, and a recording unit having a buffer memory,

said buffer memory of said computer output read-out unit being controlled by said data processor of said computer output read-out unit for reading out the stored output data from the computer,

wherein the output data from the computer is divided into pages, and wherein the respective buffer memories of said computer output read-out unit, said central processor unit, and said recording unit store data of corresponding respective pages of the output data, and

wherein the recording unit records the data on one page (N), while the central processor unit processes the data of a next page (N+1), and while the buffer memory of the computer output read-out unit stores the data of a subsequent page (N+2).

4,316,262

REMOTE METER READING SYSTEM

Toshiaki Mizuta, Kawasaki; Takeshi Abe, Yokohama; Ichiro Yoshihara, Funabashi; Kazuhito Saito, Kawasaki, and Keishin Tsuchiya, Higashi-Yamato, all of Japan, assignors to Ricoh Co., Ltd., Tokyo, Japan

Filed May 30, 1979, Ser. No. 43,639

Claims priority, application Japan, Jun. 8, 1978, 53-69177

Int. Cl.³ G06F 3/04; H03B 3/00

U.S. Cl. 364—900

5 Claims

1. In a data collection system having a central data terminal and a plurality of remote terminal units connected to said data terminal through transmission lines so that data in selected ones of said remote terminal units may be read out at said central data terminal by pulses transmitted from said central data terminal to said selected remote terminal units through said transmission lines, the improvement wherein:

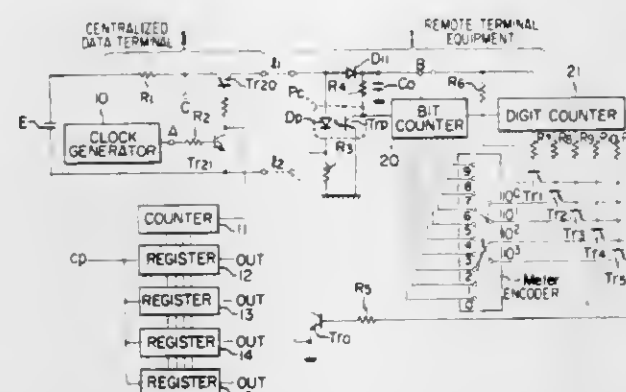
said central data terminal comprises clock pulse generator means for providing a train of pulses to be transmitted to said selected remote terminal units through said transmis-

sion lines, and means for detecting changes in the amplitude of said pulses which cause the read out of said data; and

each of said remote terminal units comprises:

a chargeable power supply which reaches a voltage over a predetermined threshold value by storing said pulses transmitted from said centralized data terminal through said transmission lines a

a bit counter and a digit counter operatively connected with each other and having their outputs coupled to a plurality of AND-gate circuits, said counters being enabled when the voltage of said power supply has reached said predetermined threshold value,



an encoder means coupled to the outputs of said bit counter and said digit counter through said AND-gate circuits for storing data to be read out, and means to change the level of said pulses when any one of said AND-gate circuits has an output of a given value, whereby, said bit counter counts said pulses from said centralized data terminal and provides corresponding outputs to said encoder means, said encoder means generating output pulses when the inputs to said encoder means from said bit counter coincide with a desired value of each digit of said data to be read out, and the levels of said encoder output pulses are varied by said level change means so that said output pulses contain the data to be transmitted to said central data terminal.

4,316,263

TRANSFER AND REPLICATION ARRANGEMENT FOR MAGNETIC BUBBLE MEMORY DEVICES

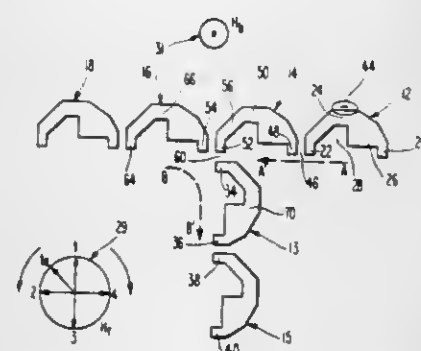
William D. Doyle, Dresher, Pa., assignor to Sperry Corporation, New York, N.Y.

Filed Sep. 10, 1979, Ser. No. 73,772

Int. Cl.³ G11C 19/08

U.S. Cl. 365—12

13 Claims



3. A bubble memory arrangement of the type wherein magnetic bubbles within a planar layer of material are moved in response to magnetic forces thereon, including an in-plane rotating magnetic field, said arrangement comprising:

(a) first and second tracks comprising half disk permalloy elements, said first track comprising advance and reverse

elements, each formed to have first and second end sections and a center section integrally connected therebetween, said first and second end sections lying along a first line which line is substantially straight and with said center sections lying on a first side of said first line, said first end section of said reverse element lying in close proximity to said second end section of said advance element;

(b) a modified half-disk element arranged between said first and second tracks for replicating bubbles located in said first track in response to rotation of said in-plane magnetic field, said rotation being in a predetermined direction with respect to said arrangement of said modified element between said first and second tracks, said modified half-disk element being formed to have a first end section and an elongated end section and a center section connected integrally therebetween, said modified half-disk element disposed to have its first and elongated end sections lying along a replicating line which line is substantially straight and which lies substantially orthogonal to said first line and further formed and disposed so that its first end section lies in close proximity to said first line and to said first end section of said reverse direction element, and so that its center section lies on a first side of said replicated line in a direction toward said second end section of said reverse direction permalloy element; and

(c) transfer electrical conductor means for transferring bubbles from said first and second tracks to said modified element in response to said timed current signals to said conducting means and rotation of said in-plane field, said transfer electrical conductor means being formed and disposed to lie interlinkably between said layer of material and a portion of said second track to a portion of said modified half-disk element.

4,316,264

UNIQUELY ACCESSED RAM

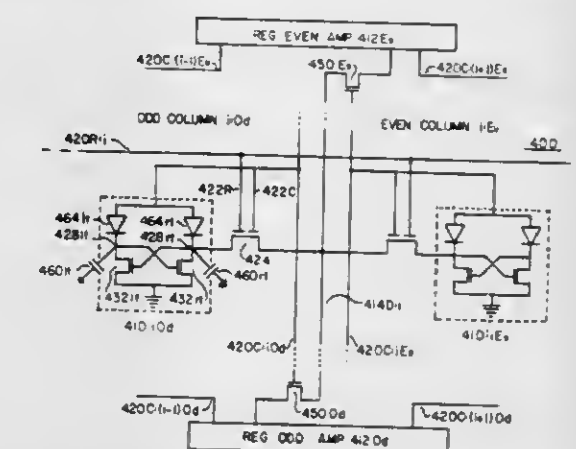
Eliyahou Harari, 2320 Friars La., Los Altos, Calif. 94022

Filed Jan. 8, 1980, Ser. No. 110,405

Int. Cl.³ G11C 7/00, 8/00

U.S. Cl. 365—190

20 Claims



18. A regenerative static RAM for writing data-in and reading data-out, comprising:

a plurality of memory cells arranged in a row by column matrix;

access means for addressing a single cell of the matrix;

a single data lead means for the conduction of data-in and data-out, said single data lead means extending to each cell of the matrix;

write means for providing data-in to the addressed cell through said single data lead means;

regenerative read means for receiving data-out from the addressed cell through said single data lead means;

at least one capacitance discharge maintained bistable storage means within each of the plurality of the memory cells for storing the data-in;

a single input-output node between each bistable storage

means and said single data lead means through which the data-in and data-out pass;

a row access switch and a column access switch for each memory cell connected in series between the input-output node and the data lead means, and responsive to the access means for controlling the passage of data-in and data-out; and

refresh means for periodically recharging the bistable storage means.

4,316,265

MEMORY DEVICE WITH HIGH SPEED MEMORY CELL SELECTION MECHANISM

Hirotohi Tanaka; Yoshiki Kawajiri, both of Hachioji; Kouetsu Chiba; Ryoichi Hori, both of Hinodemachi, and Kiyoo Itoh, Higashikurume, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

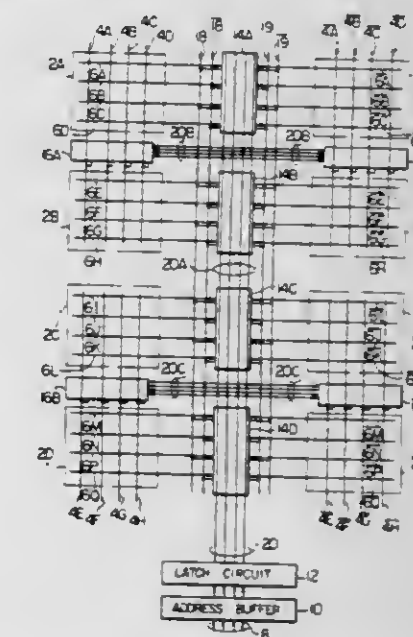
Filed Nov. 16, 1979, Ser. No. 94,927

Claims priority, application Japan, Nov. 20, 1978, 53/158800[U]

Int. Cl.³ G11C 11/40

U.S. Cl. 365—203

27 Claims



1. A memory device including a plurality of column lines, a plurality of row lines intersecting said column lines, a plurality of memory cells provided respectively at the intersections of said column lines and said row lines, row decoding means responsive to a first address signal for selecting at least one of said row lines, column decoding means responsive to a second address signal for selecting at least one of said column lines, address signal generator means for generating said first address signal and thereafter said second address signal, and common signal line means for supplying the output of said address signal generator means to said column decoder means and said row decoder means, wherein said row decoding means include switching means for connecting said common signal line means to said row decoding means to allow the application of said first address signal to said row decoding means and to inhibit the application of said second address signal to said row decoding means, and said column decoding means include means for disabling said column decoding means during a period when said first address signal is applied to said column decoding means through said common signal line means.

4,316,266

METHOD OF REFLECTION POINT CORRELATION SEISMIC SURVEYING

Maurice G. Y. Barbier, Pau, and Philippe J. Staron, Mennecy, both of France, assignors to Societe Nationale Elf Aquitaine (Production), Courbevoie, France

Continuation of Ser. No. 780,846, Mar. 24, 1977, abandoned.

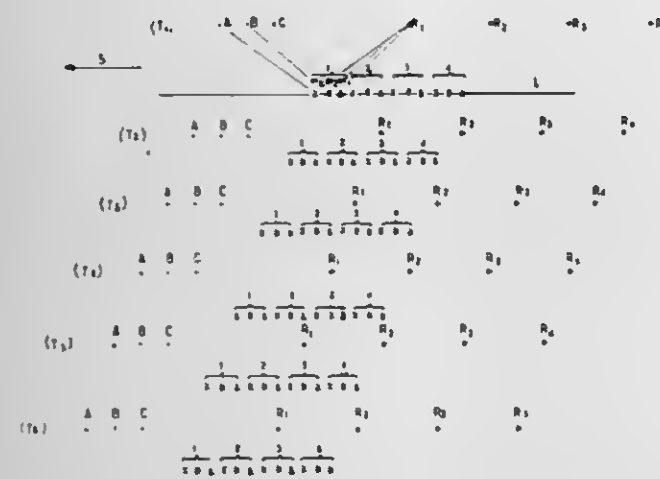
This application Feb. 1, 1979, Ser. No. 8,578

Claims priority, application France, Mar. 30, 1976, 76 09118

Int. Cl.³ G01V 1/20, 1/28, 1/38

U.S. Cl. 367-21

4 Claims



1. A seismic exploration method with high spatial resolution comprising, locating a line of receivers in longitudinally spaced relation, locating a line of transmission sources in spaced relation to each other, generating seismic waves at each of said sources, controlling the transmission of said waves by said transmission sources, to provide wave transmission intervals between sources less than the time taken for the longest wave to travel through the medium to be explored from said transmission sources to said receivers and to provide wave transmission intervals between repetitions of each source at least equal to said time taken for said longest wave to travel from said transmission source to said receiver, receiving on the receivers signals produced by reflection of said waves at reflection points in said medium to be explored and recording said received signals, displacing said receivers and sources along the seismic line to be explored after each transmission of waves by a distance equal to the source spacing in such a manner that a source takes the place of a preceding source, processing said recorded signals by grouping all the recorded signals corresponding to the same reflection point, shifting in time each of said recorded traces with respect to the transmission instants of the corresponding source to place into coincidence the respective transmission instants of sources the seismic paths of which reach a predetermined reflection point, and adding all said shifted in time recorded traces relating to the same reflection point.

4,316,267

METHOD FOR INTERPRETING EVENTS OF SEISMIC RECORDS TO YIELD INDICATIONS OF GASEOUS HYDROCARBONS

William J. Ostrander, Novato, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Continuation-in-part of Ser. No. 756,584, Jan. 3, 1977, abandoned.

This application Dec. 20, 1978, Ser. No. 971,628

Int. Cl.³ G01V 1/34, 1/36

U.S. Cl. 367-68

7 Claims

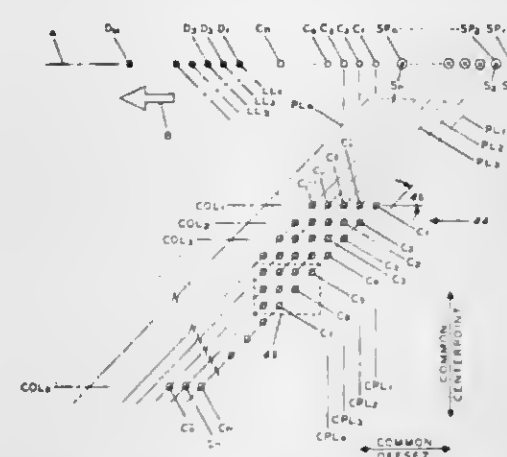
1. An on-site field method for increasing resolution of seismic records containing high-intensity amplitude events in order to associate such events with gas-bearing strata in the earth, comprising the steps of:

- generating seismic field data, including a record of signals from acoustic discontinuities associated with said strata of interest by positioning and employing an array of sources and detectors such that centerpoints between selected

pairs of sources and detectors form a series of centerpoints along a line of survey, said recorded signals being the output of said detectors;

- by means of automated on-site processing means, statically and dynamically correcting said recorded signals to form corrected traces whereby each of said corrected traces are associated with a centerpoint horizontally midway between a source-detector pair from which said each corrected trace was originally derived;

- by means of automated on-site processing means, formatting said corrected traces in two dimensions whereby each of said corrected traces is identified in its relationship to



neighboring traces on the basis of progressive changes in horizontal offset value versus progressive changes in common centerpoint location, and

- displaying a series of said traces of step (c) on a side-by-side basis as a function of progressively changing horizontal offset values, said displayed traces all being associated with at least the same general common group of centerpoints whereby progressive change in a high-intensity amplitude event from trace to trace of said displayed traces as a function of progressive change in horizontal offset value can be identified on-site, said progressive change being associable with strata containing gaseous hydrocarbons.

4,316,268

METHOD FOR INTERPRETATION OF SEISMIC RECORDS TO YIELD INDICATION OF GASEOUS HYDROCARBONS

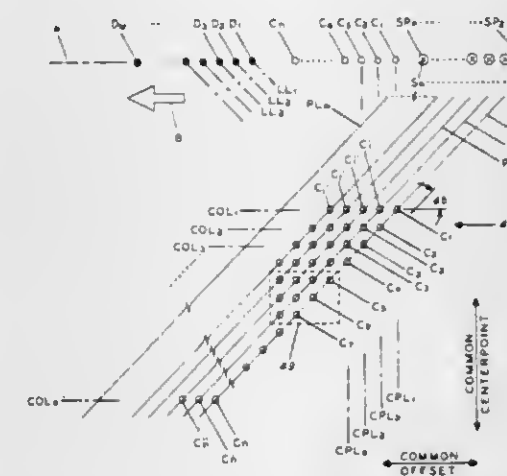
William J. Ostrander, Novato, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Continuation of Ser. No. 756,584, Jan. 3, 1977, abandoned. This application Sep. 19, 1979, Ser. No. 77,240

Int. Cl.³ G01V 1/34, 1/36

U.S. Cl. 367-68

12 Claims



1. A method for increasing resolution of seismic records containing high-intensity amplitude events in order to associate

such events with gas-bearing strata in the earth, comprising the steps of:

- generating seismic data, including a record of signals from acoustic discontinuities associated with said strata of interest by positioning and employing an array of sources and detectors such that centerpoints between selected pairs of sources and detectors form a series of centerpoints along a line of survey, said recorded signals being the output of said detectors;
- by means of automated processing means, statically and dynamically correcting said recorded signals to form corrected traces whereby each of said corrected traces is associated with a centerpoint horizontally midway between a source-detector pair from which said each corrected trace was originally derived;
- by means of automated processing means, indexing said corrected traces in two dimensions whereby each of said corrected traces is identified in its relationship to neighboring traces on the basis of progressive changes in horizontal offset value versus progressive changes in common centerpoint location,
- displaying a series of said traces of step (c) on a side-by-side basis as a function of progressively changing horizontal offset values, said displayed traces all being associated with at least the same general common group of centerpoints so that progressive change in a high-intensity amplitude event from trace to trace of said displayed traces is identified as a function of progressive change in horizontal offset value whereby more likely than not said event relates to reflections from acoustic impedances with strata containing gaseous hydrocarbons.

4,316,269

OWN DOPPLER NULLIFIER FOR SONAR SYSTEM

Adrian van't Hullenaar, deceased, late of Smithville, Canada (by A. van't Hullenaar, executrix), assignor to Westinghouse Canada Limited, Hamilton, Canada

Division of Ser. No. 70,686, Aug. 29, 1979, Pat. No. 4,274,148.

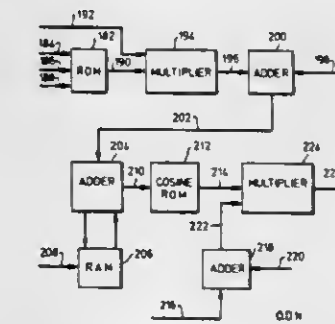
This application Oct. 14, 1980, Ser. No. 196,306

Claims priority, application Canada, Sep. 8, 1978, 310882

Int. Cl.³ G01S 15/58

U.S. Cl. 367-90

6 Claims



1. A method of extracting own ship's doppler information from a digital beam output signal of a beamformer to obtain target doppler information, the method comprising the steps of:

- introducing an offset frequency "A" to the digital beam output signal which is a function of the beamformer sampling frequency;
- generating a digital signal representative of the own ship's doppler information and offsetting the digital signal by frequency amount "B" which is a function of the beamformer sampling frequency and offset frequency "A";
- multiplying the generated digital signal with the beam output signal to obtain a signal having a difference frequency component and a sum frequency component which both lie in their respective difference frequency band and sum frequency band whereby the difference frequency band has a center frequency offset by amount A-B which eliminates the effect of noise due to fold over from the negative frequency band into the difference frequency band; and
- filtering out the sum frequency component to leave the

difference frequency component representative of said target doppler information.

4,316,270

DIGITAL TIME-DELAY BEAMFORMER FOR SONAR SYSTEMS

Adrian van't Hullenaar, deceased, late of Smithville, Canada (by Mrs. A. van't Hullenaar, executrix), assignor to Westinghouse Canada Limited, Hamilton, Canada

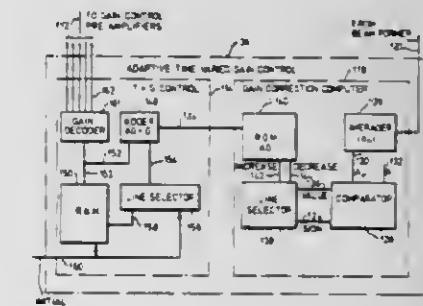
Division of Ser. No. 70,686, Aug. 29, 1979. This application Oct. 14, 1980, Ser. No. 196,289

Claims priority, application Canada, Sep. 8, 1978, 310882

Int. Cl.³ G01S 15/02

U.S. Cl. 367-98

5 Claims



1. An adaptive time varied gain control apparatus for varying the gain of a plurality of preamplifiers during each consecutive ping-cycle of a sonar receiver to be inversely proportional to momentary average reverberation in the medium of operation, said apparatus comprising:

- storage means having a plurality of storage spaces each having a stored gain;
- preset means for initially storing in said storage spaces gain step approximations of an inverse standard reverberation curve where said gain step approximations have respective time-durations determined from said curve;
- means for storing each of said time-durations and for associating each of said time-durations with the storage space where said time-duration's respective gain step approximation is initially stored;
- control means for varying the gain of said preamplifiers to correspond to each stored gain during each ping-cycle whereby each stored gain is applied to said preamplifiers for a duration equal to the time-duration associated with the stored gain's respective storage space;
- averaging means for averaging a plurality of beam output signals from a beamformer in the sonar receiver during each time-duration;
- means for determining a gain correction as a function of a reference signal and the average of the beam output signals during each time duration;
- means for computing a new gain during each time-duration by summing the gain correction with the respective stored gain of that time-duration; and
- means for storing the new gain in the stored gain's respective storage space during each time-duration.

4,316,271

PURGING AND EXPANSION MECHANISM

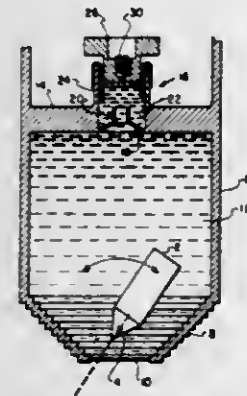
Donald A. Evert, Littleton, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Jan. 14, 1981, Ser. No. 224,897

Int. Cl.³ H04R 1/02

U.S. Cl. 367-140

6 Claims



1. A housing structure for an electroacoustic transducer comprising:
- a main housing body portion defining a chamber in which the transducer is mounted;
 - said body portion having a wall member;
 - an access port in said wall member through which fluid fill may be admitted to said chamber and through which gases in said chamber may be purged;
 - said access port including means defining a bubble trap cavity and a plunger means having a selectively opened bleed hole.

4,316,272

ELECTRONIC TIMEPIECE WITH GLOBAL TIME ZONE DISPLAY

Okito Naito, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Continuation of Ser. No. 830,936, Sep. 6, 1977, Pat. No.

4,180,969. This application Oct. 29, 1979, Ser. No. 88,921

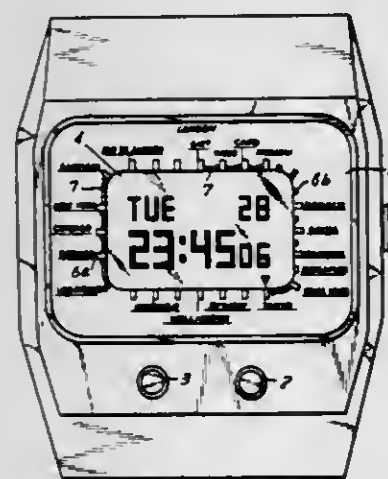
Claims priority, application Japan, Sep. 3, 1976, 51-106137

The portion of the term of this patent subsequent to Jan. 1, 1997, has been disclaimed.

Int. Cl.³ G04B 19/22; G04C 17/00

U.S. Cl. 368-21

14 Claims



1. An electronic timepiece comprising in combination series-connected counter means, each of said counter means being adapted to produce at least one timekeeping signal representative of the count of said counter means, display drive means for receiving each of said timekeeping signals and producing display driving signals in response thereto, a plurality of numerical display digits for receiving said display drive signals and displaying time information in response to the timekeeping signals produced by said counter means, a plurality of visual indication and display segments coupled to said display drive

means for selectively indicating a predetermined time zone corresponding to the time displayed by said numerical display digits, mode select means coupled to at least one of said counter means for selectively disposing said counter means between a local time mode and a global time mode, each of said counter means coupled to said mode select means being adapted to produce timekeeping signals representative of a predetermined local time zone when said mode select means disposes same in a local time zone mode, an indexing means coupled through said mode select means to the same counter means as the mode select means, said indexing means being adapted to index the predetermined counts of said counters representative of local time and thereby index the count of said timekeeping signal produced thereby to a count representative of a different global time zone when said mode select means is disposed in a global time mode, said indexing means including storage means for storing a predetermined count representative of a local time therein, said indexing means being adapted to return the count of each of said counter means coupled thereto to a count representative of a local time zone in response to said mode select means returning said timepiece from a global time display mode to a local time display mode.

4,316,273

REMOTE-CONTROLLED ALARM CLOCK

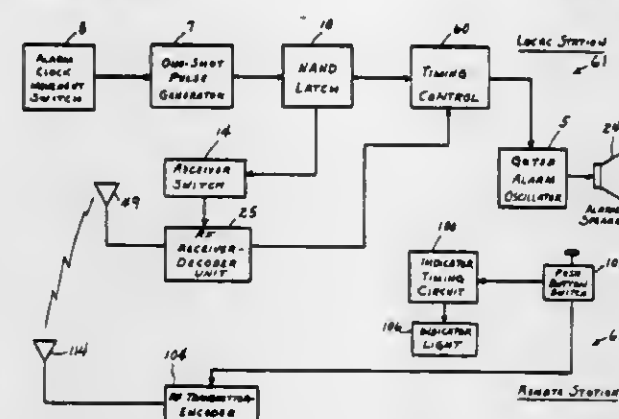
Milton W. Jetter, 800 4th St., SW., Washington, D.C. 20024

Filed Mar. 17, 1980, Ser. No. 131,122

Int. Cl.³ G04C 11/02, 21/16; G04B 23/00

U.S. Cl. 368-47

20 Claims



1. An alarm clock system comprising a clock movement including alarm starting means for producing an electrical alarm signal, means to generate an audible alarm responsive to said electrical alarm signal, manually operated deactivation switch means, circuit means to deactivate said audible alarm immediately upon manual operation of said deactivation switch means, and completely responsive to continuous manual operation of said deactivation switch means for a predetermined extended period of time, a visual indicator adjacent said deactivation switch means, means to energize said visual indicator when said deactivation switch means becomes manually operated, and means to deenergize said visual indicator responsive to the continuous manual operation of said deactivation switch means for said predetermined extended period of time.

4,316,274

BATTERY LIFE INDICATION METHOD FOR AN ELECTRONIC TIMEPIECE

Kenichi Ushikoshi, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed Jan. 29, 1979, Ser. No. 7,533

Claims priority, application Japan, Jan. 27, 1978, 53/8081;

Jan. 27, 1978, 53/8082; Jan. 27, 1978, 53/8083

Int. Cl.³ G04B 9/00

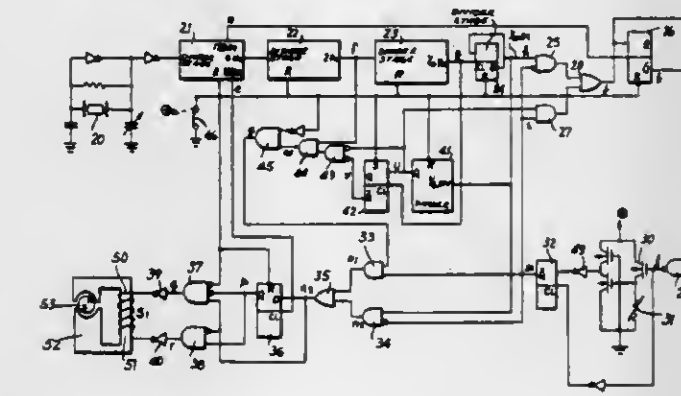
U.S. Cl. 368-66

16 Claims

1. A method for indicating the diminished output of the power source in an electronic analog timepiece having hands

to indicate the time, and driving means to advance said hands, comprising the steps of:

- (a) detecting the diminished output of the power source;
- (b) altering the rate of driving said hands from the normal rate of driving said hands whereby the time indicated by said hands deviates from real time;



- (c) driving said hands at said normal rate;
- (d) repeating step (b), again altering said rate, whereby said hands further deviate from real time;
- (e) continuously repeating steps (c) and (d).

4,316,275

CHARGING CONTROL CIRCUIT FOR ELECTRONIC TIMEPIECE

Junichi Tabata, Tokyo, Japan, assignor to Kabushiki Kaisha Daini Seikosa, Tokyo, Japan

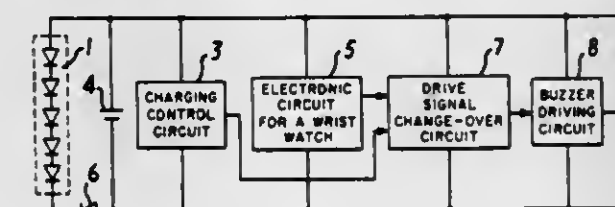
Filed Jun. 27, 1980, Ser. No. 163,883

Claims priority, application Japan, Jun. 28, 1979, 54-081622

Int. Cl.³ G04B 9/00

U.S. Cl. 368-66

4 Claims



1. An electronic timepiece, comprising:
- an electronic timepiece circuit comprising means for generating a time alarm signal;
 - an electric power source for powering said electronic timepiece circuit, said electric power source comprising a rechargeable secondary power cell and charging means for charging said power cell;
 - a charging control circuit for detecting the voltage of said secondary power cell and for generating an output control signal when said secondary power cell is excessively charged;
 - alarm means responsive to a drive signal for generating an alarm; and
 - drive signal change-over means responsive to the time alarm signal from said electronic timepiece circuit for applying a drive signal to said alarm means to generate an alarm to indicate an alarm time and responsive to the control signal from said charging control circuit for applying a drive signal to said alarm means to generate an alarm to indicate that said secondary power cell is being excessively charged.

4,316,276

KEY-OPERATED SOLID-STATE TIMEPIECES

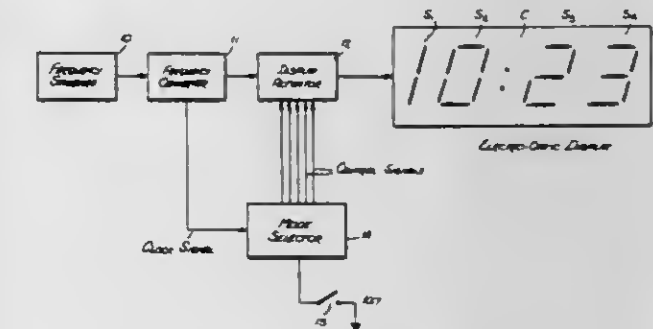
Dale R. Koehler, Westwood, and Jerrald A. Zupfer, River Vale, both of N.J., assignors to Bulova Watch Company, Inc., Flushing, N.Y.

Filed Aug. 15, 1974, Ser. No. 497,758

Int. Cl.³ G04C 17/00, 9/00

U.S. Cl. 368-70

19 Claims



1. In a solid-state timepiece wherein timing pulses are applied to an electro-optic display through an electronic actuator having switching means for selectively energizing the display to present in an aspect mode various aspects of time information, each reading of which is settable by means of roll-over pulses serving to advance the reading at a rapid rate; apparatus for effecting selection in the aspect mode or for rendering the display operative in the setting mode, said apparatus comprising:

- (A) a manually-operated switching key which may be closed and thereafter released to produce code signals which depend on the length of time the key is closed and the number of key actions, and
- (B) a mode selector operatively coupled to the switching means of said actuator and responsive to said code signals, said selector having logic means to decode said signals to produce respective command signals for effecting selective presentation of said aspects or for rendering said display operative in the setting mode.

4,316,277

ELECTRONIC CLOCK MOVEMENT ASSEMBLY

Itaru Endo, Showa, Japan, assignor to Rhythm Watch Company Limited, Tokyo, Japan

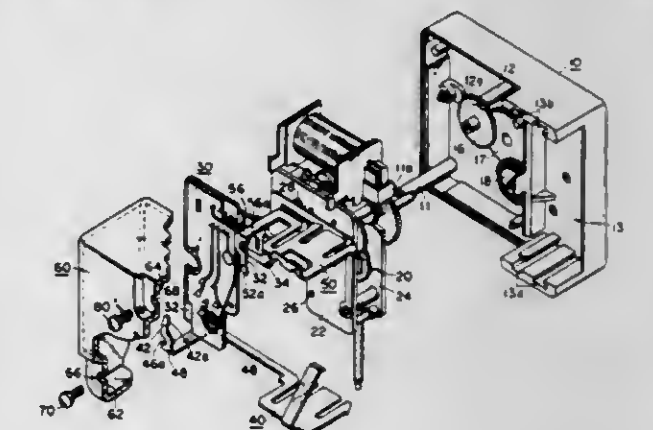
Filed Jul. 10, 1980, Ser. No. 168,201

Claims priority, application Japan, Jul. 13, 1979, 54-96685[U]

Int. Cl.³ G04B 19/00; G04C 23/02

U.S. Cl. 368-76

3 Claims



1. An electronic clock movement structure comprising: gear train combination in which sets of gear trains are held among plural supporting plates at predetermined distances; a lower case holding said gear train combination; a circuit base plate arranged to be attached to said lower case and said supporting plates;

resilient contact plates facingly arranged to conductive portions of said circuit base plate;
an upper case fixed to said lower case and including pressing portions which engage with said contact plates; and
said electronic clock movement structure being characterized in that attachment of said upper case to said lower case applies pressure to said contact plates to electrically connect said contact plates with said circuit base plate and holdingly attach said gear train combination to said lower case.

4,316,278

SYSTEM FOR READING OR RECORDING INDICIA ON A FLEXIBLE DISC

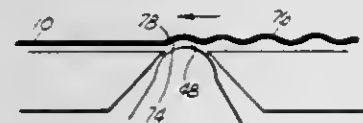
Paul A. Endter, San Jose, Calif., assignor to McDonnell Douglas Corporation, Long Beach, Calif.

Filed Dec. 13, 1979, Ser. No. 103,027

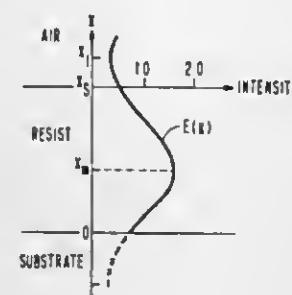
Int. Cl.³ G11B 17/32

U.S. Cl. 369—100

16 Claims



than the first standing wave maximum of said optical standing wave in said radiant energy sensitive material but less than the first standing wave minimum of said optical standing wave in said radiant energy sensitive material;
moving said coated substrate relative to said intensity modulated coherent light beam thereby exposing said radiant energy sensitive material with said modulated coherent light beam in a pattern representative of said modulated information; and



developing the radiant energy sensitive material exposed by the modulated light beam for a time period sufficient to form a track having geometric variations therein representative of the modulated information in said radiant energy sensitive material, the depth of said geometric variations at the high frequency end of said given frequency range substantially equal to the depth of said geometric variations at the low frequency end of said given frequency range.

4,316,280

COMPENSATOR FOR THE HORIZONTAL ANGULAR ERROR OF A RECORD PLAYER ARM

Peter K. Kanchev, Sofia, Bulgaria, assignor to Bulgarsko Radio, Sofia, Bulgaria

Filed Jun. 2, 1980, Ser. No. 155,135

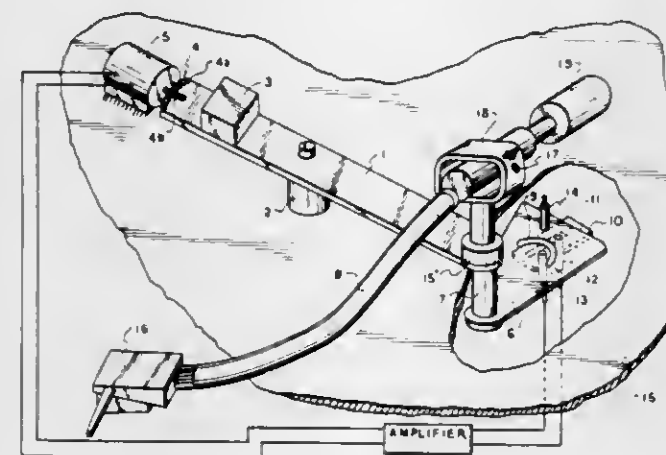
Claims priority, application Bulgaria, May 31, 1979, 43791

Int. Cl.³ G11B 21/02

U.S. Cl. 369—250

4 Claims

1. Apparatus for stabilizing a rotating disc comprising:
 - (a) first means for defining a substantially flat surface disposed adjacent but not in contact with one surface of said disc;
 - (b) second means for defining an elongated curved surface disposed adjacent but not in contact with the other surface of said disc;
 - (c) aligning means for positioning said first and second means opposed each other in spaced apart relation to receive said disc therebetween; and
 - (d) optical means mounted in said first and second means for detecting and recording information containing indicia on said disc, said optical means mounted in said second means being relatively offset from a plane passing through the vertical axis of said second means orthogonal and radial to said disc in the direction of rotation of said disc while retaining optical integrity to place said optical means in said second means at a point of zero pressure differential substantially across said disc during operational rotation thereof.



1. A compensator for the horizontal angular error of a record player arm, comprising a first lever disposed in the horizontal plane beneath the player arm, a first, fixedly positioned bearing supporting an intermediate portion of the first lever whereby the first lever can rotate in a horizontal plane, the first lever having a bearing on a first end thereof journaled on a vertically rotatable shaft, means of the upper end of the shaft mounting the player arm thereon for horizontal movement upon rotation of the shaft while permitting the player arm a degree of free vertical movement with respect to the shaft, an electric motor having a driving shaft, means connecting the driving shaft of the motor to the first lever so that the motor when energized turns the lever about the first bearing, a second lever in the form of a flat horizontal optical mask affixed to the vertical shaft to rotate therewith, the optical mask having a.

4,316,279

OPTICAL RECORDING IN THIN PHOTORESIST

John P. Russell, Pennington; Arthur H. Firester, Skillman, and Istvan Gorog, Princeton, all of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Feb. 28, 1979, Ser. No. 16,111

Claims priority, application United Kingdom, Sep. 4, 1978, 35510/78

Int. Cl.³ G11B 7/00, 11/12

U.S. Cl. 369—109

10 Claims

10. A method of recording information signals modulated within a given frequency range on a storage medium using a coherent light beam of a given wavelength incident on a surface of said storage medium, wherein said incident coherent light beam interacts with the coherent light beam reflected from a surface of said storage medium to form an optical standing wave, comprising the steps of:

coating one surface of a substrate with a layer of non-linear radiant energy sensitive material to a thickness greater

arch-shaped slit therein which is convex in the direction away from the axis of the vertical shaft, a source of light disposed close to the optical mask on one side thereof, two spaced photo-receivers disposed on the other side of the optical mask, a blind disposed between the optical mask and the two photo-receivers, the blind having a linear slit therein directed radially of the vertical shaft, and means connecting the two photo-receivers to the electric motor so as to energize the motor to drive the first lever constantly to seek a position which the illuminations of the two photo-receivers are equal.

4,316,281

SPACER FOR STACKED RECORDED DISCS

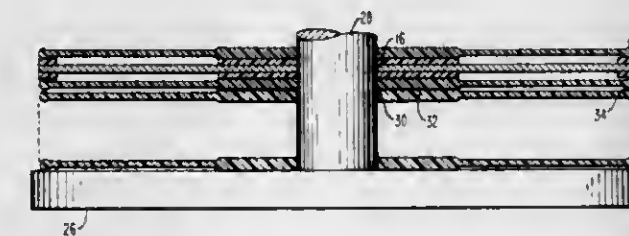
John J. Prusak, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Sep. 22, 1980, Ser. No. 189,349

Int. Cl.³ G11B 3/62; B65D 85/02, 85/57, 81/02

U.S. Cl. 369—291

10 Claims



1. A spacer for use between two adjacent recorded discs in a stack of said discs comprising a flat circular relatively rigid plate having opposed major surfaces and a hole through the center thereof, said plate having portions around its peripheral edge and the edge of the hole which are thicker than the rest of the plate, with the thicker portions being of substantially uniform thickness.

4,316,282

MULTICHANNEL FREQUENCY TRANSLATION OF SAMPLED WAVEFORMS BY DECIMATION AND INTERPOLATION

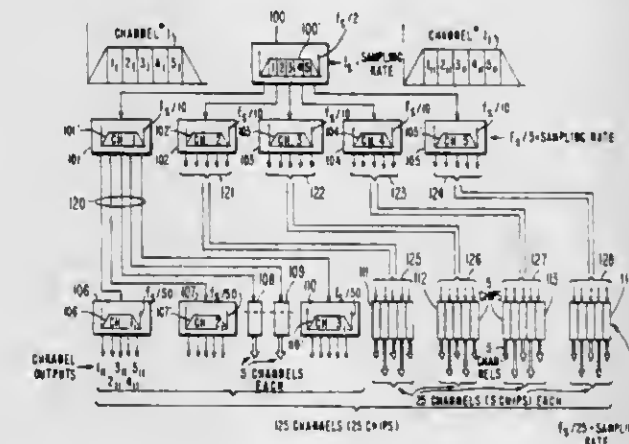
Nicola A. Macina, Chatham, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Nov. 23, 1979, Ser. No. 96,743

Int. Cl.³ H04J 1/05

U.S. Cl. 370—70

6 Claims



1. A system for frequency division multiplexing a received broad band signal into k^m signal channels each capable of containing a baseband spectral component and comprising:
 - means for supplying first sampling and de-sampling signals having predetermined frequency ratios with respect to the bandwidth of said received broad band signal;
 - m descending tiers of identical channel division modules each comprising first logic means with the first tier thereof comprising a first of said modules whose logic means is responsive to the received broad band signal and to said first sampling and de-sampling signals to divide such

broad band signal into k new signal channels each containing a baseband spectral component;
means for supplying separate sampling and de-sampling signals to the modules of each successive tier of modules positioned in descending manner below said first tier with each of said separate sampling and de-sampling signals having frequencies bearing said predetermined ratios to the bandwidth of the spectral component to be sampled and desampled thereby;
each module of each successive tier of modules comprising second logic means responsive to the spectral component contained in individual ones of the signal channels created by from the immediately preceding higher order tier of modules and to the sampling and de-sampling signals individual thereto to form k new additional channels each containing a baseband spectral component; and
each baseband spectral component having an upper bandwidth limit which bears the same ratio to its sampling rate as the upper bandwidth limit of the originally received broad band signal bears to its sampling rate.

4,316,283

TRANSPARENT INTELLIGENT NETWORK FOR DATA AND VOICE

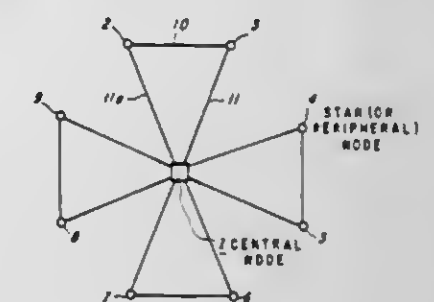
Mehmet E. Ulug, Ottawa, Canada, assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 912,116, Jun. 2, 1978, abandoned. This application Apr. 14, 1980, Ser. No. 139,914

Int. Cl.³ H04J 6/00

U.S. Cl. 370—94

8 Claims



1. A communication network for data and voice having a first node and a plurality of other nodes, interconnecting means connecting said first node with said plurality of other nodes, a first customer X.25 computer connected to said first node, a corresponding plurality of customer equipments connected to said plurality of other nodes, said first customer X.25 computer normally generating and transmitting to said first node first electrical signals representing data and second electrical signals according to X.25 protocol identifying their destination and means at said first node for distinguishing between said protocol-representing signals and said data-representing signals, and for transmitting to said plurality of other nodes only said data representing signals, means at said plurality of other nodes for forwarding to the respective customer equipments those of said data representing signals addressed to the respective customers, means at said plurality of other nodes responsive to the receipt of data-representing signals originating from said corresponding plurality of customer equipments for transmitting them to said first node, and means at said first node for recognizing customers from whom said last mentioned data-representing signals originated and for adding X.25 protocol signals identifying origination for transmission to said first customer X.25 computer.

4,316,284

FRAME RESYNCHRONIZATION CIRCUIT FOR
DIGITAL RECEIVER

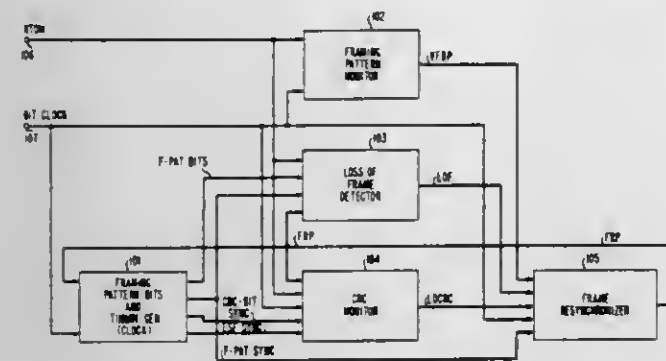
Robert D. Howson, Middletown, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sep. 11, 1980, Ser. No. 186,403

Int. Cl.³ H04J 3/06; H04K 7/04

U.S. Cl. 370-105

9 Claims



1. A framing circuit for synchronizing a digital receiver to a received time division multiplexed signal, characterized by, means responsive to bits of the received time division signal for generating in accordance with a prescribed criterion a code word having a predetermined number of bits, means for comparing said code word bits with bits of the received time division signal to generate code word error indications, means for counting a predetermined number of consecutive ones of said code word error indications to generate a resynchronization initiation signal, and means utilizing said resynchronization initiation signal for determining whether a framing bit pattern the receiver is synchronized with is a false framing bit pattern.

4,316,285

FRAMING CIRCUIT FOR DIGITAL RECEIVER

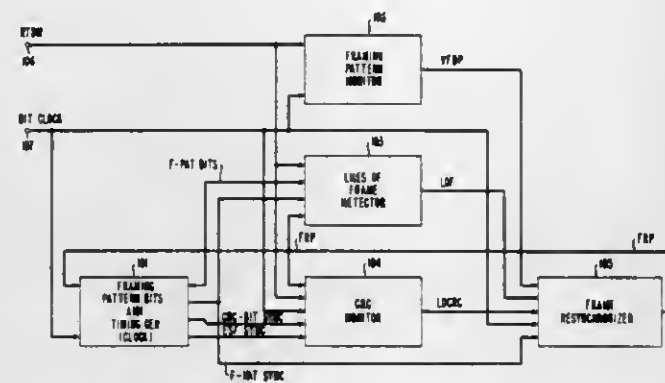
Richard T. Bobilln, Fair Haven, and Robert D. Howson, Middletown, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sep. 11, 1980, Ser. No. 186,404

Int. Cl.³ H04J 3/06; H04K 7/04

U.S. Cl. 370-105

7 Claims



1. A framing circuit for synchronizing a digital receiver to a received time division multiplexed signal, CHARACTERIZED BY, means responsive to bits of the received time division multiplexed signal for generating in accordance with a prescribed criterion a code word having a predetermined number of bits, means for comparing said code word bits with bits of the received time division signal to generate code word error indications, and means for utilizing said code word error indications to initiate resynchronizing of the receiver.

DESIGN PATENTS

GRANTED FEB. 16, 1982

ERRATA

For CLASS	See PATENT NO.
D34-001	263,016
D34-011	263,017
D34-031	263,036
D32-033	263,052
D10-046	263,061

DESIGNS

FEBRUARY 16, 1982

263,005

GYMNAST'S SUIT

Michel Joseph, Saverne, France, assignor to ADIDAS
Fabrique de Chaussures de Sport, Landersheim, France

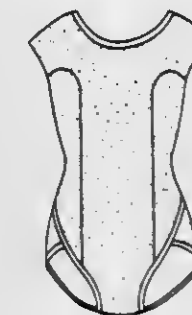
Filed Apr. 4, 1980, Ser. No. 137,497

Claims priority, application France, Oct. 5, 1979, 79 363

Term of patent 14 years

Int. Cl. D2-02

U.S. Cl. D2-36



263,007

SEAT

Alan F. Styman, and Ronald P. Hickman, both of Jersey, Channel Islands, assignors to Tekron Licensing B.V., De Leersum, Netherlands

Filed Feb. 6, 1980, Ser. No. 118,989

Claims priority, application United Kingdom, Aug. 8, 1979, 991114/79

Term of patent 14 years

Int. Cl. D6-01

U.S. Cl. D6-26



263,006

PHOTOGRAPHER'S ACCESSORY VEST

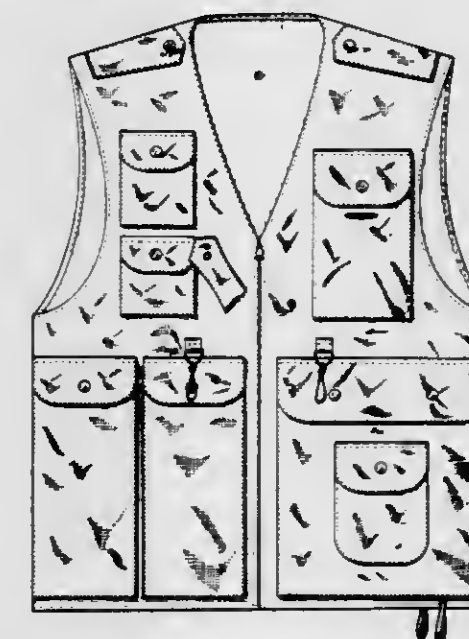
Irving Boker, 41-10 Twenty Second St., New York, N.Y. 10010

Filed Nov. 28, 1979, Ser. No. 98,031

Term of patent 7 years

Int. Cl. D2-02

U.S. Cl. D2-190



263,008

CHAIR

Bruce Dowse, Rockdale, Australia, assignor to Dowse Designs Pty. Limited, Sydney, Australia

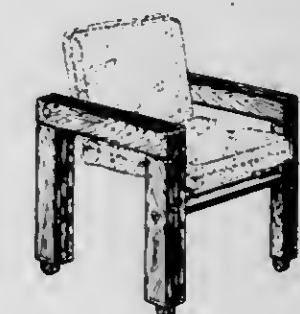
Filed Dec. 12, 1978, Ser. No. 968,823

Claims priority, application New Zealand, Jun. 13, 1978, 15535

Term of patent 14 years

Int. Cl. D6-01

U.S. Cl. D6-73



263,009

AUXILIARY TOILET PAPER ROLL HOLDER

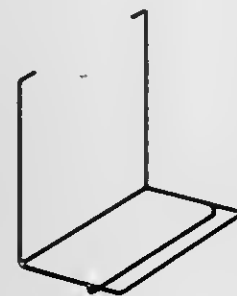
Charles B. O'Keefe, 2579 N. Miller Rd., Scottsdale, Ariz. 85257

Filed Oct. 15, 1979, Ser. No. 84,591

Term of patent 14 years

Int. Cl. D23-02; D6-06

U.S. Cl. D6-97



263,012

FURNITURE BASE

Donald E. Hanaford, Phoenix, Ariz., assignor to Arthur E. Thomson, Palm Springs, Calif.

Filed Oct. 16, 1978, Ser. No. 951,466

Term of patent 14 years

Int. Cl. D6-06

U.S. Cl. D6-194



263,010

DRAWER BACK BEARING

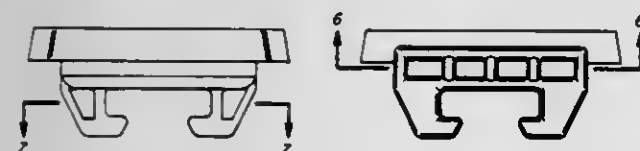
Thomas R. Marsh, Kernersville, N.C., assignor to The Hughes Supply Company of Thomasville, Incorporated, Thomasville, N.C.

Filed Apr. 25, 1980, Ser. No. 143,657

Term of patent 14 years

Int. Cl. D6-06

U.S. Cl. D6-191



263,013

FOLDABLE CLOTHES HANGER

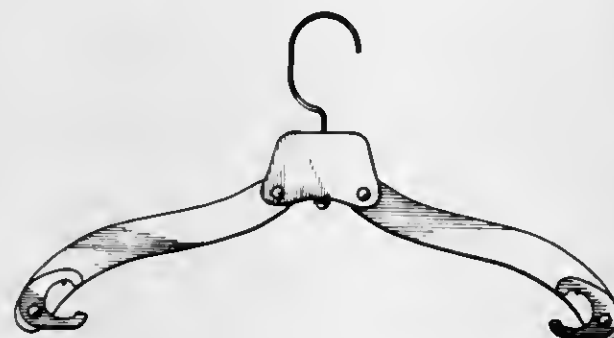
Connie C. Angeles, 1814 Waihee St., Honolulu, Hi. 96819

Filed Dec. 5, 1979, Ser. No. 100,423

Term of patent 14 years

Int. Cl. D6-08

U.S. Cl. D6-250



263,011

PANEL FOR A CHAIR BACK

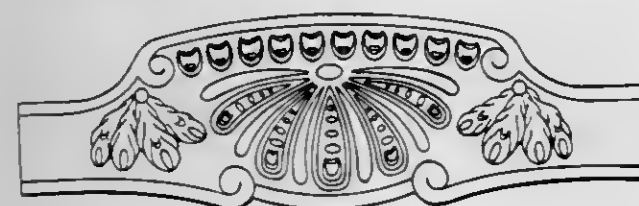
David L. Lee, 1841 Port Margate Pl., Newport Beach, Calif. 92660, and Harry J. O'Connor, 26992 LaPaja, Mission Viejo, Calif. 92675

Division of Ser. No. 930,585, Aug. 1, 1978. This application Nov. 10, 1980, Ser. No. 205,692

Term of patent 14 years

Int. Cl. D6-99

U.S. Cl. D6-193



263,014

TOOTH PICK DISPENSER

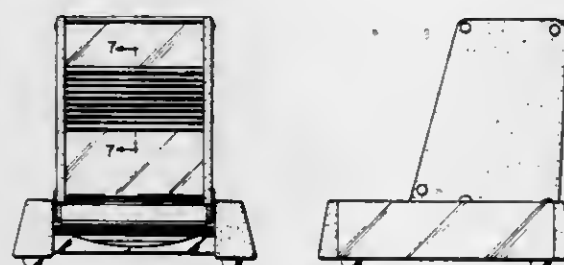
Jack Allen, P.O. Box 3443, Knoxville, Tenn. 37917

Filed Apr. 16, 1979, Ser. No. 30,228

Term of patent 14 years

Int. Cl. D7-06

U.S. Cl. D7-75



263,015

LUNCH BOX

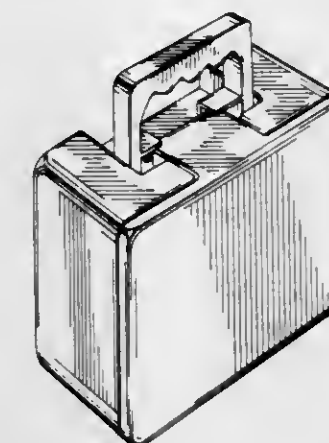
Peter T. Loucasty, 5513 S. College Ave., Tempe, Ariz. 85283

Filed Jan. 21, 1980, Ser. No. 113,489

Term of patent 14 years

Int. Cl. D7-02

U.S. Cl. D7-76



263,018

SOLDER EXTRACTOR

William E. Scheu, 22 Sedgmore Rd., Center Moriches, N.Y. 11934

Filed Feb. 9, 1979, Ser. No. 10,636

Term of patent 14 years

Int. Cl. D8-05

U.S. Cl. D8-30



263,016

WASTEBASKET OR THE LIKE

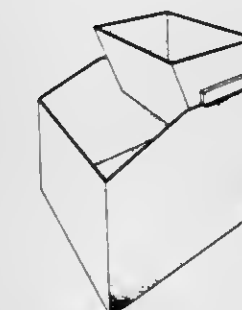
Robert L. Keller, 527 Eastlake East, #109, Seattle, Wash. 98109

Filed Jul. 2, 1979, Ser. No. 53,742

Term of patent 14 years

Int. Cl. D7-07

U.S. Cl. D34-11



263,019

DRILL HARNESS

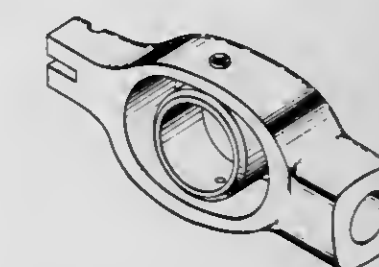
Jonas Samuelsson, 15 Syrenvägen, Orebro, Sweden

Filed Jan. 3, 1979, Ser. No. 769

Term of patent 14 years

Int. Cl. D8-05

U.S. Cl. D8-70



263,017

TRASH CAN COVER

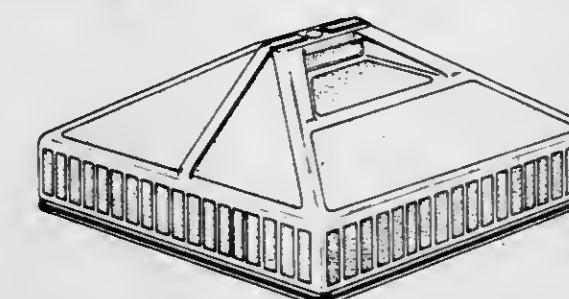
Thomas E. Douglas, Reidsville, N.C., assignor to Zarn, Inc., Reidsville, N.C.

Filed Aug. 13, 1979, Ser. No. 65,760

Term of patent 14 years

Int. Cl. D07-07

U.S. Cl. D34-11



263,020

RETRACTABLE KNIFE

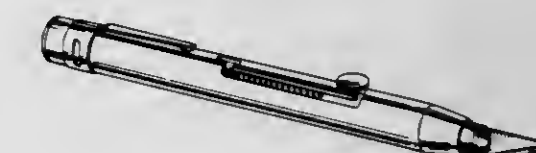
David M. Rau, 111, 1808 Dakota St., Lincoln, Nehr. 68502

Filed Jan. 22, 1980, Ser. No. 114,256

Term of patent 14 years

Int. Cl. D8-03

U.S. Cl. D8-99



263,021

CABLE HANGER

Frederick R. Siegfried, New Brighton, Minn., assignor to Burlington Norther, Inc., St. Paul, Minn.

Filed Jan. 31, 1978, Ser. No. 874,037

Term of patent 14 years

Int. Cl. D8—08

U.S. Cl. D8—373



263,023

PACKAGING FOR FOOD CONTAINER OR THE LIKE

Nicholas D. Comisso, Victor, N.Y., assignor to Mobil Oil Corporation, New York, N.Y.

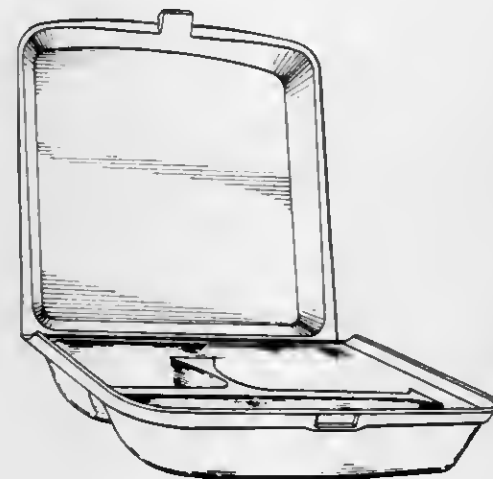
Filed Jun. 27, 1977, Ser. No. 810,558

The portion of the term of this patent subsequent to Feb. 9, 1996, has been disclaimed.

Term of patent 14 years

Int. Cl. D9—03

U.S. Cl. D9—347



263,022

VIBRATION ISOLATOR OR SIMILAR ARTICLE

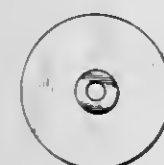
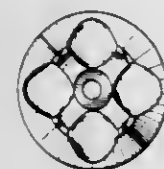
Daniel T. Lilley, Jr.; Elliott H. Berger, both of Indianapolis, and John A. Passanisi, Zionsville, all of Ind., assignors to E-A-R Corporation, Indianapolis, Ind.

Filed Aug. 23, 1979, Ser. No. 68,979

Term of patent 14 years

Int. Cl. D8—99

U.S. Cl. D8—402



263,024

CAN OR SIMILAR ARTICLE

Michael L. Atkinson, Lakewood, and Edward C. Miller, Broomfield, both of Colo., assignors to Ball Corporation, Muncie, Ind.

Filed Apr. 5, 1979, Ser. No. 26,887

Term of patent 14 years

Int. Cl. D9—03

U.S. Cl. D9—351



263,025

BOTTLE

Robert L. Schoeneck, Wauwatosa; William C. Smith, Greenlake; Wallis I. Hoyle, Brookfield, all of Wis.; Clark E. Swayze; Terry L. Carder, both of Midland, Mich., and Albert N. Theriault, Auburn, Mich., assignors to Schoeneck Containers, Inc., New Berlin, Wis.

Filed Aug. 20, 1979, Ser. No. 67,830

Term of patent 14 years

Int. Cl. D9—01

U.S. Cl. D9—404



263,027

COMBINED OIL TEMPERATURE AND OIL LEVEL GAUGE FOR MOTORCYCLES

Jimmie D. Loving, 118 W. Armijo, Monrovia, Calif. 91016

Filed Sep. 28, 1979, Ser. No. 79,875

Term of patent 14 years

Int. Cl. D10—04

U.S. Cl. D10—57



263,026

BOTTLE

Timothy J. Beechuk, Batavia, Ohio, and John Pardo, Yonkers, N.Y., assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Dec. 26, 1979, Ser. No. 106,957

Term of patent 14 years

Int. Cl. D9—01

U.S. Cl. D9—404



263,028

COMBINED TOY BEAR AND CAGE CHARM

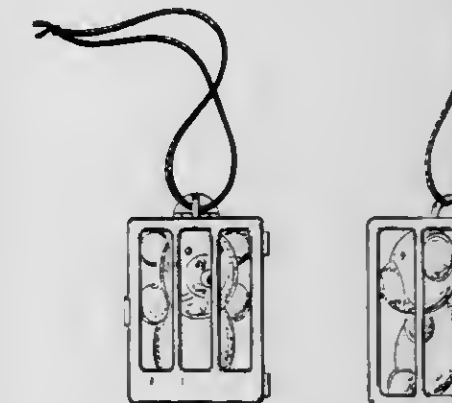
Ira B. Gilford, Ridgewood, N.J., assignor to Lawrence L. Reiner, Woodbury, N.Y.

Filed Feb. 27, 1980, Ser. No. 125,043

Term of patent 14 years

Int. Cl. D11—01; D21—01

U.S. Cl. D11—2



263,029

PENDANT

Donald R. MacFaden, Orleans, Mass., assignor to Stardate, Inc., Orleans, Mass.

Filed Sep. 6, 1979, Ser. No. 73,078

Term of patent 14 years

Int. Cl. D11-01

U.S. Cl. D11-79



263,031

WATCH

Alain Carre, Paris, France, assignor to Waterman S.A., France

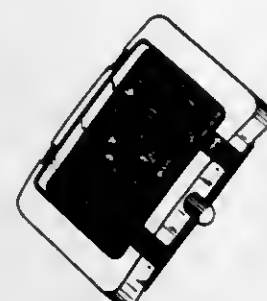
Filed Jun. 27, 1979, Ser. No. 52,400

Claims priority, application France, Feb. 16, 1979, 77 316

Term of patent 14 years

Int. Cl. D10-02

U.S. Cl. D10-39



263,032

PLUMB BOB SUPPORTING VERTICAL ALIGNMENT GAUGE OR THE LIKE

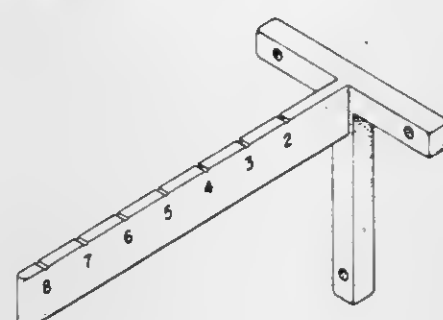
Burl O. Amos, 1205-A Manassa Ct., Raleigh, N.C. 27609

Filed Jul. 26, 1979, Ser. No. 60,898

Term of patent 14 years

Int. Cl. D10-04

U.S. Cl. D10-70



263,030

WALL CLOCK

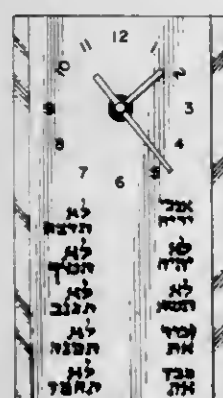
Peter D. George, 411-413 N. Federal Hwy., Hallandale, Fla. 33009

Filed Apr. 4, 1980, Ser. No. 137,239

Term of patent 14 years

Int. Cl. D10-01

U.S. Cl. D10-24



263,033

HOLTER RECORDER TESTING DEVICE

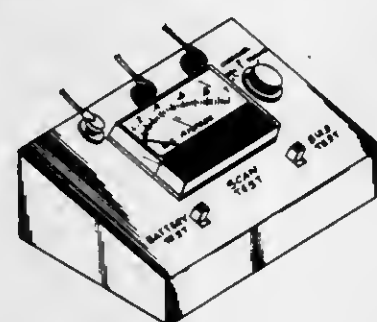
George M. Calhoun, Villanova, Pa.

Filed Jul. 5, 1979, Ser. No. 54,664

Term of patent 14 years

Int. Cl. D10-04

U.S. Cl. D10-78



263,034

JEWELRY CLIP OR THE LIKE

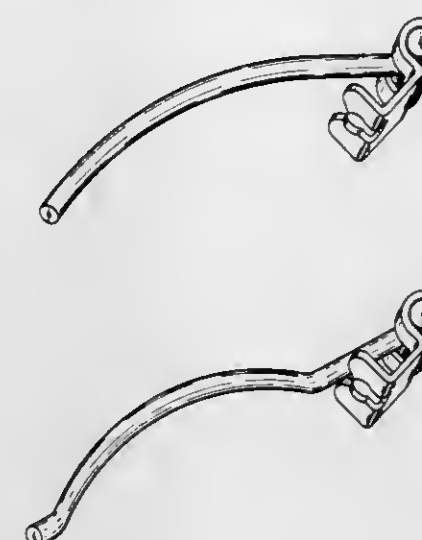
Paul V. Little, 67 Meadow La., Old Field, N.Y. 11785

Continuation-in-part of Ser. No. 877,794, Feb. 14, 1978, abandoned. This application Jun. 5, 1980, Ser. No. 156,564

Term of patent 14 years

Int. Cl. D11-01

U.S. Cl. D11-87



263,037

CHARIOT

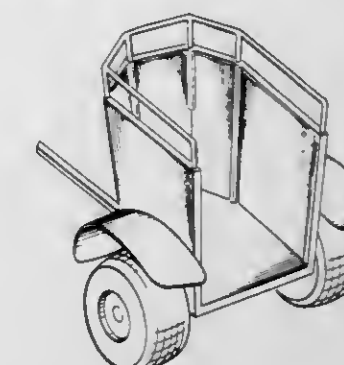
Arnold C. Brown, 19424 Valerio St., Reseda, Calif. 91335

Filed Feb. 27, 1979, Ser. No. 15,714

Term of patent 14 years

Int. Cl. D12-10

U.S. Cl. D12-105



263,038

MOTORCYCLE

Heiji Kobayashi, 19-16, Shimoochiai 2-chome, Shinjuku-ku, Tokyo, Japan

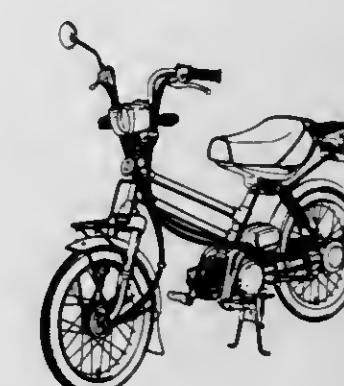
Filed Jun. 18, 1979, Ser. No. 49,076

Claims priority, application Japan, Jan. 13, 1979, 54-945

Term of patent 14 years

Int. Cl. D12-11

U.S. Cl. D12-110



263,035

SNOW COASTER

James F. Frechette, Jr., Rte. 4, Box 15, Rhinelander, Wis. 54501

Filed Oct. 31, 1979, Ser. No. 89,890

Term of patent 14 years

Int. Cl. D12-14

U.S. Cl. D12-8



263,039

LOCKING BICYCLE STAND

J. Berchman Richard, Jr., 5634 Fallbrook Ave., Woodland Hills, Calif. 91364

Filed Oct. 19, 1979, Ser. No. 86,272

Term of patent 14 years

Int. Cl. D12-16

U.S. Cl. D12-115



263,036

JACK

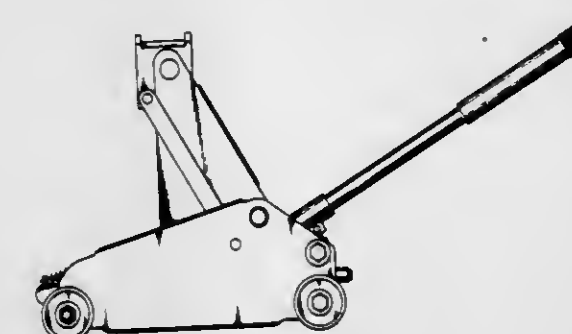
Mao-Hsiung Hung, 6th Fl., 65, Sec. 3, Nan-Ching E. Rd., Taipei, Taiwan (ROC)

Filed Jun. 1, 1979, Ser. No. 44,702

Term of patent 14 years

Int. Cl. D12-05

U.S. Cl. D34-31



263,040

SET OF AIR DEFLECTORS FOR A VEHICLE

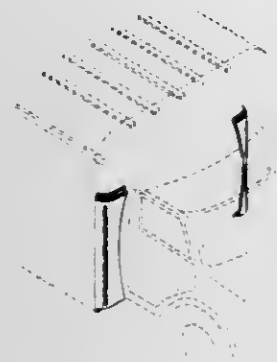
Joseph M. Fitzgerald, and James P. Fitzgerald, both of Buena Park, Calif., assignors to Nose Cone Manufacturing Co., Inc., Buena Park, Calif.

Filed Jun. 19, 1980, Ser. No. 161,124

Term of patent 14 years

Int. Cl. D12—16

U.S. Cl. D12—181



263,042

WINGED-COLLAR HEAT SINK FOR ELECTRONIC DEVICES

Alfred F. McCarthy, Belmont, N.H., assignor to Aavid Engineering, Inc., Laconia, N.H.

Filed Apr. 24, 1979, Ser. No. 32,922

Term of patent 14 years

Int. Cl. D13—03

U.S. Cl. D13—23



263,043

HEADSET FOR ONE-WAY PRIVATE CHANNEL RADIO COMMUNICATIONS SYSTEM

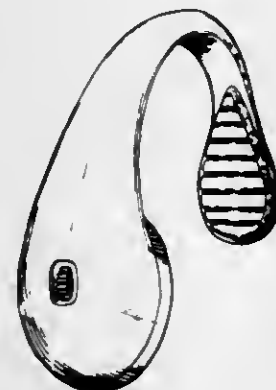
Ross J. Petrie, Ft. Lauderdale, Fla., assignor to Doris J. Leeds, Miami Beach, Fla.

Filed Jan. 23, 1980, Ser. No. 114,728

Term of patent 14 years

Int. Cl. D14—01

U.S. Cl. D14—36



263,041

TIRE FOR A VEHICLE WHEEL

Peter Ingle, Birmingham, England, assignor to Dunlop Limited, West Midlands, England

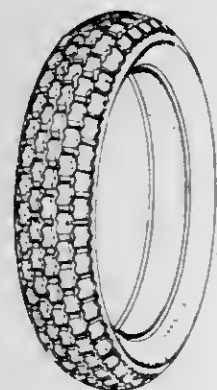
Filed Oct. 16, 1978, Ser. No. 951,838

Claims priority, application United Kingdom, May 30, 1978, 984857

Term of patent 14 years

Int. Cl. D12—15

U.S. Cl. D12—148



263,044

COMBINED CASSETTE DICTATING MACHINE AND MICROPHONE THEREOF

Werner Schulze-Bahr, Kassel, Fed. Rep. of Germany, assignor to Asamann G.m.b.H., Bad Homburg, Fed. Rep. of Germany

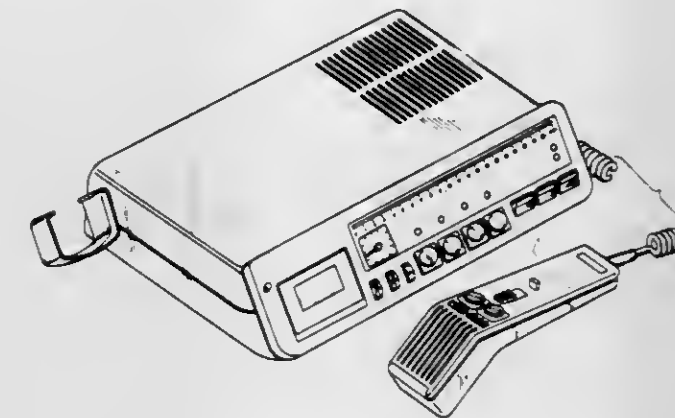
Filed Oct. 10, 1978, Ser. No. 950,229

Claims priority, application Fed. Rep. of Germany, Apr. 15, 1978, 10542

Term of patent 7 years

Int. Cl. D14—01

U.S. Cl. D14—3



263,046

TELEPHONE SET

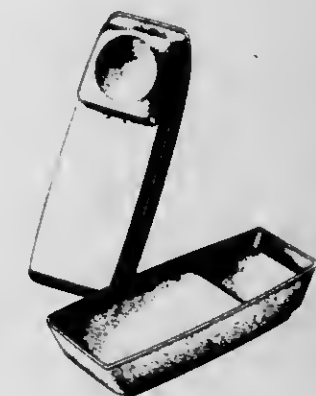
Donald M. Genaro, Haworth, N.J., and John N. McGarvey, Drexel Hill, Pa., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Oct. 12, 1979, Ser. No. 84,524

Term of patent 14 years

Int. Cl. D14—03

U.S. Cl. D14—53



263,045

COMBINED TELEPHONE SET AND BASE THEREFORE

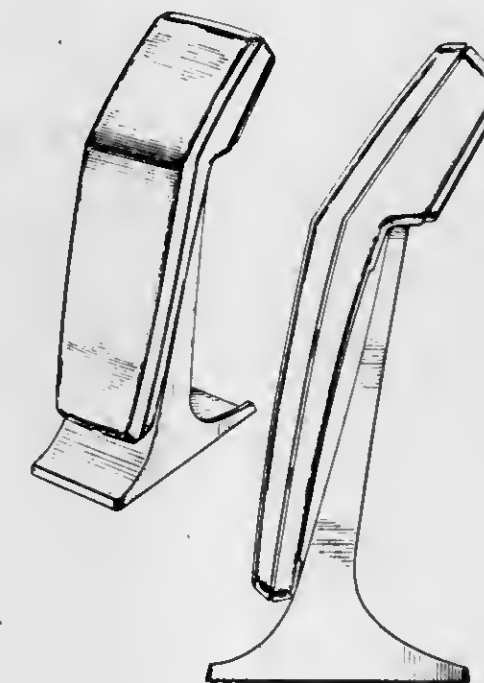
George M. Janda, Wheaton, and Richard E. Cobb, Western Springs, both of Ill., assignors to GTE Automatic Electric Labs Inc., Northlake, Ill.

Filed Dec. 28, 1979, Ser. No. 107,953

Term of patent 14 years

Int. Cl. D14—03

U.S. Cl. D14—53



263,047

TELEPHONE BASE

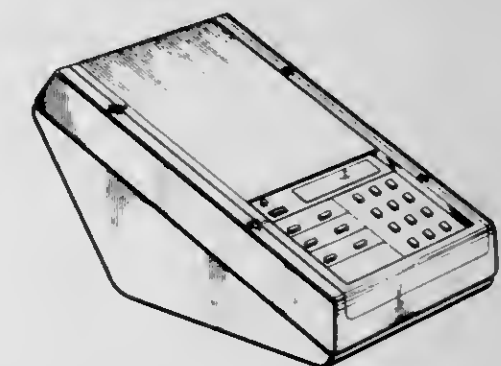
Peter D. H. Trussler, Ottawa, Canada, assignor to Northern Telecom Limited, Montreal, Canada

Filed Aug. 17, 1979, Ser. No. 67,570

Term of patent 14 years

Int. Cl. D14—03

U.S. Cl. D14—60



263,048

TELEPHONE HANDSET

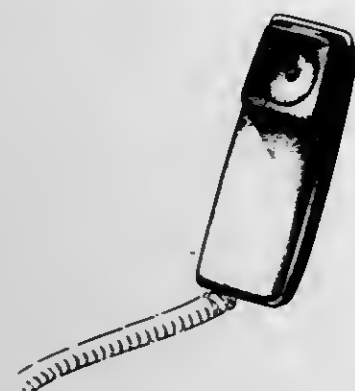
Donald M. Genaro, Haworth, N.J., and John N. McGarvey, Kyung T. Chang, Sinkil-Dong, Rep. of Korea, assignor to Han Drexel Hill, Pa., assignors to Bell Telephone Laboratories, Baek Trading Co., Ltd., Seoul, Rep. of Korea Incorporated, Murray Hill, N.J.

Filed Oct. 12, 1979, Ser. No. 84,068

Term of patent 14 years

Int. Cl. D14-03

U.S. Cl. D14-63



263,050

MOTOR OIL DRAIN PUMP

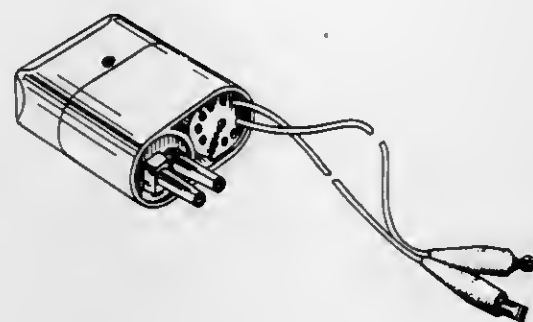
Kyung T. Chang, Sinkil-Dong, Rep. of Korea, assignor to Han Baek Trading Co., Ltd., Seoul, Rep. of Korea

Filed Aug. 31, 1979, Ser. No. 71,091

Term of patent 7 years

Int. Cl. D15-02

U.S. Cl. D15-7



263,051

PIPELAYER

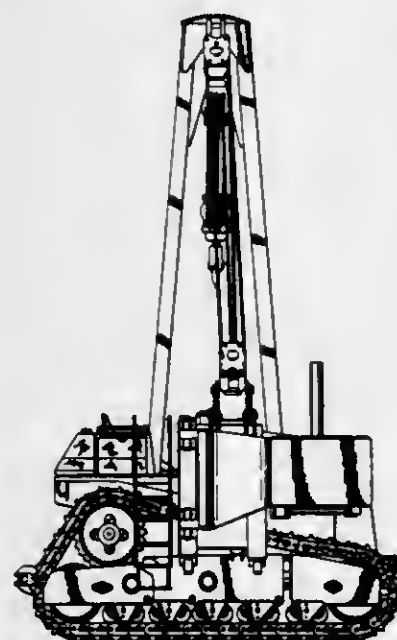
Jan K. Allen, Chillicothe, and Phillip W. Hess, East Peoria, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Jul. 16, 1979, Ser. No. 57,863

Term of patent 14 years

Int. Cl. D15-04

U.S. Cl. D15-24



263,049

HOUSING FOR A TELEPHONE HANDSET

Richard E. Cobb, Western Springs, Ill., assignor to GTE Automatic Electric Labs Inc., Northlake, Ill.

Filed Dec. 28, 1979, Ser. No. 108,256

Term of patent 14 years

Int. Cl. D14-03

U.S. Cl. D14-63



263,052

VACUUM CLEANER NOZZLE

Yoshiaki Ueda, Toyonaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

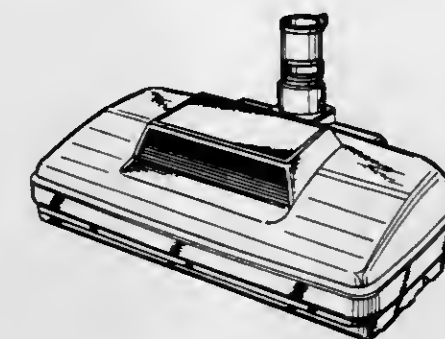
Filed Dec. 12, 1978, Ser. No. 968,704

Claims priority, application Japan, Jun. 14, 1978, 53-25009

Term of patent 14 years

Int. Cl. D15-05

U.S. Cl. D32-33



263,055

COOLANT DRIP PAN

Dan E. Perry, and Danny V. Perry, both of Duncan, Okla., assignors to Perry and Perry, Inc., Duncan, Okla.

Filed Feb. 27, 1980, Ser. No. 125,164

Term of patent 14 years

Int. Cl. D15-09

U.S. Cl. D15-150



263,053

GARBAGE COMPACTOR

Louie J. Franich, 21865 Lomita Ave., Monta Vista, and Thomas H. Clarke, Jr., 10061 Pasadena Ave., Cupertino, both of Calif. 95014

Filed Jul. 9, 1979, Ser. No. 56,095

Term of patent 14 years

Int. Cl. D15-09

U.S. Cl. D15-98



263,056

CAMERA

Yasuo Hattori, Hachioji, Japan, assignor to Olympus Optical Company Ltd., Tokyo, Japan

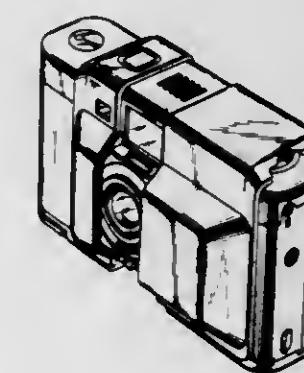
Filed Aug. 1, 1979, Ser. No. 62,691

Claims priority, application Japan, Feb. 7, 1979, 54/4297

Term of patent 14 years

Int. Cl. D16-01

U.S. Cl. D16-5



263,054

PORTABLE WELDING TOOL

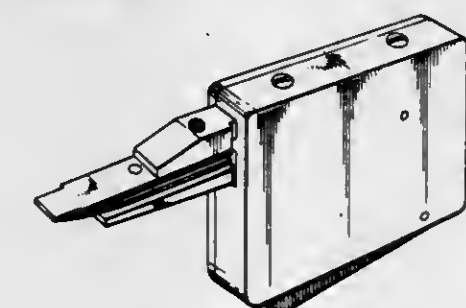
Reginald B. P. Bennett, Brampton, Canada, assignor to Northern Telecom Limited, Montreal, Canada

Filed Jun. 18, 1979, Ser. No. 49,201

Term of patent 14 years

Int. Cl. D15-04

U.S. Cl. D15-144



263,057

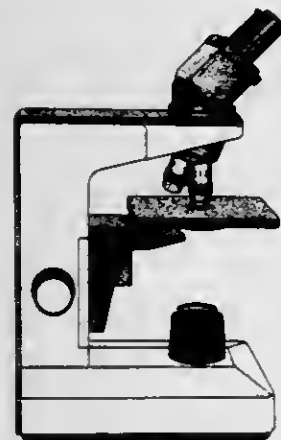
MICROSCOPE

Heinrich Janke, Braunfeld, and Hans-Kurt Uellenberg, Edingen, both of Fed. Rep. of Germany, assignors to Ernst Leitz Wetzlar GmbH, Wetzlar, Fed. Rep. of Germany
Filed Jun. 7, 1979, Ser. No. 46,313

Claims priority, application Fed. Rep. of Germany, Dec. 8, 1978, 5MR200

Term of patent 14 years
Int. Cl. D16—06

U.S. Cl. D16—131



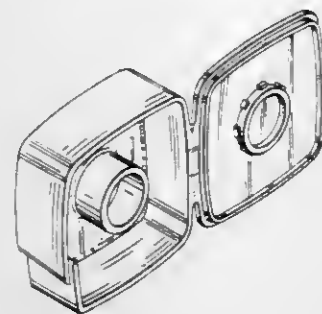
263,059

LABEL DISPENSER OR THE LIKE

Jack V. Croyle, North Providence, R.I., and Rino Conti, Stoughton, Mass., assignors to Dart Industries Inc., Los Angeles, Calif.

Filed Aug. 16, 1979, Ser. No. 66,905
Term of patent 14 years
Int. Cl. D19—02

U.S. Cl. D19—69



263,060

LABEL FOR A CASSETTE HOLDER

Kelichi Yoshizawa, Tokyo, Japan, assignor to TDK Electronics Co., Ltd., Tokyo, Japan

Filed Aug. 6, 1979, Ser. No. 63,694
Claims priority, application Japan, Feb. 7, 1979, 54-4207
Term of patent 14 years
Int. Cl. D19—08

U.S. Cl. D20—27



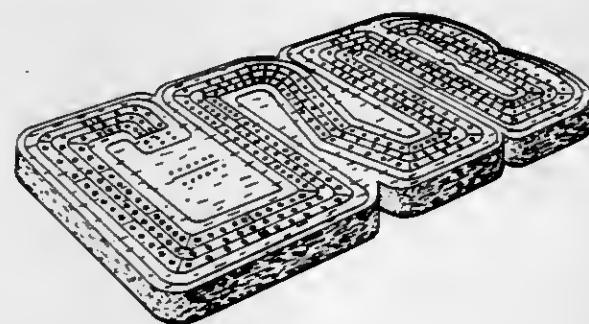
263,061

CRIBBAGE GAME BOARD

Harold F. Lease, San Mateo, Calif., assignor to Fred Roberts Co., San Francisco, Calif.

Filed Feb. 11, 1980, Ser. No. 120,211
Term of patent 14 years
Int. Cl. D21—07

U.S. Cl. D10—46.1



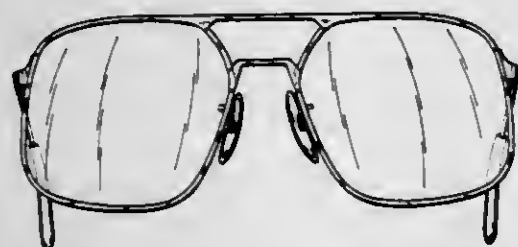
263,058

PAIR OF SPECTACLES

David W. Johnsen, Woodstock, Conn., assignor to American Optical Corporation, Southbridge, Mass.

Filed May 25, 1979, Ser. No. 42,698
Term of patent 14 years
Int. Cl. D16—06

U.S. Cl. D16—117



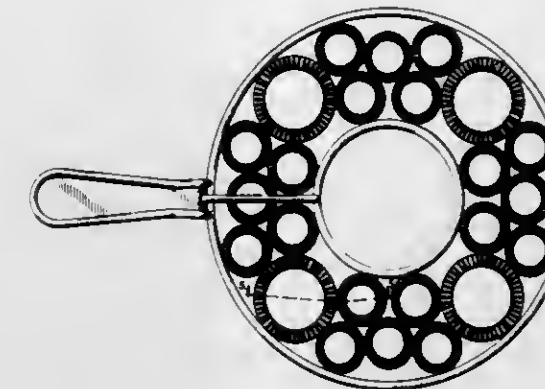
263,062

BUBBLE MAKER TOY

Kurt S. Rasmussen, Oak Park, Ill., assignor to Strombecker Corporation, Chicago, Ill.

Filed Nov. 15, 1979, Ser. No. 94,484
Term of patent 14 years
Int. Cl. D21—07

U.S. Cl. D21—61



263,063

KINETIC SCULPTURE

Hidetoshi Matsui, 6, Imazunaka 3-chome, Tsurumi-ku, Osaka 538, Japan

Filed Jun. 25, 1979, Ser. No. 52,210
Claims priority, application Japan, May 25, 1979, 54-21551
Term of patent 14 years
Int. Cl. D11—02

U.S. Cl. D21—102



263,064

KINETIC SCULPTURE

Hidetoshi Matsui, 6-27-311, Imazunaka 3-chome, Tsurumi-ku, Osaka, Japan

Filed Sep. 4, 1979, Ser. No. 72,533
Claims priority, application Japan, Apr. 6, 1979, 54-14085
Term of patent 14 years
Int. Cl. D11—02

U.S. Cl. D21—102



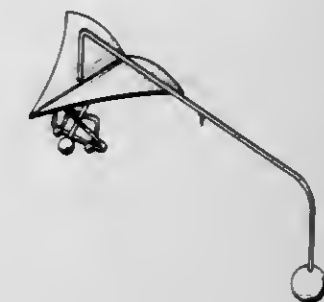
263,065

KINETIC SCULPTURE

Hidetoshi Matsui, 6-27-311, Imazunaka 3-chome, Tsurumi-ku, Osaka, Japan

Filed Oct. 24, 1979, Ser. No. 88,208
Claims priority, application Japan, Aug. 10, 1979, 54-33653
Term of patent 14 years
Int. Cl. D11—02

U.S. Cl. D21—102



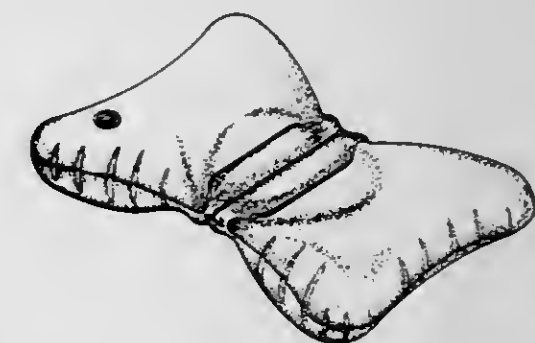
263,066

INFLATABLE SADDLE FOR AN AQUATIC GAME

Dennis H. Merino, 2873 King Edward Dr., El Dorado Hills, Calif. 95630, and J. Clyde Ralph, 2773 Curtis Way, Sacramento, Calif. 95818

Filed Feb. 25, 1980, Ser. No. 123,992
Term of patent 14 years
Int. Cl. D21—02

U.S. Cl. D21—237



263,067

FIREARM CLIP CARRIER

Richard D. E. Nichols, Fallbrook, Calif., assignor to Bianchi Leather Products, Inc., Temecula, Calif.

Filed Dec. 7, 1979, Ser. No. 101,288
Term of patent 14 years
Int. Cl. D3—02; D22—05

U.S. Cl. D22—14



263,068

VACUUM OPERATED INSECT COLLECTOR

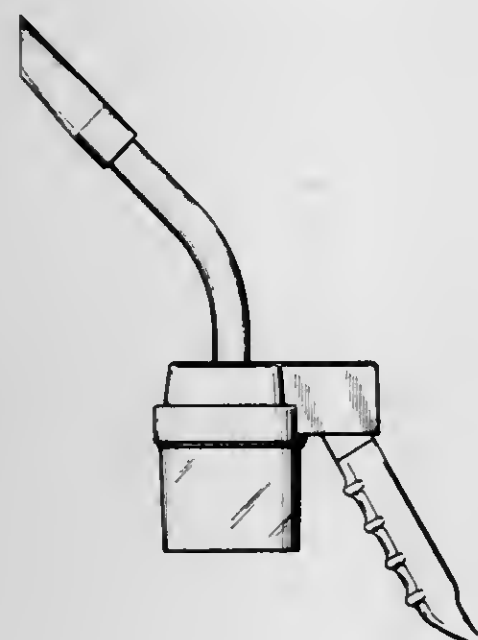
Robert W. Knebel, Naples, N.Y. 14512

Filed Mar. 24, 1980, Ser. No. 133,638

Term of patent 7 years

Int. Cl. D22—06

U.S. Cl. D22—19



263,070

LOW PROFILE FORCED AIR FIREPLACE FURNACE

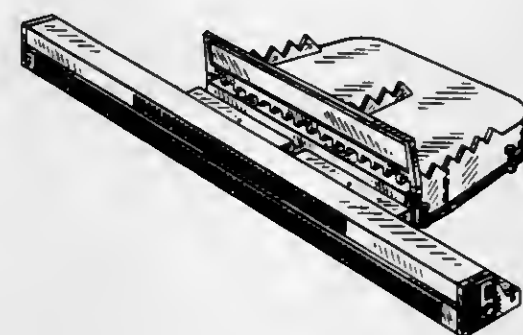
Thomas V. Metz, Portland, and W. James Sirois, Beaverton, both of Oreg., assignors to Pacific Fireplace Furnishings, Inc., Tualatin, Oreg.

Filed Mar. 26, 1979, Ser. No. 23,609

Term of patent 14 years

Int. Cl. D23—03

U.S. Cl. D23—95



263,071

PIVOTABLE LATCH TO COVER HOLE IN STOVEPIPE
Murray L. Merritt, R.R. #1, Meaford, Ontario, Canada (N0H 1Y0)

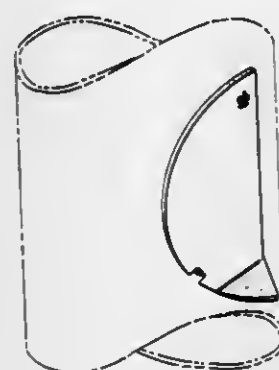
Filed Apr. 27, 1979, Ser. No. 34,488

Claims priority, application Canada, Feb. 28, 1979, 2802793

Term of patent 14 years

Int. Cl. D23—04

U.S. Cl. D23—163



263,072

PIVOTABLE LATCH TO COVER HOLE IN STOVEPIPE
Murray L. Merritt, R.R. #1, Meaford, Ontario, Canada (N0H 1Y0)

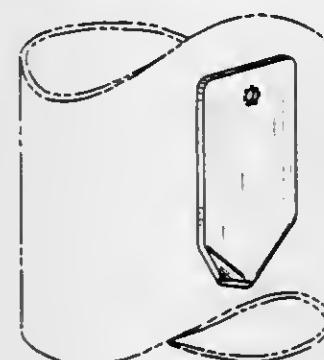
Filed Apr. 27, 1979, Ser. No. 34,489

Claims priority, application Canada, Feb. 28, 1979, 2802794

Term of patent 14 years

Int. Cl. D23—04

U.S. Cl. D23—163



263,069

SPRINKLER CONTROL VALVE

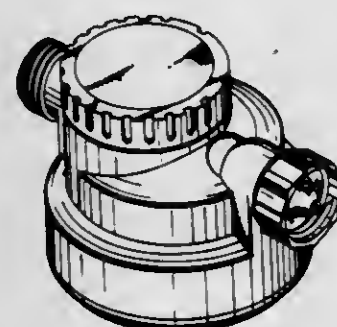
Ho Chow, River Edge, N.J., and Tim M. Uyeda, South San Gabriel, Calif., assignors to Beatrice Foods Co., Moonachie, N.J.

Filed May 1, 1980, Ser. No. 145,805

Term of patent 14 years

Int. Cl. D23—01

U.S. Cl. D23—38



263,073

DEVICE FOR TREATING DENTURES WITH ANTI-CARIES PREPARATION

Martinus K. P. Jonkers, Burg. Verheugtstraat 49, Mierlo, and Johan J. Carpay, De Laren 1, Erp, both of Netherlands

Filed Apr. 3, 1978, Ser. No. 893,138

Term of patent 14 years

Int. Cl. D24—02

U.S. Cl. D24—10



263,074

CULTURE SWAB TRANSPORT PACKAGE WITH RUPTURABLE SEALED SECTION HAVING A STORED CULTURE MEDIUM

Edwin W. Mason, Wyckoff, N.J., assignor to Mason-Keller Corporation, Roseland, N.J.

Filed Sep. 14, 1979, Ser. No. 75,727

Term of patent 14 years

Int. Cl. D24—02; D9—04

U.S. Cl. D24—17



263,075

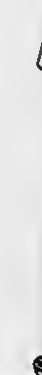
COMBINED EAR WAX REMOVER AND TOOTH PICK
Duc Doan, 7814 S. San Pedro St., Los Angeles, Calif. 90003

Filed Nov. 20, 1979, Ser. No. 96,011

Term of patent 14 years

Int. Cl. D24—01

U.S. Cl. D24—23



263,076

MULTIPLE POUCH SURGICAL INSTRUMENT HOLDER

Dan S. Sandel, 19524 Halsted, Northridge, Calif. 91324

Filed Nov. 13, 1979, Ser. No. 93,892

Term of patent 14 years

Int. Cl. D24—02

U.S. Cl. D24—29



263,077

FOOT MASSAGE TOOL

Charles A. Stanton, 808 Woodland Ave., Winchester, Va. 22601

Filed Jan. 22, 1980, Ser. No. 114,168

Term of patent 14 years

Int. Cl. D24—04; D28—03

U.S. Cl. D24—36



263,078

IN-LINE FILTER FOR LABORATORY USE

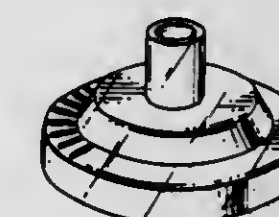
Roy T. Eddleman, Los Angeles, and Gregory F. Moran, Monrovia, both of Calif., assignors to Spectrum Medical Industries, Inc., Los Angeles, Calif.

Filed May 14, 1979, Ser. No. 38,462

Term of patent 14 years

Int. Cl. D24—02; D23—99

U.S. Cl. D24—52



263,079

GLOVE FOR PROSTHETIC PREHENSILE HAND
Robert Radocy, 2860 Pennsylvania Ave., Boulder, Colo. 80303
Filed Nov. 1, 1979, Ser. No. 90,353
Term of patent 14 years
Int. Cl. D24—03

U.S. Cl. D24—33



263,081

RELOCATABLE BUILDING STRUCTURE FOR RACQUETBALL COURT
Mike E. Hunter, and J. Michael Hunter, both of Decatur, Ga.,
assignors to Nuclear Assurance Corp., Atlanta, Ga.
Filed Feb. 21, 1980, Ser. No. 123,128
Term of patent 14 years
Int. Cl. D25—03

U.S. Cl. D25—25

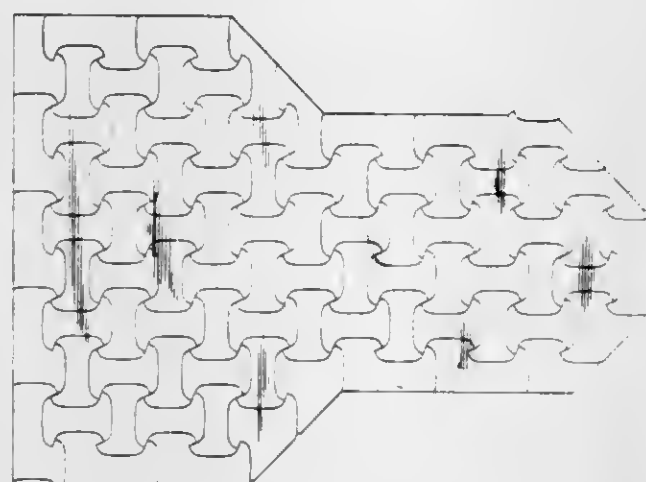


263,082

PAVING STONE UNIT
Peter O. S. Hass, 10 Aertebjergvej, 4660 Store Heddinge, Denmark

Filed May 15, 1978, Ser. No. 905,566
Term of patent 14 years
Int. Cl. D25—01

U.S. Cl. D25—92

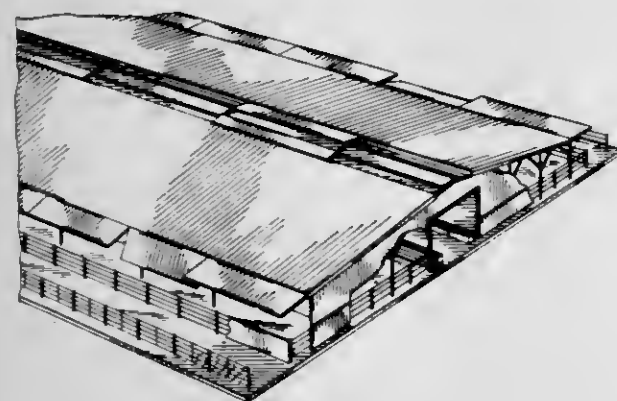


263,080

ANIMAL CONFINEMENT BARN
Richard E. Bunger, 5202 E. Washington St., Phoenix, Ariz. 85034

Filed Aug. 9, 1979, Ser. No. 65,354
Term of patent 14 years
Int. Cl. D25—03

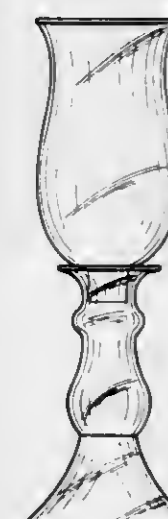
U.S. Cl. D25—22



263,083

CANDLESTICK TYPE HOLDER FOR FLOATING CANDLES
Kenneth R. LeVan, Addison, N.Y., assignor to Corning Glass Works, Corning, N.Y.
Filed Jul. 16, 1979, Ser. No. 58,099
Term of patent 14 years
Int. Cl. D26—01

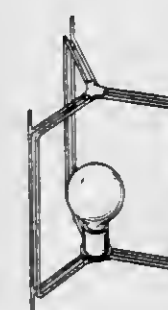
U.S. Cl. D26—11



263,084

ELECTRIC LAMP
Akira Suzuki, Tokyo, Japan, assignor to Kazusuke Takagi, Tokyo, Japan, a part interest
Filed Jul. 10, 1979, Ser. No. 56,223
Claims priority, application Japan, Mar. 27, 1979, 54-12177
Term of patent 14 years
Int. Cl. D26—05

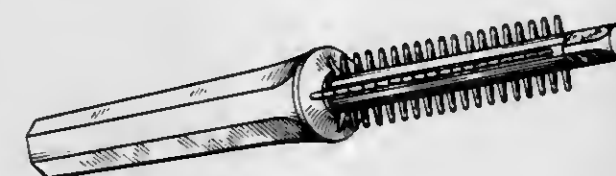
U.S. Cl. D26—111



263,085

HAIR CURLING BRUSH
Matthew L. Andis, Racine, Wis., assignor to Andis Clipper Company, Racine, Wis.
Filed Feb. 11, 1980, Ser. No. 120,512
Term of patent 14 years
Int. Cl. D28—03

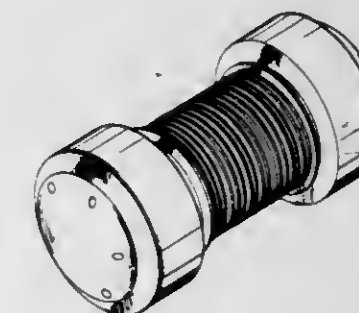
U.S. Cl. D28—35



263,086

SPENT NUCLEAR FUEL SHIPPING CASK
Ralph E. Best, Dublin, Ohio; Richard L. Creedon, San Diego, Calif.; Michael E. Mason, Croton-on-Hudson, N.Y.; Harrison R. Panter, Norcross, Ga.; Richard A. Schreiber, Decatur, Ga., and Jack D. Rollins, Roswell, Ga., assignors to Nuclear Assurance Corp., Atlanta, Ga.
Filed Feb. 9, 1979, Ser. No. 10,948
Term of patent 14 years
Int. Cl. D24—99

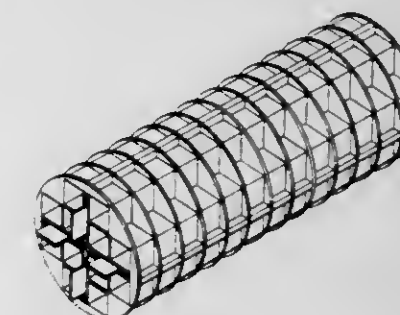
U.S. Cl. D29—6



263,087

BASKET FOR A SPENT NUCLEAR FUEL SHIPPING CASK
Ralph E. Best, Dublin, Ohio; Vijay Bhandari, Norcross, Ga.; Michael E. Mason, Croton-on-Hudson, N.Y.; Harrison R. Panter, Norcross, Ga., and Richard A. Schreiber, Decatur, Ga., assignors to Nuclear Assurance Corp., Atlanta, Ga.
Filed Feb. 9, 1979, Ser. No. 10,949
Term of patent 14 years
Int. Cl. D24—99

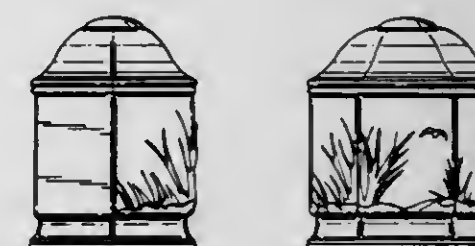
U.S. Cl. D29—6



263,088

CREMATION URN
David E. Krech, Inver Grove Heights, Minn., assignor to DeK-rech Enterprises, Inc., Inver Grove Heights, Minn.
Filed Nov. 8, 1979, Ser. No. 92,566
Term of patent 14 years
Int. Cl. D31—00

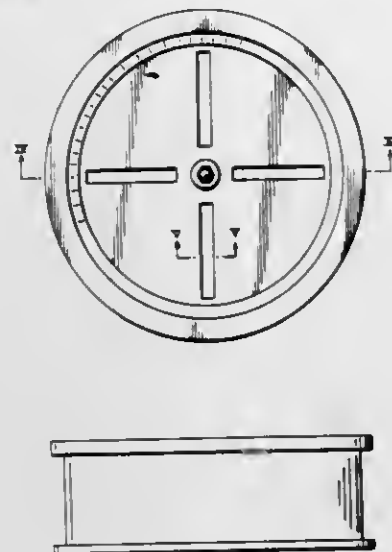
U.S. Cl. D99—5



263,089
COLLECTION RECEPTACLE
Ransom Reaves, 679 E. McKellar, Memphis, Tenn. 38106, and
Nokomis Yeldell, 4523 Westmont Cove, Memphis, Tenn.
38109

Filed Apr. 11, 1979, Ser. No. 29,139
Term of patent 14 years
Int. Cl. D99—00

U.S. Cl. D99—34



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 16TH DAY OF FEBRUARY, 1982

NOTE—Arranged in accordance with the first significant character or word of the name
(in accordance with city and telephone directory practice).

- A.S.E.D.: See—
Van Deraerschot, Raymond K. A., 4,315,834, Cl. 252-373.000.
A-T-O Inc.: See—
Carter, Sidney T., 4,315,478, Cl. 118-262.000.
Abe, Takeshi: See—
Mizuta, Toshiaki; Abe, Takeshi; Yoshihara, Ichiro; Saito, Kazuhito;
and Tsuchiya, Keishin, 4,316,262, Cl. 364-900.000.
Aboites, Peter, to J. M. Huber Corporation. Organic elastomers con-
taining kaolin clay modified with isocyanate coupling agents and
mercaptoethanol. 4,315,844, Cl. 260-42.160.
ACF Industries, Incorporated: See—
Cordani, Eugene J.; and Vorwerk, Frederick E., 4,315,465, Cl.
105-4.00R.
Acker, Rolf-Dieter: See—
Hamprecht, Gerhard; Acker, Rolf-Dieter; and Wuerzer, Bruno,
4,316,014, Cl. 544-7.000.
Hamprecht, Gerhard; Acker, Rolf-Dieter; and Wuerzer, Bruno,
4,316,015, Cl. 544-7.000.
Acme Marls Limited: See—
Elliott, John; Bell, Malcolm G.; and Lovatt, William J., 4,315,737,
Cl. 432-241.000.
Lovatt, William J., 4,315,738, Cl. 432-258.000.
Acoraci, Joseph H., to Bendix Corporation. The. Beam forming net-
work for butler matrix fed circular array. 4,316,192, Cl. 343-100.0SA.
Adam, Wilhelm; Ulrich, Hannsjorg; Dany, Franz-Josef; and Kalteyer,
Gerd, to Hoechst Aktiengesellschaft. Production of striking surfaces
for matches. 4,315,961, Cl. 427-385.500.
Adam, Wilhelm: See—
Staendke, Horst; Adam, Wilhelm; Dany, Franz-Josef; and Kan-
dler, Joachim, 4,315,897, Cl. 423-274.000.
Adams, Robert W.; and Tyler, Leslie B., to DBX, Inc. Equalizing
system. 4,316,060, Cl. 179-1.00D.
Adolfsson, Morgan; and Brogardh, Torgny, to ASEA Aktiebolag.
Measuring device with optical signal transmission. 4,316,141, Cl.
324-96.000.
Adolph, Erich; Bayrak, Unal; and Stecker, Walter, to Siemens Aktien-
gesellschaft. Electric switching section. 4,316,138, Cl. 323-364.000.
Aertermica Nicotra S.p.A.: See—
Calvano, Michele, 4,315,357, Cl. 29-23.500.
Aftergut, Siegfried; Buschmann, Erwin C.; and Lao, Kenneth Q., to
General Electric Company. Permeation barrier for display cells.
4,315,668, Cl. 350-343.000.
AGFA-Gevaert AG: See—
Schnall, Gunther; Aldenhoven, Klaus; and Blochl, Hanns,
4,315,736, Cl. 432-59.000.
AGFA-Gevaert Aktiengesellschaft: See—
Fergg, Berthold; Nitsch, Wilhelm; and Pflugbeil, Mathias,
4,315,686, Cl. 355-38.000.
Agthe, Dieter P. H.: See—
Pfuhl, Hans P. H.; Agthe, Dieter P. H.; and Kreiner, Diethard G.,
4,315,879, Cl. 264-117.000.
Ahamed, Syed V. Minimal delay rate-change circuits. 4,316,061, Cl.
179-15.55T.
Air Liquide Canada Ltee.: See—
Savard, Guy; and Lee, Robert G. H., 4,315,774, Cl. 75-74.000.
Air Products and Chemicals, Inc.: See—
Prentice, Alan L.; and Filippi, Richard E., 4,315,409, Cl. 62-63.000.
Airco, Inc.: See—
Kayser, John P.; and Rick, Norman A., 4,315,506, Cl. 128-276.000.
Airtrol Components, Inc.: See—
Atkinson, Louis D.; and Rineck, Wesley W., 4,315,520, Cl.
137-82.000.
Aisin Seiki Kabushiki Kaisha: See—
Ishii, Masami; Kato, Nobuharu; and Hota, Mikio, 4,315,791, Cl.
156-304.200.
Aisin-Warner Kabushiki Kaisha: See—
Miki, Nobuaki; Sakakibara, Shiro; and Yokoyama, Fumitomo,
4,315,519, Cl. 137-56.000.
Akazawa, Susumu: See—
Isono, Katsuo; and Akazawa, Susumu, 4,316,216, Cl. 358-67.000.
Akisue, Osamu; Yamada, Teruaki; Matsuo, Munetsugu; and Uehara,
Norimasa, to Nippon Steel Corporation. Method of producing non-
ageing cold rolled steel strip with excellent deep-drawability by
continuous heat treatment. 4,315,783, Cl. 148-12.00C.
Akita, Sigeyuki; and Tanaka, Hiroaki, to Nippon Soken, Inc. R-C
Oscillators using plural inverters. 4,316,158, Cl. 331-111.000.
Akiyama, Takeshi; Koide, Toshiyuki; and Nagasawa, Mutsuo, to Japan
Synthetic Rubber Co., Ltd. Fibrous substrate vulcanization-adhered
to ethylene-propylene rubber composition. 4,315,966, Cl.
428-260.000.
Akutsu, Hidezoh: See—
Yamazaki, Haruo; Ogata, Yoshiro; and Akutsu, Hidezoh, 4,316,122,
Cl. 315-74.000.
Akzona Incorporated: See—
Bergfeld, Manfred; Zengel, Hans-Georg; and Praetorius, Heinz,
4,316,031, Cl. 546-175.000.
Al-Muddarris, Ghazi R.: See—
Lell, Rainer; Al-Muddarris, Ghazi R.; and Pachaly, Reinhard,
4,315,904, Cl. 423-574.00R.
Albany International Corp.: See—
Coplan, Myron J.; and Lopatin, George, 4,315,877, Cl. 264-45.900.
Turek, Mitchell C.; and Garab, H. Gary, 4,315,799, Cl. 162-353.000.
Albert, Thomas W. Chuck wrench for dental handpieces. 4,315,744, Cl.
433-126.000.
Albizzati, Enrico; and Giannetti, Enzo, to Montedison, S.p.A. Catalysts
for polymerizing alpha-olefins. 4,315,836, Cl. 252-429.00B.
Albrecht, Charles D.; and McCormick, Edward J., to Grumman Aero-
space Corporation. Programmable function generator. 4,316,259, Cl.
364-718.000.
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Schnall, Gunther; Aldenhoven, Klaus; and Blochl, Hanns,
4,315,736, Cl. 432-59.000.
Ali, Fadia E., to SmithKline Corporation. N,N'-Bis[substituted-1,2,3,4-
tetrahydroisquinolinolyl]disulfonylimides and antiallergic composi-
tions and method of use. 4,315,935, Cl. 424-258.000.
Allegheny Ludlum Steel Corporation: See—
Pittler, Richard K., 4,315,776, Cl. 75-208.00R.
Allen R. Shuffleboard Company: See—
Allen, Samuel H., 4,315,625, Cl. 273-129.00L.
Allen, Roy A.: See—
Dante, Mark F.; and Allen, Roy A., 4,316,003, Cl. 528-111.000.
Allen, Samuel H., to Allen R. Shuffleboard Company. Shuffleboard cue
with selectively fixed or swivelled weighted runner. 4,315,625, Cl.
273-129.00L.
Allied Corporation: See—
Booth, Frederick C.; Frantom, Richard L.; and Thomas, Rudy V.,
4,315,639, Cl. 280-803.000.
Frantom, Richard L., 4,315,637, Cl. 280-801.000.
Alpers, Frederick C.: See—
McLean, James D.; Alpers, Frederick C.; Lanning, George R.; and
Camphausen, Fred H., 4,315,609, Cl. 244-3.140.
Alps Electric Co., Ltd.: See—
Fujino, Hitoshi, 4,316,064, Cl. 200-17.00R.
Alves dos Santos, Antonio M.; and Alves dos Santos, Helena Maria B.
Inertia pen with slidable sleeve. 4,315,695, Cl. 401-99.000.
Alves dos Santos, Helena Maria B.: See—
Alves dos Santos, Antonio M.; and Alves dos Santos, Helena Maria
B., 4,315,695, Cl. 401-99.000.
American Can Company: See—
Sorenson, Wayne P., 4,315,721, Cl. 425-81.100.
American Cyanamid Company: See—
Raghu, Sivaraman, 4,316,038, Cl. 548-352.000.
American Electronics, Inc.: See—
Gunderson, Norman R., 4,315,680, Cl. 354-195.000.
American Flow Systems, Inc.: See—
Mahawili, Imad; and Boyle, Timothy J., 4,315,523, Cl. 137-486.000.
American Home Products Corporation: See—
Sellstedt, John H.; and Klaubert, Dieter H., 4,316,037, Cl.
548-253.000.
Ames, Irving; Anacker, Wilhelm; Grebe, Kurt R.; and Kircher, Charles
J., to International Business Machines Corporation. Contact tech-
nique for electrical circuitry. 4,316,200, Cl. 357-5.000.
Ames-Yissum: See—
Fridlender, Bertold; Ben-Moyal, Zohar; Olshevsky, Udi; and Ti-
rosh, Regine, 4,315,907, Cl. 424-1.000.
Amimoto, Yoshikatu: See—
Ushida, Yoshihisa; Amimoto, Yoshikatu; Toyota, Akinori; and
Kashiwa, Norio, 4,315,874, Cl. 264-5.000.
AMP Incorporated: See—
Hughes, Donald W. K.; and Myers, Ronald W., 4,315,664, Cl.
339-176.00M.
Olsson, Billy E., 4,315,663, Cl. 339-97.00P.
Whiteman, Robert N., Jr., 4,316,067, Cl. 200-291.000.
Amtel, Inc.: See—
Karl, Robert D., 4,315,408, Cl. 62-55.000.
Anacker, Wilhelm: See—
Ames, Irving; Anacker, Wilhelm; Grebe, Kurt R.; and Kircher,
Charles J., 4,316,200, Cl. 357-5.000.
Anderson, Charles H.; Credelle, Thomas L.; and Siekanowicz, Wieslaw
W., to RCA Corporation. Guided beam display device. 4,316,118, Cl.
313-422.000.

Anderson, Patrick J.; and Kenny, Andrew A., to Eaton Corporation. Fluid pressure signal controller. 4,315,521, Cl. 137-85.000.

Anderson, Robert A.; and Fleischman, George L., to Hughes Aircraft Company. Self equalizing control mechanism for osmotically pumped heat pipes. 4,315,539, Cl. 165-1.000.

Ando, Takao: See—
Yoshikumi, Chikao; Ohmura, Yoshio; Hirose, Fumio; Ikuzawa, Masanori; Matsunaga, Kenichi; Fujii, Takayoshi; Dhara, Minoru; and Ando, Takao. 4,315,921, Cl. 424-180.000.

Andor, Akos: See—
Kovacs, Ferenc; Andor, Akos; and Palagyi, Tivadar. 4,315,915, Cl. 424-143.000.

Antoine, Robert; Bricot, Claude; and Robin, Gerard, to Thomson-CSF. Device for molding information-carrying disks. 4,315,723, Cl. 425-110.000.

Aoki, Masakazu; Takemoto, Iwao; Kubo, Masaharu; and Izawa, Ryuchi, to Hitachi, Ltd. Solid-state imaging device. 4,316,205, Cl. 357-30.000.

Aoyama, Takahiko, to Nagoya University. Method of stabilizing operation of a hybrid spark chamber. 4,316,089, Cl. 250-385.000.

Arakawa, Seiji; Seki, Tomio; Matsuo, Hidekazu; Harada, Hatsunori; and Ninomiya, Michinari, to Arakawa, Seiji. Pharmaceutical compositions useful as cellular immunopotentiator and antitumor agent and process for production thereof. 4,315,914, Cl. 424-89.000.

Arcand, Leo H. Blasting mat. 4,315,463, Cl. 102-303.000.

Archer, William R., to General Electric Company. Power FET inverter drive circuit. 4,316,243, Cl. 363-132.000.

ARCO Polymers, Inc.: See—
Fava, Ronald A., 4,315,841, Cl. 260-23.70M.

Arenhold, Knut. Mudguard flaps for motor vehicles. 4,315,634, Cl. 280-154.50R.

Armour and Company: See—
Sleeth, Rhule B.; Theiler, Richard F.; and Rendek, Robert B., 4,315,948, Cl. 426-266.000.

Arnaud, Robert: See—
Corbier, Robert; and Arnaud, Robert. 4,316,088, Cl. 250-338.000.

Arndt, Friedrich: See—
Boroschewski, Gerhard; and Arndt, Friedrich. 4,315,769, Cl. 71-111.000.

Arnold Industries, Inc.: See—
Blackstone, George H., 4,315,534, Cl. 144-194.000.

Arnold, Peter J., to Ductmate Industries, Inc. Apparatus for positioning and securing components of a workpiece. 4,316,072, Cl. 219-86.240.

Arora, Mulk A., to Sprague Electric Company. Intermittent AC etching of aluminum foil. 4,315,806, Cl. 204-129.400.

Arseneau, Roger E.: See—
Del Medico, Anthony P.; and Arseneau, Roger E., 4,316,257, Cl. 364-527.000.

Arthur D. Little, Inc.: See—
Prior, William; and Lindstrom, Richard S., 4,315,967, Cl. 428-285.000.

ASA S.A.: See—
Matas Gabalda, Carlos. 4,315,397, Cl. 57-58.490.

Asada, Kazuyoshi: See—
Hideshima, Keiji; Koyanagi, Haruo; Suda, Hiroharu; Sawano, Hirokazu; Takaki, Masaoki; Yamanaka, Kunio; Yasuda, Isao; and Asada, Kazuyoshi. 4,316,260, Cl. 364-900.000.

Asahi Seimitsu Kabushiki Kaisha: See—
Kotani, Sadahiko; and Gibu, Yoshitaka. 4,315,371, Cl. 33-1.00M.

Asai, Mitsuko: See—
Higashide, Eiji; Asai, Mitsuko; and Hasegawa, Tary. 4,315,989, Cl. 435-253.000.

ASEA Aktiebolag: See—
Adolfsson, Morgan; and Brogardh, Torgny. 4,316,141, Cl. 324-96.000.

Ash, Earl M. Car washing implement. 4,315,342, Cl. 15-121.000.

Ashland Oil, Inc.: See—
McChesney, John M.; and Landers, Perry E., 4,315,889, Cl. 422-7.000.

Ateliers des Charmilles S.A.: See—
Bonga, Benno I., 4,316,071, Cl. 219-69.00R.

Athearn, Lee F.; and Morrissey, William J., to Medtronic, Inc. Electrochemical cell with protected electrical feedthrough. 4,315,974, Cl. 429-181.000.

Atkinson, Louis D.; and Rineck, Wesley W., to Airtrol Components, Inc. Fluid leakproof orifice structure. 4,315,520, Cl. 137-82.000.

Atlantic Richfield Company: See—
Taylor, Paul D.; and Mocella, Michael T., 4,315,896, Cl. 423-54.000.

Atomel Corporation: See—
Toole, Monte M.; and Champagne, Robert B., 4,315,479, Cl. 118-726.000.

Austin, Jared A.; and Van Iten, Thomas P., to Kimberly-Clark Corporation. Fiberization of compressed fibrous sheets via Rando-Webber. 4,315,347, Cl. 19-145.700.

Austin, Oliver K., to Phillips Petroleum Co. Method and apparatus for producing carbon black. 4,315,894, Cl. 422-151.000.

Avco Corporation: See—
Exley, John T.; Kuintzle, Charles, Jr.; and Tate, David L., 4,315,714, Cl. 415-207.000.

Suplinskas, Raymond J.; and Henze, Thomas W., 4,315,968, Cl. 428-367.000.

Avesani, Luigi: See—
Torre, Giancarlo D.; and Avesani, Luigi. 4,315,470, Cl. 112-121.150.

Avtec Industries, Inc.: See—
Helwig, William F., Jr., 4,316,229, Cl. 361-42.000.

Baatz, Gunther; Conrad, Klaus-Dieter; and Riemhofer, Franz, to Metzeler Schaum GmbH. Method for the manufacture of composite foam materials. 4,315,996, Cl. 521-54.000.

Bacchetta, Enzo: See—
Vidotto, Graziano; Sellan, Febo; Bacchetta, Enzo; Mainardi, Sandro; and Benussi, Giovanni. 4,315,843, Cl. 260-29.6PT.

Backlund, Anders D. Apparatus for storage and recovery of low temperature thermal energy. 4,315,496, Cl. 126-415.000.

Baker, Daniel A., to Whirlpool Corporation. Selective temperature control system. 4,315,413, Cl. 62-180.000.

Baker International Corporation: See—
Monaumi, Christian K.; and Littleford, Sidney J., 4,315,544, Cl. 166-214.000.

Baker, Kenneth R.; and DeVault, Robert T., to Maritec Corporation. Non jamming reversible jet nozzle. 4,315,749, Cl. 440-42.000.

Baker, Robert R.; and Hartsock, Dale L., to Ford Motor Company. Method for hot press forming articles. 4,315,876, Cl. 264-40.100.

Balan, Isadore; and Sievers, Kirk A., to Motorola, Inc. Fault indicating circuit for an automotive alternator battery charging system. 4,316,134, Cl. 322-99.000.

Balash, Charles M.; Hill, John R.; and Moore, Paul A. Card game involving the touching of human body parts. 4,315,628, Cl. 273-296.000.

Baldwin, John L. E.; and Ives, John G. S. Recording of digital signals. 4,316,223, Cl. 360-39.000.

Balfanz, Fredrick J., to C-R-D, Inc. Automatic speed control for seam welding. 4,316,076, Cl. 219-124.340.

Ball, Edward W. Hypodermic needle destructor. 4,315,448, Cl. 83-167.000.

Bange, Gunter: See—
Korber, Joachim; Bange, Gunter; Poll, Walter; Kaltenbach, Volker Bensberg; and Pittroff, Hans. 4,316,175, Cl. 340-57.000.

Baralle, Roger M.; Compere, Marcel A.; Pfaff, Maurice E.; and Goumont, Claude G., to Eastman Kodak Company. Photographic emulsions and elements capable of forming direct-positive images. 4,315,986, Cl. 430-411.000.

Barbe', Pier C.: See—
Scata', Umberto; Luciani, Luciano; and Barbe', Pier C., 4,315,835, Cl. 252-429.00B.

Barbier, Maurice G. Y.; and Staron, Philippe J., to Societe Nationale Elf Aquitaine (Production). Method of reflection point correlation seismic surveying. 4,316,266, Cl. 367-21.000.

Barone, Michael R., to General Electric Company. Method of making and securing a leakage flux conducting device. 4,315,363, Cl. 29-596.000.

Barth, Rudolf: See—
Guilino, Gunther; and Barth, Rudolf. 4,315,673, Cl. 351-169.000.

Bartolini, Dario, to Lovable Italiana S.p.A. Slider for ribbons and assembling process thereof. 4,315,351, Cl. 24-198.000.

Barwise, Robert D., to Robil Company. Angle control mechanism for grapple. 4,315,652, Cl. 294-86.00R.

BASF Aktiengesellschaft: See—
Baumann, Hans; and Oberlinner, Andreas. 4,316,027, Cl. 546-15.000.

Frickel, Fritz-Frieder; Franke, Albrecht; Von Philipsborn, Gerda; Mueller, Claus D.; and Lenke, Dieter. 4,315,939, Cl. 424-267.000.

Hamprecht, Gerhard; and Wuerzer, Bruno. 4,315,766, Cl. 71-88.000.

Hamprecht, Gerhard; Acker, Rolf-Dieter; and Wuerzer, Bruno. 4,316,014, Cl. 544-7.000.

Hamprecht, Gerhard; Acker, Rolf-Dieter; and Wuerzer, Bruno. 4,316,015, Cl. 544-7.000.

Henning, Georg; and Lotsch, Wolfgang. 4,316,023, Cl. 544-300.000.

Kempler, Fritz E.; Schupp, Eberhard; and Gulbins, Erich. 4,315,840, Cl. 260-18.0TN.

Kummer, Rudolf; Weiss, Franz-Josef; Schneider, Heinz-Walter; and Taglieber, Volker. 4,316,047, Cl. 560-206.000.

Merger, Franz; Hutmacher, Hans-Martin; and Hagen, Helmut. 4,315,869, Cl. 260-465.200.

Plath, Peter; Wuerzer, Bruno; and Rohr, Wolfgang. 4,316,039, Cl. 548-362.000.

Plath, Peter; Rohr, Wolfgang; Wuerzer, Bruno; and Becker, Rainer. 4,316,040, Cl. 548-377.000.

Reissenweber, Gernot. 4,316,020, Cl. 544-105.000.

Scharwaechter, Peter; Gutsche, Klaus; Kohlmann, Wilhelm; Kroemer, Gerd, deceased; Kroemer, Norma, legal representative; Kroemer, Helmut, legal representative; and Kroemer, Maria M., legal representative. 4,315,931, Cl. 424-251.000.

Schelfczik, Ernst. 4,315,855, Cl. 260-155.000.

Zeidler, Georg; Dehnert, Johannes; Hansen, Guenter; and Riedel, Guenter. 4,315,756, Cl. 44-59.000.

BASF Wyandotte Corporation: See—
Login, Robert B.; and Newkirk, David D., 4,315,847, Cl. 260-45.7PH.

Login, Robert B.; and Newkirk, David D., 4,315,969, Cl. 428-395.000.

Basile, Rocco F., to Thomas & Betts Corporation. Optical fiber cleaving apparatus. 4,315,368, Cl. 30-124.000.

Battle, Daniel S. Flood protection container for vehicles. 4,315,535, Cl. 150-11.000.

Baumann, Hans; and Oberlinner, Andreas, to BASF Aktiengesellschaft. 7,7-Diamino derivatives of 2,2'-spirodibenzopyranes. 4,316,027, Cl. 546-15.000.

Baumann, Heinz, to Sulzer Brothers Limited. Weaving machine having means for ventilating a weft supply means. 4,315,529, Cl. 139-1.00C.

Bawarshi, Rima: See—
Hussain, Anwar A.; Hirai, Shinichiro; and Bawarshi, Rima. 4,315,925, Cl. 424-239.000.

Bayer Aktiengesellschaft: See—
Hagenmaier, Hans-Paul; Konig, Wilfried; Zahner, Hans; Fiedler, Hans-Peter; Dehler, Wolfgang; Keckeisen, Adelinde; Holst, Hartwig; and Zeebelein, Gerhard. 4,315,922, Cl. 424-181.000.

Knipp, Ulrich; Ganster, Otto; and Sahler, Gerd. 4,315,536, Cl. 152-330.00R.

Reiser, Wolf; Draber, Wilfried; Buchel, Karl H.; Lurssen, Klaus; Frohberger, Paul-Ernst; and Paul, Volker. 4,315,764, Cl. 71-76.000.

Bayrak, Unal: See—
Adolph, Erich; Bayrak, Unal; and Stecker, Walter. 4,316,138, Cl. 323-364.000.

BBC Brown, Boveri & Company, Ltd.: See—
Krieter, Georg-Heinz; and Mauthe, Gerhard. 4,316,051, Cl. 174-11.00R.

Merki, Josef; Stankowski, Hans-Werner; and Stockli, Franz. 4,316,111, Cl. 310-218.000.

Beal, George W.; Grant, James R., Jr.; and Hanloser, Kurt J., to United Technologies Corporation. Afterburner flameholder construction. 4,315,401, Cl. 60-261.000.

Beatrice Foods Co.: See—
Harrison, David E., 4,315,338, Cl. 4-236.000.

Bechtel, Wolf D.: See—
Schneider, Claus; Weber, Karl-Heinz; Walther, Gerhard; Boke, Karin; and Bechtel, Wolf D., 4,315,938, Cl. 424-267.000.

Becker, Rainer: See—
Plath, Peter; Rohr, Wolfgang; Wuerzer, Bruno; and Becker, Rainer. 4,316,040, Cl. 548-377.000.

Beckworth, James K. Hand held seed planter with roller wheel structure. 4,315,580, Cl. 221-185.000.

Beecham Group Limited: See—
Cassidy, Frederick; and Moore, Richard W., 4,315,941, Cl. 424-269.000.

Beffa, Fabio: See—
Puntener, Alois; and Beffa, Fabio. 4,315,854, Cl. 260-145.00A.

Behrendt, Paul. Casket carrier. 4,315,354, Cl. 27-27.000.

Belfield, Willis J.: See—
Levine, Benjamin; and Belfield, Willis J., 4,315,612, Cl. 248-538.000.

Bell & Howell Corporation: See—
Jacobs, John H., 4,316,196, Cl. 346-1.100.

Bell, Malcolm G.: See—
Elliott, John; Bell, Malcolm G.; and Lovatt, William J., 4,315,737, Cl. 432-241.000.

Bell Telephone Laboratories, Incorporated: See—
Boblin, Richard T.; and Howson, Robert D., 4,316,285, Cl. 370-105.000.

Howson, Robert D., 4,316,284, Cl. 370-105.000.

Belltown, Ltd.: See—
Rupp, Anthony P.; Intrieri, Salvatore, Jr.; and Walkley, Arthur H., IV. 4,315,780, Cl. 134-7.000.

Ben-Dror, Jonathan: See—
Vardi, Isai; Kimchi, Yigal; and Ben-Dror, Jonathan. 4,315,411, Cl. 62-112.000.

Ben-Moyal, Zohar: See—
Fridlander, Bertold; Ben-Moyal, Zohar; Olshevsky, Udi; and Tirosh, Regine. 4,315,907, Cl. 424-1.000.

Bender, Hans: See—
Rao, Chatty; and Bender, Hans. 4,315,972, Cl. 428-542.000.

Bending Products, Inc.: See—
McGuire, Samuel B., 4,315,423, Cl. 72-466.000.

Bendix Corporation, The: See—
Acoraci, Joseph H., 4,316,192, Cl. 343-100.0SA.

Hanisko, John C. P., 4,316,155, Cl. 331-18.000.

Sawatari, Takeo; Keating, Patrick N.; Steinberg, Ronald F.; and Mueller, Rolf K., 4,316,191, Cl. 343-16.00R.

Benkmann, Christian, to Linde Aktiengesellschaft. Adsorption process producing chronologically constant amount of a residual gas. 4,315,759, Cl. 55-18.000.

Benko, Pal: See—
Hajos, Gyorgy; Messmer, Andras; Benko, Pal; Petocz, Lujza; Gorog, Peter; and Kasoczky, Ibolya. 4,316,022, Cl. 544-184.000.

Bens, Everett M.; and Fletcher, Aaron N., to United States of America, Navy. Process for producing an electronically conductive oxidizer material. 4,315,905, Cl. 423-592.000.

Benussi, Giovanni: See—
Vidotto, Graziano; Sellan, Febo; Bacchetta, Enzo; Mainardi, Sandro; and Benussi, Giovanni. 4,315,843, Cl. 260-29.6PT.

Berger, Jean L., to Thomson-CSF. Digitally programmable filter using electrical charge transfer. 4,316,258, Cl. 364-602.000.

Bergfeld, Manfred; Zengel, Hans-Georg; and Praetorius, Heinz, to Akzona Incorporated. Process for the preparation of 2-mercaptobenzothiazole. 4,316,031, Cl. 546-175.000.

Bergmark, Lars M., to F S Elektrik AB. Earth ground assembly comprising a driving point, a driving rod, and a continuous conductor wire. 4,316,050, Cl. 174-7.000.

Bergwerksverband GmbH: See—
Renner, Kurt; Langer, Ernst; and Eisenhut, Werner. 4,315,804, Cl. 202-263.000.

Bernardi, Richard T., to EMI Limited. CT Scanner. 4,316,091, Cl. 250-445.00T.

Bernson, Albert, Jr. Closure assembly. 4,315,577, Cl. 220-323.000.

Berol Kemi A.B.: See—
Hellsten, Karl M. E.; Johansson, Inger G.; and Karlsson, Birgit T. G., 4,315,755, Cl. 44-51.000.

Berry, Milton E.: See—
Odle, Robert R.; Berry, Milton E.; Brunson, William W.; Burson, William R.; Cofer, Daniel B.; and Richards, Roy. 4,315,775, Cl. 75-76.000.

Bestobell Mobrey Limited: See—
Palmer, Stuart B.; and Primavesi, Gregory J., 4,316,183, Cl. 340-621.000.

Beta Manufacturing Corp.: See—
Cass, Louis G.; Poleschuk, Nicholas; and Purdy, Samuel. 4,316,239, Cl. 362-155.000.

Bettenhausen, Larry A., to Minnesota Mining & Manufacturing Company. Tape mandrel. 4,315,608, Cl. 242-68.000.

Beveridge, Harold N. Electrostatic electroacoustic transducer. 4,316,062, Cl. 179-111.00R.

Bhangu, Jagannand K.; Fry, Peter; and Hustler, David, to Rolls-Royce Limited. Perforate laminated material and combustion chambers made therefrom. 4,315,406, Cl. 60-754.000.

Biancardi, Robert P. Apparatus and method for automatically watering vegetation. 4,315,599, Cl. 239-10.000.

Bifok AB: See—
Ruzicka, Jaromir; and Hansen, Elo H., 4,315,754, Cl. 23-230.00R.

Bigall, Klaus-Dieter: See—
Rosler, Helmut; Irmer, Heimbart U.; and Bigall, Klaus-Dieter. 4,316,104, Cl. 307-308.000.

bij de Leij, Jan D. Method and apparatus for degassing, during transportation, a confined volume of liquid to be measured. 4,315,760, Cl. 55-46.000.

Bitterli, Peter, to Sandoz Ltd. Oximino-imino-isotindoline metal complexes useful as pigments. 4,316,032, Cl. 548-109.000.

Black & Decker Inc.: See—
Horne, David. 4,315,370, Cl. 30-386.000.

Black, John W., to Pemco-Kalamazoo, Inc. Rotary ball lock. 4,315,727, Cl. 425-563.000.

Blackstone, George H., to Arnold Industries, Inc. Wood splitter. 4,315,534, Cl. 144-194.000.

Blair, Charles M., Jr., to Magna Corporation. Method of recovering petroleum from a subterranean reservoir incorporating an acylated polyether polyol. 4,315,545, Cl. 166-274.000.

Blaupunkt-Werke GmbH: See—
Hansen, Jens; and Schafer, Thomas. 4,316,224, Cl. 360-72.200.

Blazek, William S., to TRW Inc. Method of making a mold. 4,315,537, Cl. 164-27.000.

Bliss & Laughlin: See—
Godwin, Robert H.; and Collignon, Herbert E., 4,315,613, Cl. 248-406.000.

Bliss, Timothy R.; and Canepa, Richard T. Fire detection system. 4,316,179, Cl. 340-538.000.

Bloch, Hanns: See—
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Bodnar, Janos: See—
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Boeder, Charles W., to Minnesota Mining and Manufacturing Company. Two-part, anaerobically-curing compositions. 4,316,000, Cl. 526-301.000.

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Schneider, Claus; Weber, Karl-Heinz; Walther, Gerhard; Boke, Karin; and Bechtel, Wolf D., 4,315,938, Cl. 424-267.000.

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Tyer, Robert C.; Fitch, Robert E.; and Tucker, Gordon H., 4,315,468, Cl. 110-101.0CF.

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- Boke, Karin: See—
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- Bolick, Martha E., to Kimberly-Clark Corporation. Self-centering multiple use garment suspension system. 4,315,508, Cl. 128-289.000.
- Bolton, Theodore S.: See—
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- Bom, Cornelis J. G.: See—
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- Bonga, Benno I., to Ateliers des Charmilles S.A. EDM Apparatus with tool changer. 4,316,071, Cl. 219-69.00R.
- Booth, Frederick C.; Frantom, Richard L.; and Thomas, Rudy V., to Allied Corporation. Passive seat belt system. 4,315,639, Cl. 280-803.000.
- Booty, Donald A.; and Weisburg, David, to Kidde Consumer Durables Corp. Light fixture and elevator therefor. 4,316,238, Cl. 362-147.000.
- Borden, Walter S. Taper tip for railroad tie tamping machines. 4,315,464, Cl. 104-10.000.
- Boroscawski, Gerhard; and Arndt, Friedrich, to Schering AG. Herbicidal diurethanes and their use. 4,315,769, Cl. 71-111.000.
- Borow, Maxwell. Food cutting and grasping implement. 4,315,369, Cl. 30-257.000.
- Borzym, John J. Cam operated cutoff machine. 4,315,449, Cl. 83-319.000.
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- Bottcher, Hugo, to J. H. Benecke GmbH. Method of producing a bond between two surfaces. 4,315,792, Cl. 156-306.600.
- Bottenberg, William R.; and Chagnon, Mark S., to Ferrofluidics Corporation. Low-vapor-pressure ferrofluids and method of making same. 4,315,827, Cl. 252-62.510.
- Bottka, Nicholas; and Hills, Marian E., to United States of America. Navy. Two color narrow bandwidth detector. 4,316,206, Cl. 357-30.000.
- Bouchard, Andre C.; and English, George J., to GTE Products Corporation. Photoflash lamp with loose powder composition and method of making. 4,315,733, Cl. 431-362.000.
- Bouge, Gilbert; Jacques, Roland; Poisson, Regis; and Seigneurin, Laurent, to Rhone-Poulenc Industries. Spheroidal alumina particulates having bifold porosity and process for their preparation. 4,315,839, Cl. 252-448.000.
- Bousquet, Francois: See—
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- Boyer, Winston. Arc sputtering method of making colloidal magnesium sol and apparatus therefor. 4,315,833, Cl. 252-314.000.
- Boyle, Timothy J.: See—
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- Bradley, John J.: See—
Luu, Duc; deRivet, Philippe-Hubert; Bradley, John J.; and Franklin, Benjamin S., 4,316,245, Cl. 364-200.000.
- Bradley, Ronald W.; Carl, David G.; and Keating, Bernard L., to Owens-Illinois, Inc. Method of strengthening glass containers and articles so made. 4,315,573, Cl. 215-12.00R.
- Bramer, Henry C.; and Shapiro, Edward, to Pittsburgh Environmental and Energy Systems, Inc. Method and apparatus for purification of exhaust gases. 4,315,895, Cl. 422-171.000.
- Brandenberger, Helmuth-Hugo: See—
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- Brandin, Ivar, to Stal Refrigeration AB. Method and apparatus for making ice blocks. 4,315,410, Cl. 62-66.000.
- Brandon, Ronald E. Friction coefficient measurement from a moving vehicle. 4,315,426, Cl. 73-9.000.
- Brandts Buys, Ludwig D. G.; Godard, Pierre M. J. L.; Goossens, Henri C.; Mignard, Joseph J.; Werz, Jean-Luc H. M. F. G.; and Mercier, Jean-Pierre, to Wyns-Bristol S.A. Peintures; and N.V. Trimetal Paint Co. Process for coating mineral, organic or metallic microscopic or macroscopic substrates. 4,315,959, Cl. 427-214.000.
- Breitenfellner, Franz: See—
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- Bremer, Noel J.; and Dria, Dennis E., to Standard Oil Company (Ohio). Preparation of maleic anhydride. 4,315,864, Cl. 260-346.750.
- Breuers, Theo P. C.; and Hanegraaf, Johannes P., to Océ-Nederland B.V. Apparatus for copying from plural sheetlike originals. 4,315,687, Cl. 355-75.000.
- Bricot, Claude: See—
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- Brines, Marjorie J.; and Rabatin, Jacob G., to General Electric Company. Rare earth oxyhalide phosphor and x-ray image converters utilizing same. 4,315,979, Cl. 430-6.000.
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- British Petroleum Company Limited, The: See—
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- Brock, Josef; and Surkamp, Paul, to Maschinenfabrik Carl Zangs Aktiengesellschaft. Control for a dobby mechanism. 4,315,530, Cl. 139-76.000.
- Brodman, Bruce W.; Devine, Michael P.; and Schwartz, Stuart, to United States of America, Army. Propellant charge with reduced muzzle smoke and flash characteristics. 4,315,785, Cl. 149-19.800.
- Broers, Alec N.; Cuomo, Jerome J.; Laibowitz, Robert B.; and Molzen, Walter W., Jr., to International Business Machines Corporation. Sub-100A range line width pattern fabrication. 4,316,093, Cl. 250-492.100.
- Brogardh, Torgny: See—
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- Brooker, Steven A. Chemical injector. 4,315,601, Cl. 239-142.000.
- Brooks, Derek J.: See—
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- Brooks, Ray G., to Malco Products, Inc. Method of reinforcing a duct. 4,315,361, Cl. 29-432.100.
- Brown, Ray M. Fluid distribution apparatus. 4,315,522, Cl. 137-355.170.
- Brown & Williamson Tobacco Corporation: See—
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- Bruckenstein, Stanley; and Kosek, John A., to United States of America, Interior. Electrochemical apparatus for simultaneously monitoring two gases. 4,315,753, Cl. 23-232.00E.
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- Brunson, William W.: See—
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- Buchel, Karl H.: See—
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- Buckman, Charles E., to Wrightman Enterprises, Inc. Golf ball position marker and ground repair tool. 4,315,624, Cl. 273-32.00A.
- Buecheler, Paul, to Sandoz Ltd. Process for the synthesis of azobenzene compounds having a cyano group in one or both of the ortho positions of the diazo component radical. 4,315,857, Cl. 260-207.100.
- Bukowski, Ronald G.: See—
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- Bulova Watch Company, Inc.: See—
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- Bunch, Jesse C. Lenticulated lens. 4,315,671, Cl. 350-451.000.
- Burnham, Robert D.: See—
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- Burrroughs Wellcome Co.: See—
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- Schaeffer, Howard J.; DeMiranda, Paulo M. S.; Elion, Gertrude B.; and Hitchings, George H., 4,315,920, Cl. 424-180.000.
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- Busca, Giovanni; and Brandenberger, Helmuth-Hugo, to Ebauches, S.A. Passive masers having oscillator and cavity control loops. 4,316,153, Cl. 331-3.000.
- Buschmann, Erwin C.: See—
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- Butler, James R., to Fairchild Camera and Instrument Corp. Input stage using junction field effect transistors for biasing. 4,316,102, Cl. 307-296.00R.
- Buxbaum, Lothar; Habermeier, Jürgen; Breitenfellner, Franz; and Kainmüller, Thomas, to Ciba-Geigy Corporation. Flame-resistant plastics moulding material. 4,315,849, Cl. 260-45.75B.
- Byrd, Gary D.: See—
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- C-R-O, Inc.: See—
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- Cahen, David: See—
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- Cain, Steve B. Spring tensioning device and method. 4,315,739, Cl. 433-21.000.
- Callahan, James L.: See—
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- Callera, Joseph: See—
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- Campon Bernard Cetra & Constructions Metalliques: See—
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- Camphausen, Fred H.: See—
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- Canadian Liquid Air Ltd.: See—
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- Canadian Patents & Development Ltd.: See—
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- Canon Kabushiki Kaisha: See—
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- Inuzuka, Tsunekichi; Murakami, Koichi; Kurita, Kenji; and Sakamaki, Hisashi, 4,315,685, Cl. 355-14.00R.
- Nakamura, Zenzo, 4,315,679, Cl. 354-128.000.
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- Capetola, Robert J.; and McGuire, John L., to Ortho Pharmaceutical Corporation. Analgesic composition. 4,315,936, Cl. 424-260.000.
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- Carling, Helge: See—
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- Carlson, Richard H., to Texas Instruments Incorporated. Elastic hair dryer having selectively variable air output temperature. 4,316,077, Cl. 219-370.000.
- Carmichael, William E.; and Rodacker, Wayne. Truck hub and method of banding same. 4,315,360, Cl. 29-159.030.
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- Carrier Corporation: See—
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- Carroll, Charles B., to RCA Corporation. Baseplate assembly for flat panel display devices. 4,316,117, Cl. 313-422.000.
- Carstab Corporation: See—
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- Carter, Sidney T., to A-T-O Inc. Doctor blade for labeling machine. 4,315,478, Cl. 118-262.000.
- Casey, Russell A. Muffler for internal combustion engine. 4,315,559, Cl. 181-265.000.
- Cass, Louis G.; Poleschuk, Nicholas; and Purdy, Samuel, to Beta Manufacturing Corp. Trunk lamp assembly. 4,316,239, Cl. 362-155.000.
- Cassandrini, Paolo: See—
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- Cassat, Robert; and Guillot, Gerard, to Rhone-Poulenc Industries. Molding compositions comprised of polyimide/N-vinylpyrrolidone prepolymer and epoxy resin. 4,316,002, Cl. 528-107.000.
- Cassidy, Frederick; and Moore, Richard W., to Beecham Group Limited. Urazole analogs of prostaglandin derivatives. 4,315,941, Cl. 424-269.000.
- Castellani, Eugene E.; Croll, Ian M.; Pfeiffer, Aloysius T.; and Roman-kiw, Lubomir T., to International Business Machines Corporation. Fine-line circuit fabrication and photoresist application therefor. 4,315,985, Cl. 430-314.000.
- Castle, Richard M., to RCA Corporation. Speed deviation detector for servo controlled disc mastering turntable. 4,316,143, Cl. 324-161.000.
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- Caterpillar Tractor Co.: See—
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- Celanese Corporation: See—
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- Cerberus Ltd.: See—
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- Chagnon, Mark S.: See—
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- Champion International Corporation: See—
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- Charles K. Kelley and Sons Inc.: See—
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- Chato, John C.; and Crowley, Joseph M. Single phase electrohydrodynamic pump. 4,316,233, Cl. 361-233.000.
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- Chemische Werke Huels, Aktiengesellschaft: See—
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- Cheng, Paul J.; and Mills, King L., to Phillips Petroleum Company. Process for producing carbon black. 4,315,901, Cl. 423-455.000.
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- Ostrander, William J., 4,316,268, Cl. 367-68.000.
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- Chiba, Kouetsu: See—
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- Chicago Bridge & Iron Company: See—
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- Chin, Albert K., to Fogarty, Thomas J. Endarterectomy apparatus. 4,315,511, Cl. 128-305.000.
- Ching, Ta-Yen, to General Electric Company. Alkoxybenzotriazoles. 4,316,033, Cl. 548-110.000.
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- Choyce, David P. Autoclavable anterior chamber implant. 4,315,337, Cl. 3-13.000.
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- Christensen, Anne V., to Sandoz Ltd. Organic compounds. 4,315,934, Cl. 424-256.000.
- Christensen, Roy M., to RCA Corporation. Sound field transmission system surrounding a listener. 4,316,058, Cl. 179-1.00GQ.
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- Christou, Aristos; and Davey, John E., to United States of America, Navy. Low-barrier-height epitaxial Ge-GaAs mixer diode. 4,316,201, Cl. 357-15.000.
- Chszaniecki, Siegfried, to Hermann Berstorff Maschinenbau GmbH. Double screw extruder transmission. 4,315,440, Cl. 74-665.00G.
- Church, Peter K., to Wymore, Max L.; and Leisure Products Corporation, a part interest to each. Water based window glass and chrome cleaner composition. 4,315,828, Cl. 252-153.000.
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- Felder, Louis; Kirchmayr, Rudolf; and Husler, Rinaldo, 4,315,807, Cl. 204-159.180.
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- Puntener, Alois; and Beffa, Fabio, 4,315,854, Cl. 260-145.00A.
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- Cities Service Company: See—
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- Clare, David H. Periodical support and retrieval device. 4,315,572, Cl. 211-45.000.
- Clarke, Garry W. Portal building structures. 4,315,386, Cl. 52-93.000.
- Climenhage, David C., to Du Pont Canada Inc. Treatment of nitrogenous wastes. 4,315,821, Cl. 210-605.000.
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- Electro-Biology, Inc.: See—
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- Felder, Louis; Kirchmayr, Rudolf; and Husler, Rinaldo, to Ciba-Geigy Corporation. Sensitizers for photopolymerization. 4,315,807, Cl. 204-159.180.
- Felix, Ernst, to Zellweger Uster, Ltd. Method and apparatus for obtaining predetermined and exact yarn length on cross-wound bobbins. 4,315,607, Cl. 242-36.000.
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- Fernbach, James L. Vehicle load supporting arrangement. 4,315,707, Cl. 410-47.000.
- Ferrofluidics Corporation: See—
Bottenberg, William R.; and Chagnon, Mark S., 4,315,827, Cl. 252-62.510.
- Fichtel & Sachs AG: See—
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- Fiedler, Hans-Peter: See—
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- Filippi, Richard E.: See—
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- Filson, Lucille L.: See—
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- Filson, Lucille L., heir: See—
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- Firester, Arthur H.: See—
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- Firth, John R.: See—
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- Fishman, Isosif D. Y.: See—
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- Fitness Motivation Institute of America: See—
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- Fitzmayer, Louis H., to General Electric Company. Microwave oven excitation system. 4,316,069, Cl. 219-10.55F.
- Fleetwood Furniture Company: See—
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- Fleetwood Systems, Inc.: See—
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- Fleischman, George L.: See—
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- Fletcher, Aaron N.: See—
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- Flexible Steel Lacing Company: See—
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- Flint, Alan G., to GCA Corporation. Apparatus for handling and treating wafers. 4,315,705, Cl. 406-73.000.
- FMC Corporation: See—
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- Ford Motor Company: See—
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- Fowler, Albert L., to Hughes Aircraft Company. Comparator. 4,316,105, Cl. 307-362.000.
- Fox, Ernest D.: See—
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- Frank, Albrecht: See—
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- Franklin, Benjamin S.: See—
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- Frantom, Richard L., to Allied Corporation. Seat belt web guide. 4,315,637, Cl. 280-801.000.
- Frantom, Richard L.: See—
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- Freitag, Herbert; and Schnitzius, Klaus, to Stabilus GmbH. Gas spring arrangement operating as an electrical connection. 4,316,098, Cl. 307-119.000.
- French, Albert G.; and Brooks, Derek J., to Coal Industry (Patents) Limited. Mining equipment. 4,315,658, Cl. 299-43.000.
- French, David M.; Rosborough, J. T. L.; and Swendenberg, Clyde J., to United States of America, Navy. Method for altering the characteristics of polymers. 4,315,830, Cl. 252-182.000.
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- French, Robert C.: See—
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- French, William W.: See—
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- Frey, Walter; and Kaiser, Rolf. Bath container for a refrigeration equipment. 4,315,416, Cl. 62-438.000.
- Frickel, Fritz-Frieder; Franke, Albrecht; Von Philipsborn, Gerda; Mueller, Claus D.; and Lenke, Dieter, to BASF Aktiengesellschaft. Piperidine derivatives of 4,5-dialkyl-3-hydroxy-pyrrole-2-carboxylic acid esters, pharmaceutical formulations containing these compounds and use in treating cardiac arrhythmias. 4,315,939, Cl. 424-267.000.
- Fridlander, Bertold; Ben-Moyal, Zohar; Olshesky, Udi; and Tirosh, Regine, to Ames-Yissum. Combined heterogeneous specific binding assay. 4,315,907, Cl. 424-1.000.
- Fritz Gerauf Aktiengesellschaft Bernina-Nahmaschinenfabrik: See—
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- Fritz, John R., to Honeywell Inc. Computer control apparatus. 4,316,082, Cl. 235-146.000.
- Frohberger, Paul-Ernst: See—
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- Fuji Jukogyo Kabushiki Kaisha: See—
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- Fuji Kasui Engineering Co., Ltd.: See—
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- Fuji Photo Film Co., Ltd.: See—
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- Kimura, Tsutomu, 4,316,261, Cl. 364-900.000.
- Fuji Xerox Co., Ltd.: See—
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- Fujii, Masahiko: See—
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- Fujii, Toru, to Olympus Optical Co., Ltd. Wide-angle zoom lens system. 4,315,669, Cl. 350-426.000.
- Fujikura, Makoto: See—
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- Fujino, Hitoshi, to Alps Electric Co., Ltd. Remote operation device. 4,316,064, Cl. 200-17.00R.
- Fujino, Masahiko; and Kitada, Chieko, to Takeda Chemical Industries, Ltd. Polyprenylpeptides and their production. 4,315,853, Cl. 260-112.50R.
- Fujisawa Pharmaceutical Co., Ltd.: See—
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- Fujitsu Limited: See—
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- Fujiwara, Hideo; Kudo, Mitsuhiro; Tamura, Teizou; Sugishita, Nobuyuki; Shiroishi, Yoshihiro; Kimura, Takeshi; Shinagawa, Kiminari; and Kumasaka, Noriyuki, to Hitachi, Ltd. Magnetic head. 4,316,228, Cl. 360-127.000.
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- Fukuda, Eiichi, to Kabushiki Kaisha Komatsu Seisakusho. Transmission for a hydraulically driven vehicle. 4,315,441, Cl. 74-665.00M.
- Fukuda, Minoru: See—
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- Fulkerson, David W.; and Smith, Lawrence W. Self-propelled apparatus for setting cemetery markers and the like. 4,315,550, Cl. 173-28.000.
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- Furukawa, Toshio: See—
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- Furuta, Harumi: See—
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- G. Siempelkamp GmbH & Co.: See—
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- Gabor, Charles; and Spector, George. Percussion aid. 4,315,453, Cl. 84-422.00R.
- Gallant, Stuart L.; Caron, Paul R.; Dunn, Stanley M.; Palmer, Walter E.; Schmitt, Ernest G.; and Taddeo, Michael, to Hittman Corporation. Automatic high speed Holter scanning system. 4,316,249, Cl. 364-417.000.
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- Garab, H. Gary: See—
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- Gardner, Conrad O. EGR Valve control signal processing for internal combustion engine. 4,315,492, Cl. 123-571.000.
- Garraffa, Jerome, Jr. Water pre-heater of a refrigeration system. 4,315,597, Cl. 237-2.00B.
- Gasper, Alton J., to Minnesota Mining and Manufacturing Company. Sealing method using latex-reinforced polyurethane sewer sealing composition. 4,315,703, Cl. 405-264.000.
- Gay, Donald L., to United States of America, Army. Video tracker. 4,316,218, Cl. 358-125.000.
- Gayst, Stephen; and Maguire, Michael J. Pharmaceutical formulation of guar gum. 4,315,918, Cl. 424-177.000.
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- Gearhart Industries, Inc.: See—
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- Gearhart, Junior A., to Kerr-McGee Refining Corporation. Process for separating bituminous materials and recovering solvent. 4,315,815, Cl. 208-321.000.
- Gebr. Hoffmann AG: See—
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- GEC Mechanical Handling Limited: See—
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- International Food Equipment, Inc.: See—
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- International Precision Incorporated: See—
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- International Standard Electric Corporation: See—
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- International Telephone and Telegraph Corporation: See—
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- Muller, Michael; Palmer, Reed A.; and Marker, Harry R., 4,316,066, Cl. 200-670.000.
- Root, Errol L., 4,316,139, Cl. 324-52.000.
- Intersci Corporation: See—
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- Intrieri, Salvatore, Jr.: See—
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- Inuzuka, Tsuneki; Murakami, Koichi; Kurita, Kenji; and Sakamaki, Hisashi, to Canon Kabushiki Kaisha, Image forming apparatus, 4,315,685, Cl. 355-14.00R.
- Irmer, Heimbart U.: See—
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- Ishii, Masami; Kato, Nobuharu; and Hota, Mikio, to Aisin Seiki Kabushiki Kaisha, Method and apparatus for performing hot air welding of thermoplastic resin parts, 4,315,791, Cl. 156-304.200.
- Ishikawa, Shozo; Masubuchi, Shoji; and Ohkawa, Shigeki, to Copyer Co., Ltd. Styryl pyrazoline compounds, process for production thereof, and electrophoto graphic material comprising said compounds, 4,315,982, Cl. 430-59.000.
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- Ishimitsu, Keiichi; Kasahara, Isamu; Yamada, Tomio; Matsuda, Michihiko; Takahashi, Hidemitsu; and Soma, Shuichi, to Nippon Soda Company Limited, Isovaleric acid derivatives, 4,316,044, Cl. 560-105.000.
- Isono, Katsuo; and Akazawa, Susumu, to Sony Corporation, Beam index color television receiver, 4,316,216, Cl. 358-67.000.
- Isoya, Toshiyuki; Mishihiro, Masayuki; and Yokoshima, Naohiko, to Kabushiki Kaisha Komatsu Seisakusho, Automatic welding position control method, and device, 4,316,075, Cl. 219-124.220.
- Ito, Motoya: See—
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- Ito, Tadashi: See—
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- Itoh, Kenji: See—
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- Itoh, Kiyoo: See—
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- Ivanov, Valentin A.; Khodosh, Vladimir A.; Ostrovsky, Igor S.; Shenkman, Mikhail Y.; Koshelev, Jury A.; Vlasov, Sergei N.; Pachulia, Budu P.; and Fishman, Isosif D. Y., Shuttering for erecting a concrete tunnel lining, 4,315,701, Cl. 405-150.000.
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- Iwata, Yasuhiro: See—
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- Jacobs, John H., to Bell & Howell Corporation, Illumination and light gate utilization methods and apparatus, 4,316,196, Cl. 346-1.100.
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- Jaeschke, Harold R., to Champion International Corporation, Replacement wheel display carton, 4,315,569, Cl. 206-45.310.
- Jaisinghani, Rajan A., to Nelson Industries, Inc. Process and apparatus for separating liquids, 4,315,822, Cl. 210-794.000.
- Jakobsson, Per A. H.: See—
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- James, Douglas J.: See—
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- James, Jack E.: See—
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- Janome Sewing Machine Co. Ltd.: See—
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- Jansing, Walter, to Interatom Internationale Atomreaktorbau GmbH, Multishell pipe bend, 4,315,644, Cl. 285-179.000.
- Japan Synthetic Rubber Co., Ltd.: See—
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- Jellies, David A., to Magic Chef, Inc. Stabilizer for hinge of removable oven door, 4,315,495, Cl. 126-194.000.
- Jenkins, Jack J. Single trigger firing of double barrel side-by-side or over-under firearms, 4,315,377, Cl. 42-42.00R.
- Jensen, Bruce A., to Phillips Petroleum Company, Fractional distillation process control, 4,316,255, Cl. 364-501.000.
- Jetter, Milton W. Remote-controlled alarm clock, 4,316,273, Cl. 368-47.000.
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- JJNR Corporation: See—
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- Jodrey, Robert M.; and Young, Kenneth, to Dennison Manufacturing Company, High speed decoration, 4,315,795, Cl. 156-542.000.
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- John Zink Company: See—
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- Johns-Manville Corporation: See—
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- Johnson, Bruce K., to Polaroid Corporation, Method and apparatus for selectively positioning spectral filter, 4,315,675, Cl. 354-26.000.
- Johnson, Bruce K.; and Whiteside, George D., to Polaroid Corporation, Calibration arrangement for exposure control system, 4,315,677, Cl. 354-49.000.
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- Johnson, Philip, Jr.; Mendoza, Luis; and Sodaro, Donald, to Innkeepers Electronics, Inc. Energy conservation system for inns, hotels, and motels, 4,315,596, Cl. 236-94.000.
- Jones, Philip; and Storey, Moorfield, Jr., to Boeing Company, The Servo loop processor, 4,316,193, Cl. 343-112.00D.
- Jones, William W.: See—
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- Kaji, Takeyuki: See—
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- Kanchev, Peter K., to Bulgarsko Radio, Compensator for the horizontal angular error of a record player arm, 4,316,280, Cl. 369-250.000.
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- Karl, Robert D., to Amtel, Inc. Offshore liquified gas transfer system, 4,315,408, Cl. 62-55.000.
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- Karolkiewicz, Walter F.; and Rao, Pradip, to Hydrocarbon Research, Inc. Filtration of coal-derived liquids containing particulate solids, 4,315,824, Cl. 210-769.000.
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- Katsube, Junki; Ono, Keiichi; and Kawakami, Hajime, to Sumitomo Chemical Company, Limited, Process for producing eburnane derivatives, 4,316,028, Cl. 546-51.000.
- Katsuyama, Harumi: See—
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- Kawabata, Takashi: See—
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- Kawajiri, Yoshiki: See—
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- Kawakami, Hajime: See—
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- Kawamata, Etsuo: See—
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- Kawamoto, Nobuyuki: See—
Tomoshige, Toru; Furuta, Harumi; Tachi, Akihiro; and Kawamoto, Nobuyuki, 4,315,863, Cl. 260-346.740.
- Kawamura, Koichi; Katsuyama, Harumi; and Sato, Hideo, to Fuji Photo Film Co., Ltd. 2,6-Di-tert-butyl-4-substituted thiopyrylium salt, process for production of same, and a photoconductive composition containing same, 4,315,983, Cl. 430-70.000.
- Kawamura, Tomotsuchi; and Haneda, Hisao, to Sulzer Brothers Limited; and Mitsubishi Heavy Industries Ltd. Vapor generator for fuels having different flame radiation intensities, 4,315,485, Cl. 122-406.00R.
- Kawarabuki, Seiichi: See—
Miwa, Naoto; Masuda, Yoshiro; Kawarabuki, Seiichi; Sai, Toshiyuki; and Saito, Takao, 4,315,988, Cl. 435-221.000.
- Kawashima, Yoshinori; and Hashimoto, Yuji, to Honda Giken Kogyo Kabushiki Kaisha, Sprocket chain, 4,315,750, Cl. 474-153.000.
- Kay, Arthur H.; and Dziewulski, Ted, to Phillips Petroleum Co. Plant container, 4,315,382, Cl. 47-66.000.
- Kayser, John P.; and Rick, Norman A., to Aircro, Inc. Positive pulse device, 4,315,506, Cl. 128-276.000.
- Keating, Bernard L.: See—
Bradley, Ronald W.; Carl, David G.; and Keating, Bernard L., 4,315,573, Cl. 215-12.00R.
- Keating, Patrick N.: See—
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- Keckeisen, Adelinde: See—
Hagenmaier, Hans-Paul; König, Wilfried; Zahner, Hans; Fiedler, Hans-Peter; Dehler, Wolfgang; Keckeisen, Adelinde; Holst, Hartwig; and Zobelein, Gerhard, 4,315,922, Cl. 424-181.000.
- Kelley, Charles K.; and Jones, William W., to Charles K. Kelley and Sons Inc. Single line pneumatic tube system, 4,315,704, Cl. 406-12.000.
- Kempter, Fritz E.; Schupp, Eberhard; and Gulbins, Erich, to BASF Aktiengesellschaft, Preparation of cathodic electrocoating binders, 4,315,840, Cl. 260-18.07N.
- Kennedy, Alvin B., Jr.; and Wright, Steven W. Dual safe helmet, 4,315,335, Cl. 2-424.000.
- Kenny, Andrew A.: See—
Anderson, Patrick J.; and Kenny, Andrew A., 4,315,521, Cl. 137-85.000.
- Kerb, Ulrich: See—
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- Kerey, Gyorgy: See—
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- Kernbichler, Bert; and Wilkens, Christian, to Karl Mayer Textilmaschinenfabrik GmbH, Contoured pile fabric and a process for the preparation thereof, 4,315,419, Cl. 66-87.000.
- Kerr-McGee Refining Corporation: See—
Gearhart, Junior A., 4,315,815, Cl. 208-321.000.
- Kessler, Seymour A. Drawer slide, 4,315,661, Cl. 312-330.00R.
- Keukelaar, Ronald E.: See—
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- Khan, Muhammad A.; Kruse, Paul W., Jr.; and Ready, John F., to Honeywell Inc. Apparatus for determining the composition of mercury-cadmium-telluride and other alloy semiconductors, 4,316,147, Cl. 324-300.000.
- Khodosh, Vladimir A.: See—
Ivanov, Valentin A.; Khodosh, Vladimir A.; Ostrovsky, Igor S.; Shenkman, Mikhail Y.; Koshelev, Jury A.; Vlasov, Sergei N.; Pachulia, Budu P.; and Fishman, Isosif D. Y., 4,315,701, Cl. 405-150.000.
- Khutoretsky, Garri M.: See—
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- Kidde Consumer Durables Corp.: See—
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- Kihn, Harry, to Cooper Medical Devices Corporation, Method of performing male sterilization, 4,315,510, Cl. 128-303.100.
- Kimberly-Clark Corporation: See—
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- Bolick, Martha E., 4,315,508, Cl. 128-289.000.
- Whitehead, Howard A.; and Matray, Attila, 4,315,507, Cl. 128-287.000.
- Kimchi, Yigal: See—
Vardi, Isaih; Kimchi, Yigal; and Ben-Dror, Jonathan, 4,315,411, Cl. 62-112.000.
- Kimura, Masanobu: See—
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Kimura, Tsutomu, to Fuji Photo Film Co., Ltd. Data processing system for a COM, 4,316,261, Cl. 364-900.000.
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King, Stephen J., to Nash Engineering Company. The. Evacuation system with precondenser, 4,315,717, Cl. 417-69.000.
Kingery, Charles A., to Marting Mfg. Inc. Animal feeder, 4,315,484, Cl. 119-53.000.
Kingston, William. Line haulers, 4,315,617, Cl. 254-371.000.
Kinkad, Jordan A., to Fitness Motivation Institute of America. Caliper for applying constant pressure to an object being measured, 4,315,372, Cl. 33-148.00F.
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Kircher, Morton S., to Olin Corporation. Reinforced metal channels for cell frame, 4,315,811, Cl. 204-279.000.
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Klockner-Humboldt-Deutz AG: See—
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Knifton, John F., to Texaco Inc. Preparation of glycols and ethers, 4,315,994, Cl. 518-701.000.
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Knipp, Ulrich; Ganster, Otto; and Sahler, Gerd, to Bayer Aktiengesellschaft. Pneumatic tire, 4,315,536, Cl. 152-330.00R.
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Kroemer, Maria M., legal representative: See—
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Kroemer, Norma, legal representative: See—
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- Mercer, Roger W.; and Hay, Louis E. Apparatus for mounting dental casts. 4,315,740, Cl. 433-63.000.
- Mercier, Jean-Pierre: See—
Brandts Buys, Ludwig D. G.; Godard, Pierre M. J. L.; Goossens, Henri C.; Mignard, Joseph J.; Wertz, Jean-Luc H. M. F. G.; and Mercier, Jean-Pierre, 4,315,959, Cl. 427-214.000.
- Merck & Co., Inc.: See—
Cragoe, Edward J., Jr.; Stokker, Gerald E.; and Gould, Norman P., 4,316,043, Cl. 560-53.000.
- Durette, Philippe L., 4,315,913, Cl. 424-88.000.
- Merger, Franz; Hutmacher, Hans-Martin; and Hagen, Helmut, to BASF Aktiengesellschaft. Preparation of α,β -unsaturated nitriles. 4,315,869, Cl. 260-465.200.
- Merki, Josef; Stankowski, Hans-Werner; and Stockli, Franz, to BBC Brown, Boveri & Company, Ltd. Laminated salient field pole piece for dynamoelectric machines. 4,316,111, Cl. 310-218.000.
- Merz, Jurg: See—
Wurster, Rudolf F.; and Merz, Jurg, 4,316,005, Cl. 528-256.000.
- Messick, Walker; and Christiansen, Gerald E., to Stephen A. Young Corporation. Mixing valve. 4,315,525, Cl. 137-625.400.
- Messier: See—
Girard, Edmond; and Rey, Robert, 4,315,403, Cl. 60-643.000.
- Messmer, Andras: See—
Hajos, Gyorgy; Messmer, Andras; Benko, Pal; Petocz, Lujza; Gorgo, Peter; and Kasoczy, Ibolya, 4,316,022, Cl. 544-184.000.
- Metzeler Schaum GmbH: See—
Batz, Gunther; Conrad, Klaus-Dieter; and Riemhofer, Franz, 4,315,996, Cl. 521-54.000.
- Meusel, Otto: See—
Lechner, Ernst-Friedrich; Meusel, Otto; and Muller, Meinhardt, 4,316,236, Cl. 361-429.000.
- Meyenschein, Richard, to Christ KG. Meat grinder with means for separating gristle from the ground meat. 4,315,604, Cl. 241-82.500.
- Meyer, Gerald L., to Hewlett-Packard Company. Data tracking phase locked loop. 4,316,152, Cl. 331-1.00A.
- Micallef, Lewis A., to Leeds and Micallef. Universal sequential dispensing pump system free of external check valves and having venting capability. 4,315,582, Cl. 222-148.000.
- Micchelli, Albert L.: See—
Nowak, Frank A., Jr.; and Micchelli, Albert L., 4,315,910, Cl. 424-47.000.
- Mich, Thomas F.; Haskell, Theodore H.; and Hutt, Marland P., Jr., to Warner-Lambert Company. Antibacterial amide compounds and pharmaceutical compositions containing the same. 4,315,933, Cl. 424-251.000.
- Mich, Thomas F.: See—
Doub, Leonard; Haskell, Theodore H.; Mich, Thomas F.; and Schweiss, Dietrich, 4,315,858, Cl. 260-239.100.
- Michel, Thomas J., to Santek, Inc. Protective transfer assembly for semiconductor devices. 4,316,231, Cl. 361-212.000.
- Micro Electronics, Inc.: See—
Perrino, Joseph A.; and Perrino, Thomas W., 4,315,444, Cl. 76-101.00R.
- MicroComm Corporation: See—
Hendricks, Donald B.; and Knight, Robert M., 4,316,256, Cl. 364-505.000.
- Mignard, Joseph J.: See—
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- Miki, Nobuaki; Sakakibara, Shiro; and Yokoyama, Fumitomo, to Aisin-Warner Kabushiki Kaisha. Governor hydraulic pressure supply apparatus for automatic transmissions. 4,315,519, Cl. 137-56.000.
- Milish, William P.: See—
McCabe, Garry-Owen; and Milish, William P., 4,315,436, Cl. 73-861.540.
- Miller, Arthur F.; Callahan, James L.; and Shaw, Wilfrid G., to Standard Oil Company. Catalyst preparation technique. 4,315,838, Cl. 252-448.000.
- Miller, Franklyn D.: See—
Muller, Werner C.; and Miller, Franklyn D., 4,315,987, Cl. 435-162.000.
- Mills, King L.: See—
Cheng, Paul J.; and Mills, King L., 4,315,901, Cl. 423-455.000.
- Mills, Luther J., III, to Brown & Williamson Tobacco Corporation. Tobacco drying apparatus. 4,315,515, Cl. 131-303.000.
- Milner, John A.: See—
Crosby, John; and Milner, John A., 4,316,034, Cl. 548-124.000.
- Mimura, Yoshinori: See—
Nakagome, Yukio; and Mimura, Yoshinori, 4,315,667, Cl. 350-96.340.
- Mines, Gordon L.: See—
Haller, Jacob S.; Mines, Gordon L.; and Mischnick, Meinert J., 4,315,367, Cl. 29-866.000.
- Minner, Willy, to Licentia-Patent-Verwaltungs-G.m.b.H. Circuit for switching and transmitting alternating voltages. 4,316,101, Cl. 307-578.000.
- Minnesota Mining & Manufacturing Company: See—
Bettenhausen, Larry A., 4,315,608, Cl. 242-68.000.
- Boeder, Charles W., 4,316,000, Cl. 526-301.000.
- Gasper, Alton J., 4,315,703, Cl. 405-264.000.
- Minolta Camera Kabushiki Kaisha: See—
Shigoku, Masaharu, 4,315,670, Cl. 350-429.000.
- Mischnick, Meinert J.: See—
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- Mishiro, Masayuki: See—
Isoya, Toshiyuki; Mishiro, Masayuki; and Yokoshima, Naohiko, 4,316,075, Cl. 219-124.220.
- Mitsubishi Denki Kabushiki Kaisha: See—
Matsuda, Setsuyuki, 4,316,052, Cl. 174-14.00R.
- Onishi, Masayoshi; Haruta, Yoshikatu; Sakurai, Toshiyuki; and Yamamoto, Shigemi, 4,315,493, Cl. 123-617.000.
- Mitsubishi Heavy Industries Ltd.: See—
Kawamura, Tomotsuchi; and Haneda, Hisao, 4,315,485, Cl. 122-406.00R.
- Mitsubishi Petrochemical Co., Ltd.: See—
Miwa, Naoto; Masuda, Yoshiro; Kawarabuki, Seiichi; Sai, Toshiyuki; and Saito, Takao, 4,315,988, Cl. 435-221.000.
- Mitsui Petrochemical Industries, Ltd.: See—
Tomoshige, Toru; Furuta, Harumi; Tachi, Akihiro; and Kawamoto, Nobuyuki, 4,315,863, Cl. 260-346.740.
- Ushida, Yoshihisa; Amimoto, Yoshikatu; Toyota, Akinori; and Kashiwa, Norio, 4,315,874, Cl. 264-5.000.
- Mitsui Toatsu Chemicals Incorporated: See—
Murata, Sadao; and Numata, Tadanobu, 4,315,541, Cl. 165-94.000.
- Miwa, Naoto; Masuda, Yoshiro; Kawarabuki, Seiichi; Sai, Toshiyuki; and Saito, Takao, to Mitsubishi Petrochemical Co., Ltd. Thermophilic collagenases, thermophilic bacteria capable of producing thermophilic collagenases, and process for producing said collagenases. 4,315,988, Cl. 435-221.000.
- Miyabayashi, Susumu; and Kaji, Takeyuki, to TDK Electronics Co., Ltd. Non-linear resistance elements and method for manufacturing same. 4,316,171, Cl. 338-21.000.
- Miyamoto, Tsutomu; and Matsudaira, Takayuki, to Tokyo Shibaura Denki Kabushiki Kaisha. Control apparatus of flying shears. 4,316,131, Cl. 318-612.000.
- Miyashita, Kenjiro: See—
Nozawa, Shinkichi; and Miyashita, Kenjiro, 4,315,900, Cl. 423-359.000.

- Miyoshi, Mituji: See—
Matsura, Kazuo; Shiraishi, Takeichi; Kawamata, Etsuo; Kuroda, Nobuyuki; and Miyoshi, Mituji, 4,315,999, Cl. 526-114.000.
- Mizuta, Toshiaki; Abe, Takeshi; Yoshihara, Ichiro; Saito, Kazuhito; and Tsuchiya, Keishin, to Ricoh Co., Ltd. Remote meter reading system. 4,316,262, Cl. 364-900.000.
- Mobil Oil Corporation: See—
Shihabi, David S., 4,315,814, Cl. 208-111.000.
- Mocella, Michael T.: See—
Taylor, Paul D.; and Mocella, Michael T., 4,315,896, Cl. 423-54.000.
- Mochiji, Kozo: See—
Okazaki, Shinji; Mochiji, Kozo; Takahashi, Susumu; and Murai, Fumio, 4,315,984, Cl. 430-296.000.
- Moe, Per J.; Carling, Helge; and Eriksen, Leif H., to Odd Berg. Method for aligning two pipeline ends and apparatus for carrying out the method. 4,315,702, Cl. 405-170.000.
- Moeller, Helmut, to Siemens Aktiengesellschaft. Electromagnetic relay with add-on conductor capability. 4,316,165, Cl. 335-202.000.
- Moen, Lenard E. Manufacture of H-dividers. 4,315,752, Cl. 493-171.000.
- Mojden, Wallace W., to Fleetwood Systems, Inc. Magnetic rail for magnetic belt conveyor. 4,315,568, Cl. 198-690.000.
- Molzen, Walter W., Jr.: See—
Broers, Alec N.; Cuomo, Jerome J.; Laibowitz, Robert B.; and Molzen, Walter W., Jr., 4,316,093, Cl. 250-492.100.
- Monauni, Christian K.; and Littleford, Sidney J., to Baker International Corporation. Locking device for landing within a well conduit. 4,315,544, Cl. 166-214.000.
- Monsanto Company: See—
King, Duane E.; Harris, Billy J.; MacLean, Donald L.; and Graham, Tommy E., 4,315,819, Cl. 210-321.300.
- Monsterleet, Jacques G. A.: See—
Moreau, Philippe J.; and Monsterleet, Jacques G. A., 4,315,385, Cl. 52-80.000.
- Montedison, S.p.A.: See—
Albizzati, Enrico; and Giannetti, Enzo, 4,315,836, Cl. 252-429.00B.
- Rinaldi, Roberto; Govoni, Gabriele; and Visani, Francesco, 4,316,009, Cl. 528-502.000.
- Scata, Umberto; Luciani, Luciano; and Barbe, Pier C., 4,315,835, Cl. 252-429.00B.
- Vidotto, Graziano; Sellan, Febo; Bacchetta, Enzo; Mainardi, Sandro; and Benussi, Giovanni, 4,315,843, Cl. 260-29.6PT.
- Mookherjee, Braja D.: See—
Trenkle, Robert W.; Mookherjee, Braja D.; Schmitt, Frederick L.; Vock, Manfred H.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,315,953, Cl. 426-538.000.
- Moore, Earl P., Jr., to Du Pont de Nemours, E. I., and Company. Process for preparing 2,2-azobis(2,4-dimethylpentanenitrile). 4,315,856, Cl. 260-192.000.
- Moore, Paul A.: See—
Balash, Charles M.; Hill, John R.; and Moore, Paul A., 4,315,628, Cl. 273-296.000.
- Moore, Richard W.: See—
Cassidy, Frederick; and Moore, Richard W., 4,315,941, Cl. 424-269.000.
- Moore, Robert A.; and Sundelin, Robert N., to Westinghouse Electric Corp. Wideband low triple transit delay line. 4,316,161, Cl. 333-141.000.
- Moore, Robert W. Elongated igniting device. 4,315,731, Cl. 431-254.000.
- Moranne, Jean-Pierre, to Societe Anonyme des Usines Chausson. Device for fixing a radiator into a vehicle particularly into a heavy-truck vehicle. 4,315,540, Cl. 165-67.000.
- Moreau, Philippe J.; and Monsterleet, Jacques G. A., to Campeon Bernard Cetra & Constructions Metalliques. High-safety container. 4,315,385, Cl. 52-80.000.
- Mori, Susumu, to Nippon Electric Co., Ltd. Semiconductor integrated circuit device having a Schottky barrier diode. 4,316,202, Cl. 357-15.000.
- Morikawa, Nobuhide: See—
Yoshimura, Yoshinobu; Morikawa, Nobuhide; and Takanohashi, Kunio, 4,316,018, Cl. 544-27.000.
- Morimoto, Masato: See—
Maruyama, Teruo; Koda, Minoru; Morimoto, Masato; and Inoue, Toshitsugu, 4,316,225, Cl. 360-107.000.
- Morin, Bruno; and Thiery, Daniel, to Commissariat a l'Energie Atomique. Process for the conditioning of solid radioactive waste with large dimensions. 4,315,831, Cl. 252-628.000.
- Moriyama, Aritsune: See—
Hayashi, Taro; and Moriyama, Aritsune, 4,315,456, Cl. 98-36.000.
- Morozov, Viktor N.; Gimpelson, Ilya A.; and Bogomolov, Vladislav M. Method of determining deformation characteristics of construction materials and soil. 4,315,429, Cl. 73-84.000.
- Morrison, Robert W., Jr.; Mallory, William R.; and Styles, Virgil L., to Burroughs Wellcome Co. Method of using 1H-pyrimido-4,5-c-1,2-diazepines as antibacterial and anticoccidial agents. 4,315,932, Cl. 424-251.000.
- Morrissey, William J.: See—
Atheam, Lee F.; and Morrissey, William J., 4,315,974, Cl. 429-181.000.
- Mostek Corporation: See—
Young, Ian A.; Hildebrand, David B.; and Johnson, Charles B., 4,316,106, Cl. 307-481.000.
- Motorola, Inc.: See—
Balan, Isadore; and Sievers, Kirk A., 4,316,134, Cl. 322-99.000.
- Dydyk, Michael, 4,316,160, Cl. 333-120.000.
- Latasiewicz, Leonard, 4,316,235, Cl. 361-408.000.
- Ooms, William J., 4,316,151, Cl. 331-1.00A.
- Moule, David J.: See—
Heinecke, Rudolf A. H.; and Moule, David J., 4,315,692, Cl. 356-399.000.
- Mueller, Claus D.: See—
Frickel, Fritz-Frieder; Franke, Albrecht; Von Philipsborn, Gerda; Mueller, Claus D.; and Lenke, Dieter, 4,315,939, Cl. 424-267.000.
- Mueller, Rolf K.: See—
Sawataru, Takeo; Keating, Patrick N.; Steinberg, Ronald F.; and Mueller, Rolf K., 4,316,191, Cl. 343-16.00R.
- Muller, Meinhardt: See—
Lechner, Ernst-Friedrich; Meusel, Otto; and Muller, Meinhardt, 4,316,236, Cl. 361-429.000.
- Muller, Michael; Palmer, Reed A.; and Marker, Harry R., to International Telephone and Telegraph Corporation. Key switch with snap-action contact and resilient actuator. 4,316,066, Cl. 200-670.000.
- Muller, Ortwin; and Stopar, Victor, to Carl Zeiss-Stiftung. Combinable apparatus for examination of the eye. 4,315,672, Cl. 351-13.000.
- Muller, Werner C.; and Miller, Franklyn D., to National Distillers & Chemical Corp. Continuous fermentation process. 4,315,987, Cl. 435-162.000.
- Mundi, Carla: See—
de Somer, Jean-Marie, 4,315,710, Cl. 414-47.000.
- Murai, Fumio: See—
Okazaki, Shinji; Mochiji, Kozo; Takahashi, Susumu; and Murai, Fumio, 4,315,984, Cl. 430-296.000.
- Murakami, Koichi: See—
Inuzuka, Tsuneki; Murakami, Koichi; Kurita, Kenji; and Sakamaki, Hisashi, 4,315,685, Cl. 355-14.00R.
- Murata, Sadao; and Numata, Tadanobu, to Mitsui Toatsu Chemicals Incorporated; and Toyo Engineering Corporation. Device for scraping off deposits from internal surfaces of elongated tubes. 4,315,541, Cl. 165-94.000.
- Murata, Seitaro. Dental elevator. 4,315,745, Cl. 433-141.000.
- Murphy, Joseph E.; and Piceno, Frank, Jr., to Gilbert Plastics, Inc. Child resistant closure cap apparatus employing fulcrum action. 4,315,576, Cl. 220-282.000.
- Musgrave, Daniel D. Inactive spring assembly. 4,315,378, Cl. 42-50.000.
- Muterspaugh, Max W.; and Theriault, Gerald E., to RCA Corporation. IF Bandpass shaping circuits. 4,316,220, Cl. 358-196.000.
- Myers, Ronald W.: See—
Hughes, Donald W. K.; and Myers, Ronald W., 4,315,664, Cl. 339-176.00M.
- Nadkarni, Anil V., to SCM Corporation. Dispersion strengthened metals. 4,315,770, Cl. 75-0.5BC.
- Nadkarni, Anil V.; Haws, Warren J.; and Whitman, Charles L., to SCM Corporation. Metal mass adapted for internal oxidation to generate dispersion strengthening. 4,315,777, Cl. 75-232.000.
- Naganoma, Masanaori: See—
Saito, Atsunori; Naganoma, Masanaori; Iwata, Yasuhiro; and Usami, Kiyoshi, 4,316,251, Cl. 364-424.000.
- Nagaoka, Shinji: See—
Saito, Takeo; Ishida, Hiroaki; Segawa, Takashi; Nagaoka, Shinji; and Takazawa, Yuzuru, 4,316,085, Cl. 250-204.000.
- Nagasawa, Mutsuo: See—
Akiyama, Takeshi; Koide, Toshiyuki; and Nagasawa, Mutsuo, 4,315,966, Cl. 428-260.000.
- Nagel, Arthur A., to Pfizer Inc. Cis-C₃-C₄-carbonate derivatives of O-demethylolandomycin and intermediates therefor. 4,316,010, Cl. 536-9.000.
- Nagel, Richard A., to Pittway Corporation. Combination combustion-products detector. 4,316,184, Cl. 340-628.000.
- Nagoya University: See—
Aoyama, Takahiko, 4,316,089, Cl. 250-385.000.
- Naito, Nagayoshi: See—
Hiratsuka, Motoki; Tanaka, Chiaki; and Naito, Nagayoshi, 4,315,882, Cl. 264-171.000.
- Naito, Okito, to Kabushiki Kaisha Suwa Seikosha. Electronic timepiece with global time zone display. 4,316,272, Cl. 368-21.000.
- Naito, Takayuki: See—
Iimura, Seiji; Okumura, Jun; and Naito, Takayuki, 4,316,024, Cl. 544-359.000.
- Naito, Tsutomu: See—
Onodera, Takashi; Komine, Kikui; Ohashi, Fumin; and Naito, Tsutomu, 4,315,813, Cl. 208-33.000.
- Nakada, Akira: See—
Uchiyama, Yasuji; Nakada, Akira; and Imamura, Akio, 4,315,451, Cl. 84-1.030.
- Nakagawa, Masao, to Kubota, Ltd. Working vehicle. 4,315,636, Cl. 280-703.000.
- Nakagome, Yukio; and Mimura, Yoshinori, to Kokusai Denshin Denwa Kabushiki Kaisha. Fiber for optical transmission having single crystal core. 4,315,667, Cl. 350-96.340.
- Nakaho, Junichi; and Ougimoto, Takao, to Kabushiki Kaisha Tokai Rika Denki Seisakusho. Electrical circuit breaker having a bimetal plate member of rectangular configuration. 4,316,168, Cl. 337-359.000.
- Nakai, Muneaki: See—
Sekido, Satoshi; Sotomura, Tadashi; and Nakai, Muneaki, 4,315,975, Cl. 429-191.000.
- Nakajima, Takashi; and Ohno, Iwao, to Diesel Kiki Co., Ltd. Fuel injection valve. 4,315,603, Cl. 239-533.300.

Nakajima, Takayoshi; and Tomioka, Susumu, to Chisso Corporation. Process for producing composite fibers of side by side type having no crimp. 4,315,881, Cl. 264-171.000.

Nakamichi Corporation: See—
Nakamichi, Niro; and Kawachi, Hideo, 4,316,226, Cl. 360-109.000.

Nakamichi, Niro; and Kawachi, Hideo, to Nakamichi Corporation. Head adjustment means for a tape recorder. 4,316,226, Cl. 360-109.000.

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Nakaya, Takao; and Nakamura, Akira, 4,315,557, Cl. 181-168.000.

Nakamura, Norimi; Okuyama, Shigeaki; Hasegawa, Shigekazu; Katayama, Yoshiyuki; and Obe, Mitsuhiro, to Kubota, Ltd. Tractor with a traction load sensing device. 4,315,548, Cl. 172-430.000.

Nakamura, Zeno, to Canon Kabushiki Kaisha. Adapter device. 4,315,679, Cl. 354-128.000.

Nakaya, Takao; and Nakamura, Akira, to Nippon Gakki Seizo Kabushiki Kaisha. Diaphragm for electro-acoustic transducer. 4,315,557, Cl. 181-168.000.

Nakayama, Masaharu: See—
Ujikawa, Norihisa; Nakayama, Masaharu; and Matsushima, Masaru, 4,315,997, Cl. 525-94.000.

Nakazato, Eiji, to Fuji Jukogyo Kabushiki Kaisha. Passive safety belt device for vehicles. 4,315,640, Cl. 280-808.000.

Namazu, Ryosuke: See—
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King, Stephen J., 4,315,717, Cl. 417-69.000.

Nash, John E.; and Knopp, Arthur A., to Syntex (U.S.A.) Inc. Vibratory device having tool assembly with fluid transport means. 4,315,742, Cl. 433-86.000.

Nathanson, Harvey C., to Westinghouse Electric Corp. Circuit for coupling signals from a sensor. 4,316,103, Cl. 307-304.000.

National Distillers & Chemical Corp.: See—
Muller, Werner C.; and Miller, Franklyn D., 4,315,987, Cl. 435-162.000.

National Mine Service Company: See—
McNally, Frank X., 4,315,956, Cl. 427-52.000.

National Starch and Chemical Corporation: See—
Nowak, Frank A., Jr.; and Micchelli, Albert L., 4,315,910, Cl. 424-47.000.

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Nawash, Michael S.; Stillman, Suzanne; and Mason, Robert S. Gastrostomy and other percutaneous transport tubes. 4,315,513, Cl. 128-348.000.

NCR Canada Ltd. - NCR Canada LTEE: See—
Subramaniam, Ambati, 4,316,222, Cl. 358-261.000.

Neckers, Douglas C.; Blosser, Erich C.; and Schaap, A. Paul, to Research Corporation. Polymer-bound photosensitizing catalysts. 4,315,998, Cl. 525-332.000.

Nelson Industries, Inc.: See—
Jaisinghani, Rajan A., 4,315,822, Cl. 210-794.000.

Nelson, Thomas M.: See—
Frascara, Jorge; Jungkind, Walter; Ladan, Carol J.; and Nelson, Thomas M., 4,315,748, Cl. 434-159.000.

Neroda, Thomas H.; and Hollis, Roger E., to Scott & Fetzer Co., The. Double insulated vacuum motor assembly. 4,315,343, Cl. 15-339.000.

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Takacs, Istvan; Kerey, Gyorgy; Illes, Janos; Rudolf, Peter; Gere, Pal; Czebe, Laszlo; and Neszmelyi, Erzsebet, 4,315,923, Cl. 424-183.000.

New England Medical Center, Inc.: See—
Corden, Brian J., 4,315,942, Cl. 424-295.000.

New England Nuclear Corporation: See—
Gelder, Frank B., 4,315,906, Cl. 424-1.000.

Newkirk, David D.: See—
Login, Robert B.; and Newkirk, David D., 4,315,847, Cl. 260-457PH.

Login, Robert B.; and Newkirk, David D., 4,315,969, Cl. 428-395.000.

Newton, Roger A. Enclosure for protecting instruments against adverse environments. 4,315,432, Cl. 73-431.000.

Niederer, Hans: See—
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Niederost, Werner A., to Cerberus Ltd. Connection apparatus for a fire alarm. 4,315,594, Cl. 340-693.000.

Nielsen, Thomas D. Method and apparatus to effect a fine grain size in continuous cast metals. 4,315,538, Cl. 164-488.000.

Nimura, Koichi: See—
Yoshikumi, Chikao; Fujii, Takayoshi; Fujii, Masahiko; Matsunaga, Kenichi; Oguchi, Yoshiharu; and Nimura, Koichi, 4,315,851, Cl. 260-112.00B.

Nikles, Erwin, to Ciba-Geigy Corporation. 1,3,5-Triazines containing at least one piperidine radical. 4,315,859, Cl. 260-243.300.

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Arakawa, Seiji; Seki, Tomio; Matsuoka, Hidekazu; Harada, Hatsuonori; and Ninomiya, Michinari, 4,315,914, Cl. 424-89.000.

Nippon Electric Co., Ltd.: See—
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Nakaya, Takao; and Nakamura, Akira, 4,315,557, Cl. 181-168.000.

Uchiyama, Yasuji; Nakada, Akira; and Imamura, Akio, 4,315,451, Cl. 84-1.030.

Nippon Oil Company, Limited: See—
Matsuura, Kazuo; Shiraiishi, Takeichi; Kawamata, Etsuo; Kuroda, Nobuyuki; and Miyoshi, Mituji, 4,315,999, Cl. 526-114.000.

Tsuchiya, Shozo; Oshima, Akio; and Hayashi, Hideo, 4,315,842, Cl. 260-28.50B.

Nippon Oil and Fats Company, Limited: See—
Hattori, Katsuhide; Fukatsu, Yoshiaki; and Takahashi, Masao, 4,315,784, Cl. 149-2.000.

Hattori, Katsuhide; Fukatsu, Yoshiaki; and Takahashi, Masao, 4,315,787, Cl. 149-2.000.

Ujikawa, Norihisa; Nakayama, Masaharu; and Matsushima, Masaru, 4,315,997, Cl. 525-94.000.

Nippon Piston Ring Co., Ltd.: See—
Sakamaki, Hiroshi; Maeda, Toshiyuki; Ushijima, Fumihiko; and Saitou, Tadashi, 4,315,719, Cl. 418-15.000.

Nippon Shokubai Kagaku Kogyo, Co., Ltd.: See—
Ozaki, Yukinori; and Soda, Hidemi, 4,315,964, Cl. 428-182.000.

Nippon Soda Company Limited: See—
Ishimitsu, Keiichi; Kasahara, Isamu; Yamada, Tomio; Matsuda, Michihiko; Takahashi, Hidemitsu; and Soma, Shuichi, 4,316,044, Cl. 560-105.000.

Nippon Soken, Inc.: See—
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Nippon Steel Corporation: See—
Akisue, Osamu; Yamada, Teruaki; Matsuo, Munetsugu; and Uehara, Norimasa, 4,315,783, Cl. 148-12.00C.

Nippon Telegraph & Telephone Public Corp.: See—
Shibayama, Akinori; Maio, Kenji; Hotta, Masao; and Yokozawa, Norio, 4,316,178, Cl. 340-347.0DA.

Tokunaga, Yukio; Sugiyama, Kiyoshi; and Seto, Tadao, 4,315,643, Cl. 282-27.500.

Nippondenso Co., Ltd.: See—
Saito, Atsunori; Naganoma, Masanaori; Iwata, Yasuhiro; and Usami, Kiyoshi, 4,316,251, Cl. 364-424.000.

Nishiguchi, Fumio; Ueno, Masataka; and Kimura, Masanobu, to Nissan Motor Company, Limited. Diffuser for fluid impelling device. 4,315,715, Cl. 415-207.000.

Nishizawa, Jun-ichi, to Zaidan Hojin Handotai Kenkyu Shinkokai. Crystal growth of compound semiconductor mixed crystals under controlled vapor pressure. 4,315,796, Cl. 156-614.000.

Nissan Motor Co., Ltd.: See—
Hideshima, Keiji; Koyanagi, Haruo; Suda, Hiroharu; Sawano, Hirokazu; Takaki, Masaaki; Yamanaka, Kunio; Yasuda, Isao; and Asada, Kazuyoshi, 4,316,260, Cl. 364-900.000.

Matsumura, Akira; Endo, Akira; and Sekine, Kenji, 4,316,173, Cl. 340-32.000.

Nishiguchi, Fumio; Ueno, Masataka; and Kimura, Masanobu, 4,315,715, Cl. 415-207.000.

Takahashi, Kotei; Endo, Teruo; Kawaguchi, Masayuki; and Sakamoto, Kenichi, 4,315,698, Cl. 403-59.000.

Niswonger, John O.: See—
Rowbottom, Francis W.; Skinner, Nathan L.; Niswonger, John O.; and Wadler, Milt, 4,315,732, Cl. 431-344.000.

Nitsch, Wilhelm: See—
Fergg, Berthold; Nitsch, Wilhelm; and Pflugbeil, Mathias, 4,315,686, Cl. 355-38.000.

Nitta, Yoshihiro: See—
Kuchikata, Masuo; Tsuyuki, Hiroshi; Furukawa, Toshio; Nitta, Yoshihiro; and Kuyama, Hiroshi, 4,315,846, Cl. 260-429.900.

Noack, Fritz, to Emil Pester GmbH Verpackungsmaschinen. Wrap-around packaging machine. 4,315,394, Cl. 53-553.000.

Noguchi, Koichi, to Ricoh Company, Ltd. Power supply for a flash tube. 4,316,125, Cl. 315-241.00R.

Nomura, Hirokazu: See—
Imada, Kiyoshi; Ueno, Susumu; and Nomura, Hirokazu, 4,315,808, Cl. 204-169.000.

Nomura, Hiroshi: See—
Tadokoro, Tomoo; Okimoto, Haruo; Honda, Yasuo; Nomura, Hiroshi; and Yoshimura, Masato, 4,315,489, Cl. 123-213.000.

Noorlander, Daniel O. Teat cups for milking machines. 4,315,480, Cl. 119-14.490.

Northern Telecom Limited: See—
Toth, Arpad G., 4,316,059, Cl. 179-1.0CN.

Nott, Frederick J.: See—
Waldron, John M.; Nott, Frederick J.; Harrison, Laurence C.; Johnson, Graham D.; and Green, Malcolm D., 4,316,112, Cl. 310-258.000.

Nowak, Frank A., Jr.; and Micchelli, Albert L., to National Starch and Chemical Corporation. Aerosol hair spray compositions. 4,315,910, Cl. 424-47.000.

Nozawa, Shinkichi; and Miyashita, Kenjiro, to Toyo Engineering Corporation. Integrated process for the production of methanol and ammonia. 4,315,900, Cl. 423-359.000.

Numata, Tadanobu: See—
Murata, Sadao; and Numata, Tadanobu, 4,315,541, Cl. 165-94.000.

Numazawa, Akio; and Katayama, Nobuaki, to Toyota Jidosha Kogyo Kabushiki Kaisha. Synchro-mesh type gear transmission. 4,315,564, Cl. 192-53.00F.

N.V. Trimetal Paint Co.: See—
Brandis Buys, Ludwig D. G.; Godard, Pierre M. J. L.; Goossens, Henri C.; Mignard, Joseph J.; Wertz, Jean-Luc H. M. F. G.; and Mercier, Jean-Pierre, 4,315,959, Cl. 427-214.000.

Obe, Mitsuhiro: See—
Nakamura, Norimi; Okuyama, Shigeaki; Hasegawa, Shigekazu; Katayama, Yoshiyuki; and Obe, Mitsuhiro, 4,315,548, Cl. 172-430.000.

Oberlinner, Andreas: See—
Baumann, Hans; and Oberlinner, Andreas, 4,316,027, Cl. 546-15.000.

Occidental Oil Shale, Inc.: See—
Burton, Robert S., III, 4,315,657, Cl. 299-2.000.

Occidental Research Corporation: See—
Sadhukhan, Pasupati, 4,315,402, Cl. 60-641.300.

Oce-Nederland B.V.: See—
Breuers, Theo P. C.; and Hanegraaf, Johannes P., 4,315,687, Cl. 355-75.000.

Van Soest, Hendrikus J. J.; and Mennen, Peter M. W., 4,315,581, Cl. 222-83.000.

"Oetropa" B.V. Internationale Oetropi Maatschappij: See—
Danne, Friedrich A., 4,315,571, Cl. 206-312.000.

Odd Berg: See—
Moe, Per J.; Carling, Helge; and Eriksen, Leif H., 4,315,702, Cl. 405-170.000.

Odle, Robert R.; Berry, Milton E.; Brunson, William W.; Burson, William R.; Cofer, Daniel B.; and Richards, Roy, to Southwire Company. Continuous melting and refining of secondary and/or blister copper. 4,315,775, Cl. 75-76.000.

Oetiker, Hans. Mechanical lock for clamps. 4,315,348, Cl. 24-20.0CW.

Off, Joseph W. A.; and Early, Judson H., to Hagggar Company. Apparatus for implanting pockets. 4,315,793, Cl. 156-443.000.

Officine Savio S.p.A.: See—
Pfeifer, Hermann; and Zurcher, Erwin, 4,315,399, Cl. 57-302.000.

Ogaki, Mitsuo: See—
Takagi, Masatomo; Ogaki, Mitsuo; and Hikita, Sadao, 4,316,234, Cl. 361-342.000.

Ogata, Yoshiro: See—
Yamazaki, Haruo; Ogata, Yoshiro; and Akutsu, Hidezoh, 4,316,122, Cl. 315-74.000.

Oguchi, Yoshiharu: See—
Yoshikumi, Chikao; Fujii, Takayoshi; Fujii, Masahiko; Matsunaga, Kenichi; Oguchi, Yoshiharu; and Nimura, Koichi, 4,315,851, Cl. 260-112.00B.

Ohashi, Fumio: See—
Onodera, Takashi; Komine, Kikuji; Ohashi, Fumio; and Naito, Tsutomu, 4,315,813, Cl. 208-33.000.

Ohdomari, Iwao: See—
Ho, Paul S.; Koster, Uwe; Kuan, Tung-Sheng; Ohdomari, Iwao; and Reisman, Arnold, 4,316,209, Cl. 357-67.000.

Ohhara, Minoru: See—
Yoshikumi, Chikao; Ohmura, Yoshio; Hirose, Fumio; Ikuzawa, Masanori; Matsunaga, Kenichi; Fujii, Takayoshi; Ohhara, Minoru; and Ando, Takao, 4,315,921, Cl. 424-180.000.

Ohji, Kenzo; Yamazaki, Osamu; Wasa, Kiyotaka; and Hayakawa, Shigeru, to Matsushita Electric Industrial Co., Ltd. Method of making a thin film. 4,315,960, Cl. 427-248.100.

Ohkawa, Shigeki: See—
Ishikawa, Shozo; Masubuchi, Shoji; and Ohkawa, Shigeki, 4,315,982, Cl. 430-59.000.

Ohmi, Kazuaki: See—
Sadamatsu, Shigeru; Yamamoto, Kohichi; and Ohmi, Kazuaki, 4,315,980, Cl. 430-58.000.

Ohmura, Yoshio: See—
Yoshikumi, Chikao; Ohmura, Yoshio; Hirose, Fumio; Ikuzawa, Masanori; Matsunaga, Kenichi; Fujii, Takayoshi; Ohhara, Minoru; and Ando, Takao, 4,315,921, Cl. 424-180.000.

Ohno, Iwao: See—
Nakajima, Takashi; and Ohno, Iwao, 4,315,603, Cl. 239-533.300.

Ohtomo, Atsushi, to Tokyo Shibaura Denki Kabushiki Kaisha. Steam valve of turbine system in power generating plant. 4,315,526, Cl. 137-630.140.

Oka, Ken K.; and Kulak, John, to Deere & Company. Shield and deflector means for orchard implement. 4,315,396, Cl. 56-320.100.

Okazaki, Shinji; Mochiji, Kozo; Takahashi, Susumu; and Murai, Fumio, to Hitachi, Ltd. Method of producing a semiconductor device. 4,315,984, Cl. 430-296.000.

Oki, Toshikazu; Yoshimoto, Akihiro; Matsuzawa, Yasue; Inui, Taiji; Takeuchi, Tomio; and Umezawa, Hamao, to Sanraku-Ocean Co., Ltd. Rhodomycin antibiotics. 4,316,011, Cl. 536-17.00A.

Okimoto, Haruo: See—
Tadokoro, Tomoo; and Okimoto, Haruo, 4,315,488, Cl. 123-213.000.

Tadokoro, Tomoo; Okimoto, Haruo; Honda, Yasuo; Nomura, Hiroshi; and Yoshimura, Masato, 4,315,489, Cl. 123-213.000.

Okuda, Hironori: See—
Sato, Masaki; Okuda, Hironori; Ito, Motoya; Makino, Yuji; Wachi, Yasuyuki; Takahashi, Noriyoshi; and Watanabe, Masatoshi, 4,316,113, Cl. 310-262.000.

Okuma, Shigeru: See—
Hayashi, Hideyuki; and Okuma, Shigeru, 4,315,563, Cl. 188-73.100.

Okumura, Jun: See—
Iimura, Seiji; Okumura, Jun; and Naito, Takayuki, 4,316,024, Cl. 544-359.000.

Okuyama, Shigeaki: See—
Nakamura, Norimi; Okuyama, Shigeaki; Hasegawa, Shigekazu; Katayama, Yoshiyuki; and Obe, Mitsuhiro, 4,315,548, Cl. 172-430.000.

Olin Corporation: See—
Evrard, Thomas O., 4,315,762, Cl. 71-27.000.

Kircher, Morton S., 4,315,810, Cl. 204-257.000.

Kircher, Morton S., 4,315,811, Cl. 204-279.000.

Oliver, Ronald N. Retained key double cylinder deadbolt. 4,315,420, Cl. 70-379.00R.

Ollinger, Janet, to Rohm and Haas Company. Phosphorodiamidothioates. 4,315,870, Cl. 260-947.000.

Olshesky, Udi: See—
Fridlender, Bertold; Ben-Moyal, Zohar; Olshesky, Udi; and Tirosh, Regine, 4,315,907, Cl. 424-1.000.

Olson, Warren E.: See—
Schmaling, Roderick N.; and Olson, Warren E., 4,315,683, Cl. 355-8.000.

Olsson, Billy E., to AMP, Inc. Multiple position brush connector. 4,315,663, Cl. 339-97.00P.

Olympus Optical Co., Ltd.: See—
Fujii, Toru, 4,315,669, Cl. 350-426.000.

Sakurada, Masahiko, 4,315,891, Cl. 422-64.000.

Tsunefuji, Katsuhiko, 4,315,678, Cl. 354-51.000.

Onishi, Masayoshi; Haruta, Yoshikazu; Sakurai, Toshiyuki; and Yamamoto, Shigemi, to Mitsubishi Denki Kabushiki Kaisha. Internal combustion engine ignition device. 4,315,493, Cl. 123-617.000.

Ono, Keichi: See—
Katsube, Junki; Ono, Keichi; and Kawakami, Hajime, 4,316,028, Cl. 546-51.000.

Onodera, Takashi; Komine, Kikuji; Ohashi, Fumio; and Naito, Tsutomu, to Toa Nenryo Kogyo Kabushiki Kaisha. Solvent dewaxing waxy hydrocarbon oils using dewaxing aid. 4,315,813, Cl. 208-33.000.

Ooms, William J., to Motorola, Inc. Phase locked loop frequency synthesizer using multiple dual modulus prescalers. 4,316,151, Cl. 331-1.00A.

Optische Werke G. Rodenstock: See—
Guilino, Gunther; and Barth, Rudolf, 4,315,673, Cl. 351-169.000.

Orban, Joseph N. Stud tensioning device. 4,315,446, Cl. 81-57.380.

Ortho Pharmaceutical Corporation: See—
Capetola, Robert J.; and McGuire, John L., 4,315,936, Cl. 424-260.000.

Oshima, Akio: See—
Tsuchiya, Shozo; Oshima, Akio; and Hayashi, Hideo, 4,315,842, Cl. 260-28.50B.

Oshita, Hirofumi: See—
Kosuge, Yoshiaki; Yoshida, Ryo; Sumida, Seizo; Oshita, Hirofumi; Otsuki, Soji; and Kamoshita, Katsuzo, 4,315,768, Cl. 71-98.000.

Osteen, David K.: See—
Mason, Charles R.; Osteen, David K.; and Vaalburg, Lawrence, 4,315,965, Cl. 428-198.000.

Osterloh, Manfred; Putz, Otto; and Stecker, Walter, to Siemens Aktiengesellschaft. Completely insulated, metal-encapsulated electrical switching section. 4,316,137, Cl. 323-364.000.

Ostrander, William J., to Chevron Research Company. Method for interpreting events of seismic records to yield indications of gaseous hydrocarbons. 4,316,267, Cl. 367-68.000.

Ostrander, William J., to Chevron Research Company. Method for interpretation of seismic records to yield indication of gaseous hydrocarbons. 4,316,268, Cl. 367-68.000.

Ostrovsky, Igor S.: See—
Ivanov, Valentin A.; Khodosh, Vladimir A.; Ostrovsky, Igor S.; Shenkman, Mikhail Y.; Koshelev, Jury A.; Vlasov, Sergei N.; Pachulia, Budu P.; and Fishman, Iosif D. Y., 4,315,701, Cl. 405-150.000.

Otsuki, Soji: See—
Kosuge, Yoshiaki; Yoshida, Ryo; Sumida, Seizo; Oshita, Hirofumi; Otsuki, Soji; and Kamoshita, Katsuzo, 4,315,768, Cl. 71-98.000.

Ougimoto, Takao: See—
Nakaho, Junichi; and Ougimoto, Takao, 4,316,168, Cl. 337-359.000.

Overly, Carl G.: See—
Randall, Stephen E.; and Overly, Carl G., 4,315,395, Cl. 56-10.100.

Owens-Illinois, Inc.: See—
Bradley, Ronald W.; Carl, David G.; and Keating, Bernard L., 4,315,573, Cl. 215-12.00R.

Ozaki, Yukinori; and Soda, Hidemi, to Nippon Shokubai Kagaku Kogyo, Co., Ltd. Glass fiber reinforced resin laminate and a process for the manufacture thereof. 4,315,964, Cl. 428-182.000.

Pachaly, Reinhard: See—
Lell, Rainer; Al-Muddarnis, Ghazi R.; and Pachaly, Reinhard, 4,315,904, Cl. 423-574.00R.

Pachulia, Budu P.: See—
Ivanov, Valentin A.; Khodosh, Vladimir A.; Ostrovsky, Igor S.; Shenkman, Mikhail Y.; Koshelev, Jury A.; Vlasov, Sergei N.; Pachulia, Budu P.; and Fishman, Iosif D. Y., 4,315,701, Cl. 405-150.000.

Paciorek, Kazimiera J. L.: See—
United States of America, National Aeronautics and Space Administration; Kratzer, Reinhold H.; Paciorek, Kazimiera J. L.; Ito, Thomas I.; and Rosser, Robert W., 4,316,035, Cl. 548-131.000.

Paget, Charles J.: See—
Eli Lilly and Company; Paget, Charles J.; and Wikel, James H., 4,316,021, Cl. 544-139.000.

Palagyi, Tivadar: See—
Kovacs, Ferenc; Andor, Akos; and Palagyi, Tivadar, 4,315,915, Cl. 424-143.000.

Palmer, Jan T., to U.S. Philips Corporation. Method of manufacturing microminiature solid state devices. 4,315,366, Cl. 29-854.000.

Palmer, Reed A.: See—
Muller, Michael; Palmer, Reed A.; and Marker, Harry R., 4,316,066, Cl. 200-670.000.

Palmer, Stuart B.; and Primavesi, Gregory J., to Bestobell Mohrey Limited. Liquid level sensor. 4,316,183, Cl. 340-621.000.

- Palmer, Walter E.: See—
Gallant, Stuart L.; Caron, Paul R.; Dunn, Stanley M.; Palmer, Walter E.; Schmitt, Ernest G.; and Taddeo, Michael, 4,316,249, Cl. 364-417.000.
- Palmeri, Angelo, to Carle & Montanari S.p.A. Device for the quick splicing of paper webs, 4,315,794, Cl. 156-504.000.
- Pape, Erwin, to Volkswagenwerk Aktiengesellschaft. Carburetor control device for carburetors in internal-combustion engines, 4,315,871, Cl. 261-65.000.
- Park, Ronald Frederick: See—
Scheidler, Raymond T., 4,315,483, Cl. 119-51.110.
- Parker, Alan; and Farnhill, William M., to Platt Saco Lowell Ltd. Open-end spinning apparatus, 4,315,398, Cl. 57-58.950.
- Partridge, Joshua J. Drain pan for radiators and cooling systems, 4,315,561, Cl. 184-106.000.
- Parzanici, Remo E., to International Business Machines Corporation. Xerographic toner fixing station, 4,315,682, Cl. 355-3.0FU.
- Pasternak, Anthony W.: See—
Dosi, Mahendra K.; James, Douglas J.; and Pasternak, Anthony W., 4,316,157, Cl. 372-59.000.
- Pastor, Ricardo C.; and Devor, Donald P., to Hughes Aircraft Company. Process for increasing laser crystal fluorescence yield by controlled atmosphere processing, 4,315,832, Cl. 252-301.40R.
- Patel, Jitendra G.; Sandstrom, William A.; and Tarman, Paul B., to Institute of Gas Technology. Process for the production of fuel gas from coal, 4,315,758, Cl. 48-197.00R.
- Patterson, Edwin A.: See—
Ritter, Don D.; Patterson, Edwin A.; and Pigg, Henry M., 4,315,587, Cl. 227-67.000.
- Paul, Volker: See—
Reiser, Wolf; Draber, Wilfried; Buchel, Karl H.; Lurssen, Klaus; Frohberger, Paul-Ernst; and Paul, Volker, 4,315,764, Cl. 71-76.000.
- Pawlowski, Jean, to Union Siderurgique du nord et de l'est de la France ("USINOR"). Machine for splitting slabs by oxygen-cutting, 4,315,618, Cl. 266-69.000.
- Payne, Beverly F.: See—
Edelman, Seymour; and Payne, Beverly F., 4,315,433, Cl. 73-517.00R.
- Pearsall, Wally. Dual purpose coat, 4,315,334, Cl. 2-85.000.
- Pedder, Simon J.: See—
Greener, Brian; and Pedder, Simon J., 4,315,566, Cl. 193-37.000.
- Peiffer, Dennis G.; and Deckman, Harry W., to University of Rochester. The Colloidal coating for small three dimensional articles, and particularly for fusion targets having glass shells, 4,315,958, Cl. 427-214.000.
- Pemco-Kalamazoo, Inc.: See—
Black, John W., 4,315,727, Cl. 425-563.000.
- Peppers, James M., to Gearhart Industries, Inc. Chemical pipe cutter with exponential spacing between reactant stages, 4,315,797, Cl. 156-654.000.
- Perkins, Charles V.; and Firth, John R., to Pye Electronic Products Limited. Cam and follower arrangement, 4,315,691, Cl. 356-331.000.
- Perrino, Joseph A.; and Perrino, Thomas W., to Micro Electronics, Inc. Method of manufacture of blade members for wire stripping device, 4,315,444, Cl. 76-101.00R.
- Perrino, Thomas W.: See—
Perrino, Joseph A.; and Perrino, Thomas W., 4,315,444, Cl. 76-101.00R.
- Perrot, Jacques, to Societe D'Etudes Scientifiques et Industrielles. Novel medicament based on aspirin and heptaminol, 4,315,924, Cl. 424-233.000.
- Petitpierre, Jean C., to Ciba-Geigy Corporation. Benzopyranthiazoles, 4,316,036, Cl. 548-153.000.
- Petocz, Lujza: See—
Hajos, Gyorgy; Messmer, Andras; Benko, Pal; Petocz, Lujza; Gorog, Peter; and Kasoczky, Ibolya, 4,316,022, Cl. 544-184.000.
- Petroleum Meter & Pump Co., Inc.: See—
Stephenson, Tom, 4,315,438, Cl. 74-352.000.
- Petrolite Corporation: See—
Quinlan, Patrick M., 4,316,007, Cl. 528-405.000.
- Pfaff, Maurice E.: See—
Baralle, Roger M.; Compere, Marcel A.; Pfaff, Maurice E.; and Goumont, Claude G., 4,315,986, Cl. 430-411.000.
- Pfeifer, George F.: See—
Colangelo, Dominick; Pfeifer, George F.; and Schumacher, Gary B., 4,316,242, Cl. 363-21.000.
- Pfeifer, Hermann; and Zurcher, Erwin, to Officine Savio S.p.A. Procedure for cleaning a rotor of a spinning unit of the open-end type, 4,315,399, Cl. 57-302.000.
- Pfeiffer, Aloysius T.: See—
Castellani, Eugene E.; Croll, Ian M.; Pfeiffer, Aloysius T.; and Romankiw, Lubomyr T., 4,315,985, Cl. 430-314.000.
- Pfizer Inc.: See—
Nagel, Arthur A., 4,316,010, Cl. 536-9.000.
- Pflugbeil, Mathias: See—
Fergg, Berthold; Nitsch, Wilhelm; and Pflugbeil, Mathias, 4,315,686, Cl. 355-38.000.
- Pfuhl, Hans P. H.; Agthe, Dieter P. H.; and Kreiner, Diethard G. Process for preparing starting materials to form a ceramic composition, 4,315,879, Cl. 264-117.000.
- Phillips, Carol L. E.: See—
Phillips, Douglas S. M.; Phillips, Carol L. E.; and Phillips, David L. D., 4,316,232, Cl. 361-232.000.
- Phillips, David L. D.: See—
Phillips, Douglas S. M.; Phillips, Carol L. E.; and Phillips, David L. D., 4,316,232, Cl. 361-232.000.
- Phillips, Douglas S. M.; Phillips, Carol L. E.; and Phillips, David L. D. Electric fence controllers, 4,316,232, Cl. 361-232.000.
- Phillips, James G., to Honeywell Inc. Cluster core assembly for electroplating radioactive sources for an ionization smoke detector, 4,315,809, Cl. 204-224.00R.
- Phillips Petroleum Co.: See—
Austin, Oliver K., 4,315,894, Cl. 422-151.000.
- Cheng, Paul J.; and Mills, King L., 4,315,901, Cl. 42J-455.000.
- Dilbert, Meredith N., 4,315,902, Cl. 423-456.000.
- Jensen, Bruce A., 4,316,255, Cl. 364-501.000.
- Kay, Arthur H.; and Dzielwski, Ted, 4,315,382, Cl. 47-66.000.
- Phillips, Robert A.: See—
Mack, Anthony C.; Phillips, Robert A.; and Shumrak, George K., 4,316,078, Cl. 219-386.000.
- Piasecki, Raymond F.: See—
Greenwood, William S.; Kuo, Ted L. C.; and Piasecki, Raymond F., 4,315,662, Cl. 339-97.00C.
- Piazza, Matthew R., to Maso-Therm Corporation. Composite wall structure and process therefor, 4,315,391, Cl. 52-293.000.
- Piceno, Frank, Jr.: See—
Murphy, Joseph E.; and Piceno, Frank, Jr., 4,315,576, Cl. 220-282.000.
- Pidcock, Anthony; Close, Desmond; and To Kwan, William C., to Rolls-Royce Limited. Combustion apparatus, 4,315,405, Cl. 60-752.000.
- Pigford, James W.; and Green, Carolyn J. Method and tool for placing beads on a braid of hair, 4,315,362, Cl. 29-433.000.
- Pigg, Henry M.: See—
Ritter, Don D.; Patterson, Edwin A.; and Pigg, Henry M., 4,315,587, Cl. 227-67.000.
- Pilla, Arthur A.: See—
Ryaby, John P.; and Pilla, Arthur A., 4,315,503, Cl. 128-1.500.
- Pipaud, Lucien M. A., to Societe de Recherches et de Perfectionnements Industriels et Etablissements H. Morin-Secretan. Apparatus and method for selecting from coins or tokens, 4,315,567, Cl. 194-101.000.
- Pitkjaan, Elam; and Endler, James F., to Westinghouse Electric Corp. Inner lamp mount assembly for vehicular headlamp and similar lighting apparatus, 4,316,240, Cl. 362-267.000.
- Pitler, Richard K., to Allegheny Ludlum Steel Corporation. Method of producing light gage metallic strip material, 4,315,776, Cl. 75-208.00R.
- Pitney Bowes Inc.: See—
Schmaling, Roderick N.; and Olson, Warren E., 4,315,683, Cl. 355-8.000.
- Pittroff, Hans: See—
Korber, Joachim; Bange, Gunter; Poll, Walter; Kaltenbach, Volker; Bensberg; and Pittroff, Hans, 4,316,175, Cl. 340-57.000.
- Pittsburgh Environmental and Energy Systems, Inc.: See—
Bramer, Henry C.; and Shapiro, Edward, 4,315,895, Cl. 422-171.000.
- Pittway Corporation: See—
Nagel, Richard A., 4,316,184, Cl. 340-628.000.
- Pivitt, Erich: See—
Saxarra, Jurgen; and Pivitt, Erich, 4,316,136, Cl. 323-282.000.
- Plath, Peter; Wuerzer, Bruno; and Rohr, Wolfgang, to BASF Aktiengesellschaft. Substituted 3-aminopyrazoles, 4,316,039, Cl. 548-362.000.
- Plath, Peter; Rohr, Wolfgang; Wuerzer, Bruno; and Becker, Rainer, to BASF Aktiengesellschaft. 4-Methoxycarbonyl-pyrazole ether derivatives, 4,316,040, Cl. 548-377.000.
- Platt Saco Lowell Ltd.: See—
Parker, Alan; and Farnhill, William M., 4,315,398, Cl. 57-58.950.
- Poisson, Regis: See—
Bouge, Gilbert; Jacques, Roland; Poisson, Regis; and Seigneurin, Laurent, 4,315,839, Cl. 252-448.000.
- Polaroid Corporation: See—
Johnson, Bruce K., 4,315,675, Cl. 354-26.000.
- Johnson, Bruce K.; and Whiteside, George D., 4,315,677, Cl. 354-49.000.
- LaRocque, Arthur G.; Whiteside, George D.; and Johnson, Bruce K., 4,315,676, Cl. 354-27.000.
- Launie, Kenneth J., 4,315,681, Cl. 354-197.000.
- Poler, Stanley. Intraocular lens, 4,315,336, Cl. 3-13.000.
- Poleschuk, Nicholas: See—
Cass, Louis G.; Poleschuk, Nicholas; and Purdy, Samuel, 4,316,239, Cl. 362-155.000.
- Poll, Walter: See—
Korber, Joachim; Bange, Gunter; Poll, Walter; Kaltenbach, Volker; Bensberg; and Pittroff, Hans, 4,316,175, Cl. 340-57.000.
- Popov, Nikolay T.: See—
Semerdjiev, Stefan G.; and Popov, Nikolay T., 4,315,726, Cl. 425-560.000.
- Popper Engineering Ltd.: See—
Popper, Jakhin B., 4,315,817, Cl. 209-315.000.
- Popper, Jakhin B., to Popper Engineering Ltd. Vibrating surface apparatus, 4,315,817, Cl. 209-315.000.
- Posseme, Gilles, to Thomson-CSF. Apparatus for positioning a body by means of a magnetic field, 4,316,253, Cl. 364-432.000.
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- Prusak, John J., to RCA Corporation. Spacer for stacked recorded discs, 4,316,281, Cl. 369-291.000.
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- Rattee, Ian D.; and Lewis, Edward J., to Decor Innovations Limited. Decoration of flexible substrates, 4,315,790, Cl. 156-230.000.
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- Rick, Norman A.: See—
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- Webber, William T.; and Stabinsky, Leon, 4,315,490, Cl. 123-275.000.
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- Scheibenreif, Karl: See—
Fussl, Erwin; and Scheibenreif, Karl, 4,315,735, Cl. 432-25.000.
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- Schering, A.G.: See—
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- Schering Corporation: See—
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- Schiff, Hendrikus J. Profiled hinge joint. 4,315,345, Cl. 16-267.000.
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- Schmitz, Charles J., to Harper-Wyman Company. Control arrangement for self-cleaning oven. 4,316,079, Cl. 219-413.000.
- Schnall, Gunther; Aldenhoven, Klaus; and Blochl, Hanns, to AGFA-Gevaert AG. Pivotal swing-out fuser assembly for copying apparatus. 4,315,736, Cl. 432-59.000.
- Schneider, Claus; Weber, Karl-Heinz; Walther, Gerhard; Boke, Karin; and Bechtel, Wolf D., to Boehringer Ingelheim GmbH. 4-Phenyl-4,5,6,7-tetrahydro-pyrrulo [2,3-c] pyridines and salts thereof. 4,315,938, Cl. 424-267.000.
- Schneider, Hans F.: See—
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Freitag, Herbert; and Schnitzius, Klaus, 4,316,098, Cl. 307-119.000.
- Schritt, Renaldo F., to Grad-Line, Inc. Electro-hydraulic steering system. 4,315,555, Cl. 180-140.000.
- Schroder, Karl, to Meggle Milchindustrie GmbH & Co. KG. Process for making a milk protein digestion product and foodstuffs comprising same. 4,315,949, Cl. 426-334.000.
- Schroder, Karl: See—
Kuipers, Arie; and Schroder, Karl, 4,315,954, Cl. 426-583.000.
- Schrougham, Benton: See—
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- Schuberth, Ralph G.: See—
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Colangelo, Dominick; Pfeiffer, George F.; and Schumacher, Gary B., 4,316,242, Cl. 363-21.000.
- Schupp, Eberhard: See—
Kempter, Fritz E.; Schupp, Eberhard; and Gulbins, Erich, 4,315,840, Cl. 260-18.07N.
- Schwartz, Stuart: See—
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- Schwarz, Erwin; and Swozil, Adolf, to Signi Elektrographit Gesellschaft mit beschränkter Haftung. Vacuum support for burst protection device. 4,315,575, Cl. 220-89.00A.
- Schweiss, Dietrich: See—
Doub, Leonard; Haskell, Theodore H.; Mich, Thomas F.; and Schweiss, Dietrich, 4,315,858, Cl. 260-239.100.
- Schweizer, Dieter; and Glasl, Johann, to Henkel Kommanditgesellschaft auf Aktien. Lithium soaps of substituted hydroxylated fatty acids and their use as thickening agents. 4,315,825, Cl. 252-41.000.
- Seifres, Donald R.; Streifer, William; and Burnham, Robert D., to Xerox Corporation. Optical repeater integrated lasers. 4,316,156, Cl. 372-50.000.
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Nadkari, Anil V., 4,315,770, Cl. 75-0.5BC.
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- Seconozza, Victor. Hanger support. 4,315,615, Cl. 248-489.000.
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Neroda, Thomas H.; and Hollis, Roger E., 4,315,343, Cl. 15-339.000.

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Mason, Charles R.; Osteen, David K.; and Vaalburg, Lawrence. 4,315,965, Cl. 428-198,000.

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Second Foundation: See—
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Seeman, Howard H.; and Kaupp, Robert F., to Selas Corporation of America. Floating radiant tube sheets for vertical tube reformers and the like. 4,315,486, Cl. 122-510,000.

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Seglias, Werner, to Von Roll A.G. Loading method and device for feeding waste-filled containers into a rotary incinerator. 4,315,712, Cl. 414-149,000.

Seiders, Roger S. Fishing rod eye tying device. 4,315,606, Cl. 242-7,190.

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Bouge, Gilbert; Jacques, Roland; Poisson, Regis; and Seigneurin, Laurent. 4,315,839, Cl. 252-448,000.

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Seitz, Alan F., to Data Motion Incorporated. Sheet-feed tractor with eccentric clamping device. 4,315,585, Cl. 226-74,000.

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Semerdjiev, Stefan G.; and Popov, Nikolay T., to Institute po Metaloznanie i Tehnologiya na Metalite. Distributing device for machines for injection molding of thermoplastic parts with solid skin and cellular core. 4,315,726, Cl. 425-560,000.

Senjo, Teizo; and Kobayashi, Makio, to Fuji Kasui Engineering Co., Ltd.; and Sumitomo Metal Industries, Ltd. Plate column. 4,315,872, Cl. 261-113,000.

Senturia, Stephen D., to Massachusetts Institute of Technology. Charge-flow transistors. 4,316,140, Cl. 324-71,05N.

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Tokunaga, Yukio; Sugiyama, Kiyoshi; and Sero, Tadao. 4,315,643, Cl. 282-27,500.

Seymour, Theodore J.: See—
Laune, Gordon H.; Seymour, Theodore J.; Sakauye, Randall T.; and Marlow, John V., 4,315,356, Cl. 29-6,100.

Shah, Nutan B.: See—
Heyd, Allen; and Shah, Nutan B., 4,315,779, Cl. 106-35,000.

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Laffoon, Perry D.; and Shannon, John A., 4,316,095, Cl. 290-38,00R.

Shapiro, Edward: See—
Bramer, Henry C.; and Shapiro, Edward. 4,315,895, Cl. 422-171,000.

Shapiro, Jonathan S.; and Holland, William P., to Machlett Laboratories, Incorporated. The X-Ray tube control system. 4,316,129, Cl. 318-313,000.

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Tanabe, Takeshi. 4,316,068, Cl. 219-10,55B.

Shaw, Wilfrid G.: See—
Washizuka, Isamu; and Tateishi, Iwao. 4,316,081, Cl. 235-92,0DN.

Shaw, Wilfrid G.: See—
Miller, Arthur F.; Callahan, James L.; and Shaw, Wilfrid G., 4,315,838, Cl. 252-448,000.

Sheets, Francis E., to Eli Lilly and Company. Fermentation system and probe detector holder. 4,315,990, Cl. 435-291,000.

Shell Oil Company: See—
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Stuivenwold, Paulus A.; and Van Timmeren, Kornelis. 4,315,428, Cl. 73-61,00R.

Veenstra, Uiltje J., 4,315,880, Cl. 264-119,000.

Willis, Carl L.; and Slauch, Lynn H., 4,316,008, Cl. 528-487,000.

Shelton, Richard M.: See—
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Shenkman, Mikhail Y.: See—
Ivanov, Valentin A.; Khodosh, Vladimir A.; Ostrovsky, Igor S.; Shenkman, Mikhail Y.; Koshelev, Jury A.; Vlasov, Sergei N.; Pachulia, Budu P.; and Fishman, Isif D. Y., 4,315,701, Cl. 405-150,000.

Sherwood Medical Industries, Inc.: See—
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Shibayama, Akinori; Maio, Kenji; Hotta, Masao; and Yokozawa, Norio, to Nippon Telegraph & Telephone Public Corp.; and Hitachi, Ltd. Digital-to-analog conversion system with compensation circuit. 4,316,178, Cl. 340-347,0DA.

Shigoku, Masaharu, to Minolta Camera Kabushiki Kaisha. Zoom lens barrel with single operating ring. 4,315,670, Cl. 350-429,000.

Shihabi, David S., to Mobil Oil Corporation. Hydrocarbon conversion process. 4,315,814, Cl. 208-111,000.

Shiley, Inc.: See—
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Shiroishi, Yoshihiro: See—
Fujiwara, Hideo; Kudo, Mitsuhiro; Tamura, Teizou; Sugishita, Nobuyuki; Shiroishi, Yoshihiro; Kimura, Takeshi; Shinagawa, Kiminari; and Kumasaka, Noriyuki. 4,316,228, Cl. 360-127,000.

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Makabe, Hachiro; Watanabe, Kazuo; Takenoya, Hideaki; Shomura, Eiichi; and Tonomura, Yoshinobu. 4,315,472, Cl. 112-158,00E.

Shoner, David E. Self-compensating solar collector. 4,315,499, Cl. 126-422,000.

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Siemens Aktiengesellschaft: See—
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Lechner, Ernst-Friedrich; Meusel, Otto; and Muller, Meinhardt. 4,316,236, Cl. 361-429,000.

Lichti, Reiner. 4,316,056, Cl. 178-23,00R.

Ludwig, Volker. 4,316,057, Cl. 178-63,00E.

Moeller, Helmut. 4,316,165, Cl. 335-202,000.

Osterloh, Manfred; Putz, Otto; and Stecker, Walter. 4,316,137, Cl. 323-364,000.

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Del Medico, Anthony P.; and Arseneau, Roger E., 4,316,257, Cl. 364-527,000.

Sievers, Kirk A.: See—
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Silver, Jules; and Vaiciulis, Thomas J. Two-compartment container with means for dispersing contents of one compartment into the other compartment. 4,315,570, Cl. 206-221,000.

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Walker, Derek; Silvestri, Herbert H.; Sapino, Chester; and Johnson, David A., 4,316,016, Cl. 544-16,000.

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Lugosi, Gyorgy; Simay, Antal; Bodnar, Janos; Turcsan, Istvan; Jelinek, Istvan; Somfai, Eva; and Simandi, Laszlo. 4,315,861, Cl. 260-340,90R.

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Simmons, George A.; and McGlashan, Kenneth W., to RCA Corporation. Self-converging deflection yoke and winding method and apparatus therefor. 4,316,166, Cl. 335-213,000.

Simpson, William R., to Sandoz, Inc. 5-Pyrrolidino, piperidino or N'-2-hydroxyethylpiperazino-7-phenyl or substituted phenyl-2,3-dihydro-1H-1,4-diazepines. 4,315,860, Cl. 260-245,700.

Sitterly, Linda G.: See—
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SKF (U.K.) Limited: See—
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Rowbottom, Francis W.; Skinner, Nathan L.; Niswonger, John O.; and Wadler, Milt. 4,315,732, Cl. 431-344,000.

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SKW Trostberg Aktiengesellschaft: See—
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Sleeth, Rhule B.; Theiler, Richard F.; and Rendek, Robert B., to Armour and Company. Process for preparing cooked bacon having reduced levels of N-nitrosamines. 4,315,948, Cl. 426-266,000.

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Smith, Cecil R., Jr.: See—
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Smith, Ennis C.; and Gunter, Addison Y., deceased (by Gunter, Ann R., executrix), to Hudson Products Corporation. Cooling equipment. 4,315,873, Cl. 261-158,000.

Smith, Lawrence W.: See—
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Smyth, Edgar H. Selector fuse. 4,316,170, Cl. 337-257,000.

Sneringer, Andrew M. Baseball shoe. 4,315,374, Cl. 36-126,000.

Snellman, Donald L., to International Business Machines Corporation. Sheet collating deflector. 4,315,621, Cl. 271-296,000.

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Moranne, Jean-Pierre. 4,315,540, Cl. 165-67,000.

Societe Anonyme dite: CERAVER: See—
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Societe Anonyme dite: Stein Industrie: See—
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Societe de Recherches et de Perfectionnements Industriels et Etablissements H. Morin-Secretan: See—
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Societe D'Etudes Scientifiques et Industrielles: See—
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Societe Nationale des Poudres et Explosifs: See—
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Societe Nationale Elf Aquitaine (Production): See—
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Sodaro, Donald: See—
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Sony Corporation: See—
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Soong, Tsai C., to Xerox Corporation. Stapler apparatus. 4,315,589, Cl. 227-155,000.

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Sorenson, Wayne P., to American Can Company. Fibrous web structure and its manufacture. 4,315,721, Cl. 425-81,100.

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Southwire Company: See—
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Sparling, Darel L. Truck assembly. 4,315,653, Cl. 296-63,000.

Spector, George: See—
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Tartaglia, Lawrence; and Spector, George. 4,315,447, Cl. 81-421,000.

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Sperry Corporation: See—
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Greenig, Nelson L.; and Shelton, Richard M., 4,316,199, Cl. 346-160,000.

Kaminski, David G., 4,316,148, Cl. 328-55,000.

Randall, Stephen E.; and Overly, Carl G., 4,315,395, Cl. 56-10,100.

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Sprague Electric Company: See—
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Sprecker, Mark A., to International Flavors & Fragrances Inc. Flavoring with norbornyl ethers and esters. 4,315,945, Cl. 426-3,000.

Sprecker, Mark A.: See—
Wieggers, Wilhelmus J.; Sprecker, Mark A.; Watkins, Hugh; Vock, Manfred H.; and Schmitt, Frederick L., 4,315,951, Cl. 426-536,000.

Stabilus GmbH: See—
Freitag, Herbert; and Schnitzius, Klaus. 4,316,098, Cl. 307-119,000.

Stabinsky, Leon: See—
Webber, William T.; and Stabinsky, Leon. 4,315,490, Cl. 123-275,000.

Staendeke, Horst; Adam, Wilhelm; Dany, Franz-Josef; and Kandler, Joachim, to Hoechst Aktiengesellschaft. Stabilized red phosphorus and process for its manufacture. 4,315,897, Cl. 423-274,000.

Stal Refrigeration AB: See—
Brandin, Ivar. 4,315,410, Cl. 62-66,000.

Stallings, Jimmie L. Continuous circulation apparatus for air drilling well bore operations. 4,315,553, Cl. 175-207,000.

Stamcarbon, B.V.: See—
Van Gasse, Rene L. E., 4,315,884, Cl. 264-255,000.

Standard Oil Company: See—
Miller, Arthur F.; Callahan, James L.; and Shaw, Wilfrid G., 4,315,838, Cl. 252-448,000.

Standard Oil Company (Indiana): See—
Hall, Robert D., 4,315,656, Cl. 299-1,000.

Standard Oil Company (Ohio): See—
Bremer, Noel J.; and Dria, Dennis E., 4,315,864, Cl. 260-346,750.

Stankowski, Hans-Werner: See—
Merki, Josef; Stankowski, Hans-Werner; and Stockli, Franz. 4,316,111, Cl. 310-218,000.

Stanley, Robert K., to Techniprises Limited. Strand crimping treatment. 4,315,355, Cl. 28-251,000.

Starck, Christian, to La Telemecanique Electrique. Switch operating device. 4,316,063, Cl. 200-16,00C.

Starks, Charles M., to Conoco Inc. Preparation of cation-exchange resin. 4,315,995, Cl. 521-33,000.

Staron, Philippe J.: See—
Barbier, Maurice G. Y.; and Staron, Philippe J., 4,316,266, Cl. 367-21,000.

Stauch, Dieter, heir: See—
Stauch, Philipp E., deceased; Stauch, Thea, heir; and Stauch, Dieter, heir. 4,315,560, Cl. 181-275,000.

Stauch, Philipp E., deceased; by Stauch, Thea, heir; and by Stauch, Dieter, heir. Silencer for aircraft piston engine. 4,315,560, Cl. 181-275,000.

Stauch, Thea, heir: See—
Stauch, Philipp E., deceased; Stauch, Thea, heir; and Stauch, Dieter, heir. 4,315,560, Cl. 181-275,000.

Stauffer Chemical Company: See—
Large, George B., 4,315,765, Cl. 71-87,000.

Stecker, Walter: See—
Adolph, Erich; Bayrak, Unal; and Stecker, Walter. 4,316,138, Cl. 323-364,000.

Osterloh, Manfred; Putz, Otto; and Stecker, Walter. 4,316,137, Cl. 323-364,000.

Steffek, Leonard J.; and Drake, Stanley, to United States of America, Army. Rotating dual frequency range antenna system. 4,316,195, Cl. 343-758,000.

Stegenga, Philip D.; and VandenBrink, Wayne, to Donnelly Mirrors, Inc. Constant torque pivot assembly. 4,315,614, Cl. 248-479,000.

Steinberg, Ronald F.: See—
Sawatari, Takeo; Keating, Patrick N.; Steinberg, Ronald F.; and Mueller, Rolf K., 4,316,191, Cl. 343-16,00R.

Stephen A. Young Corporation: See—
Messick, Walker; and Christiansen, Gerald E., 4,315,525, Cl. 137-625,400.

Stephenson, Tom, to Petroleum Meter & Pump Co., Inc. Conversion assembly for dispensing pumps and the like. 4,315,438, Cl. 74-352,000.

Steuernagel, Hans H.: See—
Hoyer, Ernst; Steuernagel, Hans H.; and Wagner, Dieter. 4,315,865, Cl. 260-373,000.

Stillman, Suzanne: See—
Nawash, Michael S.; Stillman, Suzanne; and Mason, Robert S., 4,315,513, Cl. 128-348,000.

Stockli, Franz: See—
Merki, Josef; Stankowski, Hans-Werner; and Stockli, Franz. 4,316,111, Cl. 310-218,000.

Stokker, Gerald E.: See—
Cragoe, Edward J., Jr.; Stokker, Gerald E.; and Gould, Norman P., 4,316,043, Cl. 560-53,000.

Stoller Enterprises, Inc.: See—
Stoller, Jerry H.; and Hartung, Harold A., 4,315,763, Cl. 71-29,000.

Stoller, Jerry H.; and Hartung, Harold A., to Stoller Enterprises, Inc. High analysis liquid fertilizers. 4,315,763, Cl. 71-29,000.

Stolz, Hermann, to MATO Maschinen- und Metallwarenfabrik Curt Mathaei GmbH & Co. KG. Connecting strip for conveyor belts. 4,315,349, Cl. 24-33.00C.

Stone, Glen; and Haglund, Gary J., to Sherwood Medical Industries, Inc. Fluid collection device having phase partitioning means. 4,315,892, Cl. 422-101.000.

Stopar, Victor: See—
Muller, Ortwin; and Stopar, Victor, 4,315,672, Cl. 351-13.000.

Storey, Moorfield, Jr.: See—
Jones, Philip; and Storey, Moorfield, Jr., 4,316,193, Cl. 343-112.00D.

Stout, Alton H. Light tracking detectors and housing therefor. 4,316,084, Cl. 250-203.00R.

Strang, Robert E., Sr., to Injection Plastics & Manufacturing Co. Baffle for alcohol stills. 4,315,803, Cl. 202-158.000.

Streifer, William: See—
Seifres, Donald R.; Streifer, William; and Burnham, Robert D., 4,316,156, Cl. 372-50.000.

Stuivenwold, Paulus A.; and Van Timmeren, Cornelis, to Shell Oil Company. Sensor for detecting particles in a fluid flow. 4,315,428, Cl. 73-61.00R.

Sturges, Robert H., Jr., to Westinghouse Electric Corp. Electromechanical display apparatus. 4,316,189, Cl. 340-870.340.

Styles, Virgil L.: See—
Morrison, Robert W., Jr.; Mallory, William R.; and Styles, Virgil L., 4,315,932, Cl. 424-251.000.

Subramaniam, Ambati, to NCR Canada Ltd. - NCR Canada LTEE. Method and apparatus for compression and decompression of digital image data. 4,316,222, Cl. 358-261.000.

Suda, Hiroharu: See—
Hideshima, Keiji; Koyanagi, Haruo; Suda, Hiroharu; Sawano, Hirokazu; Takaki, Masaoki; Yamanaka, Kunio; Yasuda, Isao; and Asada, Kazuyoshi, 4,316,260, Cl. 364-900.000.

Sugimoto, Hiroaki: See—
Imai, Shozaburo; and Sugimoto, Hiroaki, 4,316,004, Cl. 528-126.000.

Sugishita, Nobuyuki: See—
Fujiwara, Hideo; Kudo, Mitsuhiro; Tamura, Teizou; Sugishita, Nobuyuki; Shiroishi, Yoshihiro; Kimura, Takeshi; Shinagawa, Kiminari; and Kumasaka, Noriyuki, 4,316,228, Cl. 360-127.000.

Sugura, Susumu; and Sato, Tadashi, to Canon Kabushiki Kaisha. Copying method and apparatus. 4,315,684, Cl. 355-14.00R.

Sugiyama, Kiyoshi: See—
Tokunaga, Yukio; Sugiyama, Kiyoshi; and Seto, Tadao, 4,315,643, Cl. 282-27.500.

Sulzer Brothers Limited: See—
Baumann, Heinz, 4,315,529, Cl. 139-1.00C.

Kawamura, Tomotsuchi; and Haneda, Hisao, 4,315,485, Cl. 122-406.00R.

Ramseyer, Fritz, 4,315,388, Cl. 52-173.00R.

Sumida, Seizo: See—
Kosuge, Yoshiaki; Yoshida, Ryo; Sumida, Seizo; Oshita, Hirofumi; Otsuki, Soji; and Kamoshita, Katsuzo, 4,315,768, Cl. 71-98.000.

Sumitomo Chemical Company, Limited: See—
Imai, Shozaburo; and Sugimoto, Hiroaki, 4,316,004, Cl. 528-126.000.

Katsube, Junki; Ono, Keiichi; and Kawakami, Hajime, 4,316,028, Cl. 546-51.000.

Kosuge, Yoshiaki; Yoshida, Ryo; Sumida, Seizo; Oshita, Hirofumi; Otsuki, Soji; and Kamoshita, Katsuzo, 4,315,768, Cl. 71-98.000.

Sumitomo Electric Industries, Ltd.: See—
Horikawa, Takahiro; Hibino, Yutaka; and Maki, Seiichi, 4,315,883, Cl. 264-174.000.

Sumitomo Metal Industries, Ltd.: See—
Senjo, Teizo; and Kobayashi, Makio, 4,315,872, Cl. 261-113.000.

Sundelin, Robert N.: See—
Moore, Robert A.; and Sundelin, Robert N., 4,316,161, Cl. 333-141.000.

Sundstrand Corporation: See—
Cordner, Michael A., 4,315,442, Cl. 74-687.000.

Suplinskas, Raymond J.; and Henze, Thomas W., to Avco Corporation. Silicon coated silicon carbide filaments and method. 4,315,968, Cl. 428-367.000.

Surkamp, Paul: See—
Brock, Josef; and Surkamp, Paul, 4,315,530, Cl. 139-76.000.

Sutton, Stephen J.; Creager, John E.; and Gelenius, Robert B., to General Motors Corporation. Threshold detector for a condition indication. 4,316,174, Cl. 340-52.00R.

Swab, John M., to General Electric Company. Apparatus for sequential row injection readout of CID imagers. 4,316,221, Cl. 358-213.000.

Swedenberg, Clyde J.: See—
French, David M.; Rosborough, J. T. L.; and Swedenberg, Clyde J., 4,315,830, Cl. 252-182.000.

Sweetheart Plastics, Inc.: See—
Mack, Anthony C.; Phillips, Robert A.; and Shumrak, George K., 4,316,078, Cl. 219-386.000.

Swozil, Adolf: See—
Schwarz, Erwin; and Swozil, Adolf, 4,315,575, Cl. 220-89.00A.

Sylvest, Erik, to Icopal Baustoffe, Firma. Roof cover sheet material. 4,315,392, Cl. 52-309.100.

Syntex (U.S.A.) Inc.: See—
Nash, John E.; and Knopp, Arthur A., 4,315,742, Cl. 433-86.000.

Synthelabo: See—
Rossey, Guy, 4,316,029, Cl. 546-51.000.

Syverson, Charles D. Wind power generator and control therefore. 4,316,096, Cl. 290-44.000.

Szonntag, Eugene L., to Honeywell Inc. Gas colorific content analyzing apparatus. 4,315,430, Cl. 73-190.00C.

Tabata, Junichi, to Kabushiki Kaisha Daini Seikosha. Charging control circuit for electronic timepiece. 4,316,275, Cl. 368-66.000.

Tachi, Akihiro: See—
Tomoshige, Toru; Furuta, Harumi; Tachi, Akihiro; and Kawamoto, Nobuyuki, 4,315,863, Cl. 260-346.740.

Taddeo, Michael: See—
Gallant, Stuart L.; Caron, Paul R.; Dunn, Stanley M.; Palmer, Walter E.; Schmitt, Ernest G.; and Taddeo, Michael, 4,316,249, Cl. 364-417.000.

Tadiran Israel Electronics Industries Ltd.: See—
Vardi, Isai; Kimchi, Yigal; and Ben-Dror, Jonathan, 4,315,411, Cl. 62-112.000.

Tadokoro, Tomoo; and Okimoto, Haruo, to Toyo Kogyo Co., Ltd. Rotary piston engine having supercharging means. 4,315,488, Cl. 123-213.000.

Tadokoro, Tomoo; Okimoto, Haruo; Honda, Yasuo; Nomura, Hiroshi; and Yoshimura, Masato, to Toyo Kogyo Co., Ltd. Rotary piston engine having supercharging means. 4,315,489, Cl. 123-213.000.

Taglieber, Volker: See—
Kummer, Rudolf; Weiss, Franz-Josef; Schneider, Heinz-Walter; and Taglieber, Volker, 4,316,047, Cl. 560-206.000.

Taira, Eiichi: See—
Yasumoto, Yoshio; Tomimoto, Tetsuo; and Taira, Eiichi, 4,316,215, Cl. 358-37.000.

Takacs, Istvan; Kerey, Gyorgy; Illes, Janos; Rudolf, Peter; Gere, Pal; Czebe, Laszlo; and Neszmelyi, Erzsébet, to Richter Gedeon Vegyeszeti Gyar RT. Process for the production of organ extracts with high heparin content. 4,315,923, Cl. 424-183.000.

Takada, Juichiro. Transfer device for passive vehicle occupant restraint belts. 4,315,638, Cl. 280-803.000.

Takagi, Masatomo; Ogaki, Mitsuo; and Hikita, Sadao, to Tokyo Shibaura Denki Kabushiki Kaisha. Enclosed switchboards. 4,316,234, Cl. 361-342.000.

Takahashi, Hidemitsu: See—
Ishimitsu, Keiichi; Kasahara, Isamu; Yamada, Tomio; Matsuda, Michihiko; Takahashi, Hidemitsu; and Soma, Shuichi, 4,316,044, Cl. 560-105.000.

Takahashi, Hiroshi; Tsuyama, Koichi; Uozu, Nobuo; and Fujikura, Makoto, to Hitachi Chemical Company, Ltd. Process for preparing chemically platable thermosetting powder coating. 4,315,845, Cl. 260-42.280.

Takahashi, Kotei; Endo, Teruo; Kawaguchi, Masayuki; and Sakamoto, Kenichi, to Nissan Motor Company, Limited. Coupling sleeve. 4,315,698, Cl. 403-59.000.

Takahashi, Masao: See—
Hattori, Katsuhide; Fukatsu, Yoshiaki; and Takahashi, Masao, 4,315,784, Cl. 149-2.000.

Hattori, Katsuhide; Fukatsu, Yoshiaki; and Takahashi, Masao, 4,315,787, Cl. 149-2.000.

Takahashi, Masaoki: See—
Inoue, Kazumi; Tono, Shunzo; and Takahashi, Masaoki, 4,315,619, Cl. 266-89.000.

Takahashi, Noriyoshi: See—
Sato, Masaki; Okuda, Hironori; Ito, Motoya; Makino, Yuji; Wachi, Yasuyuki; Takahashi, Noriyoshi; and Watanabe, Masatoshi, 4,316,113, Cl. 310-262.000.

Takahashi, Susumu: See—
Okazaki, Shinji; Mochiji, Kozo; Takahashi, Susumu; and Murai, Fumio, 4,315,984, Cl. 430-296.000.

Takaki, Masaoki: See—
Hideshima, Keiji; Koyanagi, Haruo; Suda, Hiroharu; Sawano, Hirokazu; Takaki, Masaoki; Yamanaka, Kunio; Yasuda, Isao; and Asada, Kazuyoshi, 4,316,260, Cl. 364-900.000.

Takanohashi, Kunio: See—
Yoshimura, Yoshinobu; Morikawa, Nobuhide; and Takanohashi, Kunio, 4,316,018, Cl. 544-27.000.

Takasugi, Hisashi: See—
Takaya, Takao; Masugi, Takashi; Takasugi, Hisashi; and Kochi, Hiromu, 4,316,019, Cl. 544-28.000.

Takaya, Takao; Masugi, Takashi; Takasugi, Hisashi; and Kochi, Hiromu, to Fujisawa Pharmaceutical Co., Ltd. Preparation of syn-isomer of 3-alkanoyloxymethyl-7-(2-alkoxyimino-2-thiazolylacetamido)-3-cephem-4-carboxylic acid compounds. 4,316,019, Cl. 544-28.000.

Takazawa, Yuzuru: See—
Saito, Takeo; Ishida, Hiroaki; Segawa, Takashi; Nagaoka, Shinji; and Takazawa, Yuzuru, 4,316,085, Cl. 250-204.000.

Takeda Chemical Industries, Ltd.: See—
Fujino, Masahiko; and Kitada, Chieko, 4,315,853, Cl. 260-112.50R.

Higashide, Eiji; Asai, Mitsuko; and Hasegawa, Tōry, 4,315,989, Cl. 435-253.000.

Yoshimura, Yoshinobu; Morikawa, Nobuhide; and Takanohashi, Kunio, 4,316,018, Cl. 544-27.000.

Takeda, Keiso, to Toyota Jidosha Kogyo Kabushiki Kaisha. Fuel injection type internal combustion engine. 4,315,491, Cl. 123-478.000.

Takemoto, Iwao: See—
Aoki, Masakazu; Takemoto, Iwao; Kubo, Masaharu; and Izawa, Ryuichi, 4,316,205, Cl. 357-30.000.

Takenoya, Hideaki: See—
Makabe, Hachiro; Watanabe, Kazuo; Takenoya, Hideaki; Shomura, Eiichi; and Tonomura, Yoshinobu, 4,315,472, Cl. 112-158.00E.

Takeuchi, Tomio: See—
Oki, Toshikazu; Yoshimoto, Akihiro; Matsuzawa, Yasue; Inui, Taiji; Takeuchi, Tomio; and Umezawa, Haman, 4,316,011, Cl. 536-17.00A.

Talbot, Daniel B., to DBX, Inc. Multiplier circuit. 4,316,107, Cl. 307-492.000.

Tallerico, William A.: See—
Hubbard, James R.; and Tallerico, William A., 4,316,197, Cl. 346-140.00R.

Talres Development (N.A.) N.V.: See—
Inkson, Michael B.; and Wilkinson, Clive K., 4,316,012, Cl. 536-114.000.

Tamers, Murry A., to Intersci Corporation. Device for the identification of volatile fluids. 4,315,890, Cl. 422-58.000.

Tamura, Teizou: See—
Fujiwara, Hideo; Kudo, Mitsuhiro; Tamura, Teizou; Sugishita, Nobuyuki; Shiroishi, Yoshihiro; Kimura, Takeshi; Shinagawa, Kiminari; and Kumasaka, Noriyuki, 4,316,228, Cl. 360-127.000.

Tanabe, Takeshi, to Sharp Kabushiki Kaisha. Cooking utensil controlled by gas sensor output and thermistor output. 4,316,068, Cl. 219-10.55B.

Tanaka, Chiaki: See—
Hiratsuka, Motoki; Tanaka, Chiaki; and Naito, Nagayoshi, 4,315,882, Cl. 264-171.000.

Tanaka, Eiichi; and Ishibashi, Noboru, to Matsushita Electric Industrial Co., Ltd. Gas burner. 4,315,729, Cl. 431-75.000.

Tanaka, Hiroaki: See—
Akita, Sigeyuki; and Tanaka, Hiroaki, 4,316,158, Cl. 331-111.000.

Tanaka, Hiroshi; Kawajiri, Yoshiaki; Chiba, Kouetsu; Hori, Ryoichi; and Itoh, Kiyoo, to Hitachi, Ltd. Memory device with high speed memory cell selection mechanism. 4,316,265, Cl. 365-203.000.

Tancrell, Roger H.: See—
Wilson, David T.; Tancrell, Roger H.; and Callera, Joseph, 4,316,115, Cl. 310-327.000.

Tangorra, Giorgio; and Magnabosco, Lino, to Industrie Pirelli S.p.A. Energy accumulator. 4,315,562, Cl. 185-37.000.

Tann, David, to Electro-Mechanical Products. Fluid pressure actuator with proximity position sensor. 4,316,145, Cl. 324-208.000.

Tanno, Norimichi: See—
Taoka, Fumio; Tanno, Norimichi; and Watanabe, Hideo, 4,315,724, Cl. 425-130.000.

Taoka, Fumio; Tanno, Norimichi; and Watanabe, Hideo, to Kamaya Kagaku Kogyo Co., Ltd. Process and machine for multi-color injection molding. 4,315,724, Cl. 425-130.000.

Tarman, Paul B.: See—
Patel, Jitendra G.; Sandstrom, William A.; and Tarman, Paul B., 4,315,758, Cl. 48-197.00R.

Targ, Ming L., to RCA Corporation. Method of making semiconductor device with passivated rectifying junctions having hydrogenated amorphous regions. 4,315,782, Cl. 148-1.500.

Tartaglia, Lawrence; and Spector, George. No mar pliers. 4,315,447, Cl. 81-421.000.

Tate, David L.: See—
Exley, John T.; Kuintzle, Charles, Jr.; and Tate, David L., 4,315,714, Cl. 415-207.000.

Tateishi, Iwao: See—
Washizuka, Isamu; and Tateishi, Iwao, 4,316,081, Cl. 235-92.00DN.

Taus, Christian: See—
Rau, Willy; and Taus, Christian, 4,315,547, Cl. 172-1.000.

Taylor, Frank E. Folding two-wheeled hand truck. 4,315,632, Cl. 280-40.000.

Taylor, Paul D.; and Mocella, Michael T., to Atlantic Richfield Company. Recovery of molybdenum as an aqueous solution from spent catalyst. 4,315,896, Cl. 423-54.000.

Taylor, Peter A. J.; and Hammond, George W., to Massey-Ferguson Services N.V. Sound deadening. 4,315,971, Cl. 428-419.000.

TDK Electronics Co., Ltd.: See—
Miyabayashi, Susumu; and Kaji, Takeyuki, 4,316,171, Cl. 338-21.000.

Teche, Andre: See—
Martel, Jacques; Tessier, Jean; Demoute, Jean-Pierre; and Teche, Andre, 4,315,868, Cl. 260-465.00D.

Techniprises Limited: See—
Stanley, Robert K., 4,315,355, Cl. 28-251.000.

Tektronix, Inc.: See—
Crosby, Philip S., 4,316,150, Cl. 331-1.00A.

Teledyne Industries, Inc.: See—
Hawk, Charles E., 4,315,431, Cl. 73-203.000.

Telegan Limited: See—
Watson, Kenneth, 4,315,730, Cl. 431-76.000.

Telescope Folding Furniture Co., Inc.: See—
Vanderminde, Robert D., 4,315,467, Cl. 108-157.000.

Tenner, Wayne V.: See—
Boeddeker, David R.; and Tenner, Wayne V., 4,315,633, Cl. 280-79.300.

Teranishi, Tsuneharu; and Higuchi, Takeshi, to Tokyo Shibaura Denki Kabushiki Kaisha. Windings for electrical inductive apparatus. 4,316,169, Cl. 336-70.000.

Tessier, Jean: See—
Martel, Jacques; Tessier, Jean; Demoute, Jean-Pierre; and Teche, Andre, 4,315,868, Cl. 260-465.00D.

Martel, Jacques; and Tessier, Jean, 4,315,943, Cl. 424-304.000.

Texaco Inc.: See—
Knifton, John F., 4,315,993, Cl. 518-700.000.

Knifton, John F., 4,315,994, Cl. 518-701.000.

Schlicht, Raymond C.; Levine, Stephen A.; and Chafetz, Harry, 4,315,826, Cl. 252-46.400.

Texas Instruments Incorporated: See—
Carlson, Richard H., 4,316,077, Cl. 219-370.000.

Iwamoto, Eisaburo, 4,316,247, Cl. 364-200.000.

Ulug, Mehmet E., 4,316,283, Cl. 370-94.000.

Texon Inc.: See—
Bodendorf, Warren J., 4,315,798, Cl. 162-161.000.

Theiler, Richard F.: See—
Sleeth, Rhule B.; Theiler, Richard F.; and Rendek, Robert B., 4,315,948, Cl. 426-266.000.

Theriault, Gerald E.: See—
Mutterspaugh, Max W.; and Theriault, Gerald E., 4,316,220, Cl. 358-196.000.

Thiery, Daniel: See—
Morin, Bruno; and Thiery, Daniel, 4,315,831, Cl. 252-628.000.

Thomas & Betts Corporation: See—
Basile, Rocco F., 4,315,368, Cl. 30-124.000.

Greenwood, William S.; Kuo, Ted L. C.; and Piasecki, Raymond F., 4,315,662, Cl. 339-97.00C.

Thomas, John L., to British Petroleum Company Limited. The Anti-pollution equipment. 4,315,818, Cl. 210-242.300.

Thomas, Rudy V.: See—
Booth, Frederick C.; Frantom, Richard L.; and Thomas, Rudy V., 4,315,639, Cl. 280-803.000.

Thomson-CSF: See—
Antoine, Robert; Bricot, Claude; and Robin, Gerard, 4,315,723, Cl. 425-110.000.

Berger, Jean L., 4,316,258, Cl. 364-602.000.

Posseme, Gilles, 4,316,253, Cl. 364-432.000.

Trocellier, Roger; and Raymond, Jean C., 4,315,690, Cl. 356-152.000.

Volluet, Gerard; and Cohen, Daniel, 4,316,162, Cl. 333-201.000.

Thurman, Duane E., to Union Carbide Corporation. N-Aminosulfenyl carbamate compounds, compositions and use. 4,315,928, Cl. 424-248.500.

Times Mirror Company, The: See—
Darnall, John C., 4,315,886, Cl. 264-318.000.

Timoney, Seamus G. Hub reduction gear unit. 4,315,556, Cl. 180-255.000.

Tirosh, Regine: See—
Fridlander, Bertold; Ben-Moyal, Zohar; Olshevsky, Udi; and Tirosh, Regine, 4,315,907, Cl. 424-1.000.

Tmaschinen Forschungsvereinigung Verbrennungskraft Maschinen: See—
Glienicke, Joachim, 4,315,660, Cl. 308-9.000.

TMI Sales Corporation: See—
Donnenberg, Leon; and Draxler, Helmut J., 4,315,527, Cl. 138-30.000.

To Kwan, William C.: See—
Pidcock, Anthony; Close, Desmond; and To Kwan, William C., 4,315,405, Cl. 60-752.000.

Toa Nenryo Kogyo Kabushiki Kaisha: See—
Onodera, Takashi; Komine, Kikuo; Ohashi, Fumio; and Naito, Tsutomu, 4,315,813, Cl. 208-33.000.

Todd, Paul H., Jr.; and Haley, Howard E., to KALSEC, Inc. Liquid seasoning compositions II. 4,315,947, Cl. 426-250.000.

Tohgei, Ryoiku, to Fujitsu Limited. Insulated gate field effect transistor. 4,316,203, Cl. 357-23.000.

Tokiguchi, Katsumi: See—
Sakudo, Noriyuki; Tokiguchi, Katsumi; Koike, Hidemi; and Kanomata, Ichiro, 4,316,090, Cl. 250-423.00R.

Tokunaga, Yukio; Sugiyama, Kiyoshi; and Seto, Tadao, to Nippon Telegraph & Telephone Public Corp.; and Fuji Kagaku Kogyo Co., Ltd. Heat-sensitive transfer element. 4,315,643, Cl. 282-27.500.

Tokyo Organic Chemical Industries, Ltd.: See—
Kuchikata, Masuo; Tsuyuki, Hiroshi; Furukawa, Toshio; Nitta, Yoshihiro; and Kuyama, Hiroshi, 4,315,846, Cl. 260-429.900.

Tokyo Shibaura Denki Kabushiki Kaisha: See—
Miyamoto, Tsutomu; and Matsudaira, Takayuki, 4,316,131, Cl. 318-612.000.

Ohtomo, Atushi, 4,315,526, Cl. 137-630.140.

Sakaue, Tatsuo; and Iida, Tetsuya, 4,316,100, Cl. 307-221.00D.

Takagi, Masatomo; Ogaki, Mitsuo; and Hikita, Sadao, 4,316,234, Cl. 361-342.000.

Teranishi, Tsuneharu; and Higuchi, Takeshi, 4,316,169, Cl. 336-70.000.

Yamaguchi, Hiroyasu, 4,316,149, Cl. 330-268.000.

Tomimoto, Tetsuo: See—
Yasumoto, Yoshio; Tomimoto, Tetsuo; and Taira, Eiichi, 4,316,215, Cl. 358-37.000.

Tomioka, Susumu: See—
Nakajima, Takayoshi; and Tomioka, Susumu, 4,315,881, Cl. 264-171.000.

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Toole, Monte M.; and Champagne, Robert B., to Atomel Corporation. Silicon wafer steam oxidizing apparatus. 4,315,479, Cl. 118-726.000.
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Totten, George E.; and Williams, Thomas C., to Union Carbide Corporation. Liquid crystal silanes. 4,316,041, Cl. 556-420.000.
Toyo Engineering Corporation: See—
Murata, Sadao; and Numata, Tadanobu, 4,315,541, Cl. 165-94.000.
Nozawa, Shinkichi; and Miyashita, Kenjiro, 4,315,900, Cl. 423-359.000.
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Tadokoro, Tomoo; and Okimoto, Haruo, 4,315,488, Cl. 123-213.000.
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Hayashi, Hideyuki; and Okuma, Shigeru, 4,315,563, Cl. 188-73.100.
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Takeda, Keiso, 4,315,491, Cl. 123-478.000.
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McCabe, Garry-Owen; and Milish, William P., 4,315,436, Cl. 73-861.540.
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Gee, Thomas A.; and Tremba, Joseph A., 4,316,176, Cl. 340-58.000.
Trenkle, Robert W.; Mookherjee, Braja D.; Schmitt, Frederick L.; Vock, Manfred H.; Vinals, Joaquin F.; and Kiwala, Jacob, to International Flavors & Fragrances Inc. Process for augmenting or enhancing the aroma or taste of raspberry flavored foodstuffs using 2,6,6-trimethylcyclohexene derivatives. 4,315,953, Cl. 426-538.000.
Trocellier, Roger; and Raymond, Jean C., to Thomson-CSF. Arrangement for locating radiating sources. 4,315,690, Cl. 356-152.000.
TRW Inc.: See—
Blazek, William S., 4,315,537, Cl. 164-27.000.
English, William D.; and Chew, William M., 4,315,786, Cl. 149-22.000.
Haller, Jacob S.; Mines, Gordon L.; and Mischnick, Meinert J., 4,315,367, Cl. 29-866.000.
Lathlaen, Richard A., 4,316,110, Cl. 310-155.000.
Rupp, Gerhard H.; and Schneider, Hans F., 4,316,065, Cl. 200-61.890.
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Tsuchiya, Shozo; Oshima, Akio; and Hayashi, Hideo, to Nippon Oil Company, Limited. Hot melt composition. 4,315,842, Cl. 260-28.50B.
Tsunefuji, Katsuhiko, to Olympus Optical Company Ltd. Electrical shutter of electromagnetic release type for camera having adjustable delay circuit for adjusting the precision of the electrical shutter. 4,315,678, Cl. 354-51.000.
Tsuyama, Koichi: See—
Takahashi, Hiroshi; Tsuyama, Koichi; Uozu, Nobuo; and Fujikura, Makoto, 4,315,845, Cl. 260-42.280.
Tsuyuki, Hiroshi: See—
Kuchikata, Masuo; Tsuyuki, Hiroshi; Furukawa, Toshio; Nitta, Yoshihiro; and Kuyama, Hiroshi, 4,315,846, Cl. 260-429.900.
Tucker, Gordon H.: See—
Tyer, Robert C.; Fitch, Robert E.; and Tucker, Gordon H., 4,315,468, Cl. 110-101.00F.
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Lugosi, Gyorgy; Simay, Antal; Bodnar, Janos; Turcsan, Istvan; Jelinek, Istvan; Somfai, Eva; and Simandi, Laszlo, 4,315,861, Cl. 260-340.90R.
Turek, Mitchell C.; and Garab, H. Gary, to Albany International Corp. Adjustable deckle. 4,315,799, Cl. 162-353.000.
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Adams, Robert W.; and Tyler, Leslie B., 4,316,060, Cl. 179-1.00D.

Tyler Refrigeration Corporation: See—
Ibrahim, Fayed F., 4,315,414, Cl. 62-231.000.
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Ueda, Setsuo; Yasuda, Takashi; Yamada, Tokuyoshi; and Kobayashi, Shigeki, to Itoh Metal Abrasive Co., Ltd.; and Sato Technical Research Laboratory Ltd. Apparatus for producing spherical particles and fibers with a specially fixed size from melts. 4,315,720, Cl. 425-8.000.
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Akisue, Osamu; Yamada, Teruaki; Matsuo, Munetsugu; and Uehara, Norimasa, 4,315,783, Cl. 148-12.00C.
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Ueno, Masataka: See—
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Imada, Kiyoshi; Ueno, Susumu; and Nomura, Hirokazu, 4,315,808, Cl. 204-169.000.
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Ujikawa, Norihisa; Nakayama, Masaharu; and Matsushima, Masaru, to Nippon Oil and Fats Co., Ltd. Styrene resin-block copolymer composition. 4,315,997, Cl. 525-94.000.
Ulrich, Hannsjorg: See—
Adam, Wilhelm; Ulrich, Hannsjorg; Dany, Franz-Josef; and Kalteyer, Gerd, 4,315,961, Cl. 427-385.500.
Ulug, Mehmet E., to Texas Instruments Incorporated. Transparent intelligent network for data and voice. 4,316,283, Cl. 370-94.000.
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Thurman, Duane E., 4,315,928, Cl. 424-248.500.
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Union Siderurgique du nord et de l'est de la France ("USINOR"): See—
Pawlowski, Jean, 4,315,618, Cl. 266-69.000.
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Agriculture: See—
Evans, Gary W., 4,315,927, Cl. 424-245.000.
Freedman, Bernard; Powell, Richard G.; and Smith, Cecil R., Jr., 4,315,929, Cl. 424-248.540.
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Brodman, Bruce W.; Devine, Michael P.; and Schwartz, Stuart, 4,315,785, Cl. 149-19.800.
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Gay, Donald L., 4,316,218, Cl. 358-125.000.
Steffek, Leonard J.; and Drake, Stanley, 4,316,195, Cl. 343-758.000.
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Bruckenstein, Stanley; and Kosek, John A., 4,315,753, Cl. 23-232.00E.
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Christou, Aristos; and Davey, John E., 4,316,201, Cl. 357-15.000.
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University of Alberta, The Governors of the: See—
Frascara, Jorge; Jungkind, Walter; Ladan, Carol J.; and Nelson, Thomas M., 4,315,748, Cl. 434-159.000.
University of Kentucky Research Foundation: See—
Hussain, Anwar A.; Hirai, Shinichiro; and Bawarshi, Rima, 4,315,925, Cl. 424-239.000.

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Unkelbach, Karl-Heinz: See—
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Winter, George R., III, 4,315,801, Cl. 196-14.520.
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Saito, Atsunori; Naganoma, Masanaori; Iwata, Yasuhiro; and Usami, Kiyoshi, 4,316,251, Cl. 364-424.000.
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Ushijima, Fumihiko: See—
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Ushikoshi, Kenichi, to Kabushiki Kaisha Suwa Seikosha. Battery life indication method for an electronic timepiece. 4,316,274, Cl. 368-66.000.
USM Corporation: See—
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Vaalburg, Lawrence: See—
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van der Lely, Ary; and Bom, Cornelis J. G. Overload couplings. 4,315,418, Cl. 64-28.00R.
van der Lely, Cornelis. Soil working machine with interconnected displaceable supports which maintain orientation. 4,315,549, Cl. 172-657.000.
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Wang, Cheng-Chi; and Vanderwyck, August H. B., 4,315,477, Cl. 118-64.000.
Van Dover, Dennis W.; and Lindmark, Richard C., Jr., to H. B. Fuller Company. Manufacture of blanks for recording discs utilizing coextrusion and blanks and records made thereby. 4,315,878, Cl. 264-107.000.
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van't Hullenaar, Adrian, deceased (by Hullenaar, A. van't, executrix), to Westinghouse Canada Limited. Own doppler nullifier for sonar system. 4,316,269, Cl. 367-90.000.
van't Hullenaar, Adrian, deceased (by Hullenaar, Mrs. A. van't, executrix), to Westinghouse Canada Limited. Digital time-delay beam-former for sonar systems. 4,316,270, Cl. 367-98.000.
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Vardey, Lewis. Hollow heat exchanger tile. 4,315,497, Cl. 126-416.000.
Vardi, Isai; Kimchi, Yigal; and Ben-Dror, Jonathan, to Tadiran Israel Electronics Industries Ltd. Alcohol trap. 4,315,411, Cl. 62-112.000.
Vareide, Dag; and Solheim, Odd E. Method and device for distributing liquid fuel to a fluidized bed. 4,315,469, Cl. 110-245.000.
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Vartanian, Guren P.: See—
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Veldman, Donald R. Method and apparatus for making a self-thread creating fastener. 4,315,340, Cl. 10-10.00R.
Verplanke, Mattheus W. Apparatus for generating energy from a flowing medium. 4,315,713, Cl. 415-2.00R.
Verwimp, Jozef K. P.; and Delodere, Gabriel, to U.S. Philips Corporation. Mixed light arrangement. 4,316,124, Cl. 315-205.000.
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Lamoureux, Andre, 4,316,127, Cl. 315-408.000.
Vidotti, Graziano; Sellan, Febo; Bacchetta, Enzo; Mainardi, Sandro; and Benussi, Giovanni, to Montedison S.p.A. Thin film monomer removal from polyvinyl chloride latexes. 4,315,843, Cl. 260-29.6PT.
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Waldron, John M.; Nott, Frederick J.; Harrison, Laurence C.; Johnson, Graham D.; and Green, Malcolm D., to Commonwealth of Australia. Department of Productivity, The. Electricity generator. 4,316,112, Cl. 310-258.000.
Walker, Clifford G. Optical strapdown inertia system. 4,315,693, Cl. 356-350.000.
Walker, Derek; Silvestri, Herbert H.; Sapino, Chester, and Johnson, David A., to Bristol-Myers Company. Cephalosporin intermediates. 4,316,016, Cl. 544-16.000.
Walker, Derek; Silvestri, Herbert H.; Sapino, Chester, and Johnson, David A., to Bristol-Myers Company. Cephalosporin intermediates. 4,316,017, Cl. 544-026.000.
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Washizuka, Isamu; and Tateishi, Iwao, to Sharp Kabushiki Kaisha. Electronic digital tape measure having flexible measuring tape. 4,316,081. Cl. 235-92.0DN.

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Watrous, Donald L.; and Weischedel, Richard C., to General Electric Company. Battery monitor circuit. 4,316,185. Cl. 340-636.000.

Watson, Kenneth, to Telegan Limited. Burner control system. 4,315,730. Cl. 431-76.000.

Webber, William T.; and Stabinsky, Leon, to Rockwell International Corporation. Pre-vaporizing diesel injector. 4,315,490. Cl. 123-275.000.

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 Brandts Buys, Ludwig D. G.; Godard, Pierre M. J. L.; Goossens, Henri C.; Mignard, Joseph J.; Wertz, Jean-Luc H. M. F. G.; and Mercier, Jean-Pierre. 4,315,959. Cl. 427-214.000.

West Company, The. See—

 Leiter, L. David; and Ravn, Jacob. 4,315,427. Cl. 73-52.000.

Western Electric Company, Inc.; See—

 Sawyer, Ernest W. 4,315,518. Cl. 137-3.000.

Westerwalder Eisenwerk Gerhard GmbH. See—

 Gerhard, Helmut. 4,315,531. Cl. 141-98.000.

Westinghouse Canada Limited. See—

 van't Hullenaar, Adrian, deceased. 4,316,269. Cl. 367-90.000.

 van't Hullenaar, Adrian, deceased. 4,316,270. Cl. 367-98.000.

Westinghouse Electric Corp.; See—

 Locke, Philip F., Jr. 4,316,133. Cl. 320-48.000.

 Moore, Robert A.; and Sundelin, Robert N. 4,316,161. Cl. 333-141.000.

 Nathanson, Harvey C. 4,316,103. Cl. 307-304.000.

 Pitkjaan, Elam; and Endler, James F. 4,316,240. Cl. 362-267.000.

 Sturges, Robert H., Jr. 4,316,189. Cl. 340-870.340.

Weyer, Rudi. See—

 Hitzel, Volker; Weyer, Rudi; Geisen, Karl; and Regitz, Gunter. 4,315,940. Cl. 424-267.000.

Wharton, James H., to RCA Corporation. Video signal processing apparatus. 4,316,210. Cl. 358-4.000.

Wharton, James H.; and James, Jack E., to RCA Corporation. Video processor employing variable amplitude compression of the chrominance component. 4,316,213. Cl. 358-11.000.

Whirlpool Corporation. See—

 Baker, Daniel A. 4,315,413. Cl. 62-180.000.

 Yoshinari, David A. 4,315,452. Cl. 84-1.260.

Whitehead, Howard A.; and Matray, Atilla, to Kimberly-Clark Corporation. Sanitary napkin with heat fusible baffle. 4,315,507. Cl. 128-287.000.

Whiteman, Robert N., Jr., to AMP Incorporated. Slide switch. 4,316,067. Cl. 200-291.000.

Whiteside, George D.; See—

 Johnson, Bruce K.; and Whiteside, George D. 4,315,677. Cl. 354-49.000.

 LaRocque, Arthur G.; Whiteside, George D.; and Johnson, Bruce K. 4,315,676. Cl. 354-27.000.

Whitman, Charles L.; See—

 Nadkarni, Anil V.; Haws, Warren J.; and Whitman, Charles L. 4,315,777. Cl. 75-232.000.

Wiedemann, Wolfgang, to Hoechst Aktiengesellschaft. Organic double layer electrophotographic recording material. 4,315,981. Cl. 430-59.000.

Wieggers, Wilhelmus J.; Sprecker, Mark A.; Watkins, Hugh; Vock, Manfred H.; and Schmitt, Frederick L., to International Flavors & Fragrances Inc. Flavoring with indane alkanols and tricyclic isochromans. 4,315,951. Cl. 426-536.000.

Wigby, Jon, to Elco Corporation. Terminal post inserting component. 4,315,365. Cl. 29-739.000.

Wikel, James H.; See—

 Eli Lilly and Company; Paget, Charles J.; and Wikel, James H. 4,316,021. Cl. 544-139.000.

Wildgruber, Josef. See—

 Hereth, Alfred; Rieger, Klaus; and Wildgruber, Josef. 4,315,957. Cl. 427-155.000.

Wilkins, Christian. See—

 Kernbichler, Bert; and Wilkins, Christian. 4,315,419. Cl. 66-87.000.

Wilkinson, Clive K.; See—

 Inkson, Michael B.; and Wilkinson, Clive K. 4,316,012. Cl. 536-114.000.

Willard, John W., Sr. Method of treating cannibalism in poultry. 4,315,917. Cl. 424-155.000.

Willem, Michel, to Societe Anonyme dite: CERAVIER. Connection between core and casing of a structure having an agglomerated fibre core. 4,316,054. Cl. 174-140.00S.

Williams, Joseph. See—

 Primont, James; Williams, Joseph; and Zazzera, Paul, Jr. 4,316,181. Cl. 340-571.000.

Williams, Thomas C.; See—

 Totten, George E.; and Williams, Thomas C. 4,316,041. Cl. 556-420.000.

Williamson, Glen E. Scale. 4,315,554. Cl. 177-256.000.

Willis, Carl L.; and Slaugh, Lynn H., to Shell Oil Company. Method for removing catalyst residues from atactic polypropylene. 4,316,008. Cl. 528-487.000.

Wills, John R.; See—

 De Santis, Charles M.; and Wills, John R. 4,316,194. Cl. 343-700.00S.

Wilson, David T.; Tanerelli, Roger H.; and Callera, Joseph, to Raytheon Company. Polymeric piezoelectric microprobe with damper. 4,316,115. Cl. 310-327.000.

Wilson, Roy J., to John Zink Company. Plenum type variable air volume mounting curb. 4,315,415. Cl. 62-263.000.

Wilson, Walter A., to National Steel Corporation. Method of controlling the concentration and stability of an emulsion. 4,315,421. Cl. 72-42.000.

Wilzig, Herbert; and Schuessler, Charles J. Bolt mechanism and method of making same. 4,315,647. Cl. 292-143.000.

Winsor, Jack O., to Dresser Industries, Inc. Raise drill apparatus. 4,315,552. Cl. 173-159.000.

Winter, George R., III, to UOP Inc. Apparatus for the solvent extraction of aromatic hydrocarbons from a hydrocarbon mixture. 4,315,801. Cl. 196-14.520.

Winter, Roland A. E.; See—

 Dexter, Martin; and Winter, Roland A. E. 4,315,848. Cl. 260-45.8NT.

Witt, Enrique R.; Humphrey, William J.; and Cave, James P., to Celanese Corporation. Anaerobic treatment. 4,315,823. Cl. 210-605.000.

Wolf, Anthony D., to Du Pont de Nemours, E. I., and Company. Triazolone herbicides. 4,315,767. Cl. 71-91.000.

Wolff, Friedrich. Sunlamp and source of ultraviolet radiation therefor. 4,316,094. Cl. 250-504.00R.

Woodall, Jerry M., to International Business Machines Corporation. Energy conversion. 4,316,048. Cl. 136-253.000.

Woodmansee, Donald E., to General Electric Company. Coal gasification apparatus. 4,315,757. Cl. 48-71.000.

Woodward, James C.; and Holland, Marion D., to Robbins, Robert E. Vacuum cleaner with improved compressed air means. 4,315,344. Cl. 15-345.000.

Wright, David M.; See—

 Ermanski, Albert G.; and Wright, David M. 4,315,696. Cl. 402-70.000.

Wright Line Inc.; See—

 Ermanski, Albert G.; and Wright, David M. 4,315,696. Cl. 402-70.000.

Wright, Steven W.; See—

 Kennedy, Alvin B., Jr.; and Wright, Steven W. 4,315,335. Cl. 2-424.000.

Wrightman Enterprises, Inc.; See—

 Buckman, Charles E. 4,315,624. Cl. 273-32.00A.

Wroblewski, Theodore. Temperature control devices. 4,316,080. Cl. 219-505.000.

Wuerzer, Bruno. See—

 Hamprecht, Gerhard; and Wuerzer, Bruno. 4,315,766. Cl. 71-88.000.

 Hamprecht, Gerhard; Acker, Rolf-Dieter; and Wuerzer, Bruno. 4,316,014. Cl. 544-7.000.

Hamprecht, Gerhard; Acker, Rolf-Dieter; and Wuerzer, Bruno. 4,316,015. Cl. 544-7.000.

Plath, Peter; Wuerzer, Bruno; and Rohr, Wolfgang. 4,316,039. Cl. 548-362.000.

Plath, Peter; Rohr, Wolfgang; Wuerzer, Bruno; and Becker, Rainer. 4,316,040. Cl. 548-377.000.

Wuestner, Friedrich, to Siemens Aktiengesellschaft. Method and a device for separating a plurality of light waveguides carried in a cable. 4,315,584. Cl. 225-2.000.

Wurster, Rudolf F.; and Merz, Jurg, to Ciba-Geigy Corporation. Cationic adsorption agent. 4,316,005. Cl. 528-256.000.

Wyatt, James W., Sr.; and McEntire, James D. Method and apparatus for modifying the ignition system of multi-cylinder engines. 4,315,487. Cl. 123-146.50A.

Wymore, Max L.; See—

 Church, Peter K. 4,315,828. Cl. 252-153.000.

Wyns-Bristol S.A. Peintures. See—

 Brandts Buys, Ludwig D. G.; Godard, Pierre M. J. L.; Goossens, Henri C.; Mignard, Joseph J.; Wertz, Jean-Luc H. M. F. G.; and Mercier, Jean-Pierre. 4,315,959. Cl. 427-214.000.

Xerox Corporation. See—

 Rourke, John L.; and Keukelaar, Ronald E. 4,315,837. Cl. 252-430.000.

Scifres, Donald R.; Streifer, William; and Burnham, Robert D. 4,316,156. Cl. 372-50.000.

Soong, Tsai C. 4,315,589. Cl. 227-155.000.

Yamada Iryo Shomei Kabushiki Kaisha. See—

 Yamada, Isao; Ikeda, Mitsuyuki; and Komori, Yumiko. 4,316,237. Cl. 362-33.000.

Yamada, Isao; Ikeda, Mitsuyuki; and Komori, Yumiko, to Yamada Iryo Shomei Kabushiki Kaisha. Lighting fixture for use in medical operations and therapeutic treatment. 4,316,237. Cl. 362-33.000.

Yamada, Teruaki. See—

 Akisue, Osamu; Yamada, Teruaki; Matsuo, Munetsugu; and Uehara, Norimasa. 4,315,783. Cl. 148-12.00C.

Yamada, Tokuyoshi. See—

 Ueda, Setsuo; Yasuda, Takashi; Yamada, Tokuyoshi; and Kobayashi, Shigeki. 4,315,720. Cl. 425-8.000.

Yamada, Tomio. See—

 Ishimitsu, Keiichi; Kasahara, Isamu; Yamada, Tomio; Matsuda, Michihiko; Takahashi, Hidemitsu; and Soma, Shuichi. 4,316,044. Cl. 560-105.000.

Yamaguchi, Hiroyasu, to Tokyo Shibaura Denki Kabushiki Kaisha. Power amplifier. 4,316,149. Cl. 330-268.000.

Yamamoto Kagaku Gosei Co., Ltd.; See—

 Hatano, Yoshihiro; Ikegami, Seishi; Itoh, Kenji; and Matsumoto, Mansuke. 4,316,026. Cl. 546-5.000.

Yamamoto, Kohichi. See—

 Sadamatsu, Shigeru; Yamamoto, Kohichi; and Ohmi, Kazuaki. 4,315,980. Cl. 430-58.000.

Yamamoto, Shigemi. See—

 Onishi, Masayoshi; Haruta, Yoshikatu; Sakurai, Toshiyuki; and Yamamoto, Shigemi. 4,315,493. Cl. 123-617.000.

Yamanaka, Kunio. See—

 Hideshima, Keiji; Koyanagi, Haruo; Suda, Hiroharu; Sawano, Hirokazu; Takaki, Masaoki; Yamanaka, Kunio; Yasuda, Isao; and Asada, Kazuyoshi. 4,316,260. Cl. 364-900.000.

Yamazaki, Haruo; Ogata, Yoshiro; and Akutsu, Hidezoh, to Matsushita Electronics Corporation. High pressure sodium vapor discharge lamp. 4,316,122. Cl. 315-74.000.

Yamazaki, Osamu. See—

 Ohji, Kenzo; Yamazaki, Osamu; Wasa, Kiyotaka; and Hayakawa, Shigeru. 4,315,960. Cl. 427-248.100.

Yanaka, Takashi; and Shiota, Kohei, to International Precision Incorporated. Method of photographing electron microscope images on a single photographic plate and apparatus therefor. 4,316,087. Cl. 250-307.000.

Yasuda, Isao. See—

 Hideshima, Keiji; Koyanagi, Haruo; Suda, Hiroharu; Sawano, Hirokazu; Takaki, Masaoki; Yamanaka, Kunio; Yasuda, Isao; and Asada, Kazuyoshi. 4,316,260. Cl. 364-900.000.

Yasuda, Takashi. See—

 Ueda, Setsuo; Yasuda, Takashi; Yamada, Tokuyoshi; and Kobayashi, Shigeki. 4,315,720. Cl. 425-8.000.

Yasumoto, Yoshio; Tomimoto, Tetsuo; and Taira, Eiichi, to Matsushita Electric Industrial Co., Ltd. System for improving reproduction of images in a color television receiver. 4,316,215. Cl. 358-37.000.

Yeda Research and Development Co., Ltd.; See—

 Manassen, Joost; Hodes, Gary; and Cahen, David. 4,315,973. Cl. 429-111.000.

Yokoshima, Naohiko. See—

 Isoya, Toshisuke; Mishira, Masayuki; and Yokoshima, Naohiko. 4,316,075. Cl. 219-124.220.

Yokoyama, Fumitomo. See—

 Miki, Nobuaki; Sakakibara, Shiro; and Yokoyama, Fumitomo. 4,315,519. Cl. 137-56.000.

Yokozawa, Norio. See—

 Shibayama, Akinori; Maio, Kenji; Hotta, Masao; and Yokozawa, Norio. 4,316,178. Cl. 340-347.0DA.

Yoshida, Kanji, to Tomy Corporation. Mechanical hand amusement device. 4,315,650. Cl. 294-19.00R.

Yoshida, Ryo. See—

 Kosuge, Yoshiaki; Yoshida, Ryo; Sumida, Seizo; Oshita, Hirofumi; Otsuki, Soji; and Kamoshita, Katsuzo. 4,315,768. Cl. 71-98.000.

Yoshida, Toshio. See—

 Ueno, Kimitoshi; and Yoshida, Toshio. 4,315,778. Cl. 106-19.000.

Yoshihara, Ichiro. See—

 Mizuta, Toshiaki; Abe, Takeshi; Yoshihara, Ichiro; Saito, Kazuhito; and Tsuchiya, Keishin. 4,316,262. Cl. 364-900.000.

Yoshikumi, Chikao; Fujii, Takayoshi; Fujii, Masahiko; Matsunaga, Kenichi; Oguchi, Yoshiharu; and Nimura, Koichi, to Kureha Kagaku Kogyo Kabushiki Kaisha. Pharmaceutical composition having antitumor activity. 4,315,851. Cl. 260-112.00B.

Yoshikumi, Chikao; Ohmura, Yoshio; Hirose, Fumio; Ikuzawa, Masanori; Matsunaga, Kenichi; Fujii, Takayoshi; Ohhara, Minoru; and Ando, Takao, to Kureha Kagaku Kogyo Kabushiki Kaisha. Pharmaceutical composition containing para-amino-benzoic acid-N-D-xyloside as an active ingredient. 4,315,921. Cl. 424-180.000.

Yoshimoto, Akihiro. See—

 Oki, Toshikazu; Yoshimoto, Akihiro; Matsuzawa, Yasue; Inui, Taiji; Takeuchi, Tomio; and Umezawa, Hamao. 4,316,011. Cl. 536-17.00A.

Yoshimoto, Yuichiro; and Kodama, Hiroshi, to Hitachi, Ltd. Nuclear reactor. 4,315,800. Cl. 376-246.000.

Yoshimura, Masato. See—

 Tadokoro, Tomoo; Okimoto, Haruo; Honda, Yasuo; Nomura, Hiroshi; and Yoshimura, Masato. 4,315,489. Cl. 123-213.000.

Yoshimura, Yoshinobu; Morikawa, Nobuhide; and Takanohashi, Kunio, to Takeda Chemical Industries, Ltd. Crystallized cephalosporin salts. 4,316,018. Cl. 544-27.000.

Yoshinari, David A., to Whirlpool Corporation. Electronic organ percussive modulator. 4,315,452. Cl. 84-1.260.

Yoshino Kogyosho Co., Ltd.; See—

 Yoshino, Yataro. 4,315,725. Cl. 425-174.400.

Yoshino, Yataro, to Yoshino Kogyosho Co., Ltd. Jig for orientation-blow molding piece. 4,315,725. Cl. 425-174.400.

Yost, Thomas D., to RCA Corporation. Keying signal generator with input control for false output immunity. 4,316,214. Cl. 358-21.00R.

Young, Ian A.; Hildebrand, David B.; and Johnson, Charles B., to Mostek Corporation. Dynamic ratioless circuitry for random logic applications. 4,316,106. Cl. 307-481.000.

Young, Kenneth. See—

 Jodrey, Robert M.; and Young, Kenneth. 4,315,795. Cl. 156-542.000.

Zagorodnaya, Galina A.; Khutoretsky, Garri M.; and Vartanian, Guren P. Locking structure for rotor end winding of a distributed polar electric machine. 4,316,114. Cl. 310-270.000.

Zahner, Hans. See—

 Hagenmaier, Hans-Paul; Konig, Wilfried; Zahner, Hans; Fiedler, Hans-Peter; Dehler, Wolfgang; Keckeisen, Adelinde; Holst, Hartwig; and Zoebelin, Gerhard. 4,315,922. Cl. 424-181.000.

Zaidan Hojin Handotai Kenkyu Shinkokai. See—

 Nishizawa, Jun-ichi. 4,315,796. Cl. 156-614.000.

Zappel, Joseph. Continuous chain formed from a multiplicity of loops formed from dental floss material and apparatus for producing the same. 4,315,516. Cl. 132-90.000.

Zarudiansky, Alain, to Schlumberger Technology Corporation. Bore-hole logging tool cryostat. 4,315,417. Cl. 62-514.00R.

Zazzera, Paul, Jr.; See—

 Primont, James; Williams, Joseph; and Zazzera, Paul, Jr. 4,316,181. Cl. 340-571.000.

Zbornik, Vaclav; and Gygli, Walter, to Haemmerle AG. Clamping device for fastening a tool to a tool holder. 4,315,425. Cl. 72-481.000.

Zeidler, Georg; Dehnert, Johannes; Hansen, Guenter; and Riedel, Guenther, to BASF Aktiengesellschaft. Oil-soluble azo dye with N-substituted β -naphthylamine as coupling component. 4,315,756. Cl. 44-59.000.

Zellweger Uster, Ltd.; See—

 Felix, Ernst. 4,315,607. Cl. 242-36.000.

Zengel, Hans-Georg. See—

 Bergfeld, Manfred; Zengel, Hans-Georg; and Praetorius, Heinz. 4,316,031. Cl. 546-175.000.

Zer, Avraham. See—

 Zer, Tamar; and Zer, Avraham. 4,315,908. Cl. 424-1.000.

Zer, Tamar; and Zer, Avraham. Method of determining human chorionic gonadotropin (HCG) in the urine. 4,315,908. Cl. 424-1.000.

Zoebelein, Gerhard. See—

 Hagenmaier, Hans-Paul; Konig, Wilfried; Zahner, Hans; Fiedler, Hans-Peter; Dehler, Wolfgang; Keckeisen, Adelinde; Holst, Hartwig; and Zoebelin, Gerhard. 4,315,922. Cl. 424-181.000.

Zoll, August H.; See—

 Cole, Rossa W.; and Zoll, August H. 4,315,400. Cl. 60-39.020.

Zupfer, Jerrald A.; See—

 Koehler, Dale R.; and Zupfer, Jerrald A. 4,316,276. Cl. 368-70.000.

Zurcher, Erwin. See—

 Pfeifer, Hermann; and Zurcher, Erwin. 4,315,399. Cl. 57-302.000.

Zurn Industries, Inc.; See—

 Mann, Alexander B.; Kraeling, John B., Jr.; and Bukowski, Ronald G. 4,315,820. Cl. 210-408.000.

LIST OF REISSUE PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 16TH DAY OF FEBRUARY, 1982

NOTE —Arranged in accordance with the first significant character or word of the name
(in accordance with city and telephone directory practice).

Barradas, George, to Sunbeam Corporation (Canada) Limited. Hair curling implement. Re. 30,866, Cl. 132-37.00R.
Gaffney, Edward J., to Orthokinetics, Incorporated. Travel chair. Re. 30,867, Cl. 280-642.000.
Marriott, Clifford R.; and Williams, Robert E., to Molins Limited. Manufacture of filter-tipped cigarettes. Re. 30,865, Cl. 131-60.000.
Molins Limited: See—
Marriott, Clifford R.; and Williams, Robert E., Re. 30,865, Cl. 131-60.000.

Mori, Yasuharu, to Rengo Co., Ltd. Paper roll diameter sensing device for use with paper splicing apparatus. Re. 30,868, Cl. 340-675.000.
Orthokinetics, Incorporated: See—
Gaffney, Edward J., Re. 30,867, Cl. 280-642.000.
Rengo Co., Ltd.: See—
Mori, Yasuharu, Re. 30,868, Cl. 340-675.000.
Sunbeam Corporation (Canada) Limited: See—
Barradas, George, Re. 30,866, Cl. 132-37.00R.
Williams, Robert E.: See—
Marriott, Clifford R.; and Williams, Robert E., Re. 30,865, Cl. 131-60.000.

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Aavid Engineering, Inc.: See—
McCarthy, Alfred F., 263,042, Cl. D13-23.000.
Adidas Fabrique de Chaussures de Sport: See—
Joseph, Michel, 263,005, Cl. D2-36.000.
Allen, Jack, Tooth pick dispenser. 263,014, 2-16-82, Cl. D7-75.000.
Allen, Jan K.; and Hess, Phillip W., to Caterpillar Tractor Co. Pipe-layer. 263,051, 2-16-82, Cl. D15-24.000.
American Optical Corporation: See—
Johnsen, David W., 263,058, Cl. D16-117.000.
Amos, Burl O. Plumb bob supporting vertical alignment gauge or the like. 263,032, 2-16-82, Cl. D10-70.000.
Andis Clipper Company: See—
Andis, Matthew L., 263,085, Cl. D28-35.000.
Andis, Matthew L., to Andis Clipper Company. Hair curling brush. 263,085, 2-16-82, Cl. D28-35.000.
Angeles, Connie C. Foldable clothes hanger. 263,013, 2-16-82, Cl. D6-250.000.
Assmann G.m.b.H.: See—
Schulze-Bahr, Werner, 263,044, Cl. D14-3.000.
Atkinson, Michael L.; and Miller, Edward C., to Ball Corporation. Can or similar article. 263,024, 2-16-82, Cl. D9-351.000.
Ball Corporation: See—
Atkinson, Michael L.; and Miller, Edward C., 263,024, Cl. D9-351.000.
Beatrice Foods Co.: See—
Chow, Ho; and Uyeda, Tim M., 263,069, Cl. D23-38.000.
Beechuk, Timothy J.; and Pardo, John, to Procter & Gamble Company. The Bottle. 263,026, 2-16-82, Cl. D9-404.000.
Bell Telephone Laboratories, Incorporated: See—
Genaro, Donald M.; and McGarvey, John N., 263,046, Cl. D14-53.000.
Genaro, Donald M.; and McGarvey, John N., 263,048, Cl. D14-63.000.
Bennett, Reginald B. P., to Northern Telecom Limited. Portable welding tool. 263,054, 2-16-82, Cl. D15-144.000.
Berger, Elliott H.: See—
Lilley, Daniel T., Jr.; Berger, Elliott H.; and Passanisi, John A., 263,022, Cl. D8-402.000.
Best, Ralph E.; Creedon, Richard L.; Mason, Michael E.; Panter, Harrison R.; Schreiber, Richard A.; and Rollins, Jack D., to Nuclear Assurance Corp. Spent nuclear fuel shipping cask. 263,086, 2-16-82, Cl. D29-6.000.
Best, Ralph E.; Bhandari, Vijay; Mason, Michael E.; Panter, Harrison R.; and Schreiber, Richard A., to Nuclear Assurance Corp. Basket for a spent nuclear fuel shipping cask. 263,087, 2-16-82, Cl. D29-6.000.
Bhandari, Vijay: See—
Best, Ralph E.; Bhandari, Vijay; Mason, Michael E.; Panter, Harrison R.; and Schreiber, Richard A., 263,087, Cl. D29-6.000.
Bianchi Leather Products, Inc.: See—
Nichols, Richard D. E., 263,067, Cl. D22-14.000.
Boker, Irving. Photographer's accessory vest. 263,006, 2-16-82, Cl. D2-190.000.
Brown, Arnold C. Chariot. 263,037, 2-16-82, Cl. D12-105.000.
Bunger, Richard E. Animal confinement barn. 263,080, 2-16-82, Cl. D25-22.000.
Burlington Nother, Inc.: See—
Siegfried, Frederick R., 263,021, Cl. D8-373.000.
Calhoun, George M. Holter recorder testing device. 263,033, 2-16-82, Cl. D10-78.000.

Carder, Terry L.: See—
Schoeneck, Robert L.; Smith, William C.; Hoyle, Wallis I.; Swayze, Clark E.; Carder, Terry L.; and Theriault, Albert N., 263,025, Cl. D9-404.000.
Carpay, Johan J.: See—
Jonkers, Martinus K. P.; and Carpay, Johan J., 263,073, Cl. D24-10.000.
Carre, Alain, to Waterman S.A. Watch. 263,031, 2-16-82, Cl. D10-39.000.
Caterpillar Tractor Co.: See—
Allen, Jan K.; and Hess, Phillip W., 263,051, Cl. D15-24.000.
Chang, Kyung T., to Han Baek Trading Co., Ltd. Motor oil drain pump. 263,050, 2-16-82, Cl. D15-7.000.
Chow, Ho; and Uyeda, Tim M., to Beatrice Foods Co. Sprinkler control valve. 263,069, 2-16-82, Cl. D23-38.000.
Clarke, Thomas H., Jr.: See—
Franich, Louie J.; and Clarke, Thomas H., Jr., 263,053, Cl. D15-98.000.
Cobb, Richard E., to GTE Automatic Electric Labs Inc. Housing for a telephone handset. 263,049, 2-16-82, Cl. D14-63.000.
Cobb, Richard E.: See—
Janda, George M.; and Cobb, Richard E., 263,045, Cl. D14-53.000.
Commisso, Nicholas D., to Mobil Oil Corporation. Packaging for food container or the like. 263,023, 2-16-82, Cl. D9-347.000.
Conti, Rino: See—
Croyle, Jack V.; and Conti, Rino, 263,059, Cl. D19-69.000.
Corning Glass Works: See—
LeVan, Kenneth R., 263,083, Cl. D26-11.000.
Creedon, Richard L.: See—
Best, Ralph E.; Creedon, Richard L.; Mason, Michael E.; Panter, Harrison R.; Schreiber, Richard A.; and Rollins, Jack D., 263,086, Cl. D29-6.000.
Croyle, Jack V.; and Conti, Rino, to Dart Industries Inc. Label dispenser or the like. 263,059, 2-16-82, Cl. D19-69.000.
Dart Industries Inc.: See—
Croyle, Jack V.; and Conti, Rino, 263,059, Cl. D19-69.000.
DeKrech Enterprises, Inc.: See—
Krech, David E., 263,088, Cl. D99-5.000.
Doan, Duc. Combined ear wax remover and tooth pick. 263,075, 2-16-82, Cl. D24-23.000.
Douglas, Thomas E., to Zarn, Inc. Trash can cover. 263,017, 2-16-82, Cl. D34-11.000.
Dowse, Bruce, to Dowse Designs Pty. Limited. Chair. 263,008, 2-16-82, Cl. D6-73.000.
Dowse Designs Pty. Limited: See—
Dowse, Bruce, 263,008, Cl. D6-73.000.
Dunlop Limited: See—
Ingley, Peter, 263,041, Cl. D12-148.000.
E-A-R Corporation: See—
Lilley, Daniel T., Jr.; Berger, Elliott H.; and Passanisi, John A., 263,022, Cl. D8-402.000.
Eddleman, Roy T.; and Moran, Gregory F., to Spectrum Medical Industries, Inc. In-line filter for laboratory use. 263,078, 2-16-82, Cl. D24-52.000.
Ernst Leitz Wetzlar GmbH: See—
Janke, Heinrich; and Uellenberg, Hans-Kurt, 263,057, Cl. D16-131.000.
Fitzgerald, James P.: See—
Fitzgerald, Joseph M.; and Fitzgerald, James P., 263,040, Cl. D12-181.000.

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Genaro, Donald M.; and McGarvey, John N., to Bell Telephone Laboratories, Incorporated. Telephone handset. 263,048, 2-16-82, Cl. D14-63.000.
George, Peter D. Wall clock. 263,030, 2-16-82, Cl. D10-24.000.
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Hunter, Mike E.; and Hunter, Michael J., to Nuclear Assurance Corp. Relocatable building structure for racquetball court. 263,081, 2-16-82, Cl. D25-25.000.
Ingley, Peter, to Dunlop Limited. Tire for a vehicle wheel. 263,041, 2-16-82, Cl. D12-148.000.
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Jonkers, Martinus K. P.; and Carpay, Johan J. Device for treating dentures with anti-carries preparation. 263,073, 2-16-82, Cl. D24-10.000.
Joseph, Michel, to Adidas Fabrique de Chaussures de Sport. Gymnast's suit. 263,005, 2-16-82, Cl. D2-36.000.
Keller, Robert L. Wastebasket or the like. 263,016, 2-16-82, Cl. D34-1.000.
Knebel, Robert W. Vacuum operated insect collector. 263,068, 2-16-82, Cl. D22-19.000.
Kobayashi, Heiji. Motorcycle. 263,038, 2-16-82, Cl. D12-110.000.
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Loncasty, Peter T. Lunch box. 263,015, 2-16-82, Cl. D7-76.000.
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Marsh, Thomas R., to Hughes Supply Company of Thomasville, Incorporated, The. Drawer back bearing. 263,010, 2-16-82, Cl. D6-191.000.
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Matsui, Hidetoshi. Kinetic sculpture. 263,064, 2-16-82, Cl. D21-102.000.
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Merritt, Murray L. Pivotal latch to cover hole in stovepipe. 263,072, 2-16-82, Cl. D23-163.000.
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O'Keefe, Charles B. Auxiliary toilet paper roll holder. 263,009, 2-16-82, Cl. D6-97.000.
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- Schoeneck Containers, Inc.: *See—*
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- Best, Ralph E.; Bhandari, Vijay; Mason, Michael E.; Panter, Harrison R.; and Schreiber, Richard A., 263,087. Cl. D29-6.000.
- Schulze-Bahr, Werner, to Assmann G.m.b.H. Combined cassette dictating machine and microphone thereof. 263,044. 2-16-82. Cl. D14-3.000.
- Siegfried, Frederick R., to Burlington Northern, Inc. Cable hanger. 263,021. 2-16-82. Cl. D8-373.000.
- Sirois, W. James: *See—*
- Metz, Thomas V.; and Sirois, W. James, 263,070. Cl. D23-95.000.
- Smith, William C.: *See—*
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- Spectrum Medical Industries, Inc.: *See—*
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- Swayze, Clark E.: *See—*
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- Theriault, Albert N.: *See—*
- Schoeneck, Robert L.; Smith, William C.; Hoyle, Wallis I.; Swayze, Clark E.; Carder, Terry L.; and Theriault, Albert N., 263,025. Cl. D9-404.000.
- Thomson, Arthur E.: *See—*
- Hanaford, Donald E., 263,012. Cl. D6-194.000.
- Trussler, Peter D. H., to Northern Telecom Limited. Telephone base. 263,047. 2-16-82. Cl. D14-60.000.
- Ueda, Yoshiaki, to Matsushita Electric Industrial Co., Ltd. Vacuum cleaner nozzle. 263,052. 2-16-82. Cl. D32-33.000.
- Uellenberg, Hans-Kurt: *See—*
- Janke, Heinrich; and Uellenberg, Hans-Kurt, 263,057. Cl. D16-131.000.
- Uyeda, Tim M.: *See—*
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- Reaves, Ransom; and Yeldell, Nokomis, 263,089. Cl. D99-34.000.
- Yoshizawa, Keiichi, to TDK Electronics Co., Ltd. Label for a cassette holder. 263,060. 2-16-82. Cl. D20-27.000.
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- Bailey Nurseries, Inc.: *See—*
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- Dilworth, William L., to J & L Plants Inc. Yellow kalanchoe plant. 4,825. 2-16-82. Cl. 68.000.
- J & L Plants Inc.: *See—*
- Dilworth, William L., 4,825. Cl. 68.000.
- Lautz, Louis R., to Bailey Nurseries, Inc. Early ripening Haralson apple—Lautz cultivar. 4,824. 2-16-82. Cl. 34.000.

CLASSIFICATION OF PATENTS

ISSUED FEBRUARY 16, 1982

NOTE—First number, class; second number, subclass; third number, patent number

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10 R	CLASS 10	156	4,315,387		CLASS 75	275	4,315,489	230	4,315,790	690	4,315,568
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10.5	CLASS 12	185	4,315,389	41	4,315,771	571	4,315,491	306.6	4,315,792	17 R	4,316,064
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	4,315,355	63	4,315,409	115 VM	4,315,458	653	4,315,514		4,315,546	605	4,315,821
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1 M	4,315,371	27	4,315,762		4,315,467		4,316,048		4,315,549	413	4,316,079
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126	4,315,374	88	4,315,766		CLASS 112		4,316,048		4,315,549	89 A	4,315,575
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118 R	CLASS 37	98	4,315,768		4,315,471		4,316,048		4,315,549	323	4,315,577
	4,315,375	111	4,315,769		4,315,472		4,316,048		4,315,549	366	4,315,578
	CLASS 40		4,315,769		4,315,473		4,316,048		4,315,549	371	4,315,579
124.4	4,315,376	42	4,315,421		4,315,474		4,316,048		4,315,549		
	4,315,376	388	4,315,422		4,315,475		4,316,048		4,315,549		
	CLASS 42	466	4,315,423		4,315,476		4,316,048		4,315,549		
42 R	4,315,377	479	4,315,424		4,315,477		4,316,048		4,315,549		
50	4,315,378	481	4,315,425		4,315,478		4,316,048		4,315,549		
71 P	4,315,379		CLASS 73		4,315,479		4,316,048		4,315,549		
	4,315,379	9	4,315,426		4,315,479		4,316,048		4,315,549		
51	4,315,755	52	4,315,427		4,315,479		4,316,048		4,315,549		
59	4,315,756	61 R	4,315,428		4,315,479		4,316,048		4,315,549		
		84	4,315,429		4,315,479		4,316,048		4,315,549		
	CLASS 44	190 CV	4,315,430		4,315,479		4,316,048		4,315,549		
	4,315,756	203	4,315,431		4,315,479		4,316,048		4,315,549		
		431	4,315,432		4,315,479		4,316,048		4,315,549		
58	4,315,380	517 B	4,315,434		4,315,479		4,316,048		4,315,549		
59	4,315,381	517 R	4,315,433		4,315,479		4,316,048		4,315,549		

CLASSIFICATION OF PATENTS

CLASS 221	23.7 M	4,315,841	143	4,315,647	3	4,316,153	CLASS 357	105	4,316,284
185	4,315,580	28.5 B	4,315,842	150	4,315,648	4	4,316,154		4,316,285
CLASS 222	29.6 PT	4,315,843	201	4,315,649	18	4,316,155	CLASS 372	50	4,316,156
83	4,315,581	42.16	4,315,844	CLASS 294	111	4,316,158	15	4,316,201	4,316,157
148	4,315,582	42.28	4,315,845	19 R	4,315,650	CLASS 333	23	4,316,202	
CLASS 224	45.7 PH	4,315,847	83 R	4,315,651	104	4,316,159	30	4,316,203	
41	4,315,583	45.75 B	4,315,849	86 R	4,315,652	120	4,316,160	CLASS 376	246
CLASS 225	45.8 NT	4,315,848	CLASS 296	63	4,315,653	141	4,316,161	4,315,800	
2	4,315,584	112 B	4,315,851	CLASS 297	37	4,316,163	41	4,316,207	
CLASS 226	112 R	4,315,852	118	4,315,655	CLASS 335	67	4,316,209	CLASS 400	144.2
74	4,315,585	112.5 R	4,315,853	202	4,316,164	CLASS 338	4	4,315,695	
141	4,315,586	145 A	4,315,854	213	4,316,165	10	4,316,211	CLASS 401	99
CLASS 227	239.1	4,315,855	188	4,315,654	229	4,316,166	11	4,315,696	
67	4,315,587	243.3	4,315,858	CLASS 299	213	4,316,167	21 R	4,315,697	
81	4,315,588	245.7	4,315,859	1	4,315,656	70	4,316,212	CLASS 402	70
155	4,315,589	340.9 R	4,315,861	2	4,315,657	37	4,316,213	CLASS 403	59
CLASS 228	345.2	4,315,862	43	4,315,658	70	4,316,169	67	4,315,698	
37	4,315,590	346.74	4,315,863	CLASS 303	257	4,316,170	86	4,315,699	
188	4,315,591	346.75	4,315,864	CLASS 307	359	4,316,168	129	4,316,217	
CLASS 229	392.3	4,315,865	66	4,316,097	CLASS 336	213	4,316,220	CLASS 404	111
38	4,315,592	429.9	4,315,866	119	4,316,098	CLASS 337	150	4,315,700	
CLASS 233	439 R	4,315,867	221 D	4,316,100	CLASS 338	261	4,316,221	CLASS 405	150
21	4,315,593	465 D	296 R	4,316,102	CLASS 339	39	4,316,222	4,315,701	
CLASS 235	465.2	4,315,869	304	4,316,103	97 C	4,315,662	72.2	4,315,702	
92 DN	4,316,081	4,315,871	308	4,316,104	97 P	4,315,663	107	4,315,703	
146	4,316,082	4,315,872	362	4,316,105	176 M	4,315,664	109	4,315,704	
449	4,316,083	4,315,873	481	4,316,106	CLASS 340	32	4,316,227	4,315,705	
CLASS 236	4,315,595	CLASS 261	492	4,316,107	52 R	4,316,173	127	4,315,706	
46 R	4,315,596	5	4,315,874	578	4,316,108	52 R	4,316,174	CLASS 361	101
CLASS 237	40.1	4,315,875	9	4,315,660	57	4,316,175	42	4,316,229	
2 B	4,315,597	40.1	4,315,876	CLASS 310	146.2	4,316,176	114	4,316,230	
70	4,315,598	43.9	4,315,877	114	4,316,109	58	4,316,231	4,315,707	
CLASS 239	107	4,315,878	154	4,316,099	347 DA	4,316,177	212	4,316,232	
10	4,315,599	117	4,315,879	538	4,316,178	57	4,316,233	CLASS 411	65
74	4,315,600	171	4,315,880	562	4,316,180	58	4,316,234	4,315,708	
142	4,315,601	174	4,315,881	571	4,316,181	59	4,316,235	CLASS 414	22
163	4,315,602	255	4,315,882	606	4,316,182	60	4,316,236	4,315,709	
533.3	4,315,603	297	4,315,883	621	4,316,183	61	4,316,237	4,315,710	
CLASS 241	328.16	318	4,315,884	628	4,316,184	62	4,316,238	4,315,711	
82.5	4,315,604	328.16	4,315,885	636	4,316,185	63	4,316,239	4,315,712	
192	4,315,605	303	4,315,886	648	4,316,186	64	4,316,240	CLASS 415	2 R
CLASS 242	69	4,315,618	422	4,316,117	664	Re.30,868	267	4,315,713	
7.19	4,315,606	89	4,315,619	4,316,118	673	4,315,594	268	4,315,714	
36	4,315,607	193	4,315,620	CLASS 312	735	4,316,188	21	4,315,715	
68	4,315,608	296	4,315,621	344	4,316,116	870.34	132	4,316,243	
CLASS 244	3.14	4,315,609	311	4,315,622	422	4,316,117	200	4,316,244	
3.16	4,315,610	311	4,315,622	CLASS 313	4,316,118	CLASS 343	4,316,245	4,315,718	
CLASS 248	340	4,315,611	74	4,315,623	8	4,316,119	417	4,316,246	
406	4,315,613	4,315,613	241 R	4,316,124	58	4,316,120	422	4,316,247	
479	4,315,614	4,315,614	375	4,316,125	62	4,316,121	424	4,316,248	
489	4,315,615	4,315,615	408	4,316,126	74	4,316,122	428	4,316,249	
538	4,315,616	4,315,616	411	4,316,127	169.4	4,316,123	432	4,316,250	
CLASS 250	203 R	4,316,084	313	4,316,129	205	4,316,124	436	4,316,251	
204	4,316,085	4,316,085	591	4,316,130	241 R	4,316,125	438	4,316,252	
262	4,316,086	4,316,086	612	4,316,131	375	4,316,126	442	4,316,253	
307	4,316,087	4,316,087	723	4,316,132	408	4,316,127	446	4,316,254	
338	4,316,088	4,316,088	CLASS 318	4,316,133	411	4,316,128	450	4,316,255	
385	4,316,089	4,316,089	313	4,316,129	4,315,630	CLASS 319	4,316,256	4,315,895	
423 R	4,316,090	4,316,090	591	4,316,130	48	4,316,133	4,316,257	CLASS 423	54
445 T	4,316,091	4,316,091	612	4,316,131	99	4,316,134	4,316,258	4,315,896	
483	4,316,092	4,316,092	723	4,316,132	CLASS 320	4,315,631	4,316,259	4,315,897	
492.1	4,316,093	4,316,093	CLASS 321	4,316,133	426	4,315,632	4,316,260	4,315,898	
504 R	4,316,094	4,316,094	CLASS 322	4,316,134	429	4,315,633	4,316,261	4,315,899	
CLASS 251	210	4,315,616	CLASS 323	4,316,135	451	4,315,634	4,316,262	4,315,900	
41	4,315,825	4,315,825	263	4,316,136	CLASS 324	4,315,635	4,316,263	4,315,901	
46.4	4,315,826	4,315,826	282	4,316,137	52	4,316,139	4,316,264	4,315,902	
62.31	4,315,827	4,315,827	364	4,316,138	71 SN	4,316,140	4,316,265	4,315,903	
153	4,315,828	4,315,828	CLASS 325	4,316,139	127	4,316,141	4,316,266	4,315,904	
182.1	4,315,829	4,315,829	CLASS 326	4,316,140	161	4,316,142	4,316,267	4,315,905	
301.4 R	4,315,832	4,315,832	CLASS 327	4,316,141	174	4,316,143	4,316,268	4,315,906	
314	4,315,833	4,315,833	CLASS 328	4,316,142	208	4,316,144	4,316,269	4,315,907	
373	4,315,834	4,315,834	CLASS 329	4,316,143	209	4,316,145	4,316,270	4,315,908	
429 B	4,315,835	4,315,835	CLASS 330	4,316,144	300	4,316,146	4,316,271	4,315,909	
450	4,315,836	4,315,836	CLASS 331	4,316,145	CLASS 332	4,315,636	4,316,272	4,315,910	
448	4,315,837	4,315,837	CLASS 333	4,316,146	55	4,315,637	4,316,273	4,315,911	
628	4,315,838	4,315,838	CLASS 334	4,316,147	CLASS 335	4,315,638	4,316,274	4,315,912	
CLASS 254	371	4,315,617	CLASS 336	4,316,148	38	4,315,639	4,316,275	4,315,913	
CLASS 260	18 TN	4,315,840	CLASS 337	4,316,149	73	4,315,640	4,316,276	4,315,914	
			CLASS 338	4,316,150	141	4,315,641	4,316,277	4,315,915	
			CLASS 339	4,316,151	152	4,315,642	4,316,278	4,315,916	
			CLASS 340	4,316,152	331	4,315,643	4,316,279	4,315,917	
			CLASS 341	4,316,153	350	4,315,644	4,316,280	4,315,918	
			CLASS 342	4,316,154	399	4,315,645	4,316,281	4,315,919	
			CLASS 343	4,316,155			4,316,282	4,315,920	
			CLASS 344	4,316,156			4,316,283	4,315,921	
			CLASS 345	4,316,157				4,315,922	
			CLASS 346	4,316,158				4,315,923	
			CLASS 347	4,316,159				4,315,924	
			CLASS 348	4,316,160				4,315,925	
			CLASS 349	4,316,161				4,315,926	
			CLASS 350	4,316,162				4,315,927	
			CLASS 351	4,316,163				4,315,928	
			CLASS 352	4,316,164					
			CLASS 353	4,316,165					
			CLASS 354	4,316,166					
			CLASS 355	4,316,167					
			CLASS 356	4,316,168					
			CLASS 357	4,316,169					
			CLASS 358	4,316,170					
			CLASS 359	4,316,171					
			CLASS 360	4,316,172					
			CLASS 361	4,316,173					
			CLASS 362	4,316,174					
			CLASS 363	4,316,175					
			CLASS 364	4,316,176					
			CLASS 365	4,316,177					
			CLASS 366	4,316,178					
			CLASS 367	4,316,179					
			CLASS 368	4,316,180					
			CLASS 369	4,316,181					
			CLASS 370	4,316,182					
			CLASS 371	4,316,183					
			CLASS 372	4,316,184					
			CLASS 373	4,316,185					
			CLASS 374	4,316,186					
			CLASS 375	4,316,187					
			CLASS 376	4,316,188					
			CLASS 377	4,316,189					
			CLASS 378	4,316,190					
			CLASS 379	4,316,191					
			CLASS 380	4,316,192					
			CLASS 381	4,316,193					
			CLASS 382	4,316,194					
			CLASS 383	4,316,195					
			CLASS 384	4,316,196					
			CLASS 385	4,316,197					
			CLASS 386	4,316,198					
			CLASS 387	4,316,199					
			CLASS 388	4,316,200					
			CLASS 389	4,316					

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

(U.S. States, Territories and Armed Forces, the Commonwealth of Puerto Rico, and the Canal Zone)

Alabama	1	Kentucky	21	Oregon	41
Alaska	2	Louisiana	22	Pennsylvania	42
American Samoa	3	Maine	23	Puerto Rico	43
Arizona	4	Maryland	24	Rhode Island	44
Arkansas	5	Massachusetts	25	South Carolina	45
California	6	Michigan	26	South Dakota	46
Canal Zone	7	Minnesota	27	Tennessee	47
Colorado	8	Mississippi	28	Texas	48
Connecticut	9	Missouri	29	Utah	49
Delaware	10	Montana	30	Vermont	50
District of Columbia	11	Nebraska	31	Virginia	51
Florida	12	Nevada	32	Virgin Islands	52
Georgia	13	New Hampshire	33	Washington	53
Guam	14	New Jersey	34	West Virginia	54
Hawaii	15	New Mexico	35	Wisconsin	55
Idaho	16	New York	36	Wyoming	56
Illinois	17	North Carolina	37	U.S. Air Force	57
Indiana	18	North Dakota	38	U.S. Army	58
Iowa	19	Ohio	39	U.S. Navy	59
Kansas	20	Oklahoma	40		

(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

01 : 4,315,693	4,315,886	4,315,628	4,316,257	4,316,080	4,316,096
04 : 4,315,858	4,315,903	4,315,661	4,315,387	4,316,083	4,316,147
4,315,948	4,315,905	4,315,697	4,315,525	4,316,107	4,316,148
4,316,082	4,315,919	4,315,717	4,315,599	4,316,115	4,316,256
05 : 4,316,160	4,315,928	4,315,746	4,315,613	4,316,140	4,315,338
4,315,762	4,316,035	4,315,810	4,315,803	4,316,241	4,315,475
06 : 4,315,334	4,316,062	4,315,811	4,315,990	4,316,244	4,315,623
4,315,350	4,316,066	4,315,890	4,316,021	4,316,246	4,315,862
4,315,372	4,316,102	4,316,108	4,316,143	4,316,248	4,315,465
4,315,377	4,316,139	4,316,218	4,316,210	4,315,342	4,315,700
4,315,379	4,316,156	4,316,231	4,316,213	4,315,362	4,315,739
4,315,381	4,316,159	4,315,424	4,316,214	4,315,413	4,315,892
4,315,390	4,316,196	4,315,481	4,316,220	4,315,414	4,316,007
4,315,408	4,316,206	4,315,580	4,316,243	4,315,449	4,315,950
4,315,435	4,316,227	4,315,592	4,316,281	4,315,461	4,315,565
4,315,462	4,316,254	4,315,353	4,315,448	4,315,466	4,315,358
4,315,477	4,316,264	4,315,340	4,315,632	4,315,483	4,315,368
4,315,479	4,316,267	4,315,354	4,315,344	4,315,513	4,315,369
4,315,490	4,316,268	4,315,363	4,315,515	4,315,550	4,315,400
4,315,499	4,316,278	4,315,367	4,315,578	4,315,614	4,315,422
4,315,505	4,315,423	4,315,382	4,315,925	4,315,637	4,315,446
4,315,511	4,315,583	4,315,383	4,316,069	4,315,639	4,315,458
4,315,512	4,315,630	4,315,404	4,315,535	4,315,645	4,315,503
4,315,516	4,315,657	4,315,442	4,315,775	4,315,655	4,315,510
4,315,517	4,315,682	4,315,450	4,315,888	4,315,706	4,315,576
4,315,523	4,315,828	4,315,452	4,315,906	4,315,727	4,315,582
4,315,539	4,316,152	4,315,504	4,315,378	4,315,847	4,315,595
4,315,542	4,316,198	4,315,509	4,315,412	4,315,876	4,315,598
4,315,545	4,316,271	4,315,521	4,315,433	4,315,930	4,315,662
4,315,554	Re 30,866	4,315,522	4,315,671	4,315,933	4,315,782
4,315,561	4,315,391	4,315,568	4,315,747	4,315,947	4,315,802
4,315,596	4,315,436	4,315,642	4,315,942	4,315,969	4,315,814
4,315,601	4,315,438	4,315,646	4,316,161	4,315,970	4,315,824
4,315,609	4,315,482	4,315,656	4,316,192	4,316,006	4,315,852
4,315,610	4,315,570	4,315,699	4,316,249	4,316,084	4,315,860
4,315,627	4,315,585	4,315,718	4,315,444	4,316,132	4,315,885
4,315,641	4,315,683	4,315,731	4,315,478	4,316,144	4,315,893
4,315,647	4,315,714	4,315,744	4,315,501	4,316,145	4,315,896
4,315,651	4,315,779	4,315,758	4,315,586	4,316,155	4,315,898
4,315,653	4,315,780	4,315,801	4,315,666	4,316,174	4,315,910
4,315,665	4,315,799	4,315,929	4,315,675	4,316,176	4,315,911
4,315,680	4,316,010	4,315,946	4,315,676	4,316,191	4,315,913
4,315,705	4,316,038	4,316,079	4,315,677	4,316,239	4,315,926
4,315,711	4,316,129	4,316,091	4,315,681	4,315,373	4,315,935
4,315,732	4,315,767	4,316,134	4,315,696	4,315,546	4,315,945
4,315,749	4,315,856	4,316,151	4,315,733	4,315,608	4,315,951
4,315,751	4,316,273	4,316,170	4,315,795	4,315,633	4,315,952
4,315,752	4,315,364	4,316,180	4,315,798	4,315,652	4,315,953
4,315,765	4,315,401	4,316,184	4,315,806	4,315,703	4,315,958
4,315,781	4,315,434	4,316,189	4,315,877	4,315,878	4,315,965
4,315,786	4,315,468	4,316,233	4,315,968	4,315,955	4,316,049
4,315,827	4,315,625	4,316,235	4,316,060	4,315,974	4,316,058
4,315,832	4,315,626	4,316,238	4,316,078	4,316,000	4,316,061

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

4,316,073	4,315,753	4,315,538	4,316,255	4,316,110	51	Re 30,865
4,316,097	4,315,757	4,315,573	4,315,375	4,316,119		4,315,420
4,316,117	4,315,826	4,315,600	4,315,445	4,316,133		4,315,431
4,316,118	4,315,837	4,315,707	4,315,500	4,316,166		4,315,518
4,316,126	4,315,848	4,315,740	4,315,629	4,316,189		4,315,840
4,316,154	4,315,978	4,315,770	4,316,150	4,316,199		4,315,920
4,316,177	4,315,985	4,315,777	4,315,355	4,316,263		4,316,201
4,316,194	4,315,987	4,315,838	4,315,365	4,316,077	44 :	4,315,393
4,316,197	4,315,991	4,315,850	4,315,374	4,315,624	45 :	4,315,487
4,316,211	4,316,016	4,315,864	4,315,395	4,315,917	46 :	4,315,492
4,316,212	4,316,017	4,315,963	4,315,421	4,315,495	47 :	4,315,552
4,316,219	4,316,033	4,315,967	4,315,427	4,315,916	48 :	4,315,579
4,316,240	4,316,041	4,315,976	4,315,430	4,315,335		4,315,612
4,316,276	4,316,045	4,315,979	4,315,447	4,315,339		4,315,621
4,316,279	4,316,046	4,315,998	4,315,588	4,315,361		4,315,621
4,316,282	4,316,048	4,316,070	4,315,605	4,315,376		4,316,193
4,316,284	4,316,055	4,316,092	4,315,663	4,315,602		4,316,252
35 : 4,315,809	4,316,074	4,316,116	4,315,664	4,315,602	54	Re 30,867
36 : 4,315,336	4,316,093	4,316,120	4,315,709	4,315,606	55	4,315,487
4,315,343	4,316,123	4,316,121	4,315,742	4,315,616		4,315,432
4,315,381	4,316,181	4,316,186	4,315,776	4,315,694		4,315,459
4,315,399	4,316,185	4,316,188	4,315,785	4,315,704		4,315,464
4,315,426	4,316,195	4,315,402	4,315,789	4,315,763		4,315,506
4,315,453	4,316,200	4,315,415	4,315,812	4,315,793		4,315,507
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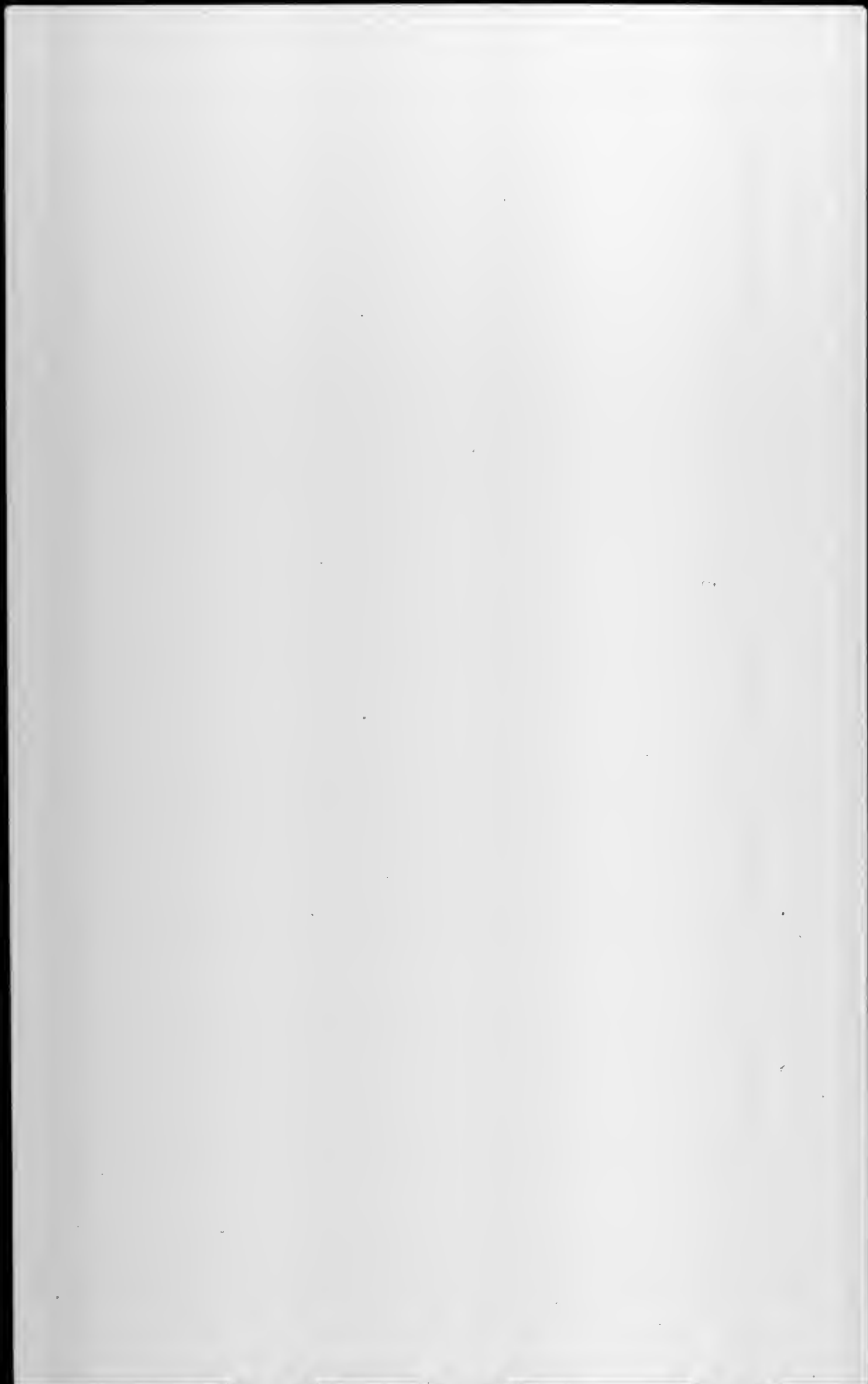
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February 23, 1982

Volume 1015

Number 4

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Patent Cooperation Treaty Information

For information concerning the PCT member countries and the most recent PCT rule changes see the notices appearing in the Official Gazette at 1001 O.G. 14 on Dec. 9, 1980 and at 1012 O.G. 20 on Nov. 17, 1981.

Note that the international fees have been increased as of Jan. 1, 1982. The current schedule of fees is as follows:

Transmittal fee	\$ 35.00
Search fee	300.00
International Fees	
Basic Fee (first 30 pages)	270.00
Basic Supplemental Fee (for each sheet over 30)	6.00
Designation Fees	65.00
GERALD J. MOSSINGHOFF, Commissioner of Patents and Trademarks.	
Jan. 19, 1982.	

Board of Appeals Decisions Rendered in the Month of Jan. 1982

Affirmed	170
Affirmed in Part	13
Reversed	72
Total	255

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

3,856,052, Re. S.N. 278,019, Filed June 29, 1981, Cl. 138/119, HOSE STRUCTURE, Robert H. Feucht, Owner of Record: *The Goodyear Tire & Rubber Co., Akron, Ohio*, Attorney or Agent: David M. Ronyak, Ex. Gp.: 243

4,277,227, Re. S.N. 321,192, Filed Nov. 13, 1981, Cl. 417/63, APPARATUS FOR CONVERTING A PUMP TO A CONTROLLER, Jon A. Jenkins, Owner of Record: *Imed Corp., San Diego, Calif.*, Attorney or Agent: Ellsworth R. Roston, et al., Ex. Gp.: 343

REQUESTS FOR REEXAMINATION FILED

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

Re. 30,159, Reexam. No. 90/000,141, Requested: Jan. 25, 1982, Cl. 57/291, FALSE TWIST-CRIMPING MACHINE, Hermann Kubler, Owner of Record: *Barmag Barmer Maschinenfabrik, AG, Remscheid-Lennep, Fed. Rep. of Germany*, Attorney or Agent: Charles B. Park, III, Ex. Gp.: 240, Requester: Barmag Barmer Maschinenfabrik, AG

3,769,775, Reexam. No. 90/000,146, Requested: Jan. 26, 1982, Cl. 52/731, BUILDING WALL CONSTRUCT-

ION, Kazimierz J. Brzezinski, Owner of Record: *Kowneer Co., Inc., Niles, Mich.*, Attorney or Agent: Mason, Kolehmainen, et al., Ex. Gp.: 354, Requester: The Anaconda Co., Denver, Colo.

4,096,505, Reexam. No. 90/000,140, Requested: Jan. 22, 1982, Cl. 354/246, FOCAL PLANE SHUTTER FOR CAMERAS, Eiichi Onda, et al., Owner of Record: *Seika Koko Kabushiki Kaisha, Tokyo, Japan*, Attorney or Agent: Burns, Lobato & Adams, Ex. Gp.: 211, Requester: Copal Co. Ltd., Tokyo, Japan

4,270,911, Reexam. No. 90/000,139, Requested: Jan. 21, 1982, Cl. 493/410, METHOD AND SYSTEM FOR PROVIDING ELONGATED Z-FOLD COPY PAPER, Thomas A. McNew, Owner of Record: *Digital Magnetic Systems, Inc., Oklahoma City, Okla.*, Attorney or Agent: William R. Laney, Ex. Gp.: 330, Requester: Stanley B. Green, Ansley Paper Co., Inc., Lawton, Okla.

4,285,285, Reexam. No. 90/000,142, Requested: Jan. 25, 1982, Cl. 112/79FF, FEED DEVICE AND METHOD FOR FEEDING YARN OR OTHER TEXTILE MATERIAL, George Chambers, et al., Owner of Record: *Newroyd Ltd., Lancashire, England*, Attorney or Agent: Anthony J. Casella, Ex. Gp.: 353, Requester: J. Rodman Steele, Jr., Philadelphia, Pa.

Registration to Practice

The following list contains the names of persons applying for registration to practice before the United States Patent and Trademark Office. Information tending to affect the eligibility of said applicants on moral, ethical or other grounds, should be furnished the Commissioner of Patents and Trademarks on or before Mar. 23, 1982.

Jan. 29, 1982. Donald J. Quigg,
Chairman, Committee
on Enrollment.

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Notice of Application for Recordation of Trade Name SON-EXPORT, S.A. de C.V.

Application has been filed pursuant to section 133.12, Customs Regulations (19 CFR 133.12), for the recordation under section 42 of the Act of July 5, 1946, as amended (15 U.S.C. 1124), of the trade name SON-EXPORT, S.A. de C.V., used by Son-Export, S.A. de C.V., a company governed by the laws of The Republic of Mexico, located at Plutarco Elias Calles y Rosales #124, Desp. 3003, Hermosillo, Sonora, Mexico.

The application states that the trade name is associated with fresh frozen shellfish (shrimp). Appropriate accompanying papers were submitted with the application.

Before final action is taken on the application, consideration will be given to any relevant data, views, or arguments submitted in writing by any person in opposition to the recordation of this trade name. Any such submission should be addressed to the Commissioner of Customs, U.S. Customs Service, Washington, D.C. 20229, in time to be received not later than 30 days from the date of publication of this notice in the Federal Register.

Notice of the action taken on the application for recordation of the trade name will be published in the Federal Register.

ANTHONY L. PIAZZA,

Dec. 14, 1981. *Acting Director, Entry, Procedures and Penalties Division.*

Patent Data Available on Magnetic Tape

The patent data files described below are available on industry standard computer magnetic tapes from the National Technical Information Service (NTIS):

- A. Current Patent Full Text File
Produced on a weekly basis, contains full text information on patents processed by means of the electronic photocomposition system and issued during that week. Begins with information for patents issued in the first week of the current calendar year.
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ing that week. Begins with information for patents issued in the first week of the current calendar year.

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- D. Retrospective Patent Full Text File
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- E. Retrospective Patent Bibliographic File
Contains bibliographic information on patents processed by means of the electronic photocomposition system and issued from Aug. 1970 through Dec. preceding the current calendar year. Full coverage of such utility patents began in Dec. 1974; reissues in July 1975; and plants, designs, and defensive publications in Dec. 1976.
- F. Selected Patent Full Text File
Contains full text information on 300 patents randomly selected from the Retrospective Patent Full Text File.
- G. Selected Patent Bibliographic File
Contains bibliographic information on the same 300 patents (identified in Item E above) randomly selected from the Retrospective Patent Full Text File.
- H. Patent Classification File (Classification Sequence)
Contains patent number, class and subclass information on all patents issued by the PTO. Arranged in classification sequence.
- I. Patent Classification File (Patent Sequence)
Contains patent number, class and subclass information on all patents issued by the PTO. Arranged in patent number sequence.
- J. Patent Technology Assessment and Forecast File
Produced semiannually, contains essentially all the first page bibliographic information on patents issued from Jan. 1, 1975. Contains some bibliographic information on patents issued from Jan. 1, 1963 to Dec. 31, 1975. Arranged in patent number sequence.
- K. Company Name File
Produced semiannually, contains company codes, total patents assigned to each company, and company names for patents issued from Jan. 1, 1969. Arranged in company code sequence.
- L. Manual of Classification
Contains the codes and descriptive titles of all classes and subclasses in the U.S. Classification System.
- M. Index to the U.S. Patent Classification
Contains an alphabetical list of subject heading referring to specific classes and subclasses of the classification system.
- N. Standard Industrial Classification Concordance
Produced annually, contains U.S. Class/Subclass codes with related Standard Industrial Classification (SIC) codes for all classifications as of the end of 1979. Arranged in classification sequence.
- O. Concordance: U.S. Patent Classification to International Patent Classification (IPC)
Contains U.S. Class/Subclass codes with related IPC codes. Used as a guide for relating U.S. to IPC codes.
- P. Inventor Name File
Produced semiannually, contains the patent number and inventor name and address (city and state for inventors of assigned patents, full address for inventors of unassigned patents) of patents issued from Jan. 1, 1975. Arranged in patent number sequence.
- Q. Patent Title File
Produced semiannually, contains patent number and title of patents issued from Jan. 1, 1969. Arranged in patent number sequence.

R. Attorney Roster

Contains names and addresses, registration and telephone number, availability to accept clients and status as attorney or agent. This is all of the information presently contained in the PTO publication Attorneys and Agents Registered to Practice Before the U.S. Patent and Trademark Office.

S. Foreign Patent Classification File (Document Identifier Sequence)

Contains Country Codes, Document Identifier, Publication Date, and U.S. Subclass information for foreign patents. The file contains information on foreign patents added to the Examiner Search File since Jan. 1979, foreign patents reclassified since May 1981, retrospective reclassification data as available, and information on foreign patents in selected subclasses that have undergone file integrity processing. Coverage, with respect to a specific country or class/subclass, is fragmentary although the file currently contains over 500,000 unique document identifiers.

T. Class 364, Subclass 200 Index Term File

Contains codes for subject matter descriptors related to technical information in patents classified in Class 364, Subclass 200.

U. Class 364, Subclass 900 Index Term File

Contains codes for subject matter descriptors related to technical information in patents classified in Class 364, Subclass 900.

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For further information contact the National Technical Information Service; 5285 Port Royal Rd., Springfield, Va. 22161. Telephone (703) 487-4807.

In addition to the above, the PTO has entered into an agreement with a commercial firm to provide the PTO access to and support for the use of a proprietary full-text processing system. Using this system, the PTO will carry out research and evaluation projects dealing with automated full-text searching of U.S. patents. As part of this research the PTO will provide to the commercial firm a special compilation copy of the Retrospective Patent Full Text File and selected portions of the Retrospective Patent Full Text available from NTIS. These files will be available either from the PTO or NTIS depending upon the level of interest in obtaining copies.

The special compilation copy of the Retrospective Patent Full Text File is identical to the Retrospective Patent Full Text File available from NTIS with the exception of the addition of a discipline category indicator which identifies patents issued in (1) chemical, (2) electrical, (3) mechanical, (4) chemical and electrical, (5) electrical and mechanical, (6) chemical and mechanical, or (7) other art areas. The initial file will contain patents issued through Feb. 24, 1981 and will be updated for a period of approximately one year. There are no current plans to provide updates beyond this one year period.

The selected portions of the Retrospective Patent Full Text File, consisting of six separate files, are as follows:

File Name	Class	Subclass	Approximate No. of Patents
Chemical Testing	23	230R-232E	4,100
	422	901-933 50-104	
General Purpose Programmable Digital Computer Systems and Miscellaneous Digital Processing Systems	364	200-(end)	
Automatic Fuel Controls	60	39.28R, T and P 243	3,780 430

Medicines and Drugs	424	(all)	32,140
Active Solid State Devices	357	(all)	8,660
Stoves and Furnaces	126	(all)	4,430

These files contain the full text of patents processed by means of the electronic photocomposition system and issued from Aug. 1970 through Jan. 1981. Full coverage of such patents began in Dec. of 1974. There are no current plans to update these files.

For further information contact James W. Shores, Data Base Systems Administrator, Patent Documentation Organizations, Washington, D.C. 20231. Mr. Shores' telephone number is (703) 557-3816.

Jan. 22, 1982. **GERALD J. MOSSINGHOFF,**
Commissioner of Patents and Trademarks.

Adverse Decisions in Interference

In the designated interference involving the indicated claims of the following patents, final decisions having been rendered that the respective patentees were not the first inventors with respect to the claims listed.

Patent No. 3,520,861, J. E. Thomson and G. E. Waples, Jr., COPOLYMERS OF ETHYLENE, Interference No. 99,752, decided Sept. 19, 1980, claims 1-8 & 10.

Patent No. 3,592,936, A. D. Marcus and R. E. Dempski, METHOD OF TREATMENT USING PHARMACEUTICAL COMPOSITION CONTAINING DIMETHYL SULFOXIDE, Interference No. 100,525, decided Nov. 13, 1981, claim 1.

Patent No. 3,670,285, J. A. English, VARIABLE RESISTANCE CONTROL WITH END COLLECTOR, Interference No. 98,455, decided Apr. 18, 1980, claim 22.

Patent No. 3,786,314, W. Misch, REGULATING ARRANGEMENT FOR SOLENOID VALVES AND THE LIKE, Interference No. 100,493 decided Nov. 16, 1981, claims 1-7, 12 and 13.

Patent No. 3,917,587, R. R. Chauvette, CEPHALOSPORIN ETHERS, Interference No. 99,580, decided Sept. 30, 1981, claim 30.

Patent No. 3,917,587 R. R. Chauvette, CEPHALOSPORIN ETHERS, Interference No. 99,582, decided Sept. 30, 1981, claims 3 and 9.

Patent No. 3,917,588, R. R. Chauvette, ALPHAMINOACYL CEPHALOSPORIN ETHERS, Interference No. 99,581, decided Sept. 30, 1981, claims 4, 5 and 9.

Patent No. 4,103,008, I. Toshiyasu, H. Minoru, H. Mariko and N. Hazime, 7[2(2,3-DIOXOPIPERAZIN-1-YL-CARBONYLAMINO) SUBSTITUTED 2-PHENYL-ACETAMIDO]-3-2'-THIADIAZOLYL CEPHALOSPORANIC ACID DERIVATIVES, Interference No. 100,406, decided Nov. 24, 1981, claims 1-3, 8, 15 and 17.

Patent No. 4,157,267, H. Odawara, M. Ohno, T. Yamazaki and M. Kanaoka, CONTINUOUS SEPARATION OF FRUCTOSE FROM A MIXTURE OF SUGARS, Interference No. 100,551, decided Nov. 13, 1981, claims 1-3.

Patent No. 4,207,315, J. J. Voorhees and D. H. Russell, PROCESS FOR TREATING PROLIFERATIVE SKIN DISEASES USING CERTAIN DIAMINO COMPOUNDS, Interference No. 100,672, decided Nov. 20, 1981, claim 6.

NANNIE B. HENRY,
Deputy Clerk Board of Patent Interferences.

Errata

The following registration numbers, listed in the "Trademark Registrations Issued" section of the Official Gazettes of Sept. 8, 1981, Oct. 27, 1981, Nov. 10, 1981, Nov. 17, 1981, Dec. 1, 1981 and Dec. 8, 1981, were assigned, prematurely, to published marks for which the opposition period had not yet run:

TMOG Sept. 8, 1981
1,168,713

TMOG Nov. 17, 1981
1,178,140

TMOG Oct. 27, 1981
1,175,271
1,175,469
1,175,494

TMOG Nov. 10, 1981
1,177,568

TMOG Dec. 1, 1981
1,180,041

TMOG Dec. 8, 1981
1,181,015
1,181,524
1,181,525

Consequently, certificates of registration bearing the above-identified numbers were not issued on the dates indicated, and these registration numbers have been vacated.

Jan. 27, 1982. **HERBERT C. WAMSLEY,**
Acting Assistant Commissioner for Trademarks.

Status of PTO Services

The following is an update of the status of PTO services as of Jan. 29, 1982:

Service Item	Performance Goal (Calendar Days)	Actual	Comment
Mail Processing & Delivery	4	4.5	
Filing Receipts: Patents	22	98	Holiday absenteeism prevented improvements during December.
Trademarks	42	40	Reduction of 24 days in the past month.
Patent Copies: Window Coupons	5	84% within 5 days 99% within 10 days	
Mail Coupons	15	95% within 15 days 99% within 20 days	
Letter Orders	20	70% within 15 days 99% within 30 days	
Certified Copies: Trademark Regs.	30	52	No significant improvement due to increase in requests.
All other	Being established	98% within 15 days 99% within 20 days	
Trademark Search Room: Filing Drawings	21	26	Reduction of 8 days in past month.
Filing Reg. Certificates	3	10	Reduction of 27 days in past month.
Patent Assignments	15	57	Overtime halted due to unavailable funding.
Trademark Assignments	21	84	Overtime halted due to unavailable funding.
Patent Official Gazette	Issue Date	On schedule	
Patent Grants	Issue Date	8 days late	Contractor problems due to holidays absenteeism.
Trademark Official Gazette	Issue Date	On schedule	
Trademark Registrations	Issue Date	On schedule	

Feb. 1, 1981. **RICHARD J. SHAKMAN,**
Assistant Commissioner for Administration

PATENT NOTICES

Certificates of Correction for the Week of Feb. 23, 1982

Re. 30,584	4,270,610	4,292,741	4,297,511
3,876,548	4,272,827	4,292,959	4,297,743
4,026,846	4,273,321	4,293,247	4,298,404
4,143,215	4,275,732	4,293,589	4,298,407
4,155,693	4,275,869	4,293,590	4,298,418
4,170,189	4,279,254	4,293,663	4,298,518
4,174,261	4,279,991	4,293,891	4,298,647
4,182,790	4,281,492	4,293,927	4,299,098
4,207,424	4,281,877	4,294,037	4,299,412
4,207,624	4,282,071	4,294,154	4,299,731
4,217,683	4,282,174	4,294,224	4,299,751
4,227,440	4,283,293	4,294,955	4,300,196
4,232,625	4,283,429	4,295,690	4,300,859
4,233,023	4,284,959	4,295,992	4,301,122
4,234,729	4,285,204	4,296,023	4,301,237
4,236,207	4,285,981	4,296,054	4,301,350
4,239,283	4,287,103	4,296,208	4,301,389
4,240,604	4,287,206	4,296,245	4,301,492
4,242,501	4,287,783	4,296,393	4,301,504
4,244,851	4,288,003	4,296,716	4,301,972
4,246,767	4,288,043	4,296,757	4,302,112
4,255,113	4,288,648	4,297,095	4,302,568
4,257,002	4,289,789	4,297,168	4,302,640
4,258,201	4,289,804	4,297,219	4,302,822
4,259,474	4,289,923	4,297,289	4,303,452
4,262,326	4,290,521	4,297,313	4,304,220
4,263,942	4,291,202	4,297,338	4,304,301
4,265,400	4,291,326	4,297,358	4,305,457
4,265,513	4,291,408	4,297,382	4,305,465
4,268,980	4,292,029	4,297,474	4,305,676
4,269,915	4,292,365	4,297,482	

Patent Suits

Notices under 35 USC 290; Patent Act of 1952

3,109,468, Amfac Foods, Inc., VEGETABLE SLICING APPARATUS; **3,116,772**, same, METHOD OF SLICING VEGETABLES, filed Feb. 4, 1981, D.C. Del. (Wilmington), Doc. 81-49, *Amfac Foods, Inc. v. AKF Foods, Inc.* Stipulation and Order dismissing complaint and counterclaim with prejudice filed Oct. 15, 1981.

3,116,772. (See **3,109,468**.)

3,122,474, Hoffmann-LaRoche, Inc., CHLORDIAZEPOXIDE AND CLIDINIUM HALIDE COMPOSITION AND METHOD OF USING SAME, filed Sept. 10, 1980, D.C.N.J. (Newark), Doc. 80-2954, *Hoffmann-LaRoche, Inc. v. MD Pharmaceutical, Inc.* Stipulation of dismissal of action filed Oct. 22, 1981.

3,156,482, Chicago Roller Skate Co., DETACHABLE TOE STOP FOR ROLLER SKATE CONSTRUCTION, filed Oct. 26, 1981, D.C., W.D. Wis. (Madison), Doc. 81-C-756, *Chicago Roller Skate Co. v. Laser Skate and Distributing, et al.*

3,242,219, Union Carbide Corp., PREPARATION OF BISPHENOLS, filed June 5, 1975, D.C., S.D. Tex. (Galveston), Doc. 75-G-79, *Union Carbide Corp. v. The Dow Chemical Co.* Judgment for Plaintiff filed Aug. 11, 1981. Defendant's Notice of Appeal filed Oct. 15, 1981.

3,319,734, George M. Pavey, Jr., ELASTIC DETECTION STREAMER DEAD SECTION FOR WATER BORNE SEISMIC SURVEYING SYSTEM, filed Nov.

10, 1980, D.C., S.D. Tex. (Houston), Doc. G-81-326, *Whitehall Corp. v. Geophysical Co. of Norway (U.S.), Inc.*

3,385,140, Carpenter Mfg. Co., Inc., FLAT MULTI-CONDUCTOR STRIPPING APPARATUS, filed Aug. 13, 1981, D.C., N.D. Ill. (Chicago), Doc. 81 C 4618, *Carpenter Mfg. Co., Inc. v. American Navigator*.

3,420,001, M-P Corp., ADJUSTABLE CLOSURE LOCK; **Re. 27,161**, same, filed Dec. 17, 1980, D.C., E.D. Mich. (Detroit), Doc. 80-74717, *M-P Corp. v. VSI Hardware Industries*. Defendant's Motion to Dismiss for Want of Venue is hereby granted and Plaintiff's Complaint is dismissed without prejudice and without costs to either party. Filed Oct. 1, 1981.

3,430,221, Barringer Research Ltd., PROXIMITY DETECTOR, filed July 9, 1980, D.C., W.D. Pa. (Pittsburgh), Doc. 80-925, *Federal Laboratories, Inc. v. Barringer Research Ltd., et al.* Judgment entered in favor of Plaintiff and against Defendants, declaring and determining that Pat. No. 3,340,221 is invalid. Filed Oct. 26, 1981.

3,437,149, Seaboard Pipe & Equipment Co., Inc., CABLE FEED-THROUGH MEANS AND METHOD FOR WELL HEAD CONSTRUCTIONS, filed Sept. 17, 1981, D.C., C.D. Calif. (Los Angeles), Doc. 81 4870, *Seaboard Pipe & Equipment Co., Inc. v. Alex Sipowicz, doing business as Sipp Machine & Tool Co., et al.*

3,488,017, Staar S.A., STOP SYSTEM FOR A TAPE REEL DRIVE, filed Oct. 29, 1981, D.C., N.D. Ill. (Chicago), Doc. 81C6081, *Staar S.A. v. Ford Motor Co.*

3,567,117, Hedco, Inc., ICE NUCLEI FORMATION; **3,703,991**, same, SNOW PRECIPITATOR; **3,733,029**, same, SNOW PRECIPITATOR, filed Oct. 9, 1981, D.C., W.D. Wis. (Madison), Doc. 81-C-714, *The Dewey Electronics Corp. v. Cascade Mountain, Inc.* Same, filed Oct. 9, 1981, D.C., E.D. Wash. (Spokane), Doc. C-81-616-JLQ, *The Dewey Electronics Corp. v. Mt. Spokane Skiing Corp., et al.* Same, filed Oct. 16, 1981, D.C. Vt. (Burlington), Doc. 81-315, *The Dewey Electronics Corp. v. Magic Mountain Corp.* Same, filed Oct. 19, 1981, D.C., N.D.N.Y. (Utica), Doc. 81-CV-1139, *The Dewey Electronics Corp. v. Titus Mountain, Inc.*

3,604,322, Friedrich Sohne Maurer, BRIDGING OR EXPANSION JOINTS IN ROADWAYS OF BRIDGES, STREETS, RUNWAYS AND THE LIKE, filed Aug. 4, 1981, D.C. Dist. of Columbia (Wash. D.C.), Doc. 81-1835, *Acme Highway Products Corp. v. Friedrich Sohne Maurer*. Memorandum and Order granting motion of defendant to dismiss filed Oct. 22, 1981.

3,703,991. (See **3,567,117**.)

3,733,029. (See **3,567,117**.)

3,783,517, David Post, PATTERN GRADING MACHINE, filed Oct. 29, 1981, D.C., S.D.N.Y., Doc. 81-Civ-6671, *Sunny-Yaung, Inc. and David Post v. D & M Tool & Die Machine Shop, Inc., et al.*

3,808,895, John Herman Fitzwater, ELECTRIC FAIL-SAFE ACTUATOR; **Re. 30,135**, same, filed June 26, 1981, D.C., N.D. Ill. (Chicago), Doc. 81C3601, *Ewol, Inc. v. Brunswick Corp.* Judgment Order filed Sept. 11, 1981. Plaintiff's motion to vacate order of Sept. 11, 1981 denied. Plaintiff to serve amended complaint against defendant Vapor Corp. by Oct. 16, 1981. Status hearing set for Nov. 6, 1981. Filed Oct. 2, 1981.

3,836,977, Hazeltine Corp., ANTENNA SYSTEM HAVING A REFLECTOR WITH A SUBSTANTIALLY OPEN CONSTRUCTION, filed Oct. 26,

1981, U.S. Ct. of Claims (Wash. D.C.), Doc. 623-81C, *Hazeltine Corp. v. the United States*.

3,855,780, Casio Computer Co. Ltd., ELECTRONIC CLOCK DEVICE, filed Nov. 12, 1981, D.C., S.D.N.Y., Doc. 81-Civ-7019, *Casio Keisanki Kabushiki Kaisha (Casio Computer Co. Ltd.) v. E. Gluck Corp., et al.*

3,857,980, Chester A. Johnson, PROCESS FOR PREPARATION AND PRESERVATION OF EGGS, filed Sept. 23, 1981, D.C., C.D. Calif. (Los Angeles), Doc. 81 4980, *Star-Kist Foods, Inc. v. Chester A. Johnson, et al.*

3,920,838, Flatt and Blackburn, AMINO ACID THERAPY, filed Nov. 3, 1981, D.C. Mass. (Boston), Doc. 81-2791, *Massachusetts Institute of Technology v. Abbott Laboratories*.

3,942,969, Research Corp., DELAYED RELEASE NUTRIENTS FOR MUSHROOM CULTURE, filed Oct. 29, 1981, D.C., E.D. Pa. (Philadelphia), Doc. 81-4427, *Research Corp. v. Gourmet's Delight Mushrooms Co., Inc., et al.*

3,960,492, Nuclear Diagnostics, Inc., METHOD FOR DETERMINING AN INDEX OF BINDING PROTEIN CONTENT OF BLOOD, filed Nov. 21, 1980, D.C., E.D. Mich. (Detroit), Doc. 80-74396, *Nuclear Diagnostics, Inc. v. Advance Medical and Research Center, Inc.* Action dismissed without prejudice. Filed Sept. 29, 1981.

3,968,355, Novo Products, Inc., AUTOMATIC NIGHT LIGHT STRUCTURE, filed Nov. 10, 1981, D.C., E.D. Mich. (Detroit), Doc. 81-74169, *Novo Products, Inc. v. Leviton Mfg. Co., Inc.*

3,997,979, Joe D. Turner, RODEO TRAINING DEVICE, filed Sept. 10, 1980, D.C., S.D. Tex. (Houston), Doc. H-80-2047, *Gilley's Enterprises, Inc. and Joe D. Turner v. Buck 'N Brancas, Inc.* Same, filed Nov. 14, 1980, D.C. Ariz. (Phoenix), Doc. 80-942, *Gilley's Enterprises, Inc. and Joe D. Turner v. Larry Mahan, et al.* Same, filed Oct. 1, 1980, D.C., N.D. Ala. (Birmingham), Doc. CV-80-P-1286-S, *Gilley's Enterprises, Inc. and Joe D. Turner v. Star Bull, Inc., et al.* Pat. No. 3,997,979 is good, enforceable and valid in law. Defendants are hereby permanently enjoined from further infringing plaintiff's patent. Filed June 12, 1981.

4,008,937, Stanley Aviation Corp., COUPLING ASSEMBLY, filed Oct. 1, 1981, D.C., C.D. Calif. (Los Angeles), Doc. 81 5131, *Stanley Aviation Corp. v. Hydraflow Supply, Inc.*

4,071,389, Frank E. Ives, CYLINDER-MAKING APPARATUS AND METHOD, filed Oct. 29, 1981, D.C., W.D. Okla. (Oklahoma City), Doc. CIV-81-1493, *Frank E. Ives, et al. v. Fiberglass Equipment Co., et al.*

4,115,946, Daniel Vukmirovich, FLEXIBLE DISCUS DEVICE, filed Feb. 26, 1981, D.C. Mass. (Boston), Doc. 81-0559-C, *Webb Mfg., Inc. v. Acorn Products, Inc.* Same, filed Jan. 28, 1981, D.C., M.D. Fla. (Orlando), Doc. 81-30-ORL-CIV-R, *Webb Mfg., Inc. v. Ronald Sarzier, doing business as Research II.* Defendant is permanently enjoined from infringing Plaintiff's patent. Filed Nov. 16, 1981.

4,139,955, Earl M. Reiback, DISPLAY DEVICE, filed Feb. 13, 1981, D.C., S.D.N.Y., Doc. 81-Civ-0875, *Earl M. Reiback v. Mechanical Mirror Works, Inc.* Pat. No. 4,139,955 is valid. Defendant is permanently enjoined from infringing Plaintiff's patent. Filed Oct. 26, 1981.

4,144,594, Melvin H. Chapman, FILIGREED BELT AND METHOD OF MAKING SAME, filed Oct. 23, 1981, D.C., W.D. Okla. (Oklahoma City), Doc. CIV-81-1472-W, *Amsca Corp. v. Nocona Belt Co.*

4,144,720, Tyler Refrigeration Corp., AIR DEFROST SYSTEM USING SECONDARY AIR BAND COMPONENTS; **4,207,747**, same; **4,283,922**, same, filed Oct.

19, 1979, D.C. Del. (Wilmington), Doc. 79-497, *Tyler Refrigeration Corp. v. Kysor Industrial Corp.* Pat. Nos. 4,207,747 and 4,283,922 were added by supplemental complaint on Nov. 3, 1981.

4,145,818, Hanspeter Kulling, METHOD AND APPARATUS FOR REMOVING A VAPORIZED LIQUID FROM A GAS, FOR USE IN E.G. A PROCESS BASED ON THE FLUIDIZED BED PRINCIPLE, filed Aug. 26, 1981, D.C.N.J. (Newark), Doc. 81-2726, *Glatt Air Techniques, Inc. v. Aeromatic AG, et al.* Order staying action until Nov. 16, 1981 and terminating action administratively filed Sept. 11, 1981.

4,146,489, Rohm and Haas Co., POLYOLEFIN GRAFT COPOLYMERS, filed Jan. 27, 1981, D.C. Del. (Wilmington), Doc. 81-36, *Rohm and Haas Co. v. Texaco, Inc.* Plaintiff's Notice of Dismissal pursuant to Rule 41(a)(1)(i) filed Oct. 26, 1981.

4,151,016, Fusion Inc., SINGLE COMPONENT BRAZING PASTE, filed Nov. 4, 1981, D.C., N.D. Ohio (Cleveland), Doc. C81-2213, *Fusion, Inc. v. Turbobrazo Corp., et al.*

4,152,974, National Presto Industries, Inc., HOT AIR CORN POPPER, filed Oct. 6, 1981, D.C.N.J. (Newark), Doc. 81-3120, *National Presto Industries, Inc. v. Forda Mfg. Co., Ltd.*

4,189,407, Neville Chemical Co., CHLORINATED HYDROCARBONS AND POLYSULFIDE RUBBER SEALANT COMPOSITIONS INCORPORATING SAME; **4,189,408**, same, filed Oct. 26, 1981, D.C., N.D. Ohio (Akron), Doc. C81-2112A, *Neville Chemical Co. v. Dover Chemical Corp., et al.*

4,189,408. (See **4,189,407**.)

4,207,747. (See **4,144,720**.)

4,208,131, Robert L. Mendenhall, ASPHALTIC CONCRETE PATCH MIXING AND HEATING APPARATUS AND METHOD; **4,219,278**, same, ASPHALT-AGGREGATE DRUM MIXING APPARATUS; **4,240,754**, same, ASPHALTIC CONCRETE PATCH MIXING AND HEATING APPARATUS AND METHOD; **4,265,546**, same, ASPHALT-AGGREGATE DRUM MIXING APPARATUS, filed Oct. 2, 1981, D.C. Mont. (Butte), Doc. CV-81-93-BU, *Robert L. Mendenhall v. Eugene R. Simpson, doing business as Simpson Mfg. Co.*

4,219,278. (See **4,208,131**.)

4,222,537, Shimano Industrial Co., Ltd., FISHING REEL, filed Oct. 29, 1981, D.C. Md. (Baltimore), Doc. J-81-2815, *Shimano Industrial Co., Ltd. v. Daiwa Seiko, Inc., et al.*

4,240,173, John C. Sherrill, POOL VACUUM, filed Oct. 27, 1981, D.C. Ariz. (Phoenix), Doc. CIV-81-1268-PHX-EHC, *Innovative Products Corp. v. Rainbow Lifeguard Products, Inc., et al.*

4,240,193, Reuben Krein, METHOD OF STUFFING COMPRESSIBLE PRODUCTS INTO FLEXIBLE COVERS; **4,251,975**, same, METHOD AND APPARATUS FOR STUFFING CUSHIONS, MATTRESSES, AND THE LIKE; **4,272,874**, same, APPARATUS FOR STUFFING COMPRESSIBLE PRODUCTS INTO FLEXIBLE COVERS, filed Sept. 3, 1981, D.C., C.D. Calif. (Los Angeles), Doc. CV-81-4583-Kn(Gx), *BJK Industries, Inc. v. Roy C. Clements, et al.* Same, filed Oct. 2, 1981, D.C. Ariz. (Phoenix), Doc. 81-1173 PHX VAC, *BJK Industries, Inc. v. EZE Corp., et al.*

4,240,754. (See **4,208,131**.)

4,247,136, Hancor, Inc., INTERNAL COUPLING STRUCTURE AND JOINT FOR PIPE OR TUBING, filed Oct. 27, 1981, D.C., C.D. Ill. (Danville), Doc. 81-2286, *Hancor, Inc. v. Albert C. Hackl, et al.*

4,248,478, Leonard Aron, SELF-SUPPORTING INFANT CHAIR, filed Sept. 11, 1981, D.C., C.D. Calif.

(Los Angeles), Doc. 81 4722, *Leonard Aron v. Daniel Cohen, et al.*

4,251,975. (See 4,240,193.)

4,265,546. (See 4,208,131.)

4,272,874. (See 4,240,193.)

4,283,922. (See 4,144,720.)

4,291,427, Richard Rhea, FLOATATION GARMENT, filed Oct. 19, 1981, D.C., E.D. Mo. (St. Louis), Doc. 81-1300, *Richard Rhea v. Thomas Birkenmeir*.

4,292,986, Capella Inc., ELECTRIC HAIR BRUSH; D. 251,205, same, HAIR STYLER; D. 251,638, same, HAIR BRUSH, filed Aug. 3, 1978, D.C., S.D. Fla. (Miami), Doc. 78-3493-CIV-JE, *Capella, Inc. v. Saveway Industries, Inc.*

4,296,580, Roger Neil Weinart, WALL CONSTRUCTED FROM PANELS HELD IN POSITION WITH THE AID OF CONCEALED FASTENERS AND CONCEALABLE FASTENERS FOR USE IN ASSEMBLING SUCH WALL, filed Oct. 28, 1981, D.C., E.D. Mich. (Detroit), Doc. 81-73995, *National Gypsum Co. v. Rollform, Inc.*

Re. 27,161. (See 3,420,001.)

Re. 30,135. (See 3,808,895.)

D. 234,581, Carlton L. Koehler, COMBINED DEPTH AND PRESSURE GAUGE FOR SCUBA DIVERS, filed Sept. 10, 1981, D.C., C.D. Calif. (Los Angeles), Doc. 81 4706, *Carlton L. Koehler v. Undersea Industries, Inc.*

D. 251,205. (See 4,292,986.)

D. 251,638. (See 4,292,986.)

D. 255,028, Leer, Inc., PICK-UP TRUCK REAR PANEL, filed Nov. 5, 1981, D.C., E.D. Mich. (Detroit), Doc. 81-74114, *Leer, Inc. v. New Boston Fiberglass, Inc.*

D. 260,807, Gerald W. Moreland, HYDRO-THERAPY NOZZLE FOR HYDRO-THERAPY SPAS DESIGN, filed Oct. 5, 1981, D.C., C.D. Calif. (Los Angeles), Doc. 81 5199, *Gerald W. Moreland v. G/G Distributing & Development Co., Inc.*

PP2,816, Van Well Nursery, Inc., APPLE TREE, filed Sept. 24, 1981, D.C., E.D. Wash. (Spokane), Doc. C-81-573-JLQ, *Van Well Nursery, Inc. v. William Gamache, et al.*

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

These patent collections are open to public use and each of the patent depository libraries, in addition, offers the publications of the patent classification system (e.g. The Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions, etc.) and provides technical staff assistance in their use to aid the public in gaining effective access to information contained in patents. With one exception, as noted in the

table following, the collections are organized in patent number sequence.

Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

State	Name of Library	Telephone Contact
Alabama	Birmingham Public Library	(205) 254-2555
Arizona	Tempe: Science Library, Arizona State University	(602) 965-7607
California	Los Angeles Public Library	(213) 626-7555 Ext. 273
	Sacramento: California State Library	(916) 322-4572
	Sunnyvale: Patent Information Clearinghouse*	(408) 738-5580
Colorado	Denver Public Library	(303) 573-5152 Ext. 222
Delaware	Newark: University of Delaware	(302) 738-2238
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4519
Illinois	Chicago Public Library	(312) 269-2814
Louisiana	Baton Rouge: Troy H. Middleton Library, Louisiana State University	(504) 388-2570
Massachusetts	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Detroit Public Library	(313) 833-1450
Minnesota	Minneapolis Public Library & Information Center	(612) 372-6552
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 214, 215
Nebraska	Lincoln: University of Nebraska-Lincoln, Engineering Library	(402) 472-3411
New Hampshire	Durham: University of New Hampshire Library	(603) 862-1777
New Jersey	Newark Public Library	(201) 733-7814
New York	Albany: New York State Library	(518) 474-5125
	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 930-0850
North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
Ohio	Cincinnati & Hamilton County, Public Library of	(513) 369-6936
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 255-7055 Ext. 212
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1321**
	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3138
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
Rhode Island	Providence Public Library	(401) 521-7722 Ext. 226
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Texas	Dallas Public Library	(214) 748-9071
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Engineering Library, University of Wisconsin	(608) 262-6845
	Milwaukee Public Library	(414) 278-3043

*Collection organized by subject matter.

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PATENT EXAMINING CORPS
RENE D. TEGTMEYER, Assistant Commissioner
WILLIAM FELDMAN, Deputy Assistant Commissioner
CONDITION OF PATENT APPLICATIONS AS OF January 9, 1982

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal- lurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	6-23-80
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	12-18-79
HIGH POLYMER CHEMISTRY, "PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthetics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	3-02-81
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director Coating; Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	11-14-80
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170— R. F. WHITE, Director Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	10-06-80
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	5-20-80
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	6-26-80
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—VACANT Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	3-24-80
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240— A. L. SMITH, Director Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling.	12-07-79
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	10-02-79
DESIGN, GROUP 290—KENNETH L. CAGE, Director Industrial Arts; Household, Personal and Fine Arts.	4-18-80
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	5-07-80
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding; Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders; Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	6-17-80
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330— R. E. AEGERTER, Director Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	3-17-80
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	10-22-79
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350— G. M. FORLENZA, Director Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Gearing; Machine Elements; Clutches.	3-17-80

Expiration of patents: The patents within the range of numbers indicated below expire during January 1982, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents Numbers 3,163,865 to 3,167,777, inclusive
Plant Patents Numbers 2,465 to 2,467 inclusive

REEXAMINATIONS

FEBRUARY 23, 1981

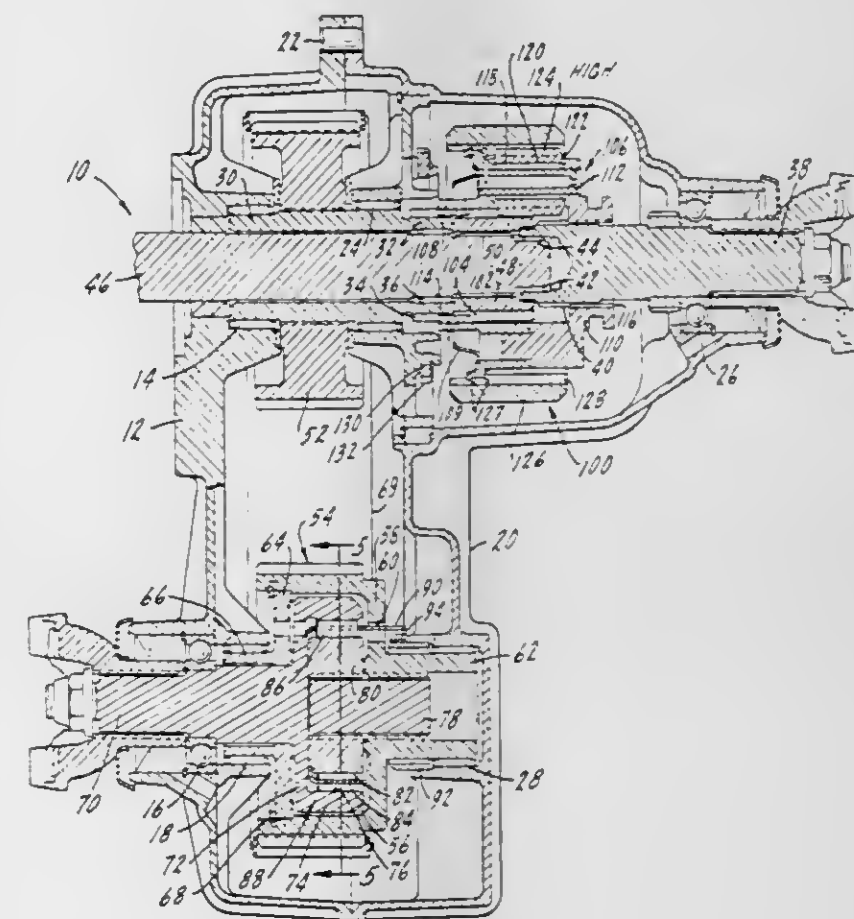
Matter enclosed in heavy brackets [] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination

B1 4,103,753 (2nd)
MANUALLY SHIFTABLE PLANETARY GEARSET
John William Holdeman, Muncie, Ind., assignor to Borg-
Warner Corporation, Chicago, Ill.
Reexamination Request No. 90/000,014, Jul. 1, 1981.
Reexamination Certificate for Patent No. 4,103,753, issued
Aug. 1, 1978, Ser. No. 762,371, Jan. 25, 1977.
Continuation of Ser. No. 621,194, Oct. 9, 1975, abandoned.
Int. Cl.³ F16H 3/44; B60K 17/34
U.S. Cl. 180/247

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims 1-17 is confirmed.

6. A planetary gear assembly comprising a sun gear, and a sub-assembly, said sub-assembly including a carrier, a ring gear, and a plurality of planet gears rotatably supported by said carrier in meshing relationship with said sun and ring gears, said sub-assembly being movable relative to said sun gear between a first position wherein said carrier is engaged with said sun gear for rotation therewith and said ring gear is not grounded, and a second position wherein said carrier is not engaged with said sun gear and said ring gear is grounded.



REISSUES

FEBRUARY 23, 1982

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 30,869

METHOD OF OPERATING A REFRIGERATION PLANT AND A PLANT FOR PERFORMING THE METHOD

Lauritz B. Schibbye, Algvagen, Sweden, assignor to Svenska Rotor Maskiner Aktiebolag, Nacka, Sweden

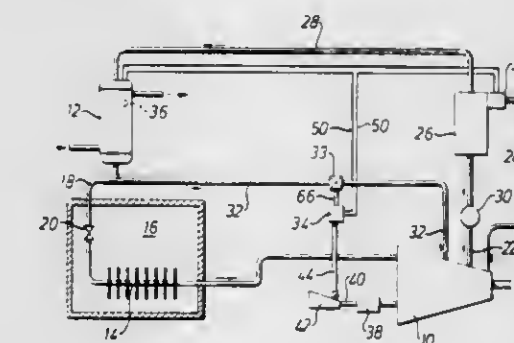
Original No. 3,811,291, dated May 21, 1974, Ser. No. 314,993, Dec. 14, 1972. Application for reissue Oct. 5, 1979, Ser. No. 82,422

Claims priority, application United Kingdom, Dec. 28, 1971, 60274/71

Int. Cl.³ F25B 43/02

U.S. Cl. 62—192

7 Claims



3. A refrigeration plant comprising:
a refrigerant flow circuit including a compressor of the screw rotor type, a condenser and an evaporator;
means for circulating oil and for injecting said oil into the compression chambers of said compressor;
an oil separator provided in said circuit between the outlet of said compressor and the inlet of said condenser;
means for introducing liquid refrigerant into a circuit portion between the inlet of the compressor and the inlet of said oil [separator] separator;
means responsive to at least one parameter indicative of the difference between the temperature in the oil separator and the temperature in the condenser;
adjustable means for varying the quantity of liquid refrigerant introduced into said circuit portion; [and]
means for controlling the capacity of the compressor, said capacity controlling means being operatively connected to said adjustable means to reduce the quantity of liquid refrigerant introduced during operation at partial capacity; and
means connecting said responsive means with said adjustable means to control said adjustable means such that said temperature difference is kept small but is prevented from dropping down to zero.

Re. 30,870

ELECTROMAGNETIC FLUIDICS SYSTEM AND METHOD

Kiyoshi Inoue, 3-16-8 Kamiyoga, Setagaya-ku, Tokyo, Japan
Original No. 3,494,369, dated Feb. 10, 1970, Ser. No. 608,476, Dec. 19, 1966. Application for reissue Oct. 21, 1971, Ser. No. 191,553

Claims priority, application Japan, Dec. 21, 1965, 40/79186; Dec. 27, 1965, 40/80677; Dec. 27, 1965, 40/80678

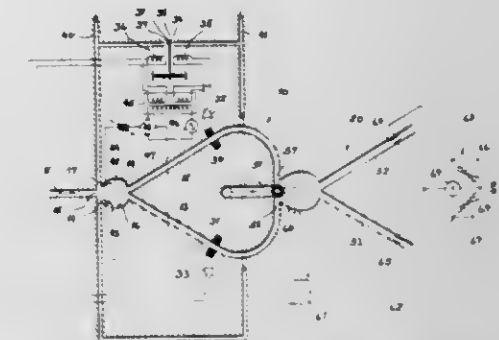
Int. Cl.³ F17D 1/16; F15C 1/08, 1/14

U.S. Cl. 137—13

14 Claims

16. A method of operating a fluidics device having an inlet side provided with at least one inlet branch and an outlet side having a pair of outlet branches opening toward said inlet branch and separated by a fluid-flow splitter, comprising the steps of passing a stream of an electromagnetically susceptible liquid through said device from said inlet side to said outlet side; applying to the liquid stream passing through said device at said inlet side an electro-

magnetic field of a strength sufficient to deflect said stream at least partly into one of said outlet branches; electrically detecting at least one flow parameter of the liquid stream passing through said outlet side; and electrically controlling the electromagnetic field in response to the electrically detected flow parameter



wherein said liquid stream is rendered electromagnetically susceptible by admixing therewith magnetically permeable particles entrainable by said liquid, and wherein said electromagnetic field is a magnetic field applied in the plane of liquid flow and across said liquid stream.

Re. 30,871

CANTILEVERED SUPPORTING SHELL FOR SEAT

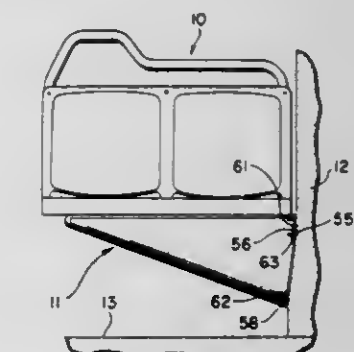
Arthur J. Harder, Jr., Franklin Park, Ill., assignor to Coach and Car Equipment Corporation, Elk Grove Village, Ill.

Original No. 4,120,533, dated Oct. 17, 1978, Ser. No. 801,842, May 31, 1977. Application for reissue Oct. 12, 1979, Ser. No. 84,167

Int. Cl.³ B60N 1/00; A47C 3/12

U.S. Cl. 297—451

22 Claims



1. Structure for supporting a seat in cantilevered relation to a wall, said structure comprising:
a cantilevered rigid, trough-shaped, structural, exterior skin;
said trough-shaped skin having an outer end and an open inner end;
means for mounting said inner end of said trough-shaped skin on said wall;
and means for mounting a seat atop said trough-shaped skin with the front and back of said seat disposed transversely to said wall;
said rigid, structural, exterior skin comprising means for providing cantilevered support to said seat.

Re. 30,872

PROCESS FOR PRODUCING 2-KETO-L-GULONIC ACID
Takayasu Sonoyama, Sakai; Bunji Kageyama, Ibaraki, and
Tahiko Honjo, Minoo, all of Japan, assignors to Shionogi &
Co., Ltd., Osaka, Japan

Original No. 3,922,194, dated Nov. 25, 1975, Ser. No. 452,656,
Mar. 19, 1974. Application for reissue Jan. 22, 1980, Ser. No.
114,252

Claims priority, application Japan, Mar. 22, 1973, 48-32842
Int. Cl.³ C12P 7/60

U.S. Cl. 435—138

14 Claims

1. A process for producing 2-keto-L-gulonic acid or a salt thereof which comprises: contacting a 2-keto-L-gulonic acid producing strain selected from microorganisms which belong to the genera of Brevibacterium, [Arthrobacter,] Bacillus, Staphylococcus, Micrococcus and Pseudomonas, with 2,5-diketo-D-gluconic acid or a salt thereof, under conditions sufficient to produce 2-keto-L-gulonic acid, and recovering the produced 2-keto-L-gulonic acid or any salts thereof from the resultant mixture.

PROCESS FOR PRODUCING 2-KETO-L-GULONIC ACID
Takayasu Sonoyama, Sakai; Bunji Kageyama, Ibaraki, and
Tahiko Honjo, Minoo, all of Japan, assignors to Shionogi &
Co., Ltd., Osaka, Japan

Original No. 3,922,194, dated Nov. 25, 1975, Ser. No. 452,656,
Mar. 19, 1974. Application for reissue Jan. 22, 1980, Ser. No.
114,252

Claims priority, application Japan, Mar. 22, 1973, 48-32842
Int. Cl.³ C12P 7/60

U.S. Cl. 435—138

14 Claims

1. A process for producing 2-keto-L-gulonic acid or a salt thereof which comprises: contacting a 2-keto-L-gulonic acid producing strain selected from microorganisms which belong to the genera of Brevibacterium, [Arthrobacter,] Bacillus, Staphylococcus, Micrococcus and Pseudomonas, with 2,5-diketo-D-gluconic acid or a salt thereof, under conditions sufficient to produce 2-keto-L-gulonic acid, and recovering the produced 2-keto-L-gulonic acid or any salts thereof from the resultant mixture.

PLANT PATENTS

GRANTED FEBRUARY 23, 1982

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

4,826

POMEGRANATE TREE

James M. Dutton, 1043 Highland Ave., Visalia, Calif. 93277

Filed Nov. 5, 1979, Ser. No. 91,335

Int. Cl.³ A01H 5/00

U.S. Cl. Plt.—33

1 Claim

1. A new and distinct variety of pomegranate tree, substantially as illustrated and described, characterized particularly as to novelty by its bearing of fruit which has a deeper red color of its rind and arils and which ripens from seven to ten days earlier than fruit of the "Wonderful" (unpatented) variety of pomegranate tree, which matures four to seven days later than the fruit of the Early Wonderful pomegranate tree (U.S. Plant Pat. No. 3,520) from which it is further distinguished by blooming from mid April to July 1st as contrasted with a blooming period commencing March 22 and reaching full bloom by March 30 for the Early Wonderful and by smaller leaves than the Early Wonderful and which new variety has a substantially higher acid content than fruit of the Granada

variety of pomegranate tree (U.S. Plant Pat. No. 2,618) or the Early Red variety (U.S. Plant Pat. No. 2,723) which varieties the fruit of the subject variety most nearly resembles in appearance.

4,827

PEACH TREE

Yutaka T. Takanishi, 10148 S. Petersen, Reedley, Calif. 93654

Filed Jun. 13, 1980, Ser. No. 159,301

Int. Cl.³ A01H 5/03

U.S. Cl. Plt.—43

1 Claim

1. A new and distinct variety of peach tree, substantially as illustrated and described, which is generally similar in tree and fruit to the Springcrest variety, but distinctively characterized, in comparison, by fruit which ripens, for harvest, seven to ten days earlier.

PATENTS

GRANTED FEB. 23, 1982

ERRATA

For	See
CLASS	PATENT NO.
198-347	4,316,754
376-175	4,316,770
376-415	4,316,771
424-269	4,316,932
422-186	4,317,044
372-050	4,317,085
372-049	4,317,086
372-057	4,317,087
372-092	4,317,088
372-094	4,317,089
372-058	4,317,090

PATENTS

GRANTED FEBRUARY 23, 1982

GENERAL AND MECHANICAL

4,316,286

BULLETPROOF PROTECTIVE PLATE ASSEMBLY

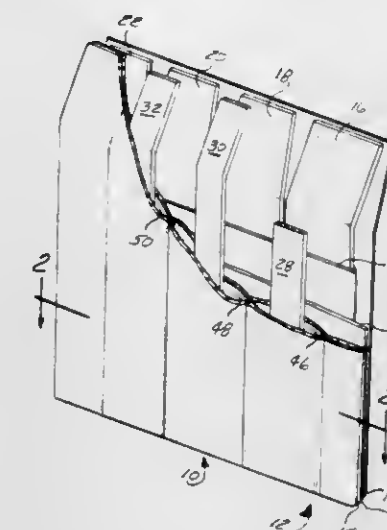
John M. Klein, 1754 Grant, Birmingham, Mich. 48009

Filed Mar. 7, 1980, Ser. No. 128,267

Int. Cl.³ F41H 1/02

U.S. Cl. 2—2.5

9 Claims



1. A protective plate assembly comprising: a plurality of first plates having contiguous first and second portions, said second portion being disposed at a predetermined angle with respect to said first portion such that said first plates closely conform to the shape of the torso of a human being along the vertical plane of the body of the wearer; said first portions of said first plates being disposed in edge-to-edge relationship in a common plane; certain of said second portions of said first plates having at least one lateral edge thereof disposed at an obtuse angle with respect to the contiguous edge of said first portion of said plate to permit said first plates to rotate freely about the adjoining edges of said first portions without interference between the edges of said second portions of said first plates such that said protective plate assembly closely conforms to the shape of the body of the wearer along a horizontal plane; a plurality of second plates disposed in overlapping relationship over the adjoining edges of said first plates; and an enclosure housing said first and second plates and maintaining said first and second plates in the desired position.

4,316,287

CHILD'S LOUNGING GARMENT

Barbara A. Rule, 4416 Dunn, Lawrence, Ind. 46226

Filed Jun. 4, 1980, Ser. No. 156,502

Int. Cl.³ A47G 9/08; A41D 11/00

U.S. Cl. 2—69.5

2 Claims



1. A child's lounging garment comprising a fabric envelope

4,316,288

INVERTIBLE OUTERWEAR GARMENT

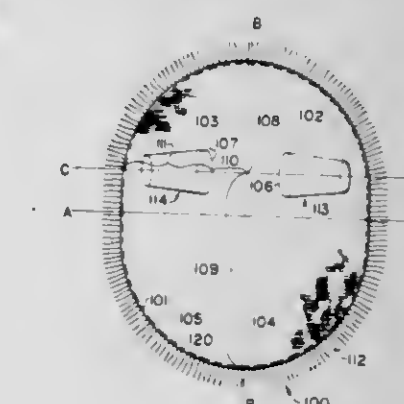
Mary J. Henrickson, 2839 Starbrook Dr., Charlotte, N.C. 28210

Filed Oct. 6, 1980, Ser. No. 194,005

Int. Cl.³ A41D 3/08

U.S. Cl. 2—88

9 Claims



1. An article of clothing adapted for use as an outerwear garment and comprising: a fabric portion of generally elliptical shape and having a length along a first axis greater than a length along a second axis, said fabric being symmetrical about said first and said second axis, whereby said fabric portion is divided into four imaginary quadrants of substantially equal areas comprising first, second, third, and fourth quadrants by said axes; first and second armholes through said fabric, said first armhole being completely within said first quadrant, and said second armhole being completely within said second quadrant; and said first and second armholes are equidistant from said first axis and are positioned within said first and said second quadrants, respectively, to provide a user with a full-length outerwear garment with said garment worn in a first manner such that said third and said fourth quadrants are positioned at the bottom of said garment, and to further provide said user with a shorter length outerwear garment with said garment worn in a reversed manner from said first manner and with said first and said second quadrants being positioned at the bottom of said garment.

4,316,289

SUN SHIELD FOR A HARD HAT

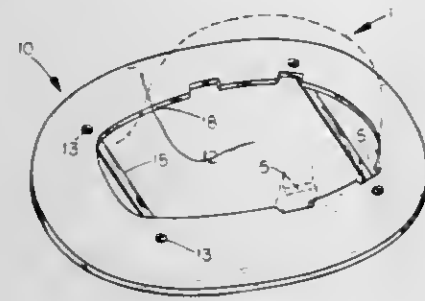
Melvin O. Hild, 923 W. 15th St., Grand Island, Nebr. 68801

Filed Apr. 7, 1980, Ser. No. 138,056

Int. Cl.³ A42B 1/20, 3/00

U.S. Cl. 2—191

4 Claims



1. A sun shield adaptor to cooperate with protective headgear, such as hard hats, wherein the sun shield comprises:
- a sheet of plastic of a rigidity and thickness sufficient to protect the wearer from falling particles and debris having a generally oval configuration extending said protection about all sides of the wearer's person; and
 - a centrally disposed aperture having a plurality of recesses which frictionally engage external projections on a hard hat at the approximate intersection with the upper side of the hard hat's brim brim.

4,316,290

EAR MUFF ACCESSORY FOR SAFETY HARD HAT

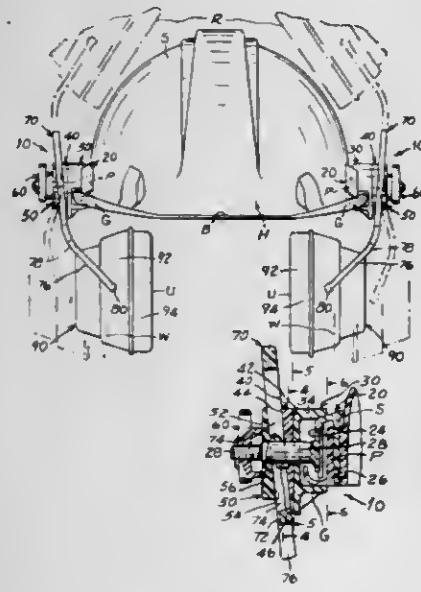
Edward N. Montesi, Barrington, R.I., assignor to Norton Company, Worcester, Mass.

Filed Jul. 18, 1980, Ser. No. 170,192

Int. Cl.³ A42B 3/00; A41D 21/00

U.S. Cl. 2—423

11 Claims



1. A device for mounting a hearing protector on each of the opposite sides of a safety hard hat and resiliently pressing the hearing protectors at a substantially non-adjustable constant force into engagement with areas about the ears of an individual comprising:
- a support including
 - an end portion adapted for attachment to one of the opposite sides of the hard hat and a pivot stud extending axially outwardly from the end portion to an opposite outer fastener end portion thereof,
 - a support arm mounted about and adjustable relative to the pivot stud and having
 - a supporting end portion at one end thereof including
 - a central rigid portion extending inwardly from an outer end to an opposite inner end thereof and
 - an elongated slot in the central portion through which

the pivot stud passes and is adjustable relative thereto;

at least one flexible resilient leg connected to and extending from a junction with the central rigid portion to an opposite free end portion thereof adapted for attaching a hearing protector thereto at a predetermined non-adjustable fixed distance from the junction and resiliently pressing a hearing protector at a substantially non-adjustable constant force into engagement with areas about the ear of an individual regardless of changes in position of the support arm on the pivot stud; and

clamping means on the fastener end portion of the pivot stud for releasing, adjusting and clamping the central rigid portion and support arm in the desired adjusted position relative to the pivot stud and the ear of an individual whereby flexing of the flexible resilient leg and an attached hearing protector to a given wearing position about the ear causes the flexible leg to exert substantially the same amount of constant force regardless of the adjusted position of the support arm relative to the pivot stud.

4,316,291

INTRAOCULAR LENS STRUCTURE

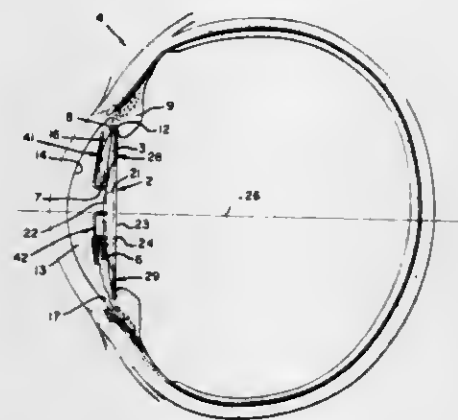
Stanford L. Severin, 1313 Solano Ave., Albany, Calif. 94706

Filed May 3, 1979, Ser. No. 35,445

Int. Cl.³ A61F 1/16

U.S. Cl. 3—13

17 Claims



1. An intraocular artificial lens assembly for surgical implantation in the posterior chamber of a human eye the iris and pupillary opening of which are coaxially symmetrical about the anterior-posterior axis of the eye, comprising:

(a) a lens member having a posterior surface including a posterior pole, an interior surface including an anterior pole, an equatorial surface disposed between said posterior and anterior surfaces, said posterior and anterior surfaces being substantially symmetrical with respect to an optical axis including said posterior and anterior poles, a generally centrally disposed optically active portion of predetermined minimum transverse dimension correlated to the pupillary opening, and an annular peripheral portion circumscribing said optically active portion;

(b) at least five separate support means separately mounted on said lens member and projecting radially outwardly past said equatorial surface so as to leave substantial portions of said equatorial surface unobstructed;

(c) at least four of said five separate support means comprising generally U-shaped support loops, each support loop including a pair of spaced legs merging smoothly at one end into an integral curved portion common to both legs of the pair of spaced legs, said integral curved portion lying radially outwardly spaced from said equatorial surface, said spaced legs at their opposite ends being fixed to said lens member in circumferentially spaced relationship;

at least two of said separate support means being mounted on said lens member in a plane perpendicular to said optical axis and arranged to engage selected posterior surfaces of the iris and the remainder of said separate support means

being mounted on the anterior surface of said lens member and converging toward said plane to engage selected anterior surfaces of the iris;

said separate support means mounted on the anterior surface of said lens member each having at least one integral support portion embedded in said lens member and extending from the anterior surface in the direction parallel to said optical axis so that said anterior separate support means are spaced from the anterior surface of said lens member, whereby said lens member is adapted to be suspended on the iris with said annular peripheral portion of said lens member and said posterior support means engaging the posterior surface of the iris, with said anterior support means engaging the anterior surface of the iris, and with the integral support portions of said anterior support means adapted to engage the peripheral surface of the pupillary opening in the iris so that the optical axis of the lens member coincides with the anterior-posterior axis of the eye.

4,316,292

ARTIFICIAL CRYSTALLINE LENS

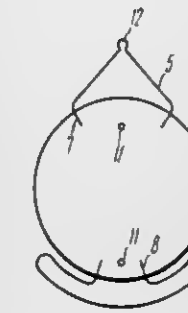
Boris N. Alexeev, Bolshoi Tatarsky pereulok, 4, kv. 88, Moscow, U.S.S.R.

Filed Nov. 9, 1979, Ser. No. 92,832

Int. Cl.³ A61F 1/16, 1/24

U.S. Cl. 3—13

5 Claims



4. In an artificial crystalline lens adapted for being implanted in a patient's eye and comprising a lens and fastening and supporting elements held to the lens on diametrically opposite edge portions of the lens lateral surface, said elements being adapted for setting said lens in the crystalline capsule of the patient's eye, the improvement comprising the fastening element being a wire angle held to the lens lateral surface in such a manner that its vertex lies on a line passing through the lens circumference, and said supporting element being held to the lateral lens surface and being spread along the lens periphery and made of an elastic wire so as to be radially displaceable in order to adjust the distance from the lens centre to the supporting wire element to suit the size of the crystalline capsule of the patient's eye, the supporting element having a midpoint lying on a common line with the vertex of the wire angle, the common line passing through the midpoint of the lens, the wire angle being curved, near its vertex, so as to define an elbow bend having a first arm normal to legs of the wire angle, and a second arm thereof normal to the first arm of the elbow bend and lying in a plane containing the apex of the lens.

4,316,293

FLEXIBLE INTRAOCULAR LENS

Jon H. Bayers, 2935 Bechelli La., Suite C, Redding, Calif. 96001

Continuation-in-part of Ser. No. 70,034, Aug. 27, 1979, Pat. No. 4,257,130. This application Mar. 6, 1981, Ser. No. 241,205

Int. Cl.³ A61F 1/16, 1/24

U.S. Cl. 3—13

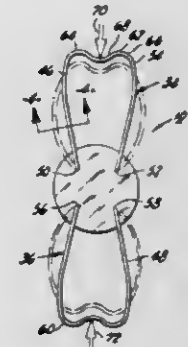
13 Claims

1. An intraocular lens for placement within an eye comprising:

a. a lens portion having an optical axis for placement adjacent one side of the iris;

b. at least one appendage, said at least one appendage being

fastened to said lens portion and including a loop, terminating with an outer end, having a first portion fastened to said lens portion, and a second portion connected to said first portion and intended for extending therefrom along a side of the iris into contact with the extreme periphery of the eye with said outer end;



- c. means for restricting flexure of said loop vertically inwardly or outwardly in relation to the plane of the iris while allowing lateral flexure generally normal to said optical axis in response to forces directed to said outer end along said eye periphery.

4,316,294

BATHTUB

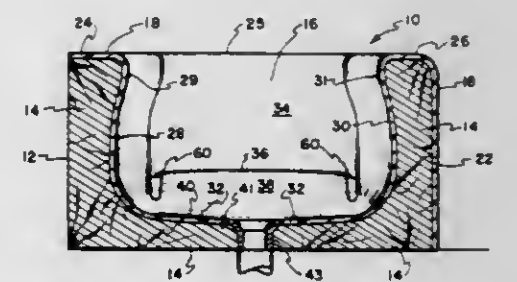
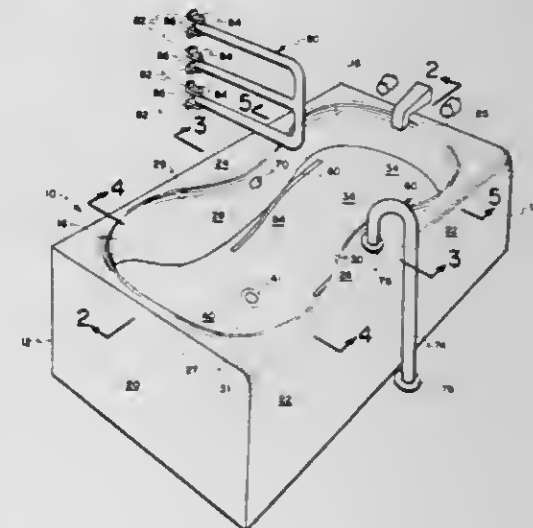
Naomi G. Baldwin, Arcadia, Utah 84012

Filed Feb. 8, 1980, Ser. No. 119,736

Int. Cl.³ A47K 3/022, 3/12

U.S. Cl. 4—538

9 Claims



1. A bathtub comprising:
- main body means comprising wood insulation means and an exposed exterior;
 - the exterior comprising a water receiving well and an impervious surface;
 - the well comprising opposed peanut-shaped generally vertical sidewalls and an area between the sidewalls, said region being continuous and comprising serially a substantially vertical front end wall, a generally horizontal but

slightly crested front bottom area spanning on the order of one-third the horizontal length of the well contiguously receiving and supporting the calves and feet of any sized user in an elevated posture, an intermediate bottom area smoothly merging with the front bottom area and spanning on the order of about the middle one-third of the horizontal length of the well contiguously receiving and supporting the thighs of the user, the intermediate bottom area gradually increasing the depth of the well to its maximum, the maximum depth comprising a concave sitting site contiguously receiving and supporting the buttocks of the user and an inclining combination bottom and rear wall area spanning on the order of about one-third the horizontal length of the well and gradually decreasing the depth of the well from its maximum at the sitting site where the combination bottom and rear wall area joins the intermediate bottom area to a location having zero depth, the combination bottom and rear wall area contiguously receiving and supporting the back, shoulders and head of the user; wherein the front bottom area comprises a slightly crested standing region for showering, and the intermediate bottom and combination bottom and rear wall areas descending to from a concave region accommodating receipt of the massive part of the body of any sized person and further comprising exposed gravity drain means accommodating flow of water down shallow indentations or grooves near the sidewalls of the showering region into the concave region thus preventing puddling of water and the forming of slick spots, and wherein the sidewalls comprise elevated inwardly directed anti-splash lips.

4,316,295

BATHING ENCLOSURE

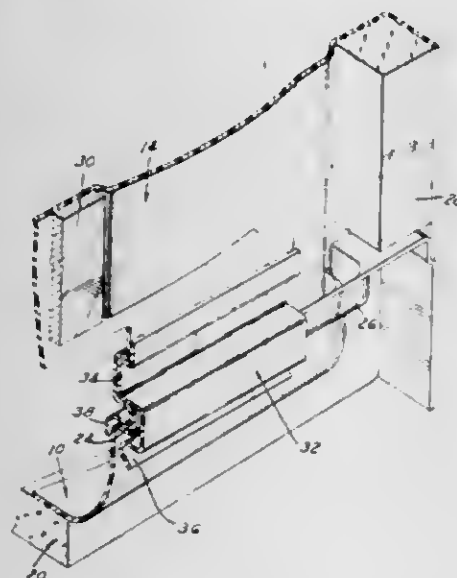
Thomas M. Whitney, and Gerald Gower, both of Lapeer, Mich., assignors to Trayco, Inc., Lapeer, Mich.

Filed Mar. 31, 1980, Ser. No. 136,145

Int. Cl.³ A47K 3/23; E04B 1/343; A47B 47/04

U.S. Cl. 4—612

1 Claim



1. In a bathing enclosure kit adapted to be packaged and sold in a knocked-down condition as a series of generally flat panels for on-site assembly into a multiple-sided stall shower or bath tub enclosure comprising a base panel and a plurality of side panels, each formed of a semi-rigid plastic sheet, the improved joint construction for assembling such panels wherein:

the base panel is a single unitary generally pan-shaped sheet with a generally horizontal planar bottom portion and upwardly turned side walls at all of its lateral edges, the upper portions of said sidewalls having a narrow horizontally and outwardly extending ledge and a generally vertical flange extending upwardly therefrom, said ledge and said flange extending around the periphery of said base panel at least in the areas that are adapted to interlock with the lower portions of the side panels;

the lower portions of each of the side panels having a lock-

ing strip bonded to the outer surface thereof at an elevation spaced above the lower ends of each of said side panels and said locking strips, the lower end of said side panel adapted to extend inside of said base panel side wall ledge and to an elevation below that of said ledge so as to conceal it from normal view and aid in preventing water from splashing over the base panel side wall flange, said locking strip having a ledge extending generally horizontally and outwardly from an elevation below that of said bonding area and adapted to normally engage and seat upon the upper edge of said vertical flange of the base panel side wall, and said locking strip further having a locking flange extending downwardly and inwardly from said locking strip ledge on the outer and under side of the vertical flange and ledge, respectively, of the base panel side wall, said locking flange being capable of resiliently yielding outwardly to permit said locking flange to clear said base panel side wall during downward assembly of the side panel onto the base panel, and said locking flange snapping back into its normal position at the completion of assembly to interlock with the underside of said ledge of the base panel side wall;

whereby the side panels are assembled to the base panel without the need for any supplementary fasteners.

4,316,296

WASH BASIN ATTACHED SHELF

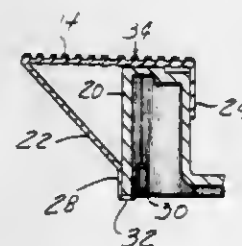
Vincent M. Lubin, 1064 Brooklawn Ct., Troy, Mich. 48084

Filed Aug. 23, 1979, Ser. No. 69,226

Int. Cl.³ E03C 1/00; A47L 19/02; F16B 2/20

U.S. Cl. 4—630

2 Claims



1. A shelf attachable to wash basins which include a vertical apron at the perimeter thereof comprising: the shelf made from a single continuous piece of material and including;

a planar horizontal wall overlaying a rim of the basin including a ridged upper surface and a ridged lower surface said upper surface covered with a soft resilient material to prevent slipping of articles placed thereon and to stiffen the horizontal wall;

the ridges disposed transversely and inclined toward the bowl; to drain the shelf into the bowl;

a generally planar downward and inward extending wall integral with and extending from an outer edge of the horizontal surface abutting the apron at a lower end thereof to provide support for the upper surface

means for attaching a lower end of the downward and inward extending wall to the apron comprising a clip including a first leg formed by a downward extending wall bent inward along a lower edge of the apron, with an upward extending second leg formed by bending the clip upward to abut an inner surface of the apron, an upper edge of the clip bent inward a distance to aid in engaging the apron lower edge, the clip snugly engaging the apron between legs;

a bowl engaging wall integral with an inner edge of the horizontal surface extending downward abutting the bowl;

said bowl engaging wall squeezing the bowl at the inner edge and at the apron and positioning the shelf at an edge of the bowl;

the shelf walls integrally formed of a single continuous planar piece with all portions having an elongated horizontal planar dimension; and whereby the shelf is retained to the basin by the bowl engaging wall abutting the bowl and the downward and inward extending wall affixed to the apron with the shelf attachable to the bowl and removable from the bowl for cleaning without alteration of the bowl.

4,316,297

TUMBLING FLOOR

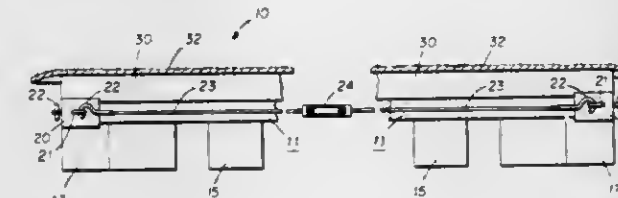
John K. Geist, Cedar Rapids, Iowa, assignor to Nissen Corporation, Cedar Rapids, Iowa

Filed Apr. 14, 1980, Ser. No. 140,211

Int. Cl.³ A47G 9/00; A63B 5/18

U.S. Cl. 5—420

4 Claims



1. A floor for tumbling and the like comprising: a plurality of rigid cushioning panels having opposite bottom and top faces, each of the cushioning panels having a plurality of discrete pieces of cushioning material spaced over its bottom face in order to support the panel in parallel spaced position above a hard underlying surface, the dimensions and distribution of said pieces over said panel face providing a co-efficient of restoration for the panel in the range of about 40 to 50 percent in order to primarily cushion rather than rebound a performer landing upon the panel top face, the cushioning panels being assembled in abutting relation on said underlying surface to provide a large uniform surface formed by the panel top faces; means to maintain the cushioning panels in said abutting relation; and a plurality of abutting springing panels of springing material disposed upon and covering the panel top faces, said springing material having a co-efficient of restoration in the range of about 90 to 98 percent in order to primarily rebound rather than cushion a performer landing upon the springing panels.

4,316,298

COMPOSITE MATTRESS SYSTEM

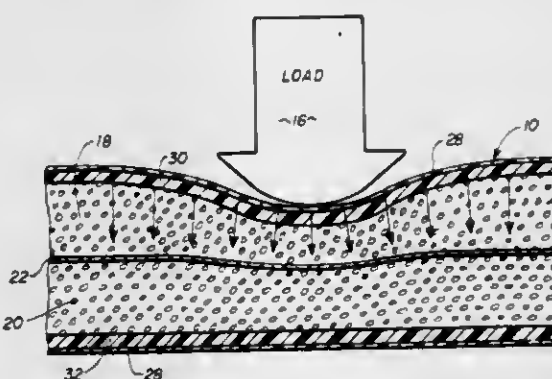
Joseph L. Russo, and Richard Sonder, both of New York, N.Y., assignors to Thonet Industries, Inc., York, Pa.

Filed Mar. 12, 1980, Ser. No. 129,620

Int. Cl.³ A47C 27/22, 27/15, 31/08

U.S. Cl. 5—465

14 Claims



9. A flexible composite pad adaptable for use in a mattress or upholstery assembly and otherwise adapted for extensive bending by providing minimum thickness without sacrificing comfort, said pad being frameless and generally rectangular and including an upper layer of foamed elastomeric material of relatively low HR density rating between substantially 17 and 27 and a lower layer of similar shape of foamed elasto-

meric material of relatively low HR density rating similar to said upper layer, a mesh layer of flexible relatively inelastic synthetic resin fibers coextensive in size with said upper and lower layers and disposed there between, and cement means integrally bonding said layers to each other and bonding said mesh to said layers permanently throughout the areas thereof in laminated assembly to distribute concentrated loads laterally to an area greater than such type of load by transmitting some of the compression of the upper layer to the lower layer by means of the distributing effect of the mesh layer securely bonded thereto, whereby said distribution of compression of said layers minimizes or prevents said pad from bottoming out.

4,316,299

FITTED BED COVERING

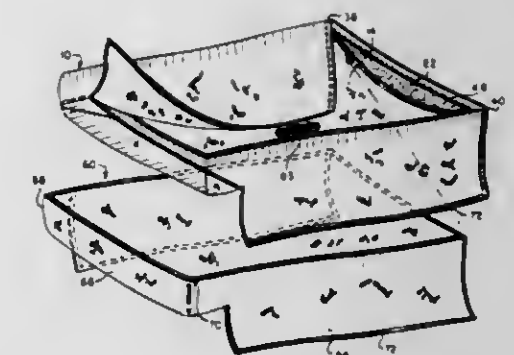
Naomi P. Friedman, 200 Winston Dr., Cliffside Park, N.J. 07010

Continuation-in-part of Ser. No. 5,657, Jan. 22, 1979, abandoned. This application Feb. 29, 1980, Ser. No. 125,838

Int. Cl.³ A47G 9/02, 9/04

U.S. Cl. 5—485

4 Claims



1. A covering for a bed comprising first and second generally rectangular pieces of flexible material, each defining a peripheral edge, said first and second pieces of material each having two adjacent contoured corners, two adjacent non-contoured corners, and two slits extending transversely from its peripheral edge, each slit being located closely adjacent one contoured corner between said contoured corner and the adjacent non-contoured corner;

means for releasably securing said first and second pieces of material together with said first piece of material in overlapping relation with said second piece of material; and a third generally rectangular piece of flexible material defining a peripheral edge, the length and width of said third piece of material being substantially the same as the length and width of said bed, respectively, said third piece of material being disposed in confronting relation with said first piece of material and joined thereto along three sides of its peripheral edge with the fourth unjoined side of its peripheral edge confronting the central portion of the peripheral edge of said first piece of material between said non-contoured corners, thereby defining a pocket between said third piece of material and the confronting portion of said first piece of material.

4,316,300

SWIM PADDLES

W. Denison Lewis, 176, Vidal St. S., Apt. 606, Sarnia, Ontario, Canada (N7T-2T6)

Filed May 8, 1980, Ser. No. 147,567

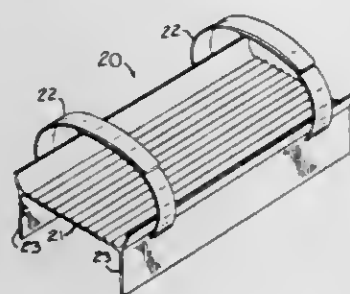
Int. Cl.³ B63B 31/12

U.S. Cl. 9—307

1 Claim

1. A pair of swim paddles which facilitate swimming constructed to be worn on the forearms of a swimmer, each swim paddle having a length substantially equal to and a width greater than that of the swimmer's forearm, whereby to increase the effective area thereof and correspondingly increase his speed of movement through the water; each swim paddle

made of a flexible material having a bottom portion and a pair of side portions, said bottom portion being formed with a fluted friction-gripping surface which grips the underside of the swimmer's forearm to assist in holding the swim paddle in place during use thereof, each side portion having an upper section which projects above said bottom portion and a lower section which projects below said bottom portion, said two lower side sections forming a water scoop with said bottom portion, a pair of straps for holding each swim paddle in place



on the swimmer's forearm, each strap encircling the forearm of the swimmer and extending across the bottom portion beneath the bottom surface thereof and through the wall of the two lower side sections, the water scoop formed by the two lower side sections, having a first at rest position during a retract stroke of the swimmer in which the two lower side sections are disposed spaced apart from each other, said water scoop having a second position during a power stroke of the swimmer in which the free ends of the two lower side sections are spread apart from each other further than in said first position.

4,316,301

PAINT ROLLER ASSEMBLY

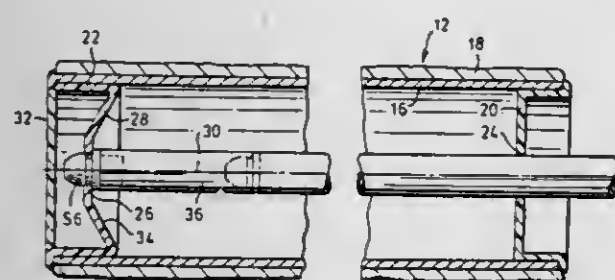
Morley L. Smith, Beaconsfield, and Gad Shaanan, Montreal, both of Canada, assignors to T. S. Simms & Co. Limited, Saint John, Canada

Filed Mar. 28, 1980, Ser. No. 134,912

Int. Cl.³ B05C 17/02

U.S. Cl. 15—230.11

3 Claims



1. A paint roller assembly comprising,

- (a) a metal frame which is bent upon itself to provide a handle mounting leg portion and an elongated shaft portion having one end joining said handle portion, the frame being made of hollow tubular material, whereby to provide simultaneously a lightweight and rigid frame.
- (b) a plug mounted in and closing the other end of the shaft portion of the frame, and having a head portion extending away from the shaft portion and tapering down from about the diameter of the shaft portion to a smaller diameter, and the plug having a neck portion located between the head portion and the shaft portion and of smaller diameter than the shaft portion; and
- (c) a roller having a tubular sleeve, first and second bearing members mounted in opposite ends of the sleeve, the first bearing member having a first bearing passage sized to receive the shaft portion of the frame, and the second

bearing member having a socket portion extending inwardly from the sleeve and having a second bearing passage smaller in diameter than the diameter of the shaft portion and sized to fit into said neck portion, the collar being sufficiently flexible to expand and let the head portion of the plug be forced therethrough, whereby the plug serves to removably retain the second bearing member on the hollow shaft.

4,316,302

TROWEL

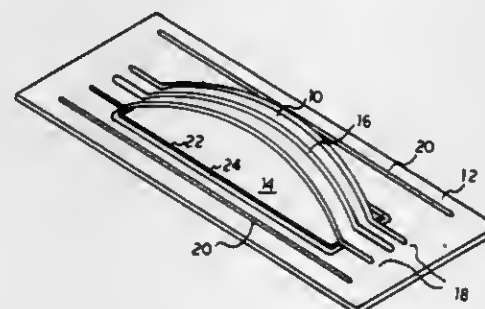
Ronald M. Clark, 105 Factory, Addison, Ill. 60101

Filed Mar. 14, 1980, Ser. No. 130,469

Int. Cl.³ B05C 17/10

U.S. Cl. 15—235.4

9 Claims



1. A hand trowel comprising

- a blade portion having a substantially flat lower surface and four edges; and
- a longitudinally arcuate handle portion integrally formed at its ends with the upper surface of said blade portion, extending outwardly from said upper surface, and having a first reinforcing ridge integrally formed therein substantially along the longitudinal centerline thereof and extending onto the upper surface of said blade portion.

4,316,303

AUXILIARY WINDSHIELD AND WINDOW WIPER

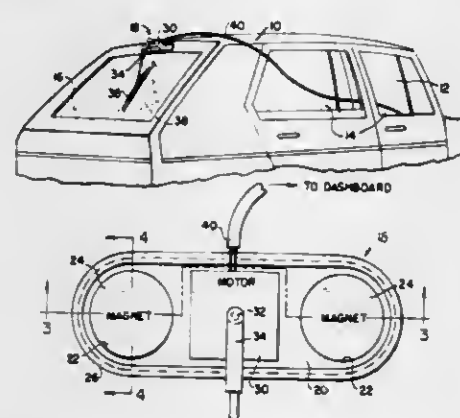
Silas Penn, 5316 Sheridan, Detroit, Mich. 48213

Filed Apr. 3, 1980, Ser. No. 136,895

Int. Cl.³ B60S 1/08

U.S. Cl. 15—250.3

4 Claims



1. A removable portable wiper unit for motor vehicle, said wiper unit comprising an elongated substantially rectangular mounting plate, a rubber-like marginal frame mounted on the edge of said mounting plate, means for removably attaching said mounting plate to the exterior of a portion of a motor vehicle body proximate the edge of a transparent surface, said attaching means consisting of two intersurface adherence means each disposed proximate an end of said mounting plate between said mounting plate and said body surface, an electric motor mounted on said mounting plate between said attaching means and having a rotatably reciprocable drive shaft extending substantially perpendicular to said mounting plate, a windshield wiper support arm mounted on one end of said shaft, a windshield wiper blade mounted on the other end of said arm,

and means for controllably connecting said electric motor to the electrical system of said motor vehicle, wherein said means for connecting said electric motor to the electrical system of said motor vehicle comprises an electric cable, an electrical contact plug on the end of said cable for engagement in a cigarette lighter socket, and an electrical on-off switch connected in said electrical cable.

4,316,304

DOUBLE DISCONNECT, WATERPROOF ELECTRICAL CONNECTOR ASSEMBLY FOR ELECTRIFIED VACUUM HOSE FOR WET/DRY VACUUM CLEANER

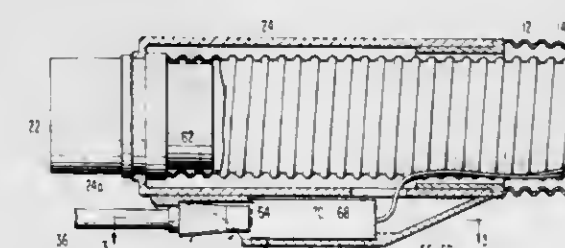
Carl Parise, and Rainer R. Schulz, both of Reno, Nev., assignors to Parise & Sons, Inc., Sparks, Nev.

Filed Sep. 4, 1980, Ser. No. 183,798

Int. Cl.³ A47L 9/28

U.S. Cl. 15—339

3 Claims



1. In an electrified wet pick up vacuum hose assembly for vacuum coupling of a vacuum pick up head to a dirty water accumulation tank for a wet/dry vacuum extraction machine, and wherein the vacuum pick up head carries an electrical motor driven scrubber assembly for scrubbing of the surface being cleaned adjacent the area of dirty water vacuum pick up, said hose assembly being comprised of concentric inner and outer flexible hoses connected at opposite ends to tubular couplings, insulated electrical wires carried by the vacuum hose assembly between the flexible hoses for connecting an electrical source at the water accumulation tank and the hose assembly to the electrical motor at the vacuum head end, the improvement comprising:

a double disconnect electrical connector mounted to the vacuum hose assembly adjacent the vacuum head end thereof,

said double disconnect connector including receptacle means bearing axially slidable, spring biased first and second contacts for effecting an initial, first disconnection and means for sealing the area of said initial, first disconnection to the exterior of the hose assembly.

4,316,305

SWIVEL CASTER ASSEMBLY

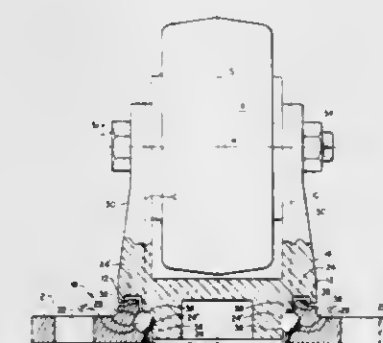
F. Leo Seaford, Concord, N.C., assignor to Wil-Mat Corporation, Gastonia, N.C.

Filed Jun. 13, 1980, Ser. No. 159,010

Int. Cl.³ B60B 33/00

U.S. Cl. 16—21

7 Claims



1. In a caster assembly of the type having a base member for

affixation to a support member, a wheel assembly having a rotatable wheel for supporting a load for movement by rotation of said wheel, said ball bearing means solely supporting said wheel assembly on said base member in spaced relation thereto for rotational swiveling with respect thereto, said ball bearing means including respective generally arcuate raceway surfaces extending annularly on said base member and said wheel assembly in facing and spaced relationship to substantially circumferentially contact and retain ball bearing elements therebetween, the improvement comprising each said raceway surface having two generally arcuate end portions, one of said generally arcuate end portions being spaced from a cylindrical plane through the centers of said ball bearing elements and the other of said generally arcuate end portions intersecting and extending beyond said cylindrical plane, said raceway surfaces being arranged so that said intersecting end portion of each said raceway surface is oriented in facing, adjacent relation to said spaced end portion of the other raceway surface, whereby the spacing between said two raceway surfaces is offset from said cylindrical plane through said ball bearing elements.

4,316,306

METHOD AND APPARATUS FOR HOLDING THE PINCH CARRYING LEG OF A CRAB FOR SPLITTING THE LEG LONGITUDINALLY

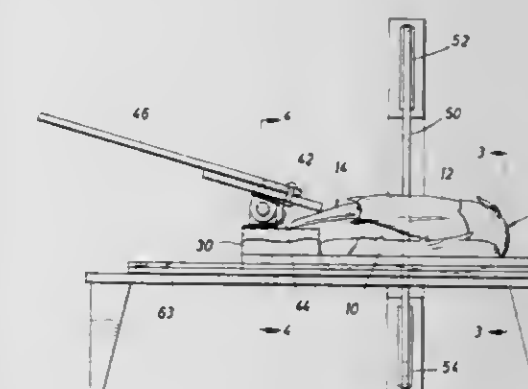
Otto H. Huebotter, 4111 Floyd, Houston, Tex. 77007

Filed Aug. 18, 1980, Ser. No. 178,793

Int. Cl.³ A22C 29/02

U.S. Cl. 17—52

5 Claims



1. Apparatus for holding the type of pincer leg found on crabs of the blue or Dungeness type while the two sections of the leg are cut in half simultaneously along their longitudinal axes to expose the meat in the two sections of the leg for easy removal comprising parallel, spaced support members for engaging the outwardly tapered sides of the inner section of the crab leg and means for engaging the spaced grasping jaws of the pincers of the leg when the outer section of the leg is folded back along the inner section to hold the leg from turning on the support members as the leg is cut in half longitudinally, and means to resiliently hold the inner section in engagement with the support members and the grasping jaws of the pincers in engagement with the pincer jaws engaging means.

4. A method of cutting the type of pincer leg found on crabs of the blue and Dungeness type in half along the longitudinal axes of the two articulated sections of the leg to expose the meat in the two sections for easy removal, comprising the steps of holding the leg from movement in the direction of travel of the cutting blade and from movement laterally thereof, clamping the spaced jaws of the pincers in a plane generally transverse the plane of the cutting blade to hold the leg from rotation around its longitudinal axis, and moving the cutting blade through the leg toward the pincers until the blade moves into the space between the jaws of the pincers to complete the cut.

4,316,307

CONNECTOR FOR LOADED WIRE ROPE

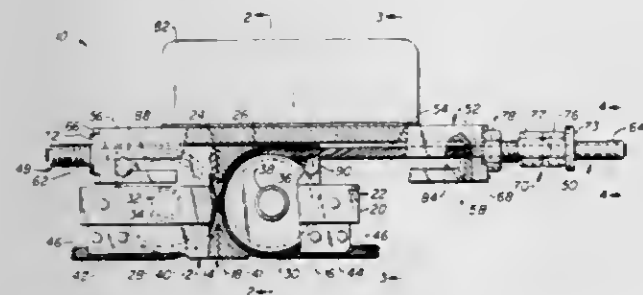
George P. Hurst, 235 Hill St., Jackson, Calif. 95642

Continuation-in-part of Ser. No. 861,604, Dec. 19, 1977, which is a continuation-in-part of Ser. No. 763,188, Jan. 27, 1977, Pat. No. 4,078,298. This application Aug. 30, 1979, Ser. No. 71,222

Int. Cl.³ F16G 3/00; B01F 9/00

U.S. Cl. 24—31 R

5 Claims



1. A connector for securing end portions of a wire rope in an endless loop for bearing a load such as a drum, said connector comprising:

a first body piece;

a second body piece substantially identical to said first body piece;

means slidably connected with said first body piece and said second body piece for shifting said first and second body pieces relative to end portions of said wire rope, said shifting means including means for holding said end portions; and

bar means for splicing said first body piece to said second body piece;

said first and second body pieces each including rotatable sheave means, said first and second body pieces each comprising a first half shell and a second half shell, said first half shell mating to said second half shell along a medial plane to define a cavity for said sheave means, said sheave means comprising a sheave and a sheave pin, said sheave pin being mounted perpendicular to said medial plane across said cavity through said sheave, said medial plane bisecting said sheave, and each said body piece including a recess along said medial plane for aligning said wire rope with said sheave means, said first and second body pieces for fixably bearing said wire rope such that frictional resistance between said wire rope and each one of said body pieces is minimized upon translation of said body pieces relative to said end portions.

4,316,308

RETAINING AND STRETCHING ELEMENT FOR A FILM SUPPORTING FRAMEWORK

Michel Chatelain, Annecy, France, assignor to Brave Trading Limited, Douglas, Isle of Man

Continuation of Ser. No. 886,713, Mar. 15, 1978, abandoned.

This application Dec. 6, 1979, Ser. No. 100,803

Claims priority, application France, Mar. 28, 1977, 7710676

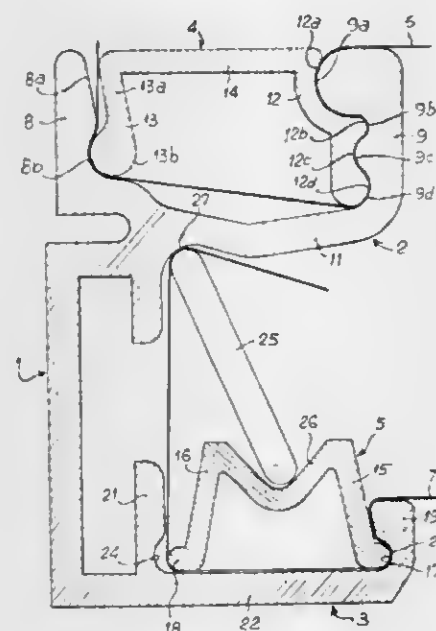
Int. Cl.³ A44B 21/00

U.S. Cl. 24—335

9 Claims

1. Retaining and tensioning element for a thin planar film including at least one elongated channel portion having a generally U-shaped cross-section provided with first and second flanks joined by a first core member, the first flank exhibiting a cross-section of sinuous internal profile, an elongated inverted channel member having a generally U-shaped cross-section provided with third and fourth flanks joined by a second core member, said core member having a bottom surface on the inside of said U-shaped inverted channel member, said third flank exhibiting a cross-section of sinuous external profile complementary to the internal profile of said first flank, said inverted channel member being dimensioned to be received within said channel portion, the film being respectively received and pinched between said first and third and second and fourth flanks upon assembly of said inverted channel member

with said channel portion, wherein the internal profile of said first flank provides a rounded inwardly-projecting rib means proximate the open side of said channel portion for forming a first rounded knuckle surface means and the external profile of said third flank provides a groove means proximate said second core member for forming a second rounded knuckle surface means complementary in shape to said first rounded knuckle surface means for sliding on film extending across said first rounded knuckle surface means and thereby pivoting said channel member thereon during assembly of said channel members to pinch said film therebetween, and wherein said second flank exhibits a cross-section of internal profile which includes an insertion ramp sloping inwardly from the open side of said U-shaped channel portion followed by a curved locking groove projecting outwardly proximate said first core member and said fourth flank exhibits a cross-section of external profile which includes an elongated portion extending laterally away from said second core member, said elongated portion having a relatively flat outer surface, but including, formed at the



outer end thereof, proximate the open side of said inverted channel member, a locking-rib means protruding outwardly from said relatively-flat outer surface of said fourth flank, said locking rib being substantially laterally spaced from the bottom surface of said second core a distance at least as great as the thickness of the second core, said locking-rib means and said locking groove having approximately complementary curved surfaces, and said locking-rib means having the function of pinching said film between its surface and said insertion ramp during assembly of said channel members, and between its surface and said locking-groove surface once said channel members are assembled, wherein when said channel portion and said inverted channel member are fully engaged, with ends of said core of said inverted channel member being in an approximately horizontal attitude, said knuckle surface means of said inverted channel member is above the locking-rib means of said inverted channel member, with said knuckle surface means being proximate said core of said inverted channel, but said locking-rib means being substantially spaced from said core.

4,316,309

TENTERING CLIP CHAIN

Hans H. Richter, Warwick, R.I., assignor to Marshall and Williams Company, Providence, R.I.

Filed Oct. 9, 1979, Ser. No. 82,430

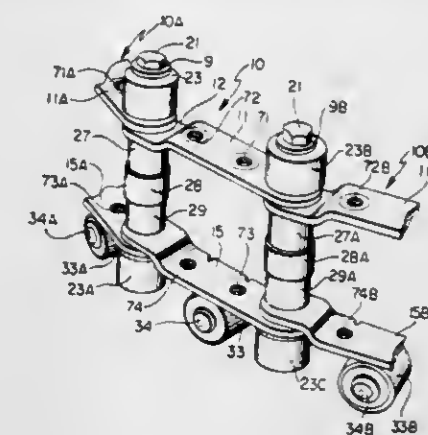
Int. Cl.³ D06C 3/04

U.S. Cl. 26—93

4 Claims

1. A tentering clip chain comprising a plurality of tenter clip bases pivotally connected together, each base comprising a horizontal upper bracket and a horizontal lower bracket, a first

bolt provided with a first set of five rollers consisting of an upper stress roller, an upper sprocket roller, an anti-tipping roller, a lower sprocket roller and a lower stress roller, means securing said bolt in said horizontal upper bracket and said horizontal lower bracket, a second bolt provided with a second set of five rollers consisting of an upper stress roller, an upper sprocket roller, an anti-tipping roller, a lower sprocket roller and a lower stress roller, means securing said second bolt in said horizontal upper bracket and said horizontal lower bracket, a horizontal upper bracket and a horizontal lower bracket of an adjacent base being pivotally connected to said



first bolt and a horizontal upper bracket and a horizontal lower bracket of an adjacent base being pivotally connected to said second bolt on the side of said base opposite to said first mentioned adjacent base, a plurality of web-retaining superstructures, one for each said plurality of tenter clip bases, said superstructures located intermediate each base and the bolts thereof, means fastening said superstructure, to the respective, horizontal upper bracket and horizontal lower bracket, said upper bracket and said lower bracket being separate entities joined solely through said first bolt and said second bolt passing therethrough.

4,316,310

RAG RUG LOOM

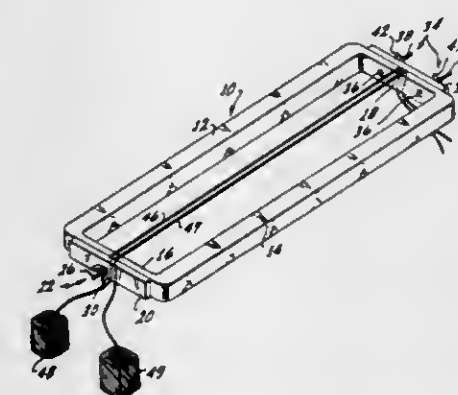
Jackie F. Packham, 6905 Wisconsin Ave., La Mesa, Calif. 92041

Filed May 29, 1979, Ser. No. 43,450

Int. Cl.³ D03D 29/00

U.S. Cl. 28—149

1 Claim



1. A portable rag rug loom consisting entirely of: an integrally formed elongated closed loop frame of plastic material having a pair of laterally spaced longitudinally extending side members and a pair of laterally spaced transverse end members that have their opposite ends connected to the respective opposite ends of said longitudinally extending side members, said elongated closed loop frame having a length at least twice as long as it is wide, the height of said side members and said end members being substantially the same and there being no structure of said portable rag rug loom that extends upwardly above the top surface of said elongated closed loop frame; a first transverse platen positioned adjacent one of said transverse end members and having means for tightening said first transverse platen into rigid surface contact with said

transverse end member, said means comprising one bolt member passing through aligned bores in said respective end member and platen and having a nut threaded on its end; and

a second transverse platen positioned adjacent said other transverse end member and having means for tightening said second transverse platen into rigid surface contact with said transverse end member, said means comprising a pair of bolt members each of which passes through its own set of aligned bores in said respective end member and platen and each having a nut threaded on its end, the loom being adapted to receive at least two cords which extend over end members and between each end member and the associated platen so that when the platens are urged against the end members the cords are held firmly therebetween so as to extend parallel with the side members.

4,316,311

BOUNCE CRIMPING APPARATUS

Philip C. Feffer, Silver Spring, Md., assignor to Chevron Research, San Francisco, Calif.

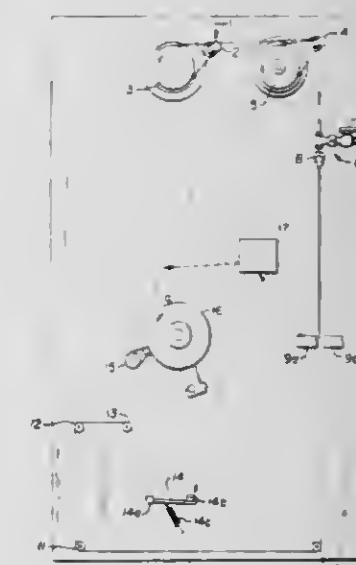
Division of Ser. No. 967,449, Dec. 7, 1978, Pat. No. 4,226,010.

This application Jun. 13, 1980, Ser. No. 159,412

Int. Cl.³ D02G 1/16, 1/12

U.S. Cl. 28—248

3 Claims



1. In an apparatus for bounce crimp texturizing of thermoplastic yarn comprising a fluidized bounce crimp texturizer having a yarn outlet nozzle for discharging texturized yarn, in a loosely compacted form therefrom; yarn supply means for supplying yarn to said texturizer and means for collecting yarn discharged from said bounce crimp texturizer; wherein the improvement comprises:

(a) disposing between said outlet nozzle and said collecting means and in operative relationship to said texturized yarn a sensing means for sensing and generating a first signal when the thickness of said yarn disposed relative to said sensing means exceeds a predetermined thickness and a second signal when the thickness of said yarn is equal to or less than a second predetermined thickness;

(b) a controller means comprising a receiver means for receiving said signals from said sensing means and a control means for controlling the rate of yarn takeup on said collecting means wherein when said receiver means receives said first signal, said control means causes the rate of yarn takeup to increase, thereby increasing downstream tension on said yarn and correspondingly decreasing the thickness of said yarn sensed by said sensing device and wherein when said receiver means receives said second signal it activates said control means to reduce the rate of said yarn takeup thereby reducing downstream yarn tension and correspondingly increasing said yarn thickness whereby said yarn is discharged from said compacting outlet in a loosely compacted tensionless state and is not

accumulated prior to being collected by said collecting means, thereby substantially reducing tangles.

4,316,312

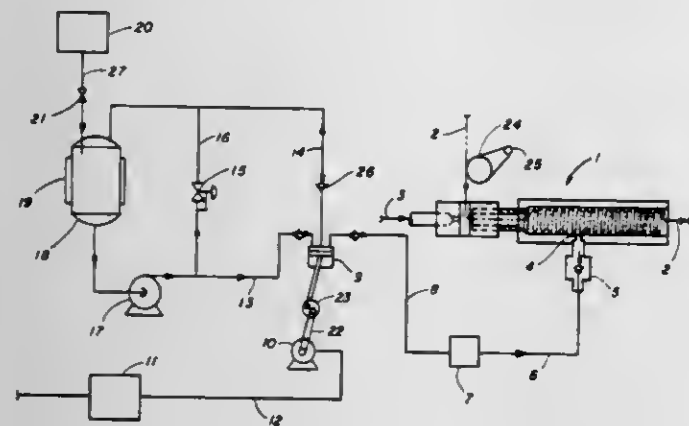
APPARATUS FOR INTERMITTENT APPLICATION OF FLUID TO YARN AT A TEXTURING DEVICE

Dick C. Vermeer, Chester, and Raymond J. Biron, Colonial Heights, both of Va., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Filed Sep. 19, 1980, Ser. No. 188,796

Int. Cl.³ D02G 1/12, 1/16

U.S. Cl. 28—255



1. An apparatus to intermittently apply treating fluid to a wad of yarn in a texturing device comprising a source of said fluid, an injector pump with drive motor and an inverter drive with frequency modulation to create pressure on said fluid, injection means comprising (a) tubing communicating with said source of said fluid and with at least one (b) injection port having a valve which is a spring loaded nozzle with an outlet opening at the texturing device (c) a flow control downstream of said means to create pressure to regulate the pulse rate and duration of said fluid flow from said source to said injection port so that said fluid is intermittently injected onto said yarn wad at said texturing device.

4,316,313

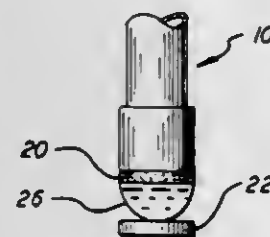
METHOD OF FORMING A CATHODE AND INTEGRAL SPACER

Kenneth Speigel, Seneca Falls, N.Y., assignor to North American Philips Consumer Electronics Corp., New York, N.Y.

Filed Apr. 14, 1980, Ser. No. 140,033

Int. Cl.³ H01J 9/04

U.S. Cl. 29—25.18



1. A method of preparing an electron gun cathode for critical spacing adjacent the control grid of said gun comprising the steps of: applying a layer of a potentially electron emissive material carried in a selectively soluble binder to an end of said cathode; preparing a spacer having a thickness substantially equal to said critical spacing, said spacer containing at least one component which is selectively soluble; contacting said layer of potentially electron emissive material with a liquid containing an amount of solvent for said selectively soluble binder and an amount of solvent for said at least one component, said

liquid having a sufficient surface tension so that a drop thereof remains on said potentially electron emissive material; contacting said drop of liquid and said spacer whereby said spacer is picked up by said liquid and said solvents selectively dissolve the interfacing surfaces of said potentially electron emissive material and said spacer and fastens said spacer to said potentially electron emissive material; and drying said drop of liquid.

4,316,314

PRESSURE ROLL OF A DRAFTING DEVICE FOR A TEXTILE MACHINE

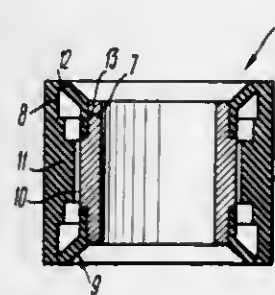
Gennady N. Shlykov, kvartal 19, 31, kv. 3; Vitaly I. Zhestkov, kvartal 19, 26, kv. 41, both of Tashkent, Chilanar; Valentin N. Tikhonov, ulitsa Sh. Rustaveli, 55, kv. 28, Tashkent; Vasily M. Dyachkov, kvartal 7, 18 "V", kv. 8, Tashkent, Chilanar, and Alexandr K. Kudelin, Teply Stan, 1 mikroraion, korpus 11, kv. 132, Moscow, all of U.S.S.R.

Filed Aug. 28, 1979, Ser. No. 70,500

Int. Cl.³ B21B 31/08; D01H 5/74

U.S. Cl. 29—123

10 Claims



1. In a pressure roll of a drafting device, comprising a cylindrical casing, a sleeve of an elastic material having flanges, which is mounted in a spaced relationship to said casing, said sleeve being secured to said casing by means of said flanges to define a closed space between said casing and said sleeve, the sleeve having an internally enlarged portion in the middle portion thereof, the improvement consisting of that said flanges of said sleeve are bent toward one another and each of said flanges has at least two portions of which the first portion extends at an angle to the generatrix of the cylinder of said cylindrical casing and partially protrudes outside said casing, and the second portion extends in parallel with said generatrix between the extremity of said cylindrical casing and the middle portion thereof and is designed for fastening said elastic sleeve to the cylinder of said cylindrical casing.

4,316,315

PLIERS

Josko Vogelink, 706 Monarch Mansions, 36 Twist St., Johannesburg, Transvaal, South Africa

Filed Jan. 29, 1980, Ser. No. 116,628

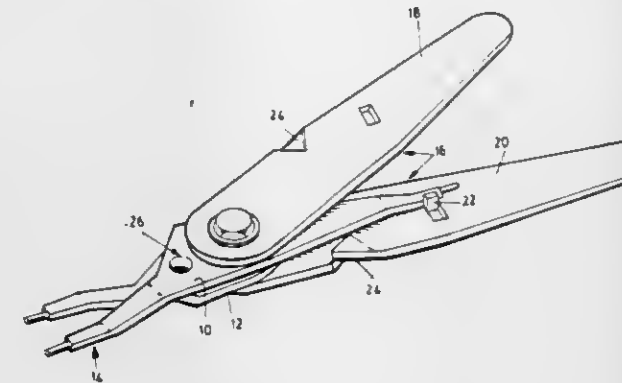
Int. Cl.³ B23P 15/10

U.S. Cl. 29—229

10 Claims

1. Double acting pliers including a pair of jaw members which are connected by a pivot member intermediate their ends with the free ends of the members defining first and second pairs of jaws on opposite sides of the pivot member, a pair of handle members which are anchored for rotation about the pivot member and formations on the handle members which when the handles are rotated towards each other in a first direction engage the jaw members adjacent the first pair of jaws to move the second pair of jaws towards each other and which when the handle members are rotated towards each other in the opposite direction engage the jaw members adjacent the second pair of jaws to move the first pair of jaws away from each other, the two pairs of jaws being at different distances from the pivot; and the formations on the handles comprising a first pair which, in the first direction of rotation of the

handles, are located to engage the inner faces of the jaw members to force the second pair of jaws together, and a second pair, spaced radially beyond the first pair of jaws, which, in the



second direction of rotation of the handles, are located to engage the outer faces of the jaw members to force the first pair of jaws apart.

4,316,316

SHIPPING ASSEMBLY FOR A HYDRAULIC JACK

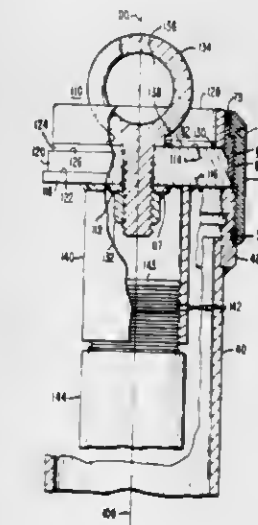
George A. Kappenhagen, Monroe Township, Monroe County, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jul. 28, 1980, Ser. No. 172,789

Int. Cl.³ B23P 19/00

U.S. Cl. 29—426.1

24 Claims



23. A method of assembling a sectioned hydraulic jack in a jack hole, including a bottom section and a second section to be connected thereto, wherein each section includes a tubular cylinder section and a plunger section disposed within the cylinder section, with each having upper and lower ends, comprising the steps of:

providing a first top shipping cap assembly, which includes a handle, for the bottom section, with the top shipping cap assembly being releasably and independently fixed to both the upper end of the associated plunger section, and the upper end of the associated cylinder section, providing a bottom shipping cap assembly for the second section which centers the lower end of the associated plunger section and is releasably fixed to the lower end of the associated cylinder section, uprighting the bottom section using hoisting means linked to the handle on the first top shipping cap assembly, aligning the upright bottom section over the jack hole, using the hoisting means and handle on the first top shipping cap assembly, clamping the bottom cylinder section with clamping means, lowering the bottom section in the jack hole, until the clamping means stops the downward travel of the bottom section and supports the weight thereof.

releasing the first top shipping cap assembly from the upper end of the bottom cylinder section, lifting the plunger section vertically upward a predetermined distance, using the handle on the first top shipping cap assembly, clamping the plunger section with clamping means, supporting the plunger section with the clamping means, uprighting the second section, aligning the upright second section over the bottom section, releasing and removing the bottom shipping cap assembly from the second section, coupling the plunger section of the second section to the plunger section of the bottom section, removing the clamping means from the plunger section associated with the bottom section, lowering the second cylinder section and connected plunger sections until the lower end of the second cylinder section butts the upper end of the bottom cylinder section, and coupling the bottom and second cylinder sections.

4,316,317

METHOD AND APPARATUS FOR ADJUSTING ROLLER RINGS ON A SHAFT

Bertil Ritzling, Huddinge, Sweden, assignor to Forenade Fabriksverken, Eskilstuna, Sweden

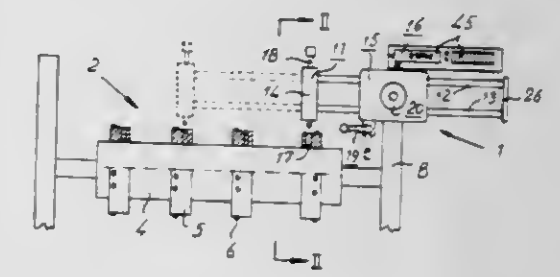
Filed Mar. 13, 1980, Ser. No. 130,057

Claims priority, application Sweden, Mar. 22, 1979, 7902591

Int. Cl.³ B23Q 17/16; B27G 23/00

U.S. Cl. 29—468

10 Claims



1. Method for locating and adjusting of roller rings (5) on a roller (4) in exactly predetermined positions in relation to each other and in relation to the roller (4) by means of a guide pin (18) provided displaceable exactly parallel to the axis of the roller (4) and corresponding guide bores (17) in the roller rings (5), characterized in locating the guide pin (18) in an exactly predetermined position over the rotatable roller (4) and preferably locking the guide pin (18) in this position whereupon a first roller ring is rotated and moved axially respectively on the roller (4) until the guide bore (17) of the roller ring is in a position in alignment with the guide pin, moving the guide pin down into the guide bore (17) of the roller ring (5) for maintaining the roller ring in the actual position, thereafter securing the roller ring (5) on the roller (4), removing the guide pin (18) from the guide bore (17) of the first roller ring, moving the guide pin (18) an exactly predetermined distance to a second position and locking same in said position, rotating a second roller ring (5) and displacing same axially on the roller (4) correspondingly until the guide bore (17) of the second roller ring is in position in alignment with the guide pin (18), moving the guide pin (18) down into the guide bore (17) and securing the second guide ring (5) on the roller (4) and in a corresponding way positioning and adjusting any wanted number of roller rings (5) on the roller (4).

4,316,318

METHOD OF MOUNTING MOUTHPIECE DEVICE OF DRUMS AND LIKE CONTAINERS

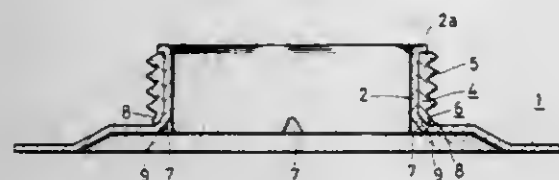
Kinji Mineo, Tokyo, Japan, assignor to Yamato Iron Works Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 969,450, Dec. 14, 1978, abandoned. This application Nov. 19, 1980, Ser. No. 208,419
 Claims priority, application Japan, Dec. 15, 1977, 52/169115[U]; Dec. 15, 1977, 52/169116[U]; Aug. 29, 1978, 53/118850[U]

Int. Cl.³ B21D 39/00; B23P 11/00

U.S. Cl. 29—512

1 Claim



1. A method of mounting a mouthpiece onto a container, comprising fitting a tubular mouthpiece having an externally threaded portion, around an upright tubular portion formed integral with a top plate of the container and fixing the former to the latter as they stand, wherein the improvement comprises:

- (a) preparing a tubular mouthpiece having an annular leg portion of reduced thickness at the lower portion of the externally threaded portion;
- (b) fitting the thus prepared tubular mouthpiece around the upright tubular portion of the top plate and bending the upper end of the tubular portion outward to cause the bent edge of the upper end to hold the upper end of the mouthpiece from above;
- (c) pressing outward from inside the lower end of the tubular portion and the said lower end leg portion of the mouthpiece both at a plurality of portions to form a plurality of projections at the lower end of the tubular portion and also the same number of recessed portions in the said leg portion of the mouthpiece; and
- (d) fixing the mouthpiece to the tubular portion by the engagement of the projections with the recessed portions.

4,316,319

METHOD FOR MAKING A HIGH SHEET RESISTANCE STRUCTURE FOR HIGH DENSITY INTEGRATED CIRCUITS

Narasipur G. Anantha, Hopewell Junction, and Augustine W. Chang, Wappingers Falls, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
 Division of Ser. No. 844,768, Oct. 25, 1977, Pat. No. 4,228,450.
 This application Apr. 18, 1980, Ser. No. 141,717

Int. Cl.³ H01L 21/22, 21/265

U.S. Cl. 29—577 C

7 Claims

1. The method of fabricating an integrated circuit structure containing resistors and transistors comprising:
- providing a silicon monocrystalline body which includes a substrate of a first conductivity and a region of a second conductivity thereover;
 - forming a pattern of dielectric regions in said silicon monocrystalline body which isolate surface regions of said body from one another;
 - forming a highly doped buried region of said first conductivity within said region of a second conductivity within at least certain of said isolated surface regions;
 - forming a highly doped reach-through region of said first conductivity to connect the surface of said silicon regions to said buried region;
 - forming electrical contacts to the said regions within said isolated regions of said body to fabricate said resistors in certain of said isolated regions and transistors in certain other of said isolated regions;
 - wherein said resistors are formed, the said contacts are made

to at least the said surface region of said second conductivity and said contact made to said reach-through region for biasing purposes; and
 wherein said transistors are formed, the said contacts are



made to said surface region of second conductivity for the emitter, said contacts are made to said reach-through region of first conductivity for the base and said contacts are made to said region of second conductivity under said buried region for the collector.

4,316,320

METHOD OF MANUFACTURING ELECTRONIC CIRCUIT APPARATUS

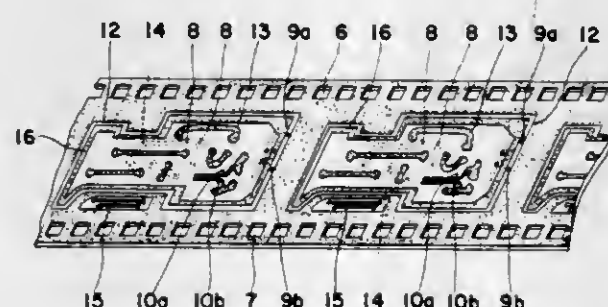
Kenji Nogawa, Izumi; Katsuyoshi Takemura, Hirakata, and Yoshifumi Okada, Neyagawa, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan
 Filed Oct. 15, 1979, Ser. No. 85,055

Claims priority, application Japan, Oct. 13, 1978, 53-126691; Oct. 13, 1978, 53-126692

Int. Cl.³ H05K 3/34

U.S. Cl. 29—839

5 Claims



1. A method of manufacturing a flexible printed circuit sheet for use in electrical and electronic equipment, which comprises the steps of:

- providing a flexible base sheet having a belt-like configuration and a flexible base material with a layer of electrically conductive material covering the entire surface of at least one side of said flexible base material and having rows of guide holes at predetermined intervals along the opposite longitudinal edges of said base sheet;
- forming electrically conductive circuit patterns on said base sheet at predetermined intervals in the longitudinal direction and at positions between the rows of said guide holes by removing electrically conductive material from said base sheet for leaving circuit elements constituting said circuit patterns, said circuit patterns each occupying an area on said base sheet which has a periphery and including peripheral edge circuit elements extending along at least substantially the entire periphery of each area occu-

4,316,322

METHOD OF FABRICATING ELECTRICAL CONTACTS IN A PRINTED CIRCUIT BOARD

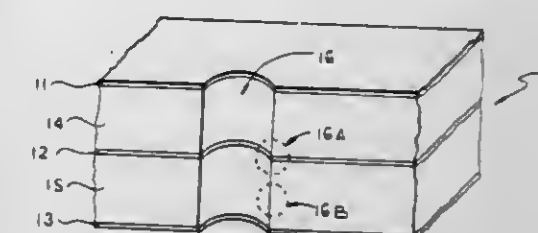
Stephanie K. Tranberg, Oceanside, Calif., assignor to Burroughs Corporation, Detroit, Mich.

Filed Oct. 25, 1979, Ser. No. 88,036

Int. Cl.³ H05K 3/22

U.S. Cl. 29—852

8 Claims



1. A method of fabricating electrical contacts between two conductive layers of a printed circuit board that are spaced apart by an epoxy layer, said method including the steps of: drilling holes through all of said layers at predetermined points where said electrical contacts are to be made; subsequently washing said board in an acid to remove epoxy smear formed on the walls of the holes by said drilling step; and thereafter rinsing said board in a mixture consisting of only two essential ingredients to remove chemical byproducts of said epoxy smear and said acid from said walls of said holes, said two essential ingredients being a glycol ether and a base.

4,316,321

METHOD AND APPARATUS FOR ALIGNING AND PRESS-FITTING CONNECTOR TERMINALS INTO A SUBSTRATE

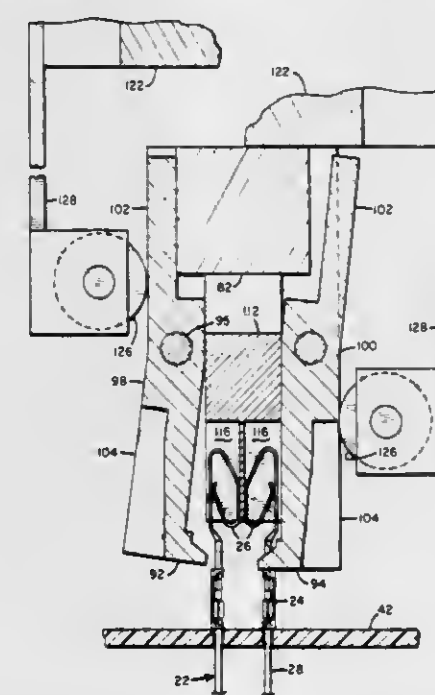
Thomas J. Wickham, Lakeville, Minn., assignor to Magnetic Peripherals Inc., Minneapolis, Minn.

Filed Jan. 28, 1980, Ser. No. 115,839

Int. Cl.³ H05K 3/30

U.S. Cl. 29—845

13 Claims



1. Apparatus for press-fitting a plurality of connector terminals into individual apertures in a substrate, said connector terminals each having a contact head, a shank and an enlarged section on said shank for press-fitting in an aperture, the shanks of said terminals being fastened to a bandolier strip in predetermined spaced relation by crimp sections on said strip fastened to said shanks on each side of said enlarged sections, said apertures being aligned in a row in essentially the same predetermined space relation, said apparatus comprising:

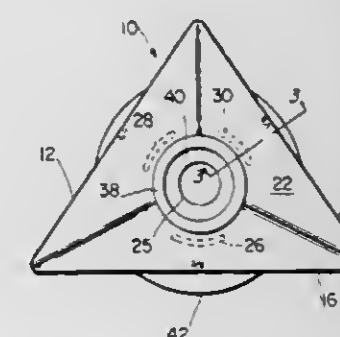
alignment means aligning the shanks of said apertures with individual ones of said apertures; and
 pressing means for pressing initially against the upper crimp sections so that the lower crimp sections bear against said substrate to fold said bandolier strip to open said crimp sections by reaction against said enlarged section, and for thereafter pressing against said enlarged sections on said shanks to press said enlarged sections into said apertures.

4,316,323

BLADE HOUSING FOR CAST CUTTING TOOLNorbert A. Kirk, 43 E. Ohio St., Room 930, Chicago, Ill. 60611
 Filed Aug. 22, 1980, Ser. No. 180,363Int. Cl.³ B27B 9/02

U.S. Cl. 30—124

14 Claims



1. A plaster cast saw device for cutting a cast comprising: a cast cutting tool having a body and a movable circular saw blade mounted on a shaft;
 a housing mounted on said body and enclosing said saw blade, said housing having peripheral flat sides such that said housing has a cross-section of polygonal shape and said housing containing a slot in the face of a plurality of said peripheral flat sides through which a portion of said saw blade projects varying distances, whereby the depth of the cut of said saw blade is determined by the side face which is positioned in contact with the cast.

4,316,324

AUXILIARY SLITTING BLADE FOR A CUTTING INSTRUMENT

Rex H. Cochran, 2003 Marietta Ave., Muscle Shoals, Ala. 35660

Filed Dec. 13, 1979, Ser. No. 103,111

Int. Cl.³ B26B 11/00

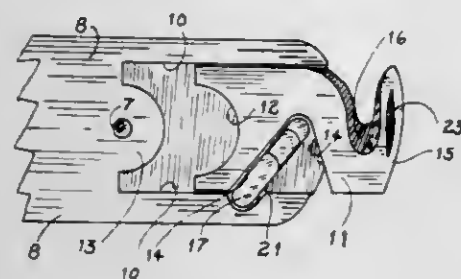
U.S. Cl. 30—162

3 Claims

1. In a knife having a blade with an extended shank portion

covered by a handle, a retractable auxiliary slitting blade comprising, in combination:

- a recessed axially disposed receptacle chamber in said handle having a lengthwise elongated bore channel extending inwardly from the butt end of said handle;
- a correspondingly shaped elongated guide shank for an auxiliary blade disposed movably lengthwise in said channel and having at its outer end a formed slitting blade with a generally parabolic configuration disposed with an inwardly directed cutting edge transverse the longitudinal axis of said shank and receivable by said channel;
- corresponding receptacle notch cavities in said channel and guide shank;



an encapsulated telescoping compression spring received in the seats of said cavities, respectively, movably operable directionally with the reciprocal motion of said guide shank to impinge said spring capsule on the opposing sides of said notch cavities to alternately urge said shank in the retracted and in the exposed mode with limited penetration of said blade relative to the surface to be cut by the distance of the projection of said blade beyond said handle;

and gripable activating surfaces on said blade to selectively expose and retract the same.

4,316,325

WEED CUTTING APPARATUS

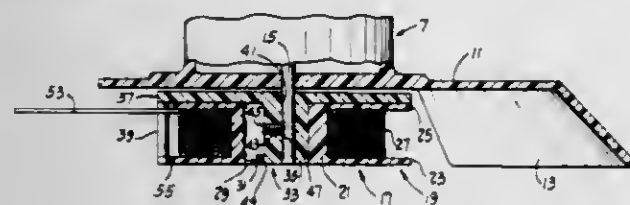
William S. Brucker, 1500 Providence Rd., Towson, Md. 21204

Filed Oct. 12, 1976, Ser. No. 731,746

Int. Cl.³ A01D 55/18

U.S. Cl. 30-276

1 Claim



1. A device for storing and automatically metering monofilament line on a filament weed cutter, said device comprising:
 - a spool including a pair of opposing, parallel flanges, a hollow central hub extending between said flanges, and a resilient snap member on said hub, said spool receiving a freestanding coil of monofilament line on said hub between said flanges;
 - a support member comprising a flange, a central core extending from said flange, said core having a central bore for receiving a motor drive shaft and an outer surface configured to extend through the hollow hub of said spool for attaching said spool to said core and a lip extending radially from said outer surface for releasably engaging said snap member to releasably lock said spool on said support member, locking means for attaching said support member to the drive shaft for rotation with the drive shaft, and a plurality of retaining members extending transversely from said flange and spaced equi-angularly about said core in the direction of said central core and disposed radially outwardly of said spool for retaining the coil of monofilament line on said spool;

said support member and said spool rotating in response to

the rotation of the motor shaft to cause a free end strand of the monofilament line to engage one of said retaining members and extend radially outwardly therefrom a predetermined distance to define a cutting path, said retaining members sequentially engaging each of successive strand portions to automatically meter sequential free end strands of the line.

4,316,326

STYLUS FOR WRITING BRAILLE

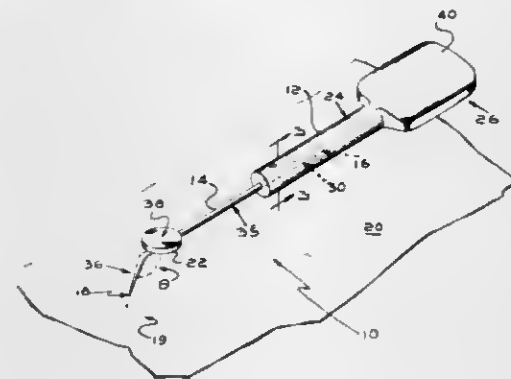
Arthur B. Yeaton, and Seth A. Yeaton, both of 112 Elm St., East Longmeadow, Mass. 01028

Filed May 5, 1980, Ser. No. 146,666

Int. Cl.³ B26F 1/00

U.S. Cl. 30-366

4 Claims



1. A stylus for writing braille comprising:
 - (a) a handle having a horizontally enlarged outer end portion of generally plate-like configuration for locating the metacarpal portion of the user's hand when writing braille;
 - (b) a unitary stylus arm extending from the inner end portion of the handle, said arm having an angularly offset, pointed end portion for making braille impressions on paper; and
 - (c) an actuator pad for transmitting finger tip pressure exerted by the user of the stylus to said pointed end to manipulate the pointed end to make said braille impressions, said pad disposed adjacent to said offset portion of the stylus arm and being generally parallel to the upper surface of the enlarged portion of the handle for accommodating a finger tip of the user when the handle is gripped between the metacarpal portion and the small fingers of the user's hand.

4,316,327

CHAIN SAW

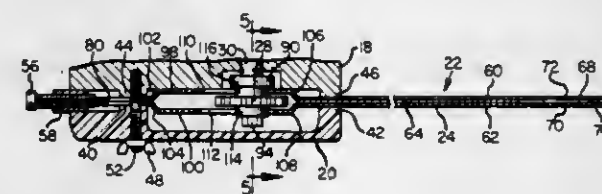
Lewis A. Scott, Lake Oswego, and Duane M. Gibson, Milwaukee, both of Oreg., assignors to Omark Industries, Inc., Portland, Oreg.

Filed Feb. 26, 1979, Ser. No. 15,111

Int. Cl.³ B27B 17/00

U.S. Cl. 30-386

15 Claims



1. In a chain saw,
 - a prime mover including a shaft and frame means,
 - a sprocket keyed to the shaft,
 - a saw bar,
 - releasable means for clamping the saw bar to the frame means in a position in which the saw bar extends forwardly from the sprocket,
 - and adjustment screw means mounted on the frame means at

the rear of the sprocket and engaging the saw bar to hold the saw bar against rearward movement.

4,316,328

ANNULAR POWER TOOL

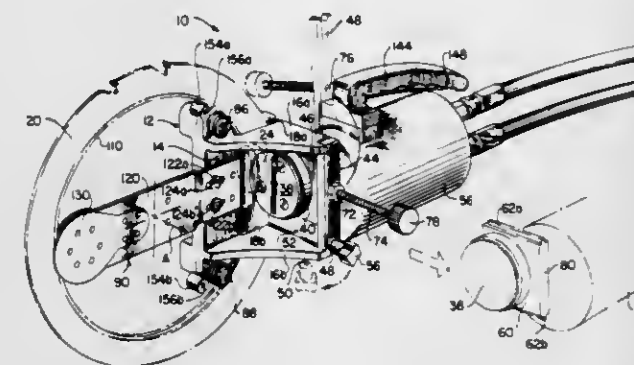
William R. Duggan, Sunapee, and John M. Heath, Newbury, both of N.H., assignors to Micro-Precision, Inc., Sunapee, N.H.

Filed Oct. 19, 1979, Ser. No. 86,289

Int. Cl.³ B27B 5/00

U.S. Cl. 30-389

29 Claims



29. An improved annular tool of the type that is adapted to be driven for rotation about a virtual axis by a drive roller which acts upon a face of the tool, said improved annular tool comprising:

- a. an outer peripheral edge including working means;
- b. an inner peripheral edge;
- c. two opposed, planar faces extending between said outer peripheral edge of said tool and said inner peripheral edge of said tool, the drive roller being adapted to act against one of said planar faces; and
- d. a tapered guide tongue formed at said inner peripheral edge of said tool;
- e. the free end of said tapered guide tongue being rounded.

4,316,329

INSTRUMENTED REMOTE CENTER COMPLIANCE DEVICE

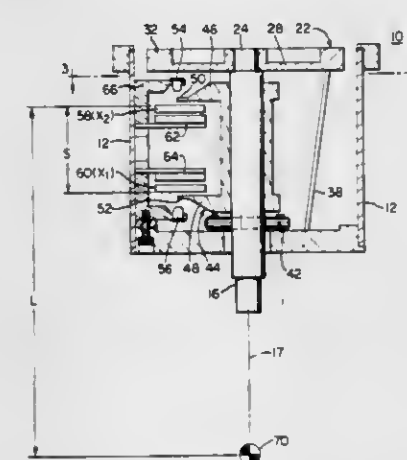
Paul C. Watson, Brentwood, N.H., assignor to The Charles Stark Draper Laboratory, Cambridge, Mass.

Filed Sep. 19, 1979, Ser. No. 76,907

Int. Cl.³ G01B 5/25

U.S. Cl. 33-169 C

11 Claims



1. In a remote center compliance device having an operator member and a remote compliance center near the end of the operator member, the improvement comprising:
 - a reference structure proximate to and fixed relative to said operator member;
 - first and second displacement sensors mounted on said reference structure spaced from said operator member for sensing displacement thereof, said first and second sensors

being disposed to one another at a first angle about the axis of said operator member;

third and fourth displacement sensors mounted on said reference structure spaced from said operator member for sensing displacement thereof, said third and fourth sensors being spaced from said first and second sensors along the axis of said operator member and disposed to each other at a second angle about the axis of said operator member; said sensors being disposed to produce an output from at least one sensor for any displacement relative to radial axes of said operator member.

4,316,330

MAGNIFYING DEVICE FOR USE WITH A TRIANGULAR RULE

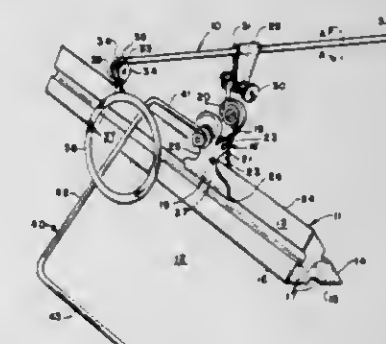
Jess W. Hayes, 9208 Farmington Dr., Richmond, Va. 23229

Filed Oct. 16, 1980, Ser. No. 197,469

Int. Cl.³ B43L 7/00; G02B 27/02

U.S. Cl. 33-488

13 Claims



1. A device adapted for attachment to a triangular scale rule resting on a substantially flat working surface, said rule having faces containing markings adjacent the longitudinal edges thereof and having continuous uniform longitudinal grooves centered therein, said device comprising:

- (a) clamping means having two opposed elongated parallel jaws urged toward each other by resilient means and adapted to engage the grooves of the two upwardly directed faces of said rule, said jaws being moveably interengaged by bridging means adapted to be positioned above the apex of said upwardly directed faces,
- (b) straight elongated extension means supported by said clamping means in a manner such that the axis of elongation of said extension means is inclined to said working surface and lies in a plane perpendicular to and bisecting said jaws,
- (c) holding means attached to said extension means adjacent the uppermost extremity thereof,
- (d) a magnifying glass of circular configuration pendantly supported by said holding means in a manner permitting rotative movement of said magnifying glass about an axis which is a diameter thereof and swinging movement in said perpendicular plane, and
- (e) stabilizing means fixedly attached to said device and adapted to prevent said device from toppling during use, whereby said extension means, in coactive interaction with said holding means, permits variation of the distance of separation between said magnifying glass and said clamping means.

4,316,331

METHODS FOR MECHANICALLY DEWATERING PEAT
Olle B. Lindström, Lorensviksvägen 14, 18363 Taby, and Rikard O. Lindström, Rosenlundsgatan 28 A, 11653 Stockholm, both of Sweden

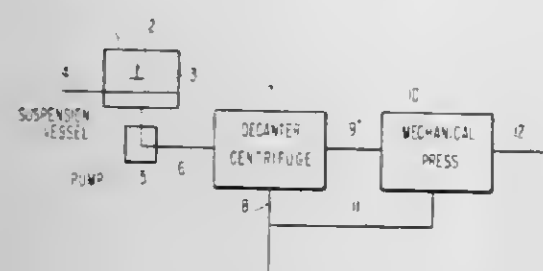
Filed Nov. 21, 1978, Ser. No. 962,710

Claims priority, application Sweden, Nov. 29, 1977, 7713395

Int. Cl.³ F26B 7/00, 5/08

U.S. Cl. 34—17

4 Claims



1. A process for dewatering peat, said process utilizing a decanter centrifuge and a mechanical press, said process comprising the steps of:

subjecting a slurry of water and fibrous peat to centrifugal forces in the decanter centrifuge to separate from said water/peat slurry an effluent of water and fine peat particles,

recovering said water/peat slurry absent said separated effluent, and thereafter mechanically pressing the recovered water/peat slurry in the press to express water from the recovered water/peat slurry, at least a substantial portion of which water being expressed in liquid form.

4,316,332

ATHLETIC SHOE CONSTRUCTION HAVING SHOCK ABSORBING ELEMENTS

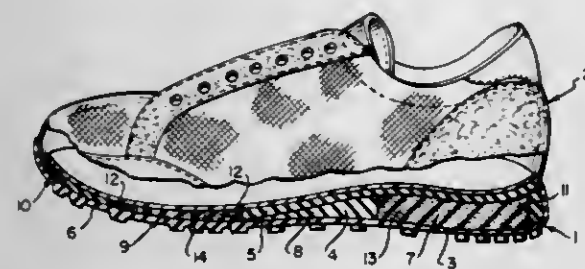
Erik O. Giese, Key Biscayne, Fla., and Alexander L. Gross, Aspen, Colo., assignors to Comfort Products, Inc., Aspen, Colo.

Continuation of Ser. No. 32,354, Apr. 23, 1979, abandoned. This application Nov. 7, 1980, Ser. No. 204,860

Int. Cl.³ A43B 13/18, 13/12, 21/32, 5/00

U.S. Cl. 36—28

2 Claims



1. In an athletic shoe construction having a sole portion connected to an upper portion and where said sole portion includes a heel area, an arch area, a forefoot area and a toe area; the improvement comprising in that said sole portion includes an outer sole, a heel wedge having a cutout therein and a mid-sole overlying said forefoot area and having a cutout therein; in that the cutout in the heel wedge has a first shock absorbing element therein, in that the cutout in the mid-sole has a second shock absorbing element therein, in that the remainder of said sole portion including said toe and arch areas comprises a harder material than said first and second shock absorbing elements, and in that the outer peripheries of both said elements are surrounded by said harder material to provide stability and support to a foot when side thrust loads are imparted to the shoe.

SEPARABLE FASTENER FOR REMOVABLE FOOT SUPPORTS

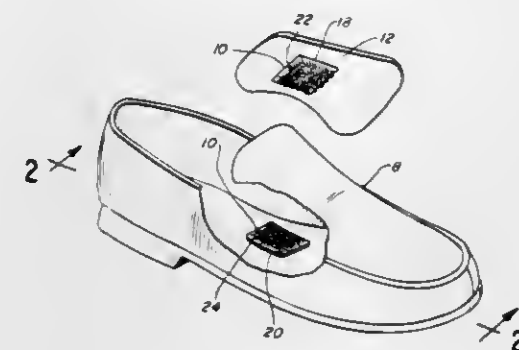
Harvey Rothschild, Kihei, Hi., assignor to Featherspring International Corporation, Seattle, Wash.

Filed Nov. 28, 1979, Ser. No. 98,310

Int. Cl.³ A43B 11/00, 7/22

U.S. Cl. 36—50

8 Claims



1. A separable fastener device adapted for use in securing a removable foot support device to an internal portion of a shoe comprising: first and second engaging elements, said elements being flexible planar sheets, said first element having a surface providing a means for attaching said first element to said removable foot support device, said second element having a surface bearing pressure responsive adhesive for attaching said second element to said internal portion of said shoe, said first and second elements each having another side providing releasably interengageable mating surfaces wherein said mating surfaces engage upon pressing together said surfaces and release upon pulling said surfaces apart.

4,316,334

ATHLETIC SHOE INCLUDING STIFFENING MEANS FOR SUPPORTING THE REAR PORTION OF THE FIRST METATARSAL BONE

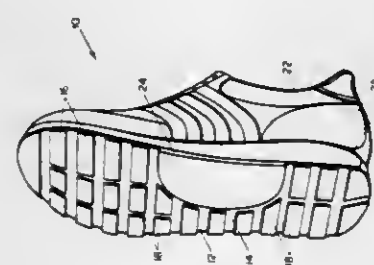
Helen M. Huot, Journey's End La., Princeton, N.J. 08540

Filed Mar. 27, 1980, Ser. No. 134,651

Int. Cl.³ A43B 7/22, 13/22; A61F 5/14

U.S. Cl. 36—91

20 Claims



1. An athletic shoe including an upper and a sole connected to said upper, said shoe further comprising: stiffener means for providing support to the medial portion of the base of the first metatarsal bone, said stiffening means comprising a continuous cleat attached to the bottom portion of said sole and extending from at least the base of said first metatarsal bone for at least 3 centimeters in the direction of the navicular bone.

4,316,335

ATHLETIC SHOE CONSTRUCTION

Erik O. Giese, Key Biscayne, Fla., and Alexander L. Gross, Aspen, Colo., assignors to Comfort Products, Inc., Aspen, Colo.

Continuation of Ser. No. 27,313, Apr. 5, 1979, abandoned. This application Dec. 29, 1980, Ser. No. 221,068

Int. Cl.³ A43B 13/18, 21/16, 23/28, 5/06

U.S. Cl. 36—129

15 Claims



1. In an athletic shoe construction having a sole portion connected to an upper portion and where said sole portion includes a heel area, an arch area and a forefoot area; the improvement comprising in that said sole portion includes an insert in said heel area forming a first shock absorbing portion having a first degree of shock absorbing property and in said forefoot area forming a second shock absorbing portion having a second degree of shock absorbing property less than said first degree.

4,316,336

DRIVE MECHANISM FOR SAND, ETC., DREDGING APPARATUS

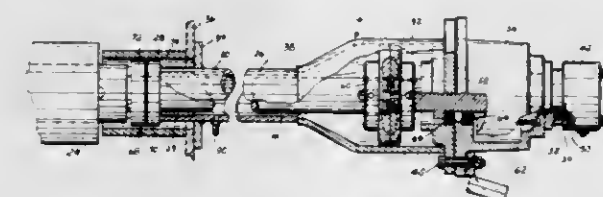
Willard L. Salemkink, West Liberty, Iowa, assignor to Assemblers, Inc., West Liberty, Iowa

Filed May 30, 1980, Ser. No. 154,699

Int. Cl.³ E02F 3/88

U.S. Cl. 37—67

4 Claims



1. Dredging apparatus of the class described having an above-water carrier, an under-water excavator, a substantially water-tight tubular casing means having an upper portion relatively proximate to the carrier and an under-water lower portion proximate to the excavator, a drive shaft extending axially through the casing and having a lower end projecting beyond the lower end of the casing and connected to the excavator and an upper end proximate to the upper portion of the casing, and bearing means within the casing adjacent to its lower portion and journaled the shaft, said bearing means having axially opposite first and second ends, the first of which faces toward water at the lower portion of the casing and the second of which lies within and is contained by the casing, characterized in that a hydraulic power source is secured to the upper portion of the casing and is coaxially connected to the upper end of the shaft, said power source having a chamber adapted to contain oil for driving said source, passage means communicating with the chamber and the interior of the casing for conducting oil lengthwise of the casing to the casing-contained second end of the bearing means, and vent means connected to the lower portion of the casing in the area of the casing-contained end of the bearing means and extending to an open upper end above water for containing a head of oil substantially equal to the water pressure exerted on the first end of the bearing means.

4,316,337

ILLUMINATED DISPLAY ASSEMBLY

Daniel D. Da Costa, 186 Lymington Rd., Torquay, Devon, England

Filed Mar. 10, 1980, Ser. No. 128,925

Claims priority, application United Kingdom, Mar. 16, 1979, 09438/79

Int. Cl.³ G09F 13/04

U.S. Cl. 40—564

8 Claims



1. A display device comprising a display frame having a front viewing side and a rear side for receiving illuminating light; said display frame being opaque and having plural transparent portions provided for the transmission of light through said transparent portions of the display frame; a display member containing selected information for display detachably secured to the display frame at each of said transparent portions thereof, said display members being opaque to block-off the associated transparent portion of the frame to the transmission of light, with the exception of the information thereon, the information on at least one of the display members being non-opaque, a backing layer of adherably attractive material attached to said rear side of the display frame to which can be removably attached said display members, and a sheet of translucent coloured material positioned on said backing layer behind at least one of said display members, whereby when said rear face is under illumination light is transmitted solely through said information and is enhanced to an observer of said front side of the masking effect of the surrounding opacity of the display frame and the associated display member.

4,316,338

HANDHELD FIREARM ADAPTED FOR DISPENSING DEBILITATING CHEMICAL REPELLANTS

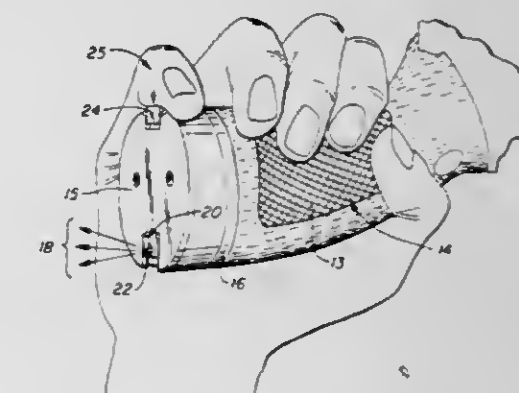
Neil E. Mason, 14 Sir Francis Drake, San Anselmo, Calif. 94960; Michael A. Dunn, 960 DeBora Ct., Fremont, Calif. 94538, and James E. Mannor, 5219 Edgewater Dr., Newark, Calif. 94560

Filed Aug. 6, 1979, Ser. No. 64,303

Int. Cl.³ F41C 27/00

U.S. Cl. 42—1 G

7 Claims



1. In a handheld firearm comprising a barrel and a shank portion, said shank portion comprising a hand grip portion and a butt end, the improvement comprising in the shank portion,

a mounted butt and comprising a reservoir for containing a dispensible fluid repellant, actuating means for dispensing said repellant from said reservoir, a last digit operatable actuator including a button located in said butt end, a nozzle being disposed in said butt whereby discharge of said repellant from said firearm is transverse to said barrel; and said actuating means comprises a connecting rod from said button and a forked wedge-shaped element to lift said nozzle whenever a force is exerted on said button.

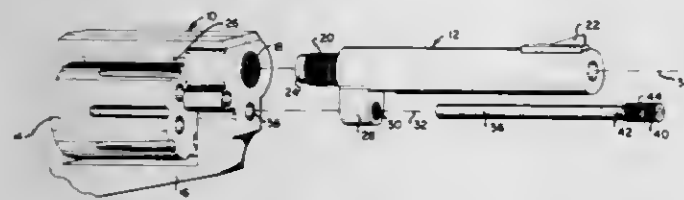
4,316,339

HANDGUN HAVING INTERCHANGEABLE BARRELS
Ray G. Herriott, 1671 S. Magnolia Ave., Monrovia, Calif. 91016
Filed Oct. 22, 1979, Ser. No. 87,058

Int. Cl.³ F41C 1/00

U.S. Cl. 42—59

12 Claims



1. A revolver comprising the combination of a frame having a threaded bore therein, a barrel having a threaded end received within the threaded bore of the frame, a lug mounted on the barrel adjacent the threaded end and means fastening the lug to a selected portion of the frame to provide indexing and registration of the barrel relative to the frame.

4,316,340

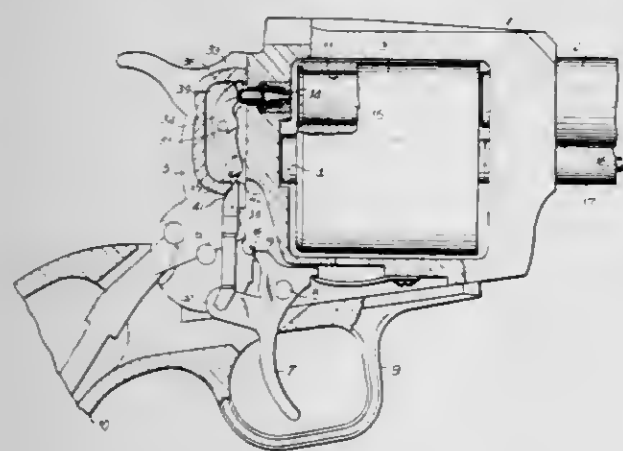
SAFETY MECHANISM FOR FIREARMS
Harvey Kahn, Port Jefferson, N.Y., assignor to Alan I. Gerald Corporation, North Haven, Conn.

Filed Dec. 26, 1979, Ser. No. 107,394

Int. Cl.³ F41C 17/04

U.S. Cl. 42—66

11 Claims



1. In a firearm having a movable hammer, a cartridge receiving chamber located in front of the hammer when the hammer is in a strike mode, a firing pin associated with the hammer and mounted in position to strike and fire a cartridge in the chamber, a trigger pivotally mounted below said hammer to control the hammer movement, an improvement comprising
a vertical slot formed in said hammer, said slot being located behind said firing pin to form a hollow behind said firing pin;
a vertical anvil safety member located within said vertical slot pivotally connected to said hammer about a horizontal axis, the upper portion of said anvil safety member being located behind said firing pin and forming the striking surface of the hammer,
said anvil safety member connected to said slot when the trigger is in its rest position such that said anvil safety

member does not exert significant firing force on said firing pin.

an anvil connector bar pivotally connected to said trigger and having an upper portion adapted to be positioned to impact the lower portion of said anvil safety member when said trigger moves toward its fire position, the force of impact between said anvil connector bar and the lower portion of said anvil safety member is transmitted to said upper portion of said anvil safety member by the upper portion moving forward to strike said firing pin.

4,316,341

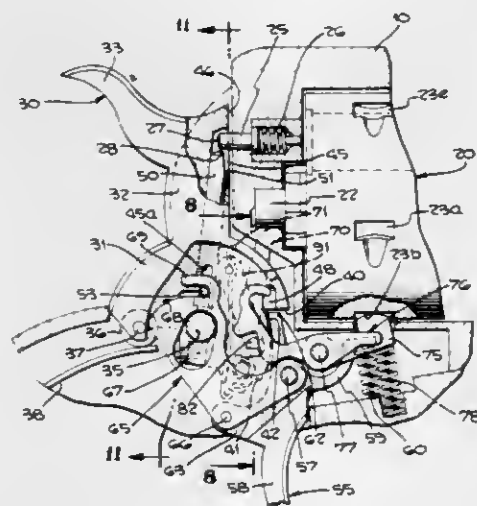
FIRING MECHANISM FOR SINGLE ACTION FIREARM
Archie C. Landry, Canoga Park, Calif., assignor to North American Manufacturing Corp., Provo, Utah

Filed Nov. 30, 1979, Ser. No. 98,870

Int. Cl.³ F41C 17/04

U.S. Cl. 42—70 F

4 Claims



1. In a firearm having an external pivotally mounted hammer that is adapted to be manually cocked, a trigger pivotally mounted below the hammer, a cartridge-receiving chamber in front of the hammer, a firing pin associated with the hammer and mounted in position to strike and fire a cartridge in the chamber, a cam surface on the hammer which contacts and rotates the trigger from its rest position to its ready-to-fire position as the hammer is being cocked, a sear notch in the hammer, a sear for the trigger, and a trigger spring which pivots the trigger to engage the sear in the sear notch when the hammer is fully cocked, the safety improvement which comprises:

an elongated recess formed within the hammer such that when the hammer is adjacent the firing pin, an end portion of said recess is juxtaposed to the firing pin and the hammer itself does not engage the firing pin;

an elongated safety member disposed within said recess and slidably movable therein between upwardly extended and downwardly retracted positions, the extended position of said safety member being such that forward movement of the hammer will drive said safety member into contact with the rear end face of the firing pin and thereby fire the cartridge;

a safety member cam disposed beside the hammer and coupled to said safety member for controlling the extending and retracting movement thereof, said safety member cam being secured to the trigger to move therewith;

the firearm being characterized by the firing pin projecting rearwardly from the chamber housing and said safety member in its retracted position being adapted to engage the underside of the firing pin but not the rear end face thereof; and

the operation of said safety member cam being such as to move said safety member from its retracted position to its extended position when the trigger is rotated from its rest position to its ready-to-fire position;

whereby when the trigger is pulled the kinetic energies of the hammer and said safety member are combined for striking the firing pin to fire the cartridge, but after the trigger has been released the subsequent application of pulling force to the trigger is not effective to insert the upper end portion of said safety member into the space behind the rear end face of the firing pin.

4,316,342

RECOIL ABSORBER AND REDIRECTOR MECHANISM FOR GUN STOCK

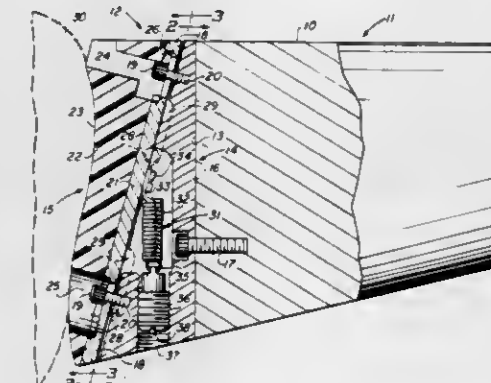
Jay P. Griggs, 515 N. Bridge St., Twin Bridges, Mont. 59754

Filed Apr. 28, 1980, Ser. No. 144,426

Int. Cl.³ F41C 23/00

U.S. Cl. 42—74

13 Claims



1. A recoil absorber and redirector mechanism for a shoulder held gun stock comprising:
a first member arranged to be rigidly affixed to the rear end of a gun stock,
a second member attached to said first member and adapted for supporting the gun stock against the shoulder of a user, said first and second members being slidably movable laterally of each other, and
dual purpose means interconnecting said first and second members for normally biasing them to a given aligned position and under recoil of the gun on which they are affixed resiliently resisting their relative movement caused by recoil, thereby absorbing at least a part of the recoil energy.

4,316,343

PRELOOPED FISHING LURE

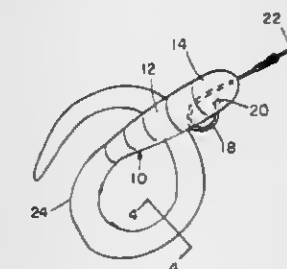
Michael M. Creme, 1219 Big Falls Ave., Akron, Ohio 44310

Filed Apr. 3, 1980, Ser. No. 136,940

Int. Cl.³ A01K 85/00

U.S. Cl. 43—42.24

4 Claims



1. In an artificial fishing lure having a solid, flexible, and elongate body of elastomeric material having a head at one end thereof for receiving a fishhook in embedded relation therein, a tail of greater length extending rearwardly from said head, and wherein said lure at rest has a preformed curvilinear configuration to permit yielding flexure thereof in the water to attract fish,
the improvement therein comprising:
said predetermined curvilinear configuration defining a single loop of said body with said tail extending in a con-

tinuous arcuate path rearwardly from said head to define a transverse intersection crossing said body at a point adjacent the fishhook engagement with said head, the portion of said head extending forwardly of said intersection having a dimension substantially comparable to the terminal portion of said tail extending transversely past said intersection, to define a substantially symmetrical contour,

thereby to provide substantially total balanced flexing movement of the entire length of the lure as the same is drawn through the water.

4,316,344

ROACH TRAP

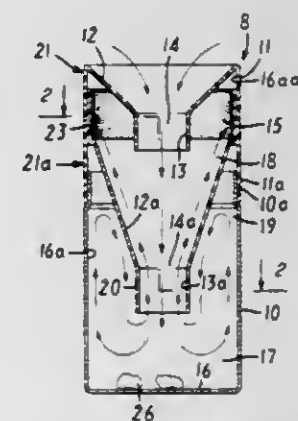
Carl E. Carlsen, Rutledge Hotel/161 Lex. Ave., New York, N.Y. 10016

Filed Dec. 22, 1980, Ser. No. 218,718

Int. Cl.³ A01M 1/14

U.S. Cl. 43—114

2 Claims



1. A roach trap comprising in combination: an enclosed vessel having separate upper and lower compartments in series and in communication with one-another and the upper compartment having an upper entry port opening from exterior space to the upper compartment, and the lower compartment having a lower entry port connecting the upper and lower compartments and being above an interior lower floor-like surface at a sufficient height to avoid a roach reaching upwardly and gaining exit by the lower entry port, a lower side wall of the lower compartment being substantially transparent and an upper side wall of the lower compartment being non-transparent whereby upper space of the lower compartment remains darkened, and a strip of adhesive tacky coating within the enclosed vessel exterior to enclosed space of the lower compartment and substantially circumscribing a surface between space of the lower compartment and space within said upper entry port such that exit to said upper entry port is barred by said strip.

4,316,345

TOY DECORATIVE CURTAIN/DOOR

Denni F. Rivette, Chicago; Howard J. Morrison, Deerfield, and Douglas P. Montague, Chicago, all of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.

Filed Nov. 3, 1980, Ser. No. 203,398

Int. Cl.³ A63H 33/00

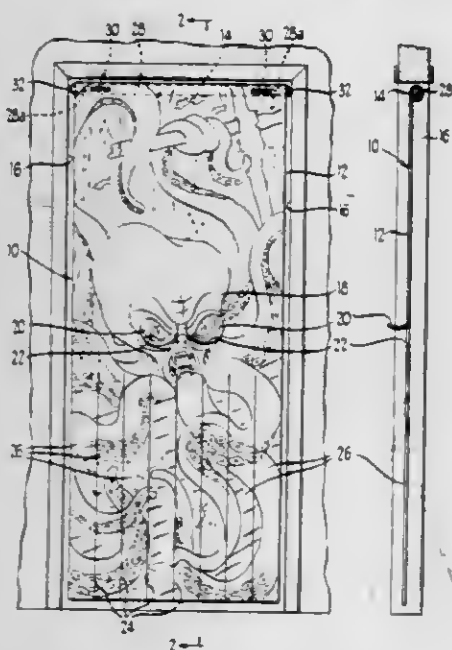
U.S. Cl. 46—I R

6 Claims

1. A toy decorative curtain/door adapted for temporary installation between vertical jamb surfaces of an entrance opening, comprising:
a sheet of thin flexible curtain material mounted on an elongated roller adapted to extend between said opposite jamb surfaces;
at least one end portion of said roller including means for biasing said roller in a longitudinal direction toward an opposite end for supporting said roller between said jamb surfaces at a selected elevation thereon;

said flexible sheet material having an upper edge secured to said roller longitudinally thereof, a pair of opposite side edges hanging downwardly of said roller adjacent said opposite jamb surfaces and a free bottom edge;

at least one face of said material having a decorative image thereon, said image including a graphic representation of a living creature with at least one graphic eye, said material also including a peephole formed in said curtain by a cut therethrough at a position adjacent said graphic eye to form a deflectable flap movable to open and close said peephole to permit viewing through said peephole; and



the portion of said sheet material below said peephole formed with a plurality of cuts therethrough, generally parallel to said side edges and extending upwardly from said free bottom edge and terminating below said peephole to form a plurality of deflectable strips permitting passage through said entrance upon deflection of said strips, said image located at least in part on said portion formed with said cuts so that said image appears to move in a lifelike manner when said strips are deflected.

4,316,346

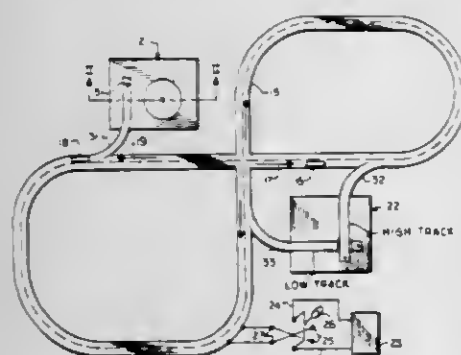
SPUR TRACK ACCESSORY OPERATION

Derek A. Brand, 965 Camino Concordia, Camarillo, Calif. 93010, and Derek R. Brand, 126 Ash Ave., Apartment 15, Carpinteria, Calif. 93013

Filed Apr. 28, 1980, Ser. No. 144,459
Int. Cl.³ A63H 17/40, 11/10, 33/30, 19/00

U.S. Cl. 46—212

7 Claims



1. In the combination of a reversible self-powered vehicle having at least one powered wheel, and an accessory powered by the vehicle, structure connecting the two comprising:

- (a) a spur path upon which the vehicle rides;
- (b) a permanent vehicle stop disposed along the spur for stopping movement of the vehicle;
- (c) a mechanical power takeoff means located with respect to the spur and stop such that said powered wheel of the vehicle is in engagement with the power takeoff means while the vehicle is stopped;

(d) a mechanical drive connecting the power takeoff means and the accessory to energize the accessory;

(e) and manually operable remote means for reversing the direction of rotation of said powered wheel of the vehicle, to cause the vehicle to leave the stop whereby the powered wheel of the vehicle is removed from engagement with the power takeoff means and said accessory is de-energized.

4,316,347

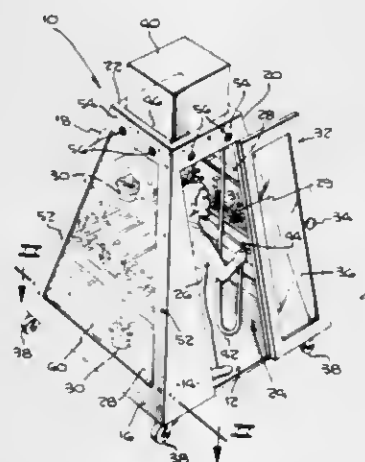
PORTABLE SOLAR GARDEN

Alvin H. Smith, 11901 Lakewood Blvd., Apt. #12, Downey, Calif. 90241

Filed Jun. 20, 1980, Ser. No. 161,287
Int. Cl.³ A01G 9/00

U.S. Cl. 47—17

7 Claims



1. A portable indoor-outdoor terrarium comprising: a bottom portion, sunlight passing walls and a top portion defining a garden zone; human passageway means for passage of persons into and out of said garden zone; self contained watering means for providing water under pressure to said garden zone, said watering means includes a water container releasably mounted on said top portion, and a hose connected to said water container for transferring water to a water delivery nozzle for application to spaced locations within said garden zone; removable hanging means extending outward from said top for hanging hangable articles; and movement means attached to said bottom portion for reducing friction during horizontal movement of said terrarium.

4,316,348

DOOR EDGE GUARD

Robert Adell, Novi, Mich., assignor to U.S. Product Development Co., Novi, Mich.

Filed Mar. 21, 1980, Ser. No. 132,525

The portion of the term of this patent subsequent to Apr. 7, 1998, has been disclaimed.

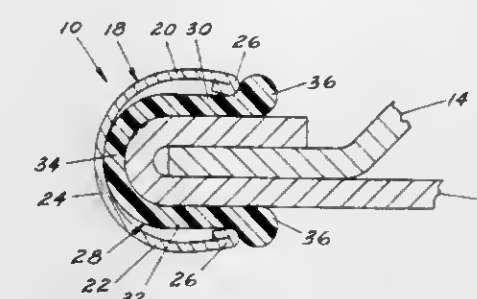
Int. Cl.³ B60J 5/00

U.S. Cl. 49—462

3 Claims

1. In a vehicle body having a painted sheet metal closure, such as a door, on a marginal edge of which is disposed an ornamental and protective metallic edge guard in the form of a strip of generally U-shaped cross section having inner and outer legs disposed on opposite sides of said marginal edge, the improvement which comprises a non-metallic strip of generally U-shaped cross section having inner and outer legs disposed on opposite sides of said marginal edge and which forms an insulating liner between said marginal edge and said metallic strip and which is disposed over said marginal edge by itself before the metallic strip is applied to said marginal edge, said non-metallic strip comprising at the free edge of at least one of its legs a bead which upon application of said metallic strip to

said marginal edge over said non-metallic strip, is abutted by the free edge of the corresponding leg of said metallic strip in and to cause said vertical flight to travel downwardly from said first roller to said second roller.



4,316,350

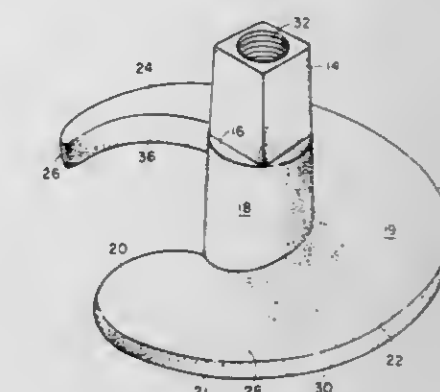
WING SCREW EARTH ANCHOR

Gary Q. Watson, 311 River Rd., Del Rio, Tex. 78840
Filed Nov. 26, 1979, Ser. No. 97,424

Int. Cl.³ E02D 5/80

U.S. Cl. 52—157

5 Claims



a direction which in cross section is generally in the direction of application of said metallic strip to said marginal edge.

4,316,349

PORTABLE ABRASIVE BELT FINISHING MACHINE

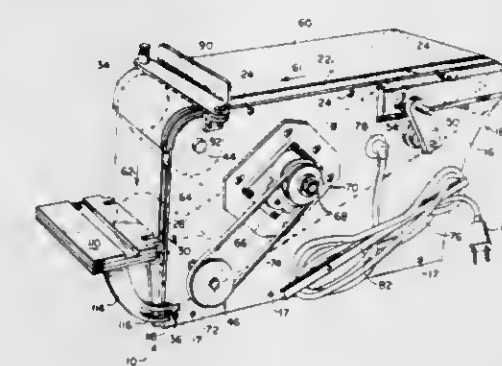
Harold E. Nelson, 2126 Kentucky Ave., Fort Wayne, Ind. 46805

Continuation of Ser. No. 8,430, Feb. 1, 1979, abandoned. This application Aug. 8, 1980, Ser. No. 176,493

Int. Cl.³ B24B 21/00

U.S. Cl. 51—135 R

12 Claims



1. A compact portable abrasive belt finishing machine comprising a base, a framework fixed to said base and including a first wall panel fixed to and extending upwardly from one side of said base, a second wall panel having a generally right-angle shape, a first generally rectangular backup platen having one side edge fastened to an upper margin of said first wall panel and an opposite side edge fastened to an upper margin of said second wall panel and a second generally rectangular backup platen having one side edge fastened to a side margin of said first wall panel and an opposite edge fastened to a side margin of said second wall panel thereby to form a generally triangular-prism-shaped envelope with a right angle at one upper corner and a hypotenuse extending angularly downwardly from the other upper corner to a lower corner, a first shaft journaled to and between said side wall panels at said right angle corner and mounting a first roller thereon, a second shaft journaled to and between said wall panels at said lower corner and mounting a second roller thereon and a third shaft journaled to and between said wall panels at said other upper corner and mounting a third roller thereon, said rollers being rotatable, said third shaft being releasably fixed in place on said wall panels to facilitate insertion or removal of a continuous abrasive belt onto or off of said generally triangular-prism-shaped envelope over said second wall panel, the path of travel of the belt between said third and first rollers defining a horizontal, supported, active flight, supported by said first backup platen, and the path of travel of the belt between the first and second rollers defining a vertical, supported, active flight, supported by said second backup platen, said horizontal flight being longer than said vertical flight, and a motor mounted to and between said wall panels within said generally triangular-prism-shaped envelope and drivingly coupled to one of said first or second rollers in a manner to cause said horizontal active flight to travel from said third roller to said first roller

4,316,351

THERMALLY INSULATED BUILDING CONSTRUCTION

PANEL AND A WALL FORMED FROM SUCH PANELS

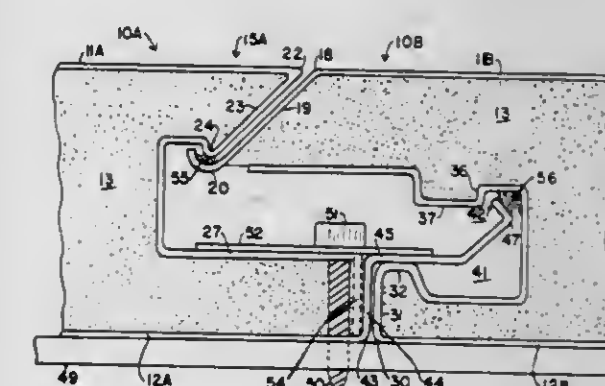
Raymond M. L. Ting, 318 Holiday Dr., Pittsburgh, Pa. 15237

Filed May 27, 1980, Ser. No. 153,259

Int. Cl.³ E04C 1/10, 2/20; E04B 1/41, 2/72

U.S. Cl. 52—309.9

7 Claims



1. In a building panel wall assembly formed from individual building panels, each panel having an outer metal facing sheet, an inner metal facing sheet and a thermal insulation core adhesively connecting said metal sheets, wherein said outer facing sheet and said inner facing sheet have lateral profiled joint-forming surfaces for connecting a pair of said panels in side-by-side relation to a building frame, the improvement comprising:

said facing sheets having lateral corners, parallel sloping sidewalls extended one from each of said lateral corners toward the said liner sheet;

a lengthwise gutter open toward said facing sheet along a first side edge at the end of a first of said sloping sidewalls;

a lengthwise shoulder confronting the said liner sheet along a second side edge at the end of the second of said sloping sidewalls;

said panels being assembled with said gutter of one panel receiving said first shoulder of the adjoining panel and with the sloping sidewall of one panel abutting the sloping sidewall of the other panel.

4,316,352

WINDOW FRAME AND METHOD OF ASSEMBLY THEREOF

William S. Harrington, 1711 Jacquelyn #32, Houston, Tex. 77055, and Richard T. Farley, 9623 Grant Rd. #4, Houston, Tex. 77070

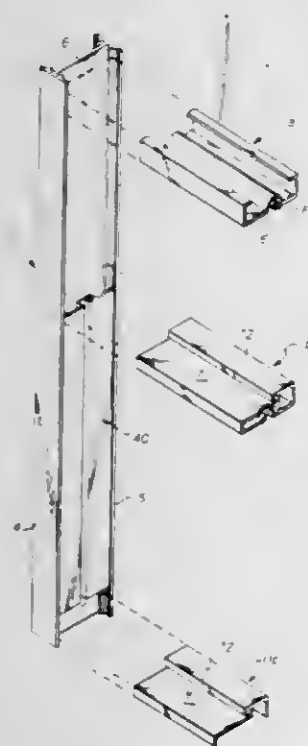
Continuation of Ser. No. 954,857, Oct. 26, 1978, abandoned.

This application Feb. 25, 1980, Ser. No. 124,355

Int. Cl.³ E04C 2/38

U.S. Cl. 52—656

1 Claim



1. A window frame assembly including:
 - a plurality of spaced vertical members of I-beam construction, each such vertical member having a web centrally thereof and flanges perpendicular to and on opposite sides of said web;
 - each of said flanges includes, near both their lateral edges, (1) means for receiving axially extended spacers, said spacer receiving means comprising axially extended notches, (2) lateral ridges for abuttingly receiving the ends of horizontal members, and (3) pockets, intermediate said lateral ridges and said web, for receiving anchoring members;
 - a plurality of spaced horizontal members, each having its ends positioned in adjacent vertical members adjacent said vertical members' flange ridges;
 - a plurality of vertical extending spacers each having its lateral edges positioned within said spacer receiving means of adjacent ones of said flanges of said vertical members, each of said spacers having, centrally thereof, a vertically extending pane edge receiving housing positioned adjacent the web of a vertical member, the lower and upper edges of each of said spacers being positioned adjacent to a horizontal member, and each such edge either supporting or being supported by, one of said horizontal members; and
 - upper and lower anchoring members partially inserted

within said pockets for fixing said vertical members to a supporting structure.

4,316,353

BAG SUPPORT AND DISPENSING APPARATUS

Heikki S. Suominen, 33730 Tampere 73, Finland

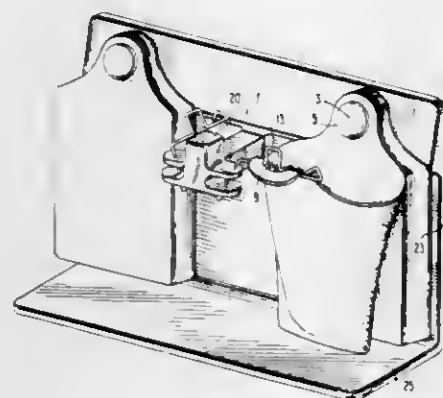
Filed Aug. 15, 1979, Ser. No. 66,723

Claims priority, application Finland, Feb. 16, 1979, 790513

Int. Cl.³ B65B 43/26, 67/04

U.S. Cl. 53—384

9 Claims



1. Bag support apparatus for supporting at least one stack of bags, maintaining a forwardmost bag in said at least one stack in a loading position and releasing the forwardmost bag after it is loaded, comprising:
 - stack support means for engaging aligned apertures in the front and rear walls of the bags in said at least one stack to support the stack in an upright position, said stack support means having means for engaging a rear aperture in the rear wall of said forwardmost bag when the forwardmost bag is in said loading position;
 - hanger means for engaging a front aperture in the front wall of said forwardmost bag when the bag is in said loading position; and
 - means for pivotally supporting said hanger means for upward and forward movement to disengage said hanger means from said front aperture in said forwardmost bag.

4,316,354

APPARATUS FOR GROUPING AND INSERTING OBJECTS INTO CONTAINERS

Horst Loewentbal, Tiengen, Fed. Rep. of Germany, assignor to SIG-Schweizerische Industrie-Gesellschaft, Neuhausen am Rheinfalt, Switzerland

Filed Mar. 12, 1979, Ser. No. 19,604

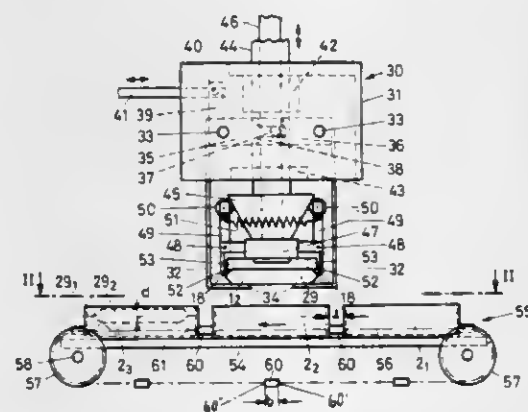
Claims priority, application Switzerland, Mar. 15, 1978, 2831/78

The portion of the term of this patent subsequent to Mar. 3, 1998, has been disclaimed.

Int. Cl.³ B65B 35/16, 35/44

U.S. Cl. 53—538

6 Claims



1. In apparatus for forming flat objects into groups and

inserting successive groups into containers, which includes a grouping station, an individual item conveyor for guiding the objects individually to the grouping station, a group conveyor for conveying the objects in groups away from the grouping station, a container conveyor for conveying successive containers relative to the group conveyor, and means for inserting groups of objects conveyed by the group conveyor into successive containers, the improvement wherein: said item conveyor and said group conveyor are arranged to convey the objects substantially horizontally and at least approximately in the same direction into said means for inserting; said means for inserting comprise vertically movable holding means movable between an upper position in which they hold a group of objects and a lowered position at which they can release such group of objects within an open container which has been brought into position by said container conveyor; said item conveyor comprises at least one endless chain, a plurality of pushers attached to said chain for pushing the objects and support means for supporting the objects as they are being conveyed; said grouping station is formed by the end region of said support means; said group conveyor comprises at least one endless chain and a plurality of pushers attached to said chain and each operative for bringing one respective group of objects to said holding means when said holding means are in their upper position; each object is finned package having two fins each extending from a respective opposite end of the package; said apparatus further comprises means for causing the fins of each package to be in an upwardly folded position in the region of said inserting means; and said holding means comprise two sets of clamping jaws operable between a gripping state in which they grip a group of packages with one set of jaws clamping in one upwardly folded fin of each package of the group and the other set of jaws clamping in the other upwardly folded fin of each package of the group, and a releasing state in which said sets of jaws release such group, with said clamping jaws being operated to move only downwardly when in their gripping state, to move only upwardly when in their releasing state, and to be movable to a selected one of several lowered positions having respectively different levels.

4,316,355

COMBINED FLYWHEEL AND CLUTCH MECHANISM FOR LAWN MOWER BLADE

Stephen J. Hoff, Richmond, Ind., assignor to Hoffco, Inc., Richmond, Ind.

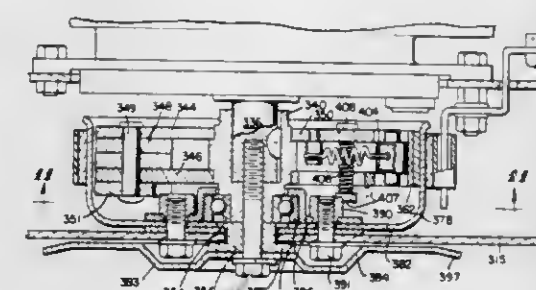
Continuation-in-part of Ser. No. 65,951, Aug. 13, 1979, Pat. No. 4,277,936. This application Jan. 24, 1980, Ser. No. 114,956

The portion of the term of this patent subsequent to Jul. 14, 1998, has been disclaimed.

Int. Cl.³ A01D 69/08

U.S. Cl. 56—11.3

24 Claims



1. A lawn mower, comprising an engine including a vertical power shaft with a top rotor thereon having a limited polar moment of inertia and having a depending output end for the reception of a rotary blade having a relatively large polar moment of inertia, wherein the improvement comprises:
 - a combined flywheel and clutch driver rotor fixedly mounted on said shaft end, said rotor being of large mass and diameter so as to have a large polar moment of inertia, and clutch shoes mounted thereon having clutch face means substantially at the outer periphery of said rotor for

engagement with a long torque arm against a surrounding driven clutch element.

a blade carrier rotatable on the axis of the shaft output end and including a clutch-driven element having a drum portion surrounding the flywheel-clutch rotor and having clutch face means for engagement by the clutch face means of said clutch shoes mounted on said rotor for driving a blade on the carrier, and

means for retracting said clutch shoes from said driven element so as to disengage the shaft from the blade carrier.

4,316,356

LAWN MOWER FOR CUTTING ON AN INCLINED SURFACE

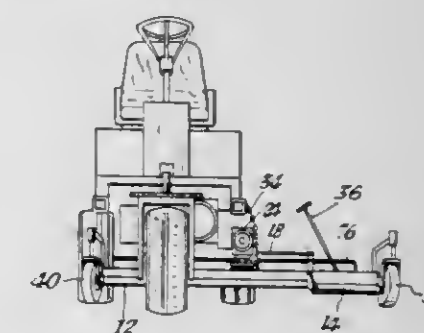
Eugene J. Planeta, 5059 NE. 13th Ave., Ft. Lauderdale, Fla. 33334

Filed Jul. 28, 1980, Ser. No. 173,184

Int. Cl.³ A01D 35/28

U.S. Cl. 56—16.2

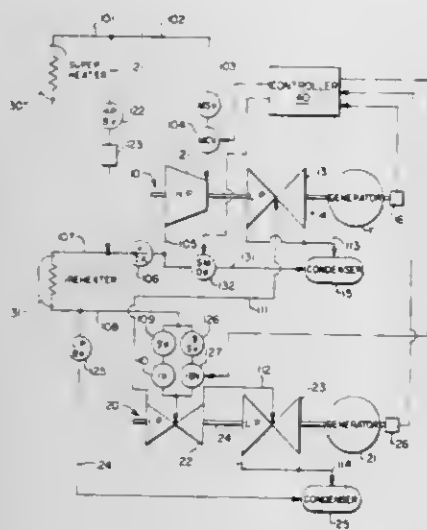
2 Claims



1. A rotary blade type cutting system for cutting on an inclined surface, flat surface and along the border of a ground depression, pivotally attached to a motorized ride-on tractor comprising:

- a blade housing;
- at least one blade, rotatably mounted to said housing;
- a driving means for driving each said blade operably connected to said tractor and said housing;
- said blade housing having a first end and a second end, said first end extending laterally beyond the wheel base of said tractor, the front of said housing having at least one wheel connected thereto for supporting said blade housing while on an inclined or flat surface, the front of said first end of said blade housing including an elongated, guide roller rotatably mounted thereto, such that a portion of the lower periphery of said guide roller extends below the edge of said blade housing regulating the height of the cut of said blade when cutting along the border of a ground depression;
- at least a first and second flexible support member connecting the approximate mid section of said blade housing to said tractor;
- at least a third flexible support member connecting said second end to said tractor;
- said first, second and third flexible support members positioned to allow manual pivoting of said blade housing about a longitudinal axis relative to the tractor;
- a manual control arm to allow manual pivoting of said blade housing by the operator of said tractor, one end of said arm connected to said first end.

steam supplying means for supplying driving steam to said high pressure turbine.
 primary steam line means communicating exhaust steam from said high pressure turbine to drive said intermediate pressure turbine during steady state operation of said first and second turbine-generator sections.
 bypass steam line means for communicating steam from said steam supplying means to said intermediate pressure turbine in bypassing relationship to said high pressure turbine.



control means for controlling the flow of steam in said primary and bypass steam line means during starting operation of said turbine-generator sections, said control means including means to maintain the relative speeds of the first and second generator driving shafts in a predetermined synchronous ratio, and
 controllable vent means for venting a portion of the steam flow in the primary steam line means during starting operations.

4,316,363

TEMPERATURE CONTROL SYSTEM

Ian D. McKirdy, 6 Kirkriggs Ave., Rutherglen, Glasgow, Scotland

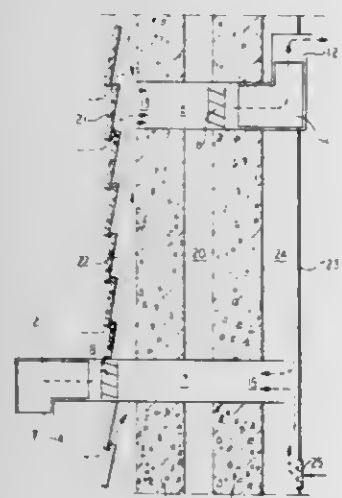
Filed May 12, 1980, Ser. No. 149,035

Claims priority, application United Kingdom, May 12, 1979, 16574/79

Int. Cl.³ F25D 17/06

U.S. Cl. 62—89

8 Claims



1. A method of ventilating and controlling the temperature of a space bounded by walling, the walling having an inner face and an outer face, comprising providing refrigeration apparatus having an evaporator section and a condenser section, guiding air from outside the space into heat exchange relationship with said outer face of the walling and thence past one of said sections and into the space, and simultaneously

guiding air from inside the space into heat exchange relationship with said inner face of the walling and thence past the other of said sections and out of the space.

4,316,364

VAPOR COMPRESSION REFRIGERANT SYSTEM MONITOR

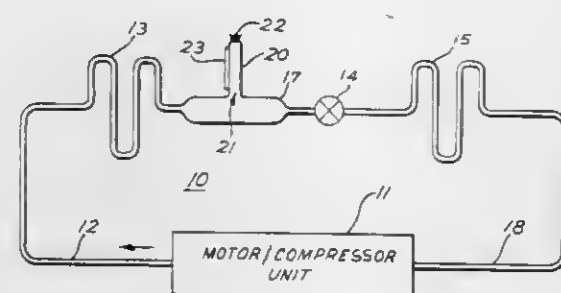
Hans O. Spauschus, 4300 Greenhaven La., Prospect, Ky. 40059

Filed May 7, 1980, Ser. No. 147,691

Int. Cl.³ G01K 13/00; F25B 43/04

U.S. Cl. 62—129

1 Claim



1. Condition monitoring apparatus for a vapor compression refrigerant system having a refrigerant flow circuit including a compressor, a condenser, fluid expansion means, and an evaporator, said monitoring apparatus comprising:

gas accumulating means including an elongated chamber positioned in the high pressure side of the refrigerant circuit at a high point to which non-condensable contaminant gases in the refrigerant stream migrate during operation of the system;

and means including an elongated temperature sensitive indicator in thermal communication with said gas accumulating means along a substantial portion of the length of said chamber whereby a depressed temperature indication relative to temperature of the condensed refrigerant stream at any of a plurality of points along the length of said indicator represents the degree of accumulation of non-condensable contaminant gases in the refrigerant stream thereby providing an in-situ indication of the onset of a system malfunction.

4,316,365

DEFROST CONTROL SYSTEM FOR REFRIGERATION SYSTEM

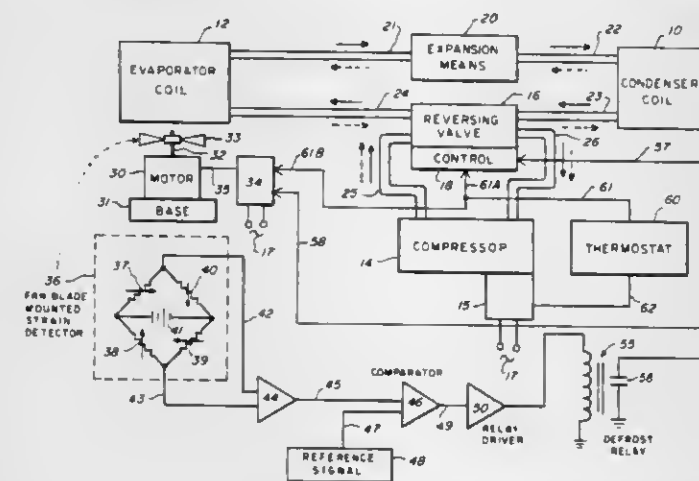
Dale A. Mueller, St. Paul; Robert T. Ruminsky, Bloomington; Stephen L. Serber, New Hope, and Rodger C. Wolfgram, Burnsville, all of Minn., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Oct. 20, 1980, Ser. No. 198,508

Int. Cl.³ F25D 21/06

U.S. Cl. 62—151

1 Claim



1. An evaporator coil defrost control system (hereinafter "defrost control system") for a refrigeration system (hereinafter

ter "system") wherein said refrigeration system comprises refrigerant compression means, a condenser coil, an evaporator coil, an electric motor operated fan positioned adjacent to said evaporator coil and adapted when energized, to blow air through said evaporator coil, and refrigerant conduit means connecting said coils, said defrost control system comprising:

strain sensing means connected to said fan and adapted to measure force to said fan and to produce a signal indicative of said measured force;

controller means connected to said strain sensing means to receive the signal therefrom and having operative connections to said system, said controller being adapted to place said system in a defrost mode of operation upon said signal of said strain sensing means having a characteristic indicative of a significant frost build-up on said evaporator coil, said strain sensing means comprising a least four strain sensitive resistance elements mounted on separate fan blades of said fan and configured in a bridge network, the output of which is applied to said controller means, a first pair of said strain sensitive resistive elements being changed in a first sense upon an increase in reactive force and a second pair of said strain sensitive resistive elements being changed in an opposite sense upon an increase in reactive force.

4,316,366

METHOD AND APPARATUS FOR INTEGRATING COMPONENTS OF A REFRIGERATION SYSTEM

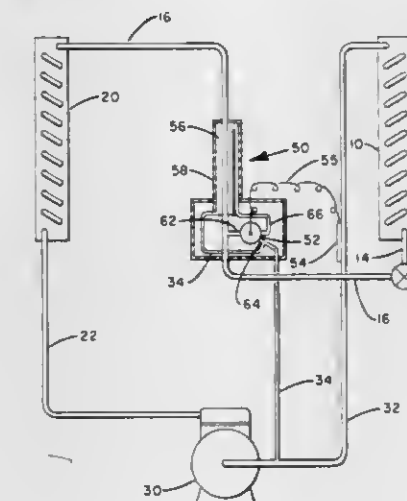
John D. Manning, Liverpool, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Filed Apr. 21, 1980, Ser. No. 142,517

Int. Cl.³ F25B 5/00

U.S. Cl. 62—200

19 Claims



1. An air conditioning system having a vapor compression refrigeration circuit, including a first heat exchanger, a second heat exchanger and a compressor which comprises:

means for conducting refrigerant from the first heat exchanger to the second heat exchanger including an intermediate heat exchanger portion

means for diverting a portion of the flow of refrigerant flowing from the first exchanger to the second heat exchanger to the intermediate heat exchanger portion wherein the diverted refrigerant is flashed absorbing heat energy from the refrigerant flowing through the means for conducting; and

suction line means for routing refrigerant from the second heat exchanger and the intermediate heat exchanger to the compressor, said suction line drawing refrigerant from the second heat exchanger and the intermediate heat exchanger at the same suction pressure.

4,316,367

HEAT RECOVERY AND HOT WATER CIRCULATION SYSTEM

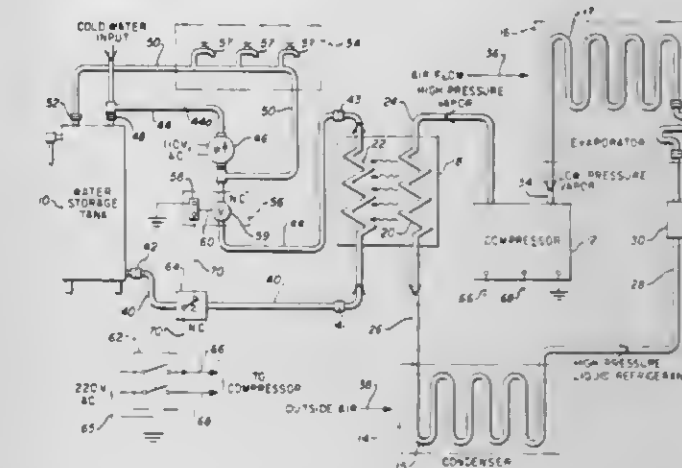
Ronald J. Yaeger, 5006 Millcreek, Dallas, Tex. 75234, and Gerald W. Keller, 6853 Carolinestreet, Dallas, Tex. 75214

Filed Oct. 6, 1978, Ser. No. 949,083

Int. Cl.³ F25B 27/02; 13/00

U.S. Cl. 62—238.6

2 Claims



1. In a heat recovery system for recovering waste heat from refrigeration means to heat water supplied to a hot water reservoir, said system including heat exchange means having a refrigerant passage and a water passage mutually coupled in heat exchange relation, said refrigeration means including a compressor having an outlet coupled to said refrigerant passage, the improvement comprising:

(a) first conduit means in fluid communication with said water passage and coupled between an inlet to said hot water reservoir and an outlet from said hot water reservoir, thereby to define a first flow path for water to flow from said reservoir, through said heat exchange means, and thereafter into said reservoir;

(b) second conduit means coupled between another outlet from said hot water reservoir and a portion of said first conduit, thereby to define a second flow path for water to flow from said reservoir, through a portion of said first flow path, and thereafter into said reservoir through said inlet;

(c) a plurality of faucets coupled to said second conduit means;

(d) continuously running pump means disposed within the common portion of said first and second flow paths; and
 (e) valve means disposed within said first conduit means actuated to a first position for closing off the flow from said water passage when the water temperature in said water passage is above a predetermined level and actuated to a second position for enabling the flow from said water passage when the water temperature in said water passage is below a predetermined level.

4,316,368

MULTI-STAGE COUNTER-CURRENT CONCENTRATING METHOD

Willem Van Pelt, and Jacques P. Roodenrijs, both of 's-Hertogenbosch, Netherlands, assignors to Grasso's Koninklijke Machinefabrieken, N.V., 's-Hertogenbosch, Netherlands

Filed Oct. 30, 1980, Ser. No. 202,429

Int. Cl.³ B01D 9/04

U.S. Cl. 62—542

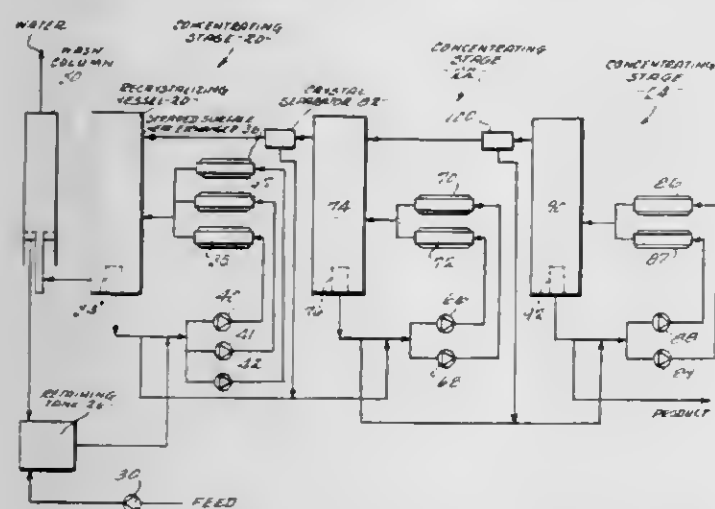
32 Claims

1. A multiple-stage, counter-current system for concentrating an aqueous feed liquid to produce a concentrated product comprising:

a first concentrating stage for receiving said feed liquid and producing an intermediate concentrated liquid including first seed crystal forming means for receiving feed liquid and forming a slurry of seed ice crystals and feed liquid, first recrystallizing means for receiving said slurry from said first seed crystal forming means and producing a first

slurry containing larger crystals, first means for separating a portion of the liquid from crystals from said first recrystallizing means and supplying at least part of said portion to said first seed crystal forming means, and first means for removing said slurry from said first recrystallizing means and separating the larger crystals removed from said recrystallizing means;

at least a second concentrating stage for receiving said intermediate liquid and producing said concentrated product including second seed crystal forming means for receiving said intermediate liquid and forming a slurry of seed ice crystals and intermediate liquid, second recrystallizing means for receiving said slurry from said second seed



crystal forming means and producing a second slurry containing larger crystals, second means for separating a portion of the liquid from crystals from said second recrystallizing means and supplying at least part of said portion to said second seed crystal forming means, and means for removing said second slurry from said second recrystallizing means; and means for supplying at least said larger crystals removed from said second recrystallizing means to said first recrystallizing means so that at least substantially all of the seed crystals in said first recrystallizing means melt and reform on said larger crystals from said second recrystallizing means.

4,316,369

CIRCULAR WARP KNITTING MACHINE

Igor V. Ragoza, prospekt Chernyakhovskogo, 26, kopus 3, kv. 56, Vitebsk; Alexandr S. Dalidovich, Leningradskoe shosse, 122, kv. 206, Moscow; Petr M. Begunov, Moskovsky prospekt, 7, kv. 114; Petr J. Vasiljuk, ulitsa Shirokaya, 30, kv. 5, both of Vitebsk; Robert T. Tonikian, ulitsa Chkalova, 11, korpus 12, kv. 79; Dina N. Tonikian, ulitsa Chkalova, 11, korpus 10, kv. 92, both of Vitebsk, and Alexandr V. Makarenko, ulitsa Chkalova, 11, korpus 10, kv. 92, Vitebsk, all of U.S.S.R.

Filed Nov. 9, 1979, Ser. No. 92,414

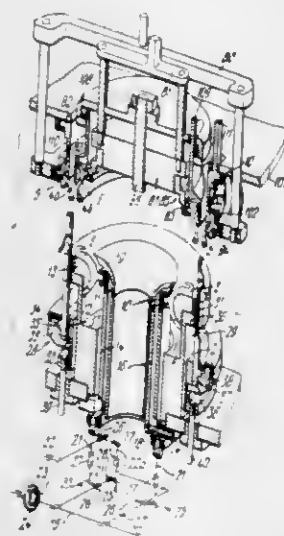
Int. Cl.³ D04B 25/02

U.S. Cl. 66—81

5 Claims

1. A circular warp knitting machine comprising: a bed; a needle cylinder fixedly mounted on said bed; knitting needles which are caused to reciprocate vertically arranged around said needle cylinder; a mechanism for vertically moving said knitting needles; a holder movable along said needle cylinder connected to said mechanism for vertically moving the knitting needles; said holder being arranged outside said needle cylinder and carrying said knitting needles mounted therein; a main shaft of the machine; radially movable sinkers having butts; an annular cam, the butts of said sinkers being received in said annular cam; a sinker cup installed inside said needle cylinder and having grooves accommodating said sinkers; a sleeve movable along said needle cylinder, said sleeve being arranged inside the needle cylinder and carrying in the upper portion thereof said annular cam receiving the butts of the

sinkers, a tube installed on said bed inside the needle cylinder, the tube forming with the needle cylinder a cylindrical guide in which said sleeve is installed and said tube having a sinker funnel secured in an upper portion thereof, the lower portion of the sleeve being connected to said main shaft of the machine to impart radial motion to the sinkers, said connection of the sleeve to the main shaft of the machine including a frame mounted on said main shaft for rotation relative thereto, links articulated to said sleeve and to said frame, and a double-arm lever having one arm articulated by means of a rod to said frame, the other arm of the lever permanently engaging a member mounted on said shaft for imparting motion to said sinkers and wherein articulation joints connect the frame to said links and said rod to said double-arm lever, said articulation joints being adjustable with said links and said rod being of



4,316,370

YARN CONDITIONING PLANT

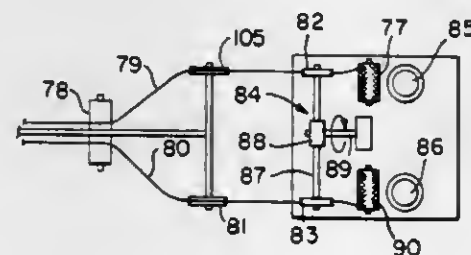
Erwin Steiner, Clover, S.C., assignor to American Sussen Corp., Charlotte, N.C.

Filed Apr. 29, 1980, Ser. No. 145,010

Int. Cl.³ B65H 59/38

U.S. Cl. 68—5 D

9 Claims



1. Yarn conditioning plant comprising:

- yarn supply means for holding a supply of yarn;
- yarn conditioning chamber means for processing yarn at high temperature;
- at least one yarn transport means for conveying yarn

received from said yarn supply means through said yarn conditioning chamber means;

- first transfer means associated with each of said transport means for removing a plurality of yarn threads from said yarn supply means and transferring the yarn threads to said associated yarn transport means;
- second transfer means for removing said plurality of yarn threads from said yarn transport means;
- spooler means for receiving said plurality of yarn threads from said second transfer means and for separately spooling each yarn thread; and
- yarn tension balancing means for compensating for differences in tension between the tension of a first of said yarn threads and a second of said yarn threads, said yarn tension balancing means being positioned between said second transfer means and said spooler means, whereby a plurality of spools of uniform firmness are obtained.

4,316,372

PROTECTIVE DEVICE FOR A DRAWING PRESS

Martin Veil, Göppingen-Faurndau, Fed. Rep. of Germany, assignor to L. Schuler GmbH, Göppingen-Faurndau, Fed. Rep. of Germany

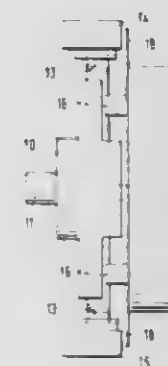
Filed Apr. 23, 1979, Ser. No. 32,258

Claims priority, application Fed. Rep. of Germany, Apr. 22, 1978, 2817787

Int. Cl.³ B21B 33/00

U.S. Cl. 72—4

2 Claims



1. A protective arrangement for a drawing press comprising: detector means for detecting a faultily drawn workpiece; and shut down means operatively connected with the detector means and the drawing press; wherein the detector means are disposed downstream of a drawing station of the drawing press and outside of the path of travel of a correctly drawn workpiece; and wherein the detector means includes a pair of contactless switches adjustably mounted on a carrier plate means, said switches being disposed perpendicularly to the conveying direction in diametrical opposition to each other, and wherein, during conveyance of a defective workpiece, at least one of the adjustable contactless switches is tripped, whereby, in the event a faultily drawn workpiece is detected by the detector means, a shutdown of the drawing press is effected.

4,316,373

METHOD AND APPARATUS FOR THE EXTRUSION OF TUBES OF EASILY OXIDIZED MATERIALS

Franz-Josef Zilges, Max Reger Strasse 64, 4050 Monchengladbach, and Heinrich Kutz, Nordkanal Allee 16, 4040 Neuss, both of Fed. Rep. of Germany

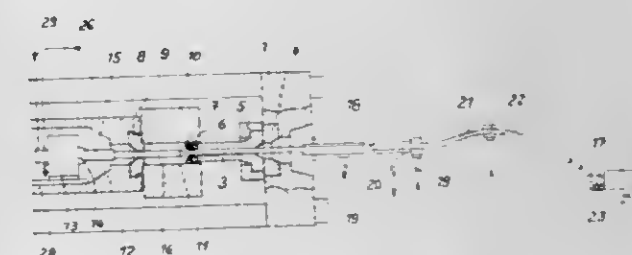
Division of Ser. No. 937,773, Aug. 29, 1978, Pat. No. 4,192,162. This application Feb. 12, 1980, Ser. No. 120,755

Claims priority, application Fed. Rep. of Germany, Sep. 3, 1977, 2739800

Int. Cl.³ B21B 45/02

U.S. Cl. 72—45

5 Claims



1. An extrusion press for extruding tubes of readily oxidizable material from pierced billets, comprising a counter platen, a cylinder cross-head, tie rods connecting the counter platen and cylinder cross-head, a reciprocating cross-head, a billet container, an extrusion die holder, an extrusion die supported by said die holder, means to move said moving cross-head, billet and billet container relative to said die holder, a mandrel

4,316,371

HIGH SAFETY BOLT CONTROL DEVICES

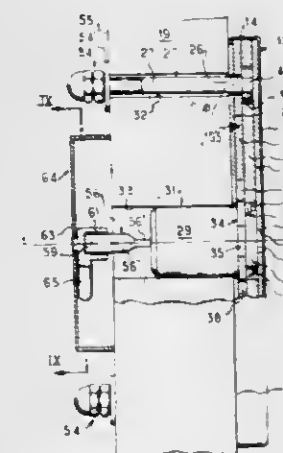
Claude Del Nero, Le Chesnay, France, assignor to Fichet-Bauche, France

Filed Jan. 18, 1980, Ser. No. 113,182

Int. Cl.³ E05B 63/00

U.S. Cl. 70—417

27 Claims



1. In a high safety bolt mounted on a door-leaf having an inner face and an outer face, for the locking and unlocking of said door-leaf and comprising:

- a latch bolt movably housed in translation in a casing fixed on the inner face of the door-leaf and having a locking and an unlocking position;
- a safety cylinder housed in a hole extending through the door-leaf and comprising a cylindrical body in which is housed, rotatable by a key, a barrel with an outer face having a key opening accessible from the outer face of the door-leaf;
- a transmission member for the movement of the barrel to the latch bolt for displacing the latter to its locking or unlocking position when the barrel is rotated, the improvement comprising:
- a first plate on the side of the outer face of the door-leaf, fixed to the latter by fixation means, immobilizing said cylindrical body in rotation and comprising an outer face,
- a second plate fixed to the outer face of the first plate for preventing the access to the immobilization means of the cylindrical body, said second plate extending over the outer face of the barrel, and formed with a hole placed in register with the key opening, and
- means for covering the fixation means.

insertable into said pierced billet, said die, die holder, billet container, moving cross-head and mandrel being cooperatively associated so that when said billet container is moved toward said die holder it moves said billet and billet container towards said die to extrude said billet into a tube, and means cooperatively associated with said mandrel for passing a protective gas into the interior of the extruded tube.

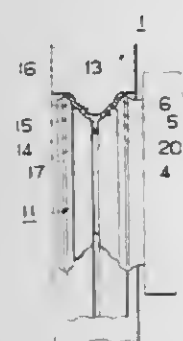
4,316,374

METHOD OF MANUFACTURING SEAMLESS WHEEL RIMS

Nobuyoshi Nagatsuma, Kawagoe, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Continuation-in-part of Ser. No. 955,992, Oct. 30, 1978, abandoned. This application Sep. 26, 1980, Ser. No. 191,249
Claims priority, application Japan, Oct. 31, 1977, 52/130523; Oct. 31, 1977, 52/130524; Oct. 31, 1977, 52/130525

Int. Cl.³ B21H 1/10

U.S. Cl. 72-91



1. A method for manufacturing seamless wheel rims, including the steps of:

interposing a ring-shaped initial material between a rotatable die having an inner surface corresponding to an outside diameter dimension and an outer peripheral shape of a rim to be formed and a freely rotatable pressing roll provided within said die and having an outer surface corresponding to an inner peripheral shape of said rim;

said ring-shaped material having a diameter larger than the outside diameter of said roll and smaller than the inside diameter of said die;

driving said die to rotate;

moving said roll toward said die;

roll-shaping said material interposed between said die and said pressing roll by the pressing action of said roll while said material is rotated by said die and enlarged in diameter;

further roll-shaping said enlarged material while the enlarging deformation of said material is regulated by said die so as to cause substantial metal flow of said enlarged material between said die and said roll;

forming both side ends of the shaped material while excess material portions are formed to protrude sidewardly from reduced clearances defined for throttling the metal flow between said die and said roll on both sides in the width direction; and

forming a projection on the inner periphery of said enlarged material, the thickness of said projection in the radial direction being substantially thicker than that of said initial material, while the metal flow in the width direction of said enlarged material is restrained by said reduced clearances.

4,316,375 APPARATUS FOR CORRUGATING CAN BODY FLANGES

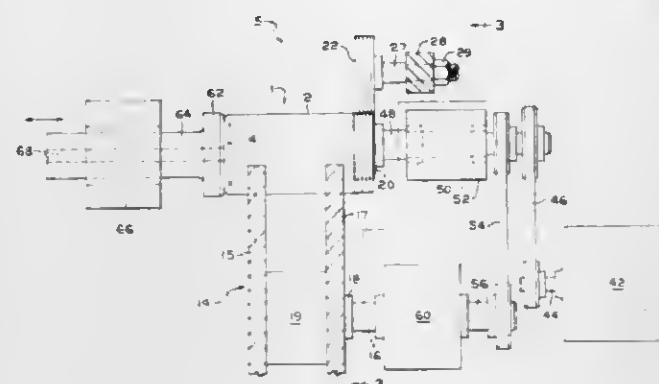
Harry W. Lee, Jr., Richmond, Va., assignor to Reynolds Metals Company, Richmond, Va.

Division of Ser. No. 99,099, Nov. 30, 1979, Pat. No. 4,266,685. This application Oct. 14, 1980, Ser. No. 196,670

Int. Cl.³ B21D 15/06

U.S. Cl. 72-105

1 Claim



4 Claims

1. Apparatus for producing a plurality of corrugations in the flange region of metallic can bodies comprising a starwheel for carrying said can bodies to and from a work station, means for indexing said starwheel, an inner rotatable grooved die at said work station, motor means connected to said inner rotatable grooved die to rotate said inner rotatable grooved die, a free wheeling pivotable outer rotatable grooved die, piston means for positioning said flange region of said can bodies between said inner rotatable grooved die and said outer rotatable grooved die and cam means for selectively operatively associating said outer rotatable grooved die with said flange region of said can bodies and said inner rotatable grooved die to thereby rotate said can bodies and said outer rotatable grooved die and produce said corrugating in said flange region of said can bodies.

4,316,376

METHOD FOR PREVENTING WANDERING OF STRIP UNDER ROLLER LEVELING IN HOT ROLLING LINE

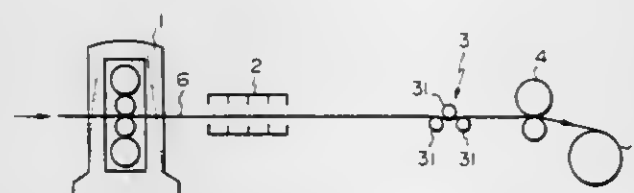
Takeshi Masui, Nishinomiya; Yoshiro Masui, Ashiya; Teruo Hiramatsu, and Tomisabro Yamada, both of Ibaraki, all of Japan, assignors to Sumitomo Metal Industries, Ltd., Osaka, Japan

Filed May 15, 1980, Ser. No. 149,953

Int. Cl.³ B21B 1/26, 41/00

U.S. Cl. 72-161

10 Claims



1. In a method for the formation of strip in a hot rolling line, wherein the strip is passed through mill stands of the hot rolling line and is then coiled on a coiler, the improvement comprising: providing between the last downstream said mill stand and said coiler at least one hot roller leveler unit comprising a plurality of leveler rolls, and passing said strip through said leveler rolls, thereby correcting shape defects in said strip; and preventing lateral wandering of said strip during passage thereof through said hot roller leveler unit by adjusting the angular orientation of at least one of said leveler rolls in a

horizontal plane or in a vertical plane with respect to said strip.

4,316,377

ROLL FORGING MACHINE

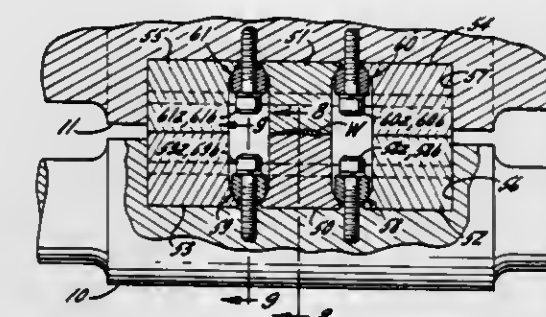
Vernon R. Fendl, Northbrook, and Laszlo Javorik, Oregon, both of Ill., assignors to Grottes Metalforming Systems, Inc., Chicago, Ill.

Filed Nov. 23, 1979, Ser. No. 96,818

Int. Cl.³ B21B 1/42

U.S. Cl. 72-189

11 Claims



1. In a roll forging machine comprising a pair of opposed work rolls carrying cooperating dies for forging a workpiece positioned between the two rolls, drive means for rotating said work rolls, a supporting frame for said work rolls, a pair of support rails fixedly mounted on each work roll on opposite sides of the die thereon and aligned with each other and with said die in the longitudinal direction along the surface of the work roll, said support rails on the two work rolls being aligned with each other so that the two pairs of rails ride on each other when the work rolls are urged toward each other and turned to forge a workpiece therebetween,

means for urging said work rolls toward each other with a force substantially greater than the force required to forge the workpiece so that the work rolls are prestressed by the pressure of said support rails on each other, said support rails being substantially wider than said dies in the direction of the axes of said work rolls so that said work rolls with said support rails thereon have a spring constant substantially greater than the spring constant of said supporting frame for the work rolls.

4,316,378

EXTRUSION PRESS WITH METHOD AND APPARATUS FOR REMOVING UNUSED METAL FROM EXTRUDER PISTON

Aldo Bellasio, Milan, and Giulio Brusa, Monza, both of Italy, assignors to Industrie Pirelli Societa per Azioni, Milan, Italy

Filed Jun. 24, 1980, Ser. No. 162,391

Claims priority, application Italy, Jun. 29, 1979, 23965 A/79 Int. Cl.³ B21C 23/26, 23/30, 35/04

U.S. Cl. 72-268

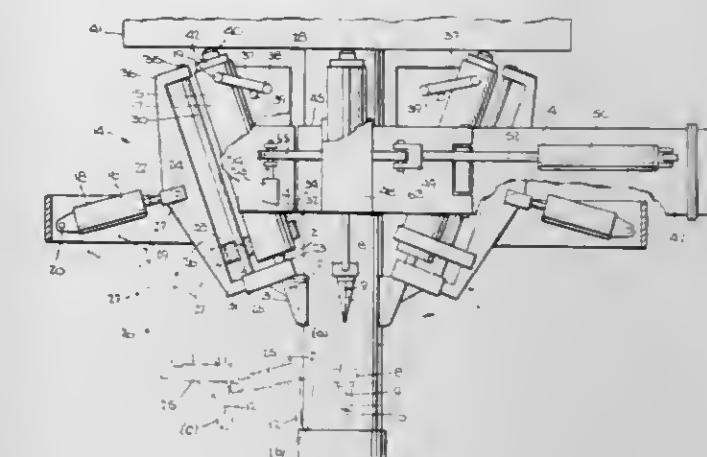
19 Claims

1. In metal extruding apparatus comprising a piston for applying pressure to the metal to be extruded and in which a collar of the metal is formed around the lower end portion of the piston during the operation of the apparatus to extrude the metal, said collar having a portion of its interior wall which is farther from the piston end than the remainder thereof spaced from said piston, a method of removing the collar from the end of the piston which comprises:

cutting at least a portion of said collar along a line interiorly of said collar and in a direction extending from the end of the collar most remote from the piston end, said cutting being performed in the space between the collar and the piston; and

applying divergating forces to the interior of said collar commencing at said end of said collar and then, proceeding toward the other end of the collar and then, directing

such forces radially outwardly of the piston to enlarge the smallest inner size of the collar to a size greater than the



outer size of the piston whereby the collar is removed from the piston.

4,316,379

DEEP DRAWING PRESS WITH BLANKING AND DRAW PAD PRESSURE CONTROL

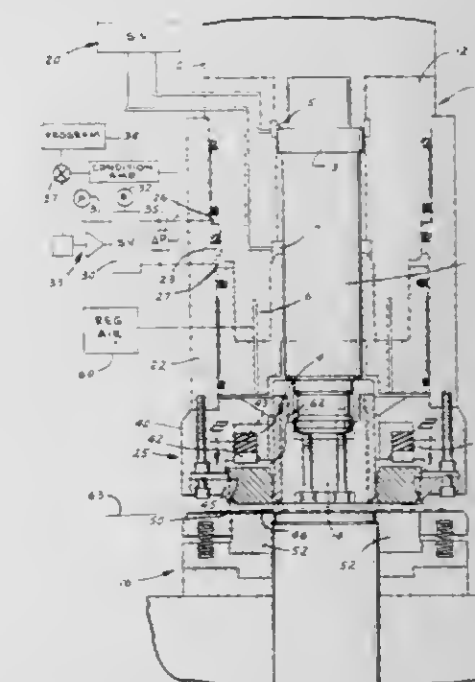
Dennis H. Andersen, Minnetonka, Minn., assignor to MTS Systems Corporation, Eden Prairie, Minn.

Division of Ser. No. 941,387, Sep. 12, 1978, Pat. No. 4,248,545. This application Aug. 21, 1980, Ser. No. 179,971

Int. Cl.³ B21D 22/00

U.S. Cl. 72-351

7 Claims



1. In a deep draw punch assembly having a punch member for deep drawing cans, a tooling set for holding the blank and including a drawing die for operation in conjunction with said punch, said tooling set including blank cutting means, and a cutting ring and draw pad cooperating with said tooling set, the improvement comprising fluid pressure cylinder means for operating said cutting ring and for regulating the pressure of said draw pad acting against said blank during a drawing operation including a tubular cylindrical member surrounding said punch, and including means forming a pair of fluid pressure cylinders relative to a piston portion of said cylindrical member to provide a double acting fluid pressure actuator, said cutting ring being fixedly mounted to said cylindrical member at the lower edge thereof, said cutting ring being moved during actuation of said cylinder means from a position wherein it cooperates with said blank cutting means to cut a blank from a piece of material supported on said tooling set to a position raised from said tooling set, said draw pad comprising an

annular pad member supported relative to said cutting ring for movement by said cutting ring during retraction of said cutting ring away from said tooling set, and means to exert a pressure from said tubular cylinder member on said draw pad member during a drawing operation including means fixedly mounted to the lower end of said cylindrical member and forming an annular chamber of a predetermined size, an elastomeric material confined in and engaging the walls defining said chamber, and means between said draw pad and said elastomeric material to exert compressive pressures on said draw pad through said elastomeric material only upon actuation of said fluid pressure cylinder means.

4,316,380

METHOD FOR DETERMINING THE ALCOHOL CONTENT IN BREATHING AIR

Ulrich Heim, Reinfeld, and Eric Hecker, Stockelsdorf, both of Fed. Rep. of Germany, assignors to Drägerwerk Aktiengesellschaft, Fed. Rep. of Germany

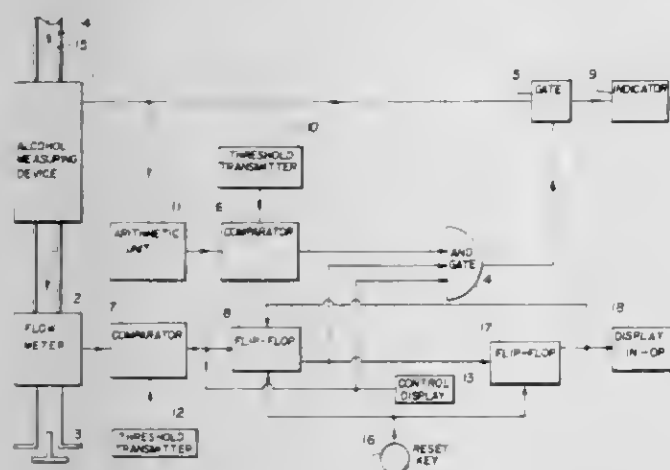
Filed Feb. 15, 1980, Ser. No. 121,899

Claims priority, application Fed. Rep. of Germany, Feb. 22, 1979, 2906864

Int. Cl.³ G01N 21/00

U.S. Cl. 73—23

9 Claims



1. A method of determining the alcohol content of the breath of a test person comprising, measuring the alcohol content of the breath to produce an alcohol content signal, measuring the change per unit time of the alcohol content signal, measuring the flow of the breath of the test person, and indicating the alcohol content using the alcohol content system only when the change in the alcohol content signal per unit time falls below a preselected change value, and the flow is above a preselected flow value, and, once having reached the preselected flow value, the flow of breath has not fallen below the preselected flow value since the flow first reached the preselected flow value.

4,316,381

MODULATED DETECTOR

Terry A. Woodruff, Newark, Del., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jul. 14, 1980, Ser. No. 167,856

Int. Cl.³ G01N 27/18, 27/16

U.S. Cl. 73—27 R

10 Claims

1. Apparatus including a detector for deriving from a continuous flow of sample fluid an output signal corresponding to the value of a given characteristic of the fluid applied to the detector in such manner as to substantially eliminate the effect of low frequency drift in the output signal of the detector and increase the signal-to-noise ratio, comprising

a detector having a fluid input and an electrical output and for producing at said output a signal corresponding to the value of a given characteristic of fluid applied to its fluid input,

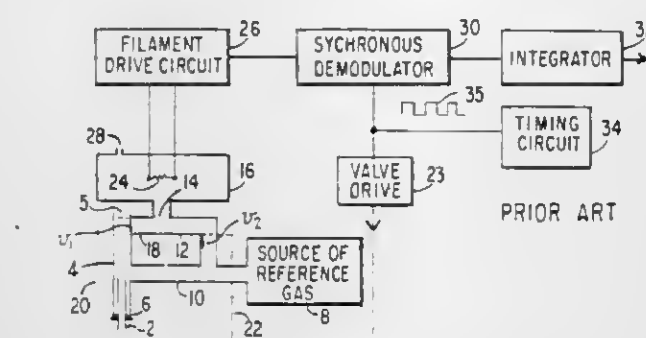
means defining a storage volume,

means for connecting a source of a flow of sample fluid,

when present, to said storage volume during first periods of time,

means for conducting reference fluid from a source, when present, to the fluid input of said detector at an increased rate during said first periods of time,

means for conducting fluid stored in said storage volume to



the fluid input of said detector at an increased rate during second periods of time that are interleaved with the first, and

synchronous demodulating means coupled to the electrical output of said detector for deriving an output signal corresponding to the peak-to-peak amplitude of an electrical signal appearing at the output of said detector.

4,316,382

DETECTOR WITH INTERMITTENT FLOW

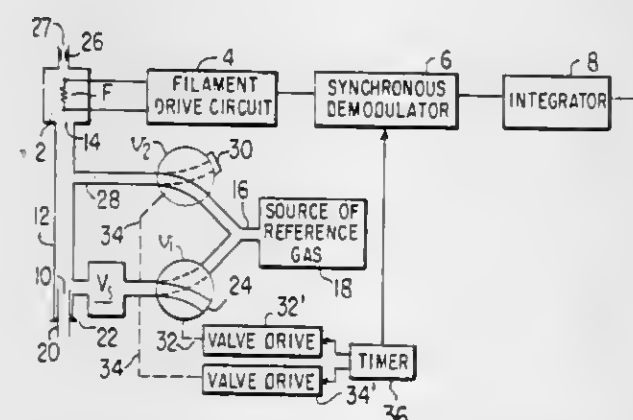
Terry A. Woodruff, Newark, Del., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jul. 21, 1980, Ser. No. 170,365

Int. Cl.³ G01N 27/18

U.S. Cl. 73—27 R

6 Claims



1. A concentration detector system including means for modulating the respective flows of sample and reference fluids through the detector, comprising

a detector having a chamber and means for producing an electrical signal corresponding to the value of a given characteristic of material contained in said chamber,

first fluid control means causing sample fluid, when present, to flow into a fluid entrance of said chamber during spaced first periods of time and to remain in said chamber during second periods of time respectively occurring after said first periods,

second fluid control means causing reference fluid, when present, to flow into said chamber during third periods of time that follow said second periods of time and to remain in said chamber during fourth periods of time that follow said third periods, the first, second, third and fourth periods occurring in repeated sequence, and

a synchronous detector coupled to receive the electrical signals produced by said detector for deriving a signal corresponding to the difference between the amplitude of

the electrical signals produced during said third and fourth periods of time.

4,316,383

APPARATUS FOR MEASURING THE REPRESENTATIVE PARAMETERS OF RHEOLOGICAL PROPERTIES OF VISCOELASTIC FLUIDS

Daniel Fruman, Le Pecq, France, and Marshall Tulin, Chevy Chase, Md., assignors to Agence Nationale de Valorisation de la Recherche (ANVAR), France

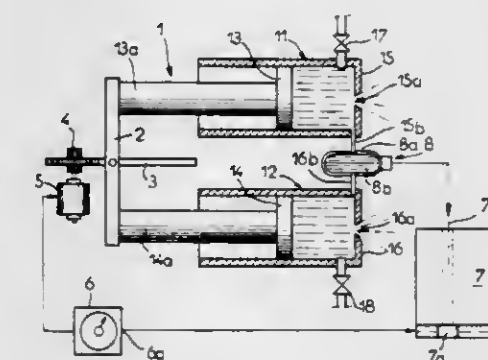
Filed Jan. 14, 1980, Ser. No. 111,727

Claims priority, application France, Jan. 12, 1979, 79 00788

Int. Cl.³ G01N 11/08

U.S. Cl. 73—55

22 Claims



1. Apparatus adapted to determine representative parameters of rheological properties of viscoelastic liquids, particularly dilute solutions of macromolecular compositions, said apparatus including means for translating the difference between the behavior of said liquids during flow and beyond a critical strain rate with the behavior of a Newtonian liquid having a viscosity equal to that of the viscoelastic liquid ascertaining by the relationship between strain rate and the resulting stress in the two liquids, said apparatus comprising:

- a pair of similar cylinders each terminating at one end in a calibrated thin wall orifice;
- a pair of pistons adapted to slide within the cylinders and adapted to be pushed conjointly towards the ends of the cylinders by a motor;
- blockable filling means connecting each of said cylinders to a respective reservoir of liquid, one of said reservoirs adapted to hold a viscoelastic liquid and the other of said reservoirs adapted to hold a Newtonian comparison liquid;
- first differential pressure measurement means including two conduits, each of said conduits opening into a respective one of said cylinders immediately upstream of one of said calibrated end orifices;
- control means coupled to said motor to adjust its speed upwardly along a predetermined increasing range of speeds selected such that the strain rate of the liquid flow in each of the calibrated orifices has a minimal speed which is lower than and a maximum speed which is several times greater than the critical strain rate of the viscoelastic liquid; and
- registration means for correlating respective data couples gathered from the control means and from the first differential pressure measurement means, the entire registered data representing the relationship between the differential stress and the strain rate.

4,316,384

DIGITAL MOISTURE METER AND METHOD FOR DETERMINING PERCENT WEIGHT LOSS

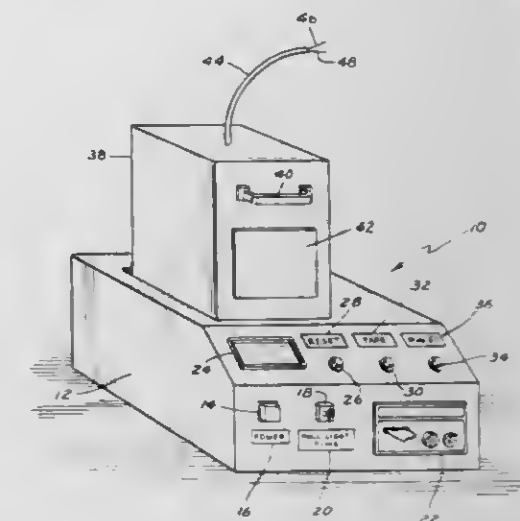
Dennis L. Pommer, and Paul E. Coleman, both of Minneapolis, Minn., assignors to General Mills, Inc., Minneapolis, Minn.

Filed Sep. 4, 1979, Ser. No. 72,398

Int. Cl.³ G01N 5/02; G06G 7/16

U.S. Cl. 73—76

4 Claims



1. A digital moisture meter comprising a balance including a platen for receiving a sample thereon and means for providing a digital signal having a value in accordance with the initial weight of the sample on said platen and also successive later digital signals having digital values representative of later reduced weights of said sample, means for heating said sample to remove moisture therefrom, means for reducing the intensity of said heating means after a predetermined time interval, first means for storing said digital signal having a value representative of the initial weight of said sample, second means for storing said later digital signals having a value representative of a subsequent reduced weight, each of said later digital signals being successively stored in said second storing means, calculating means responsive to the value of said digital signal stored in said first storing means and the value of said digital signal stored in said second storing means at a given time for providing a digital signal having a value representative of the percent weight loss for each successively stored later digital signal, third means for storing one of said digital signals having a value representative of percent weight loss, fourth means for storing a later digital signal having a value representative of a later percent weight loss, means for comparing the value of said one digital signal stored in said third storing means with the value of the digital signal stored in said fourth storing means and for substituting the digital signal stored in said fourth storing means for the one stored in said third storing means if greater in value than the one already stored in said third storing means, means for displaying the value of said digital signal stored in said third storing means if the value stored in the fourth storing means is less than or equal to the signal stored in said third storing means, and means for disconnecting said heating means only after a predetermined number of successive digital signals stored in said fourth means have a value less than or equal to the digital signal stored in said third storing means and have thus denoted a stabilized weight loss condition.

4,316,385

FINGERPRINTING CRYSTALS

Robert C. DeVries, Saratoga, and Roy E. Tuft, Albany, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Jun. 18, 1980, Ser. No. 160,464

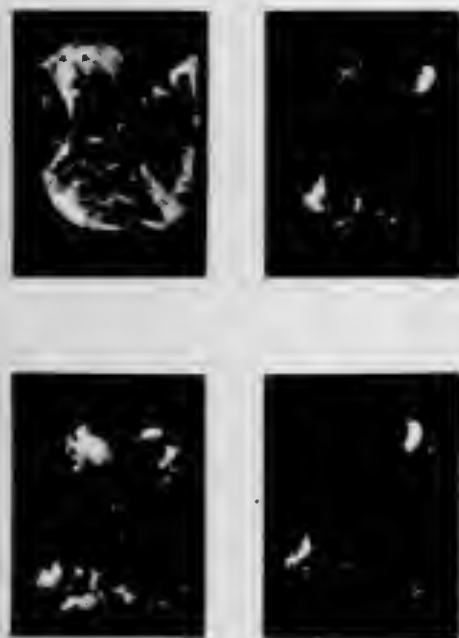
Int. Cl.³ G01N 19/08

U.S. Cl. 73—104

12 Claims

1. A process for fingerprinting a crystal selected from the

group consisting of natural diamond, synthetic diamond and cubic boron nitride by implanting ions therein which impart to said crystal a predetermined structure which comprises providing said crystal with at least one external surface having a surface area of at least 0.1 square millimeter which is at least substantially smooth and without significant elevational differences, positioning said crystal in a chamber for ion-bombardment of at least said smooth surface thereof, providing said chamber with ionizing means for producing ions in beam form and means for accelerating the resulting implanting ions, evacuating said chamber, providing said chamber with a material to be ionized to produce implanting ions, sufficiently ionizing said



material forming and accelerating a beam of the resulting implanting ions to selectively penetrate at least said smooth surface of said crystal to impart a predetermined structure thereto without significant deleterious damage to the appearance of said crystal, said chamber having been evacuated sufficiently to be free of at least significant contaminants, electrostatically charging the resulting characterized crystal so that at least said smooth surface of said crystal is electrostatically charged, applying a powder to said charged surface forming a powder pattern on said charged surface, said powder ranging in particle size from submicron to about 45 microns, said pattern being a delineation of the ion-implanted structure in said crystal.

4,316,386

FLUID PRESSURE MEASURING APPARATUS FOR INCORPORATION INTO A PIPELINE RISING FROM A WELL

Ferenc Kerekes, Ahlten, Fed. Rep. of Germany, assignor to Preussag Aktiengesellschaft, Fed. Rep. of Germany

Filed Mar. 18, 1980, Ser. No. 131,447

Claims priority, application Fed. Rep. of Germany, Apr. 6, 1979, 2913896

Int. Cl.³ E21B 47/06

U.S. Cl. 73-151

10 Claims

1. Means for measuring fluid pressure surrounding a delivery pipe disposed in a well comprising
 - a first pipe section connected at its lower end to said delivery pipe,
 - a second pipe section disposed concentrically within said first pipe section and defining a chamber having an open upper end,
 - a passage through the wall of said second pipe section permitting fluid flow from the annular space around said chamber to said delivery pipe through said open upper end,
 - a radially-disposed conduit connecting said chamber with the space outside said delivery pipe,

valve means within said chamber for closing off said conduit, and a pressure sensing device adapted to slide into said chamber through said open end, the lower end of said device serving to open said valve, the upper end of said



device sealing off said chamber at a point below said passage so that the interior of the chamber is in communication only with the space outside the delivery pipe through said conduit.

4,316,387

TRANSDUCER AND METHOD FOR PASSIVELY MEASURING THERMAL RADIATION FLUENCE

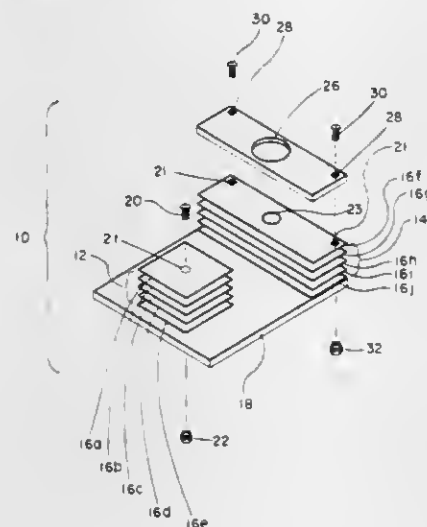
Peter S. Hughes, P.O. Box 278, Los Alamos, N. Mex. 87544

Filed Sep. 24, 1979, Ser. No. 78,236

Int. Cl.³ G01K 17/00; G01J 5/00

U.S. Cl. 73-190 H

9 Claims



1. A transducer for passively measuring the thermal radiation fluence from a radiative heat source, said transducer comprising:

- a selected number of stretched plastic pieces each having selected thicknesses and geometric shapes, said pieces having selected stress trapped therein and being selectively stacked one on top of the other for providing at least partial thermal shielding by the pieces above to the pieces below for sensing the thermal radiation fluence when exposed to the radiative heat source as recorded by the measurable geometric changes in said plastic pieces caused thereby; and
- fastening means for holding said pieces in position one with respect to the other.

4,316,388

TEMPERATURE DETECTION USING THE REFRACTIVE INDICES OF LIGHT GUIDES

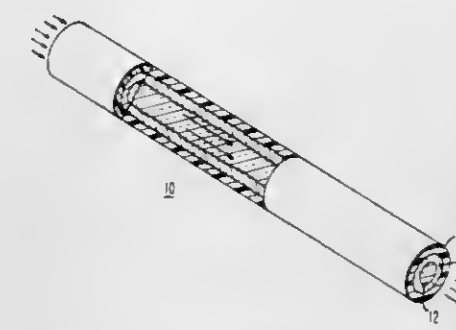
Robert C. Miller, Penn Hills, and Frederick M. Ryan, Loyalhanna Township, Westmoreland County, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Continuation of Ser. No. 14,014, Feb. 22, 1979, abandoned. This application Aug. 14, 1980, Ser. No. 178,049

Int. Cl.³ G01K 11/12

U.S. Cl. 73-356

10 Claims



1. A temperature detection apparatus comprising:
 - at least one light guide, said light guide including a core and a cladding cylindrically extending around the core; said core and cladding constructed from respective first and second materials having temperature dependent refractive indices over a temperature range with said first core material having a higher refractive index than said second cladding material over a first portion of said range during which said light guide is transmissive of light and said first core material having a refractive index that is equal to or lower than said second cladding material over a second portion of said range during which said light guide is non-transmissive of light;
 - a light source for supplying a predetermined light into a first end of said light guide; and
 - means for detecting the presence or absence of light transmitted to a second end of said light guide as an indication the temperature to which said light guide is subjected is respectively in the first or second portion of said temperature range.

4,316,389

RATE OF TURN INDICATOR

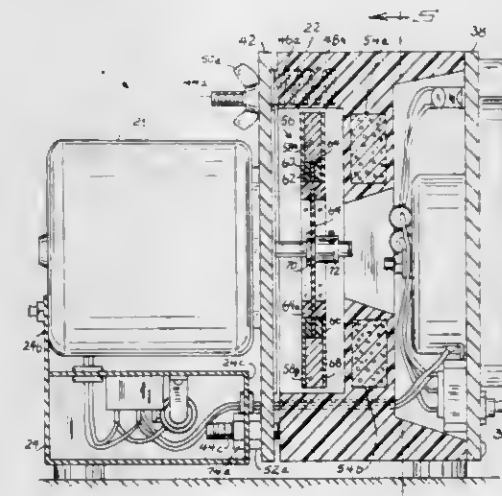
E. Paul Shannon, Rte. 2, Box 249, Killen, Ala. 35645

Filed Dec. 13, 1979, Ser. No. 103,355

Int. Cl.³ G01C 19/06, 19/42

U.S. Cl. 73-504

14 Claims



1. Rate of turn indicator for indicating rate of turn of a vessel from a predetermined course, said rate of turn indicator comprising:

- a. alternating current motor means, a housing including a base securing said motor means, said motor means including an axial shaft extending axially forwardly of said mo-

tor, and power supply circuit components supported on said base;

- b. electromagnetic sensing means positioned about and diametrically opposed about said shaft, an upward member secured to said base supporting said sensing means, said sensing means spaced on an axially symmetrical plane of said member;
- c. magnetic gyro wheel means including at least one ring of ferromagnetic material including a plurality of alternating poles secured and spaced about a circumferential periphery of said ring, a flexible and nonstretchable hub of material secured to said ring, a second ring of like material secured to another side of said hub, and means securing said hub to said shaft and spaced from said sensing means;
- d. adjustment means for adjusting the distance of said sensing coil means from said magnetic gyro wheel means, said adjustment means including a plurality of bolts extending rearwardly on a plurality of corners of said member, said bolts connecting to said housing, spring holes including springs positioned between said member and said housing, and a forward panel mounted on a front of said member and including an indicating means; and
- e. signal processing means connected between said sensing coil means and said indicating means whereby said motor means rotates said magnetic gyro wheel means thereby inducing current in said signal processing means subsequently displayed on said indicating means, thereby providing a rate of turn indication.

4,316,390

METHOD AND EQUIPMENT FOR PLOTTING SECTION IMAGES OF OBJECTS SUBJECTED TO ULTRASONIC EXAMINATION

Carl Kretz, Zipf, Austria, assignor to Kretztechnik Gesellschaft m.b.H., Zipf, Austria

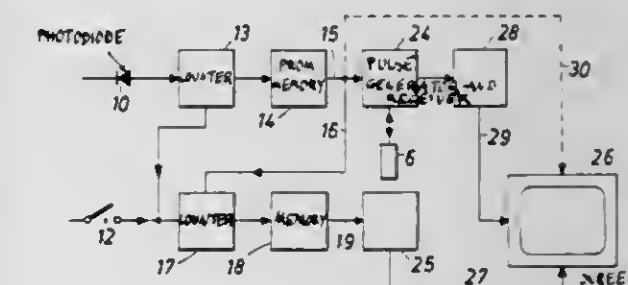
Filed Oct. 26, 1979, Ser. No. 88,368

Claims priority, application Austria, Jan. 11, 1979, 200/79

Int. Cl.³ G01N 29/00

U.S. Cl. 73-620

23 Claims



1. A method of ultrasonic examination in which a beam of sound pulses is cyclically moved to scan an object in a preselected section surface at a scanning velocity which varies during each cycle in accordance with a scanning velocity function, comprising

- generating echoes in said section surface in response to said sound pulses are represented on a plotting surface at locations which are geometrically coordinated with the locations at which corresponding echoes have originated in said section surface,
- varying the pulse repetition period of said sound pulses during a cycle of motion in accordance with a pulse repetition period function which has a predetermined proportional relationship to said scanning velocity function,
- said varying step including generating primary pulses at a fixed predetermined frequency, and
- selecting only part of said primary pulses during each of said cycles in accordance with a preselected program whereby the frequency of said selected pulses varies in proportion

to said scanning velocity function, and using said selected pulses to trigger respective ones of said sound pulses.

4,316,391

FLOW RATE MEASUREMENT

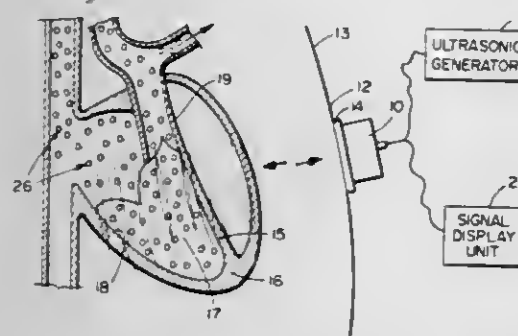
Ernest G. Tickner, Gilroy, Calif., assignor to Ultra Med, Inc., Sunnyvale, Calif.

Filed Nov. 13, 1979, Ser. No. 93,525

Int. Cl.³ G01F 1/00

U.S. Cl. 73-861.25

9 Claims



1. A method of measuring fluid flow rate in a system having a conduit through which fluid flows, comprising: adding a substance which provides a plurality of bubbles of known size to said system upstream of said conduit; impelling a sonic pulse across said conduit, from a position opposite and spaced from said conduit, as said bubbles pass therethrough; measuring the degree of attenuation of a sonic signal defined by said pulse which passes across said conduit, said attenuation being due to the presence of said bubbles; and determining the fluid flow rate from the degree of attenuation of said sonic signal.

4,316,392

FLOWMETER HAVING A ROTARY BODY AND MEANS FOR CALIBRATION

Dieter Leber, Eschborn, Fed. Rep. of Germany, assignor to VDO Adolf Schindling AG, Frankfurt am Main, Fed. Rep. of Germany

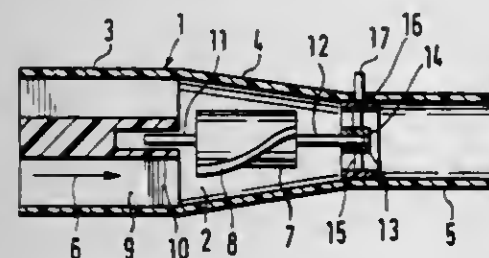
Filed Mar. 14, 1980, Ser. No. 130,503

Claims priority, application Fed. Rep. of Germany, Mar. 26, 1979, 2911827

Int. Cl.³ G01F 1/12

U.S. Cl. 73-861.83

5 Claims



2. A flowmeter comprising a housing defining a flow channel adapted for flow there-through, a rotary body being formed with at least one helical spiral on its outer periphery and being rotatably supported in said flow channel, said housing and said flow channel being formed in a vicinity of said rotary body with inner cross-sections tapering in the direction of flow, means for displacing and setting said rotary body in the direction of flow, a first bearing arranged upstream of said rotary body and a second bearing arranged downstream of said rotary body constitute means for rotatably supporting said rotary body in said flow channel,

said rotary body includes, a first journal supported freely displaceable in an axial direction in said first bearing, and a second journal fixed in the axial direction in said second bearing, said second bearing is developed as a thrust bearing, said second bearing is adjustable with self-locking action in the direction of flow and constitutes said displacing and setting means, said housing has a helical guide means, a tripod has outer guide means for engaging said helical guide means and for shifting said tripod, said thrust bearing is rigidly arranged in said tripod.

4,316,393

SOIL SAMPLER AND MOUNTING ARRANGEMENT

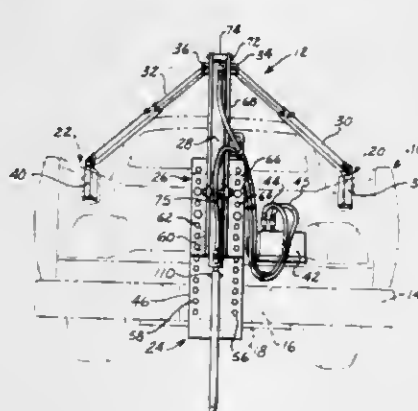
Harry Philipenko, Box 294, Max, N. Dak. 58759

Filed Jun. 4, 1980, Ser. No. 156,331

Int. Cl.³ G01N 1/08

U.S. Cl. 73-864.45

8 Claims



1. A soil sampler assembly comprising a support frame, motor means for driving a soil sample taker, means securing said motor means to said support frame, a mounting frame, means securing said support frame to said mounting frame, first and second generally horizontal brace arms, means connecting common ends of said arms to said mounting frame, adjacent on upper portion thereof, for pivotal adjustment of the arms relative to the mounting frame, stake means at ends of said arms remote from the mounting frame, means connecting each stake means to an arm for pivotal adjustment of the stake means relative to the arm, said stake means comprising means insertable into stake holes of a motor vehicle for removably connecting the stake means to the body, means on said mounting frame for removably securing said frame to an end of the vehicle with said soil sample taker beyond the vehicle end, and means connecting said motor means to a power source on the vehicle, where, said sampler assembly can be quickly and easily mounted on the vehicle by connecting the stake means and support frame, and can be quickly and easily removed by disconnecting the stake means and support means from the vehicle.

4,316,394

MAGNETICALLY SUSPENDED FREE ROTOR GYROSCOPE

James R. Dohogne, Phoenix, Ariz., assignor to Sperry Corporation, New York, N.Y.

Filed Feb. 11, 1980, Ser. No. 120,203

Int. Cl.³ G01C 19/24

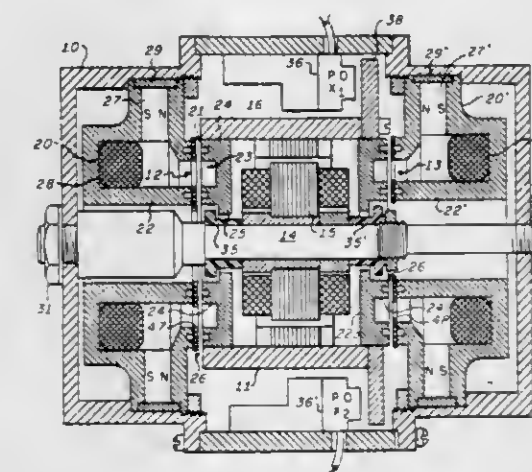
U.S. Cl. 74-5.46

9 Claims

1. A free rotor gyroscopic rate sensor comprising: housing means having a housing axis,

generally cylindrically rotor means adapted to spin about a spin axis in said housing normally coincident with said housing axis, magnetic suspension means coupled between said housing means and said rotor means for contactlessly suspending said rotor means in said housing means with said rotor axis normally coincident with said housing axis, said magnetic suspension means comprising, at least one pair of axially spaced magnetic flux gaps formed by at least one pair of magnetically permeable pole pieces on said housing means radially spaced from said spin axis and a cooperating pair of correspondingly axially and radially spaced pole pieces on said rotor means, and means for producing passive and active magnetic fluxes between said pole pieces, said active and passive mag-

frequency representative of a rate of rotation, a manually operable direction switch, first switching means adapted to be so controlled in response to the said signal as to remain in one state thereof during each cycle of the said signal when the duration of the cycle is less than a predetermined duration, and to be settable in another state thereof by actuation of said direction switch when the duration of the said cycle is greater than the said predetermined duration, forward and reverse electrical actuators for selecting respectively forward and reverse drive, the direction switch being settable in one state for selecting the electrical actuator for forward drive and being settable in another state for selecting the electrical actuator for reverse drive, the first switching means being such that the said other state thereof enables setting of the direction switch to effect energization of the electrical actuator selected by the setting of the direction switch, second switching means adapted to be so controlled in response to the said signal as to be set into one state thereof in response to a cycle of the said signal when the duration of the said cycle falls below a second predetermined duration, and to be set into another state thereof when the duration of the said cycle increases to exceed a third predetermined duration, a low gear ratio electrical actuator and a high gear ratio electrical actuator, the second switching means being such as, in operation, to effect selectively energization of the low gear ratio electrical actuator and the high gear ratio electrical actuator respectively depending upon which one of the said two states of the second switching means prevails.



netic fluxes supporting said rotor means in unstable equilibrium in a first direction relative to said spin axis and said passive magnetic flux supporting said rotor means in stable equilibrium in a second direction relative to said spin axis at right angles to said first direction.

motive means coupled between said housing and rotor means for spinning said rotor means about said spin axis, the mean axial distance between said axially spaced gaps bearing a predetermined ratio to the mean radius of said spaced gaps, such that in response to relative tilting of said rotor spin axis and said housing means, the passive magnetic flux force tending to retain said rotor means in stable equilibrium in said second direction is substantially balanced by the passive magnetic flux force tending to destabilize said unstable equilibrium in said first direction.

4,316,395

CONTROL APPARATUS FOR DRIVE TRANSMISSIONS

Derek Brown, 7 Southlands, Eighton Bank, Gateshead, Tyne & Wear, England

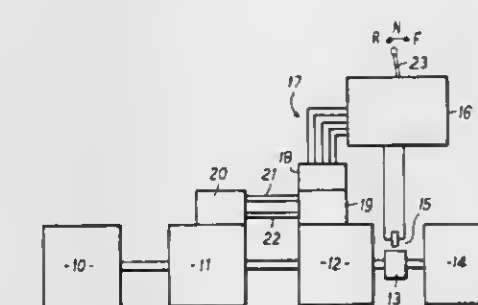
Filed Oct. 25, 1979, Ser. No. 87,931

Claims priority, application United Kingdom, Oct. 26, 1978, 42001/78; Jun. 5, 1979, 19542/79

Int. Cl.³ B60K 41/06, 41/04

U.S. Cl. 74-866

8 Claims



1. Control apparatus for the drive transmission of a vehicle, comprising: an input terminal for an electrical signal having a

4,316,396
MACHINE FOR THE MECHANICAL WORKING OF BAND SAWS

Vladimir V. Idel, Mukachevsky raion, selo Kolchino, Zakarpatskaya oblast, U.S.S.R.

Division of Ser. No. 773,752, Mar. 2, 1977, Pat. No. 4,175,452.

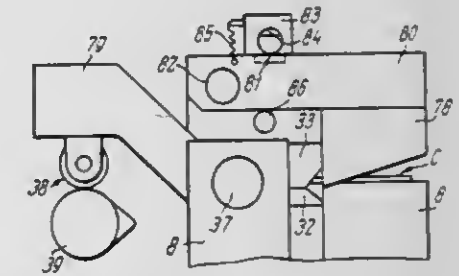
This application Mar. 27, 1979, Ser. No. 24,446

Claims priority, application U.S.S.R., May 26, 1975, 2134705; Mar. 30, 1976, 2333522; Mar. 30, 1976, 2333523

Int. Cl.³ B23D 63/04

U.S. Cl. 76-61

2 Claims



1. A machine for mechanical working of band saws comprising: a frame; a device mounted on said frame for gripping a band saw on the sides; a pitch feed mechanism for pitch feed of the saw on the frame; a drive for the machine; means for linking said pitch feed mechanism kinematically with said drive; tooth-setting tools; two arms having ends carrying the tooth-setting tools; an axle on said frame pivotally mounting said arms; means coactive with said drive for pivotally moving said arms for setting of the saw teeth; a pair of knives for cutting off the saw blade disposed downstream of said tooth-setting tools in the direction of pitch feed; one of said knives of the pair of knives being rigidly secured on said device for gripping the sides of the saw; linkage means for linking kinematically the other of said pair of knives to one of said arms for joint movement therewith during cutting off the saw blade and a subsequent withdrawal from a cutting zone to a neutral position before the pitch feed of the saw; said linkage means comprising an additional arm having an end carrying the other knife of said pair of knives; another axle pivotally mounting said additional arm and secured to the other of said arms extending in a

direction parallel to the direction of pitch feed of the saw; and a wedge surface of which is on said additional arm and another wedge surface on said other arm reciprocable relative thereto.

4,316,397

TORQUE WRENCH

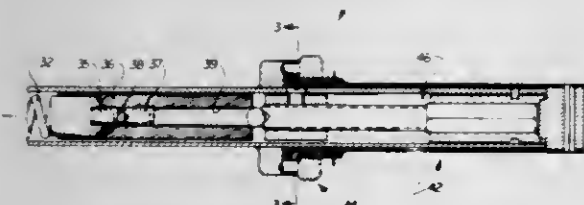
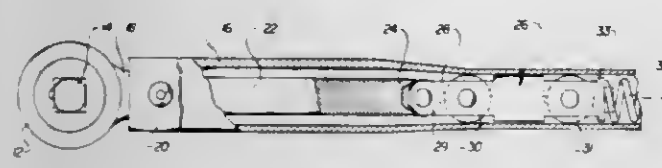
Ray C. Skidmore, Chagrin Falls, Ohio, and Richard H. Skidmore, Naples, Fla., assignors to Skidmore Engineering Div. Buckeye Gear Company, Cleveland, Ohio

Filed Jul. 3, 1980, Ser. No. 165,546

Int. Cl.³ B25B 23/142

U.S. Cl. 81—483

16 Claims



1. A torque wrench comprising a main body having a fixed length, a first adjusting means mounted for relative rotational movement with respect to said main body and constrained against axial movement relative to said main body, a second adjusting means engaging said first adjusting means and operatively connected for joint rotational movement with said first adjusting means and for axial movement relative thereto, said first and second adjusting means being operatively connected to provide, in response to joint rotational movement of said first and second adjusting means relative to said main body, for axial movement of said second adjusting means with respect to said main body to provide an axially directed force for adjusting the torque setting of said wrench, locking means having an activated position preventing rotational movement of said first adjusting means and a deactivated position permitting rotational movement of said first adjusting means, said locking means and said first and second adjusting means being mounted with respect to said main body to maintain a fixed wrench length from a work head forming one end of said wrench to the opposite end of said wrench, whether said locking means is in either said activated or deactivated position, and regardless of the relative positions of the first and second adjusting means.

4,316,398

LOADING AND/OR UNLOADING DEVICE FOR MACHINE TOOLS, PARTICULARLY AUTOMATIC LATHES

Helmut F. Link, Aichwald, and Paul Waiblinger, Esslingen, both of Fed. Rep. of Germany, assignors to Index-Werke KG Hahn & Tessky, Esslingen, Fed. Rep. of Germany

Filed Jan. 28, 1980, Ser. No. 115,806

Claims priority, application Fed. Rep. of Germany, Feb. 3, 1979, 2904088

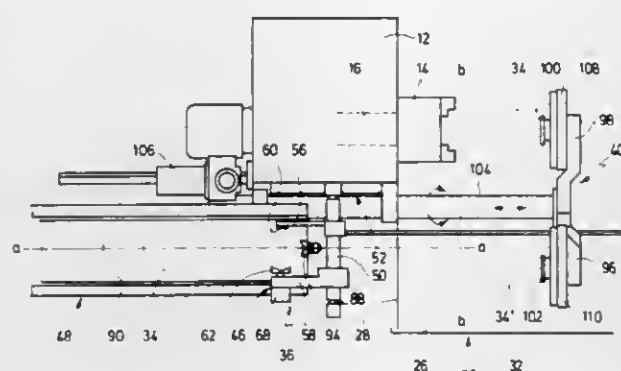
Int. Cl.³ B23B 13/02

U.S. Cl. 82—2.7

13 Claims

1. A device for loading and unloading a machine tool such as a lathe having at least one feeding device adapted to feed a workpiece to a transfer station and having a transport device for transporting the workpiece which is to be machined from the transfer station to a machining station defined by the work spindle of the machine tool, or vice versa, wherein the feeding

device is provided on a first carrier which is pivotable about a pivoting axis disposed at right angles to the work spindle axis and said transport device has a second carrier carrying at least one workpiece clamping device and in which the second carrier is pivotable about an axis which is parallel with the work



spindle axis, characterized in that the feeding device (36 or 38) comprises a workpiece gripper (46), means including drive means for mounting said workpiece gripper on said first carrier for movement around an axis parallel to the pivoting axis of the first carrier, and means mounting said second carrier for movement along its axis.

4,316,399

COMBINED PUNCH RETAINER AND FLUID ACTUATED STRIPPER

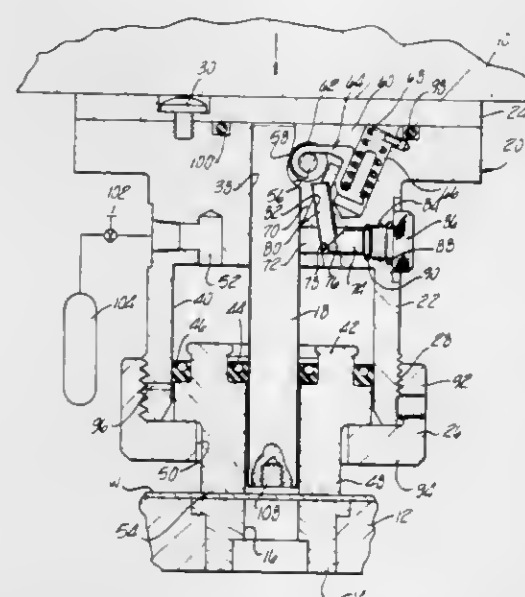
Bernard J. Wallis, 25200 Trowbridge Ave., Dearborn, Mich. 48124

Filed Apr. 4, 1980, Ser. No. 137,371

Int. Cl.³ B26D 7/06

U.S. Cl. 83—137

8 Claims



1. A combined punch retainer and fluid actuated stripper comprising, a retainer body adapted to be mounted on a reciprocable die member, said body having an upper end and a lower end, a central vertical bore in said body extending to the upper end thereof and adapted to receive a punch, said body having a large cylindrical bore concentric with the punch bore and extending to the lower end of the body, a punch retained in said punch bore and extending downwardly to below the lower end of said body, a piston in said cylinder bore and surrounding said punch in sealed relation with the punch and the cylinder bore, said piston being movable vertically in said cylinder bore, means limiting movement of said piston in a downward direction to a position wherein the lower end of the piston is disposed below the lower end of said punch and in an upward direction to a position wherein the lower end of the piston is spaced at least slightly above the lower end of said body, means for directing a high pressure gas into the portion

of the cylinder above said piston, said body having a cavity at the upper end thereof adjacent and communicating with said punch bore, a cover plate on said body closing the upper ends of said cavity and the punch bore, a seal between the cover plate and the upper end of said body, said seal extending around said cavity and punch bore to prevent the escape of gas therefrom and means in said cavity for releasably retaining the punch in said punch bore.

4,316,400

WOOD MEMBER CUTTING APPARATUS

George L. Mayo, Fort Worth, Tex., assignor to Stoddard H. Pyle and Wayne R. Roberts, both of Corvallis, Oreg.

Division of Ser. No. 112,530, Jan. 16, 1980, Pat. No. 4,277,998.

This application Feb. 5, 1981, Ser. No. 231,663

Int. Cl.³ B27B 5/04

U.S. Cl. 83—425.2

3 Claims



1. A wood member cutting apparatus comprising a base, a movable carriage on the base, saw gangs and wood member conveyors cooperatively mounted on the base and carriage, an integrated power drive means for the carriage and for said conveyors on the base, and a precision wood member length measuring and automatic carriage stop mechanism on the base, said mechanism comprising a rotational shaft extending longitudinally of the base, means to adjust the shaft axially along the base to a precision position, a plurality of axially equidistantly spaced and circumferentially equidistantly spaced radial stop pins on the shaft, and circumferential lockable locator means for the shaft enabling one radial stop pin at a time to be positioned on the shaft in the path of movement with the actuator element of a limit switch on the movable carriage to automatically stop the carriage at a position on the base corresponding to a required length measurement of a wood member being cut by said apparatus.

4,316,401

MUSIC SYNTHESIZER

Donald L. Tavel, 233 W. Westfield Blvd., Indianapolis, Ind. 46208, and Michael L. Beigel, Warwick, N.Y., assignors to Donald L. Tavel, Indianapolis, Ind.

Filed Sep. 7, 1979, Ser. No. 46,206

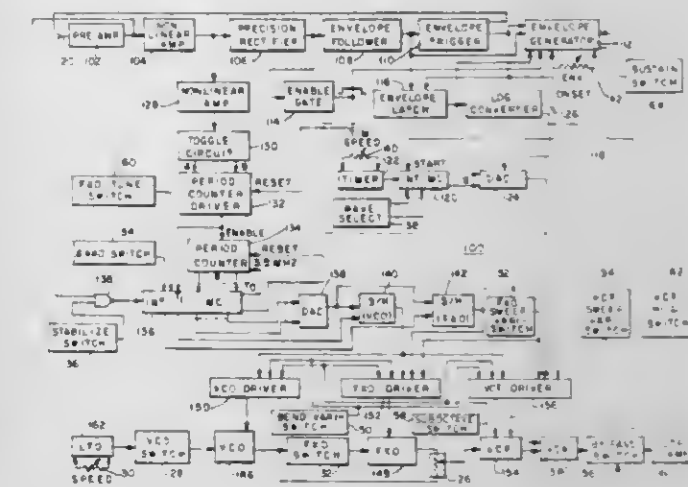
Int. Cl.³ G10H 5/00, 7/00

U.S. Cl. 84—1.01

42 Claims

1. A music synthesizer in which an input signal having a frequency manifesting a created sound controls the provision of a synthesized sound, said synthesizer comprising: means for processing said input signal to provide control signals having a frequency related to the frequency of said input signal; means for providing a series of clock signals at a frequency independent of and much higher than said control signals; and means for counting the number of clock signals occurring

between the provision of selected control signals and for providing signals to control the provision of said synthe-



sized sound in response to the number of counted clock signals.

4,316,402

ADJUSTABLE END PIN FOR THE VIOLONCELLO AND THE STRING BASS

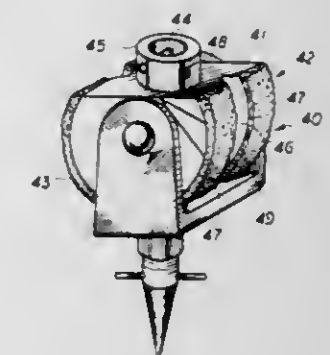
Richard Goldner, 3717 Toad Lake Rd., Bellingham, Wash. 98225

Filed Jan. 16, 1981, Ser. No. 225,845

Int. Cl.³ G10G 5/00

U.S. Cl. 84—280

8 Claims



1. An adjustable end pin for the violoncello and the string bass comprising of:

- a receiving member having a nonslip outer support surface at least a portion of which is arcuate, said receiving member including a cavity having a locking means for receiving and locking therein the existing end pin of a violoncello or string bass;
- a yoke pivotally mounted to said receiving member and spaced away from said support surface for rotation thereabout; and
- a pin means having first and second ends adjustably mounted to said yoke for relative movement with respect to said yoke, said first end having a point and extending from said yoke and said second end projected from said yoke and adapted to contact said support surface by adjusting said pin to restrict relative movement of the yoke.

4,316,403

GUN BOLT FOR A HIGH RATE OF FIRE REVOLVING BATTERY GUN

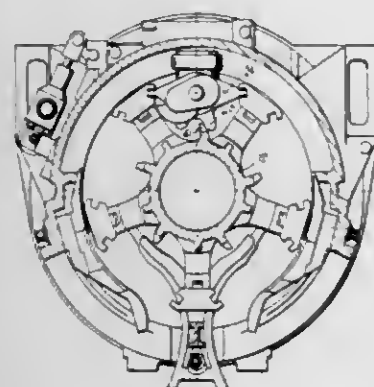
Robert G. Kirkpatrick, Shelburne; Ronald R. Snyder, Georgia, and Lincoln L. Sibley, Jr., Burlington, all of Vt., assignors to General Electric Company, Burlington, Vt.

Filed Feb. 4, 1980, Ser. No. 118,025

Int. Cl.³ F41D 7/02

U.S. Cl. 89—12

1 Claim



1. A Gatling type gun including:

- a housing;
- a rotor journaled in said housing for rotation about its longitudinal axis and having fixed thereto
- a plurality of pairs of tracks disposed in an annular row, the tracks of each of said pairs being mutually spaced apart by a first distance, and
- a like plurality of sets of locking lugs disposed in an annular row;
- a like plurality of gun bolts disposed in an annular row in said rotor and each disposed between the spaced apart tracks of a respective one of said pairs of tracks,
- each of said gun bolts including
- a bolt carriage having a pair of radially extending slides, each of said pair of slides being engaged with and supported by one of the tracks of a respective one of said pairs of tracks,
- a bolt head carried by, and journaled for oscillation about its longitudinal axis with respect to said bolt carriage and having a set of locking lugs for releasable engagement with a respective one of said plurality of sets of locking lugs of said rotor, each of the locking lugs of said set of locking lugs of said bolt head having a radial extension of a second distance which is less than one-half said first distance whereby each of said locking lugs of said bolt head in oscillation clears the adjacent tracks of said rotor which support the respective slides of the respective bolt carriage.

4,316,404

LIGHTWEIGHT ARMORED VEHICLE AND METHOD OF MAKING SAME

Richard C. Medlin, 4728 Goldfield, San Antonio, Tex. 78218

Filed Jun. 30, 1978, Ser. No. 920,715

Int. Cl.³ F41H 7/04

U.S. Cl. 89—36 H

17 Claims

- 17.** An automobile having an enclosed passenger compartment with doors for entering and leaving said passenger compartment, having walls, ceiling and floors, wheels and an engine for turning of said wheels through a drive train and transmission to move said automobile, said automobile having improvements to resist attack comprising:

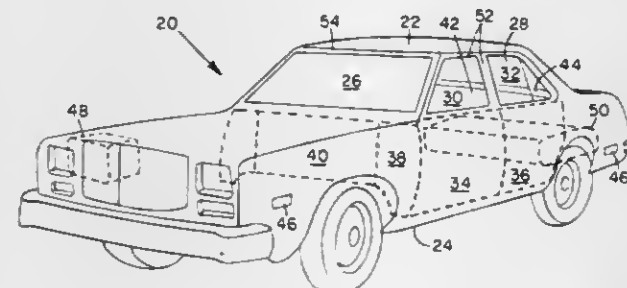
- permanently installed bullet resistant windows for said passenger compartment;
- multi-layer polyglass sheets rigidly formed with a resin-catalyst mixture in combination with multi-layer ballistic cloth being installed in said doors and said walls of said passenger compartment, said multi-layer ballistic resistant

cloth being further installed in said ceiling and floor of said automobile;

side walls of said automobile adapted by installing therein an outer layer of multi-layer rigidly woven polyglass sheets and bonded thereto an inner layer of multi-layer ballistic resistant cloth to prevent penetration by projectiles, such as bullets fired by super power small arms;

a fuel tank of said automobile wrapped in multi-layer ballistic resistant cloth and a battery of said automobile encased in multi-layer rigidly woven polyglass sheet to prevent explosion; and

electrically ignited tear gas cannisters attached at a plurality of locations along said walls, switch means electrically connected between said battery and said cannisters for



discharging tear gas radially through ports at said locations in said walls in response to closure of said switch means, said electrical ignition having electrical match means for creating an arc to ignite an explosive charge, said cannisters being retained in housing means mounted behind said ports to maintain discharge ends of said cannisters adjacent said ports;

said bullet resistant windows, multi-layer rigidly woven polyglass sheets, and multi-layer ballistic resistant cloth overlapping and securing said passenger compartment against penetration by most projectiles in event of attack thereby providing lightweight armor to protect passengers in said automobile without significantly decreasing mobility.

4,316,405

GREENHOUSE AND SOLARIUM STRUCTURES AND RELATED METHOD

Christopher Esposito, Brooklyn, N.Y., assignor to Four Seasons

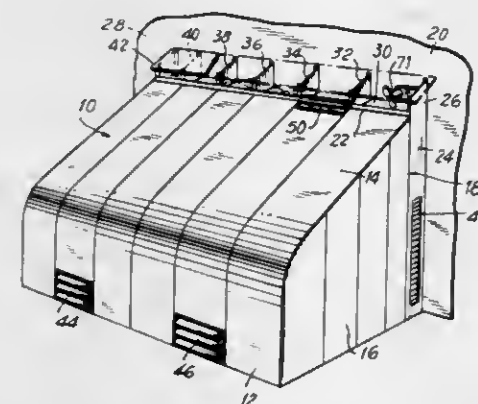
Solar Products Corporation, Farmingdale, N.Y.

Filed Sep. 21, 1979, Ser. No. 77,786

Int. Cl.³ A01G 9/24; F24F 7/00

U.S. Cl. 98—33 R

15 Claims



- 1.** A greenhouse or solarium construction comprising glazing means defining a space adapted for accommodating botanical or animal life, said glazing means having an open side, structure means adapted at least partly to obturate said open side, spacing collar means between said glazing means and structure means for substantially obturating said open side except for an opening defined at an upper region of the glazing

4,316,407

JET PAIR WEIR GATE

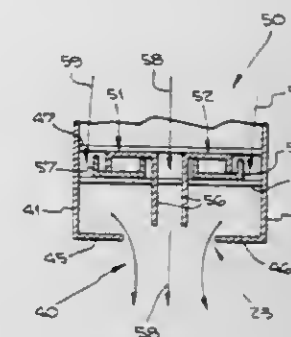
Robert R. Lambert, Glendora, Calif., assignor to Air Factors West, Dublin, Calif.

Filed Jan. 8, 1980, Ser. No. 110,360

Int. Cl.³ F24F 13/06

U.S. Cl. 98—40 D

1 Claim



means between the glazing means and the structure means, and exhaust means to displace air from said space via the opening between the glazing means and said structure means, the spacing collar means including a plurality of horizontally aligned vertical channels coupled to and extending between said structure means and glazing means, the channels being spaced and parallel C-channels, the glazing means including a horizontal top edge portion and vertical end edge portions, and first and second of said channels extending along the end edge portions between the latter and said structure means, and other of said channels, which are substantially shorter than said first and second channels, extending between and spacing the top edge portion and said structure means, and insulation means in the first and second channels, at least some of the channels extending upwardly relative to said top edge portion and including sloped upper end portions sloping downwardly away from said structure means, said greenhouse or solarium construction further including shed means supported on said sloped upper end portions and extending in partially overlapping relation with said glazing means, at least one of said channels including means defining at least one screw hole and including a screw in said screw hole, having an axis parallel to the associated channel providing for attachment of said shed means.

4,316,406

FLOW-DISTRIBUTING DEVICE AND AN AIR-INTAKE SCREEN PROVIDED WITH SUCH A DEVICE

Leif I. Lind, Storsjövägen 7, 121 71 Johanneshov, Sweden

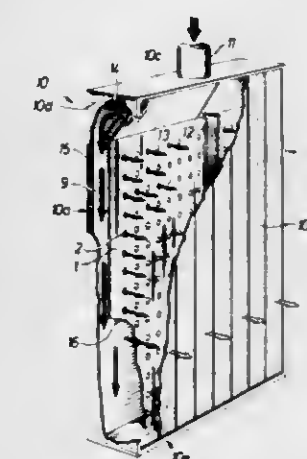
Filed Oct. 11, 1979, Ser. No. 83,979

Claims priority, application Sweden, Oct. 13, 1978, 7810734

Int. Cl.³ F24F 13/06

U.S. Cl. 98—40 R

9 Claims



- 1.** An air supply device comprising a substantially parallelepipedic screen having a rear side surface and a front perforated side surface, means for supplying fresh air to the interior of said screen, and a flow-distributing device forming an intermediate, planar plate in the screen, said flow-distributing device being arranged such that the supplied fresh air flows parallel to one side of said planar plate of said device, the plate having substantially uniformly distributed perforations and carrying deflecting means projecting from the one side of the plate into the air flow for dividing the air flow into a plurality of parallel part-flows of equal magnitude passing through the plate, said intermediate plate, together with the rear side surface, forming a pressure chamber for accommodating the air flow supplied via the air-supply means, said parallel part-flows of supplied air passing to a space between the other side of said plate and the front perforated side surface of said screen and passing through said front perforated side surface, said flow-distributing device coacting with said front perforated side surface so that low velocity part-flows depart from the screen.

- 1.** In an air diffuser assembly having a diffuser outlet below spaced walls defining an air flow path from a source to said outlet; said outlet being defined in part by the medial edge of outlet flanges extending horizontally inward from an opposing pair of said spaced walls; the width of said outlet, defined as the distance between the medial edges of the pair of said outlet flanges, being generally twice the width of one of said outlet flanges; said outlet and outlet flanges defining a first plane substantially coinciding with the plane of a suspended ceiling mounting said air diffuser assembly; said assembly including at least one diffusion weir assembly portion;

said diffusion weir assembly portion including a pair of nested elongated diffusion weir members; each of said members being a generally U-shaped imperforate channel consisting of a web portion and two flange portions, said web portion having a width greater than that of said outlet; means for mounting said weir members in opposed and nested relation in a second plane spaced above and generally parallel to said first plane; said members being together laterally moveable in said second plane to cooperate with said outlet flanges to control the direction of airflow from said outlet and being moveable relative to one another to vary the combined width of the pair of weir members and thus control the amount of airflow from said outlet, the improvement comprising:

- a jet weir assembly portion defining a second air flow path from a second, constant volume source to said outlet; including two pairs of nested elongated jet weir members of shorter length than said diffusion weir members; each of said jet weir members being a generally U-shaped imperforate channel consisting of a web portion and two flange portions; said web portion having a width greater than half that of said outlet; mounting means for mounting said jet weir members in laterally spaced pairs in a third plane spaced above and substantially parallel to said first plane such that each member in a pair is in an opposed and nested relation and such that the inverted member of each pair is mounted proximal the inverted member of the other pair such that the medial flange of each pair is depending toward said outlet; the medial flange of each pair having an extended length such that it substantially reaches said first plane and such that the extended length flanges, together, define control surfaces that act as a nozzle, thereby creating a jet flow through said outlet; said members of each pair being together laterally moveable in said third plane relative to the other pair and each member of a pair being laterally moveable relative to the other member of the pair and the two pairs, together, being laterally moveable relative to the outlet to cooperate with said outlet flanges to control the jet quality, volume, velocity, and direction of airflow from said outlet.

4,316,408

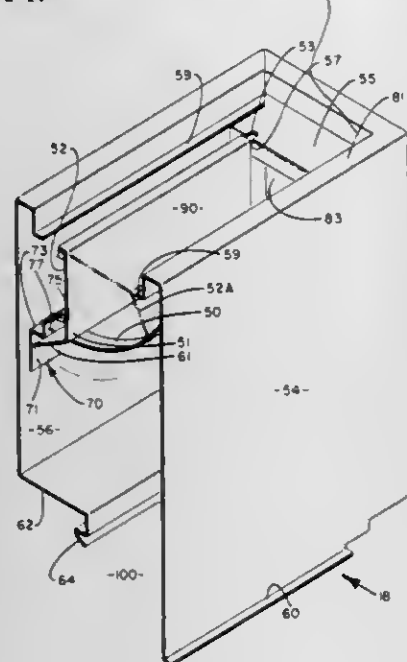
DAMPER ASSEMBLY FOR USE WITH AN AIR CONDITIONING SYSTEM

Theodore S. Bolton, Liverpool, and Richard D. Lang, Chittenango, both of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed May 19, 1980, Ser. No. 151,036
Int. Cl.³ F24F 13/00

U.S. Cl. 98—41 R

9 Claims



1. A device for directing the flow of a gaseous medium which comprises:

a housing having an inlet and at least one outlet, said device defining a medium flow path from the inlet to the outlet; a pivotally mounted damper located to obstruct the medium flow path, said damper being rotated between various positions to effect differing impediments to medium flow along said path; and

means for securing the damper in a preselected position including a flexible leaf spring mounted to frictionally engage the damper such that an edge of the damper contacts the spring to maintain the damper in position, said leaf spring being frictionally engaged at both ends in an arcuate configuration such that an edge of the damper contacts the spring continually as the damper is rotated between positions.

4,316,409

CARBONATED BEVERAGE CONTAINER

Joan M. Adams, Fairview; Myron B. Shoaf, Cranbury, both of N.J.; Carl E. Bochmann, Cleveland, and Peter A. Basile, Hudson, both of Ohio, assignors to General Foods Corporation, White Plains, N.Y.

Filed Oct. 10, 1979, Ser. No. 83,737
Int. Cl.³ A23L 2/40

U.S. Cl. 99—275

13 Claims

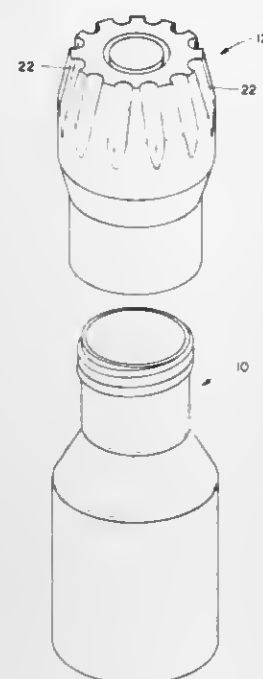
1. A pressurizable vessel for the preparation of a carbonated beverage from a water-based liquid and a solid carbonation source, comprising:

a. a container having an opening therein providing access to the contents thereof;

b. a cover for engaging and sealing the opening of said container, including a basket positioned interiorly of the cover for holding a quantity of a solid carbonation source above the level to which the container is normally filled with the water-based liquid, whereby the container may be filled with water, the basket loaded with a quantity of a solid carbonation source, and the cover applied, and sealed with respect to the container without resulting in contact between the solid carbonation source and water;

c. a vent valve provided in said cover to allow automatic and manual venting of excessive carbon dioxide from the

interior of the pressurized container prior to disengagement of the cover from the container; and



d. means for sealing the container to prevent the pressurized contents of the container from contacting atmosphere.

4,316,410

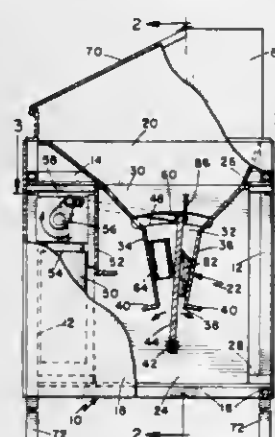
COMPACT CAN CRUSHER

Charles M. Davis, Jr., 23 The Point, Coronado, Calif. 92118

Continuation-in-part of Ser. No. 95,637, Nov. 19, 1979, abandoned. This application Jun. 30, 1980, Ser. No. 164,044
Int. Cl.³ B30B 15/14, 9/32

U.S. Cl. 100—48

14 Claims



1. A compact can crusher, comprising:

a rigid supporting frame;

a can receiving chute mounted in said frame and having an upper entry throat and an open lower end;

said chute having spaced upright side plates and downwardly converging walls extending perpendicularly between the side plates, the walls including a fixed front wall;

a crusher plate pivotally mounted in said frame, said crusher plate having a hinge pin journaled in said side plates below the open lower end of the chute;

said crusher plate extending upwardly through the chute to swing into crushing engagement with said front wall and having drive pins extending from opposite sides of the upper end thereof;

a drive motor mounted in said frame with a drive shaft extending on both sides thereof;

a crank on each end of said drive shaft, and a connecting rod coupling each crank to one of said drive pins to oscillate said crusher plate toward and away from said front wall.

4,316,411

HYDRAULIC CONTINUOUS PRESS

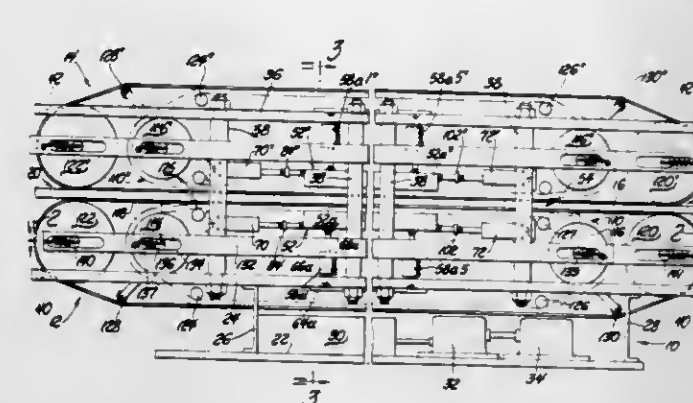
Clyde D. Keaton, 48 Dickinson St., Woodstown, N.J. 08098

Filed Dec. 17, 1979, Ser. No. 104,328

Int. Cl.³ B30B 15/16, 5/06

U.S. Cl. 100—50

11 Claims



1. A press for simultaneously pressing and conveying a workpiece from an input to an output, a set of rails disposed side by side, a reaction member disposed opposite said set of rails in spaced relation and adapted to accept a workpiece between the set of rails and said member, first and second transverse actuating means connected respectively with a first group and a second group of said set of rails and adapted to alternately advance and retract said first group and said second group of rails relative to said reaction member to alternately press and release said workpiece, first and second longitudinal actuating means connected respectively with said first group and said second group of rails and adapted for alternately advancing and retracting said first group and said second group of rails relative to said output to move said workpiece toward the output, and energizing means for energizing the first transverse actuating means and the first longitudinal actuating means in the advancing direction while energizing the second transverse actuating means and the second longitudinal actuating means in the retracting direction and vice versa, whereby said first group and said second group of rails alternately press and advance the workpiece, each of said first and second transverse actuating means being comprised of one or more fluid pressure actuators and each of said first and second longitudinal actuating means being comprised of one or more fluid pressure actuators.

4,316,412

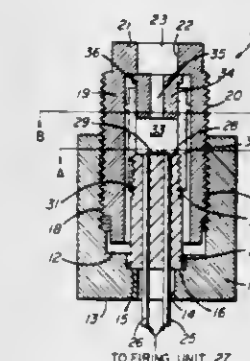
LOW VOLTAGE NONPRIMARY EXPLOSIVE DETONATOR

Robert H. Dinegar, Los Alamos, N. Mex., and John Kirkham, Newbury, England, assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jun. 5, 1979, Ser. No. 28,743
Int. Cl.³ E42C 13/00

U.S. Cl. 102—202.5

18 Claims



1. In a detonator employing only nonprimary explosives and low voltage hot bridge ignition, the improvement comprising

use of an explosive train wherein a deflagration-to-detonation transition occurs.

4,316,413

GENERATOR FOR A SPIN-PROJECTILE

Peter Weidner, Breitenbrunn, and Dietmar Stütze, Lauf/Pegnitz, both of Fed. Rep. of Germany, assignors to Diehl GmbH & Co., Nuremberg, Fed. Rep. of Germany

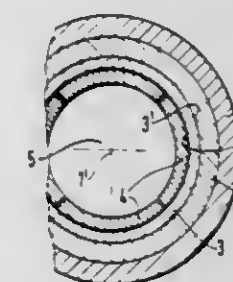
Filed Feb. 4, 1980, Ser. No. 118,092

Claims priority, application Fed. Rep. of Germany, Feb. 7, 1979, 2904501

Int. Cl.³ F42C 11/02

U.S. Cl. 102—210

5 Claims



1. In a generator for the generation of electrical energy including a spin projectile and a piezo element in said spin projectile; the improvement comprising: said piezo element having a tubular configuration and contacting the interior of the projectile shell, and further being polarized radially relative to the longitudinal axis of said projectile; and core means being radially segmented and also being radially movably supported within said projectile shell so as to charge said piezo element during the rotational acceleration of said projectile.

4,316,414

FUZE

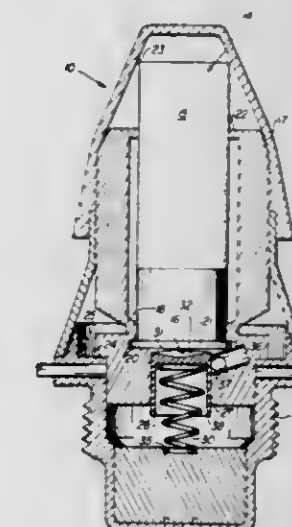
Gerald P. Hermanson, Maitland, Fla., assignor to Dayron Corporation, Orlando, Fla.

Filed Nov. 9, 1979, Ser. No. 93,021

Int. Cl.³ F42C 15/24

U.S. Cl. 102—247

16 Claims



1. A self-arming fuze comprising in combination: a fuze casing; ignitable material located in said fuze casing; igniting member mounted in said casing for igniting said ignitable material upon receiving a predetermined impact; movable arming member; track means for guiding said movable arming member during movement; and movable firing member biased toward said igniting member, said movable firing member having means to block said movable arming member from moving into an armed

position when said movable firing member is in one position and allowing the movement of said movable arming member into an armed position when in a second position, movement of said movable firing member against said biasing means being inertial movement relative to movement of said fuze casing in flight, whereby said fuze is armed during flight.

4,316,415

DETONATING CORD WITH FLASH-SUPPRESSING COATING

James J. Baker, Benson, Ariz., assignor to Apache Powder Company, Benson, Ariz.

Filed Mar. 27, 1979, Ser. No. 24,353

Int. Cl.³ C06C 5/04

U.S. Cl. 102—275.8

25 Claims

1. A detonating cord comprising a core of high explosive encased in a composition extrudable at safe temperatures and comprising a halogenated polymer with sufficient halogenation to prevent ignition of combustible materials adjacent and exterior to the cord upon detonation.

4,316,416

MOBILE APPARATUS FOR REPLACING OLD TRACK TIES BY NEW TRACK TIES

Josef Theurer, Vienna, and Friedrich Oellerer, Linz, both of Austria, assignors to Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H., Vienna, Austria

Filed Aug. 27, 1979, Ser. No. 70,314

Claims priority, application Austria, Sep. 13, 1978, 6629/78

Int. Cl.³ E01B 27/02, 27/11

U.S. Cl. 104—2

6 Claims



1. A mobile apparatus for replacing old track ties by new track ties resting on ballast, which comprises a track renewal train mounted for movement along a right of way consisting of an old track section, a new track section and an intermediate right of way section wherein the track is renewed, the train including a vehicle bridging the intermediate right of way section and having an upwardly recessed frame defining a free space between the frame and ballast, the vehicle carrying means for spreading the rails of the old and new track sections to a distance at least equal to the length of the ties and for guiding the spread rails in the longitudinal direction of the train, as well as means for removing the ties of the old track section arranged frontwards of the free space, means for laying the ties of the new track section arranged rearwardly of the free space, and a carrier frame arranged in the free space for equipment for lowering the level of, and planing, the ballast in a first zone of the intermediate right of way section to obtain a section of lowered and planed ballast therein, the ballast lowering and planing equipment including a ballast planing shield, a ballast conveying elevator, a ballast planing plate and a ballast dumping device, the ballast planing shield extending across the intermediate right of way section in the free space and having a width at least equal to the length of the ties of the new track section, the ballast planing shield having a front end for scraping engagement with the ballast in the first zone and extending obliquely upwardly to a trailing end, the ballast conveying elevator being associated with the ballast planing shield and extending therealong and obliquely upwardly substantially parallel thereto, the free space being of sufficient height to accommodate the elevator and the elevator extending over the width of the shield and having an input end adjacent the front end of the shield and an output end at the trailing end thereof,

the ballast planing plate extending horizontally for engagement with the lowered and planed ballast between the first zone and the tie laying means, and the ballast dumping device being arranged to receive ballast from the output end of the elevator, the ballast dumping device bridging over the spread rails guided by said means and having ballast outlet means arranged to discharge the dumped ballast in another zone outside the lowered and planed ballast between the first zone and the tie laying means.

4,316,417

WELDED SIDE FRAME COLUMN WEAR PLATE

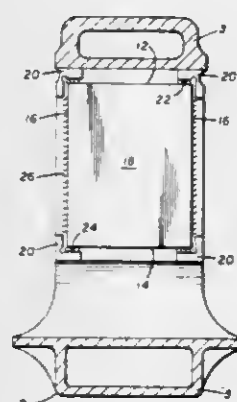
Albert E. Martin, Lancaster, N.Y., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Jan. 14, 1976, Ser. No. 648,994

Int. Cl.³ B61F 5/12, 5/24, 5/50

U.S. Cl. 105—197 DB

5 Claims



1. A railway car truck having side frames with an opening for receiving ends of a bolster, the opening having laterally spaced vertical columns adapted to receive a removable wear plate, a vertical wear plate disposed on at least one of said columns below an upper compression member and above a lower tension member, the plate being less than the vertical extent of the column and, having a wear surface and top and bottom edge surfaces and side edge surfaces connected at corners, there being L-shaped retainers disposed adjacent the corners for restraining vertical and horizontal movement of the wear plate and a weldment at least between the L-shaped retainers and portions of the adjacent edge surfaces of the wear plate with the wear plate in intimate contact with the column for securing the wear plate.

4,316,418

CONVERTIBLE RAIL HIGHWAY SEMI-TRAILER AIR CONTROLLED SUSPENSION SHIFTING SYSTEM

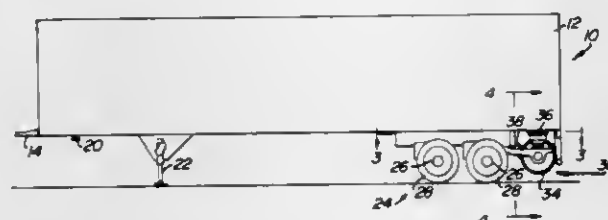
Eugene Hindin, Bala Cynwyd, Pa.; Alan R. Cripe, Richmond, Va., and Christopher A. Cripe, Coatesville, Pa., assignors to Bi-Modal Corporation, Greenwich, Conn.

Filed May 1, 1980, Ser. No. 145,748

Int. Cl.³ B60F 1/04; B61D 3/10; B61H 1/00; B62D 61/12

U.S. Cl. 105—215 C

5 Claims



1. In a vehicle convertible from highway to railroad mode of travel and vice versa including a body; a rail wheel-set axle unit, air spring means supporting said body on said rail wheel-set axle unit adjacent the rear of the vehicle, a highway wheel-set axle unit, air spring means supporting said body on said highway wheel-set axle unit independently of, adjacent and in

front of said rail wheel-set axle unit and means interconnecting said body and said rail wheel-set axle unit operative to lift and retain said rail wheel-set axle unit to its elevated stored inoperative position in the highway mode, and means interconnecting said body and said highway wheel-set axle unit independently of said body and rail wheel-set axle unit interconnecting means and operative to lift and retain said highway wheel-set axle unit to its elevated stored inoperative position in the rail mode wherein the rail wheels are in a track engaging position.

an air control system operatively interconnecting a source of compressed air with said air spring means of said rail wheel-set axle unit and of said highway wheel-set axle unit to selectively inflate and deflate said rail wheel-set axle unit air spring means and the highway wheel-set axle air spring means and thereby raise said rail wheel-set axle unit into an elevated inoperative position and lower said highway wheel-set axle unit into a ground-engaging position for the highway mode of travel and vice versa,

said air control system comprising:

- a three way mode selector valve connected to said source of compressed air for directing the application of pressure from said source of compressed air to said rail wheel-set axle unit air spring means when it is in a first position during a rail mode of travel, for directing the application of pressure from said source of compressed air to said highway wheel-set axle air spring means when it is in a second position during a highway mode of travel, and for preventing the application of pressure from said source of compressed air to both rail wheel-set axle unit and highway wheel-set axle unit air spring means when it is in a third position during a transfer from one mode of travel to the other, and
- levelling valves to control air from said source of compressed air to said rail and highway wheel-set axle unit air spring means to maintain them at predetermined heights.

4,316,419

PLASTICS PALLET

Ernst P. Cupido, Hardenberg, Netherlands, assignor to Wavin, B.V., Handellaan, Netherlands

Continuation-in-part of Ser. No. 748,306, Dec. 7, 1976,

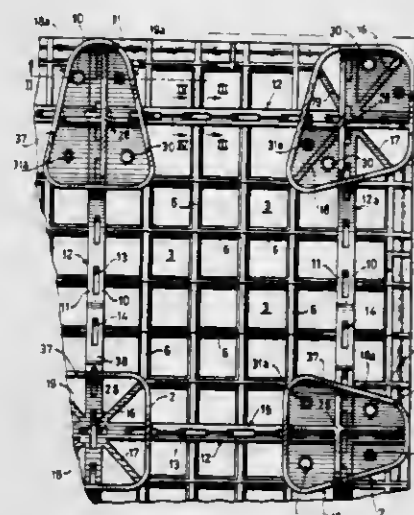
abandoned. This application Dec. 20, 1978, Ser. No. 971,223

Claims priority, application Netherlands, Dec. 9, 1975, 7514365; Dec. 9, 1975, 7514366

Int. Cl.³ B65D 19/32

U.S. Cl. 108—56.1

6 Claims



- A pallet of plastic material, comprising an upper loading surface being defined about its periphery by side edges;
- a plurality of blocks secured to the pallet and extending on the underside of and projecting down from the upper loading surface;
- located underneath the upper loading surface and spaced

inwardly from the side edges thereof, there is at least one oblong shaped reinforcing channel; walls which are attached underneath the upper loading surface for defining the channel; the channel having an upper side that is at least partly defined by the upper loading surface, the channel being shaped and adapted for removably receiving a reinforcing member;

a reinforcing member in said channel; means for locking the reinforcing member in said channel in a removable way, the locking means comprising one of the walls that defines the channel being recessed, whereby the reinforcing channel for accommodating the reinforcing member takes an undulatory configuration in its longitudinal direction, so that the wall clampingly engages the reinforcing member.

4,316,420

FURNACE HEAT ABSORPTION CONTROL

Edward L. Kochey, Colebrook, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

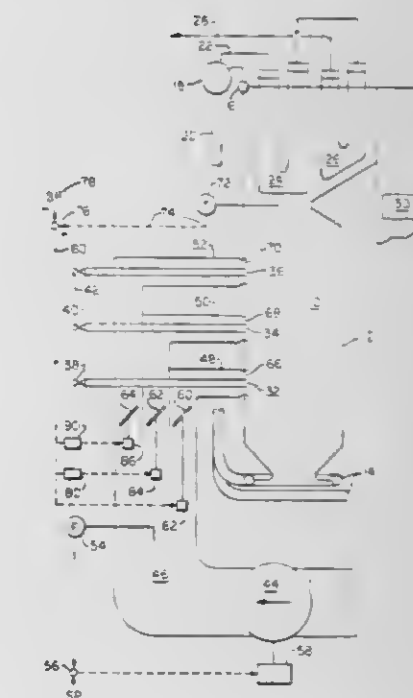
Division of Ser. No. 958,225, Nov. 6, 1978, Pat. No. 4,237,825.

This application Apr. 28, 1980, Ser. No. 144,747

Int. Cl.³ F23K 1/00; F23D 1/00

U.S. Cl. 110—347

2 Claims



- A method of operating a fossil fuel-fired steam generator, having a water wall lined furnace at firing rates below those corresponding to the minimum air flow rate comprising: conveying the minimum air flow to the furnace; injecting fuel in suspension at a location in the furnace; injecting a portion of said minimum air flow adjacent the injected fuel which is at least a stoichiometric quantity for the injected fuel; injecting the remainder of the air flow into the furnace at a location remote from the fuel injection location; measuring a parameter indicative of the furnace wall heat absorption; and adjusting the relative quantity of air introduced adjacent remote from said fuel injection location in response to said measured parameter; and increasing the furnace wall heat absorption by reducing the air adjacent said fuel injection with respect to the air introduced remote from said fuel injection location; and decreasing furnace heat absorption by increasing the air introduced adjacent said fuel injection location with respect to the air introduced remote from said fuel injection location.

4,316,421

ANTI-HALOING THROAT PLATE

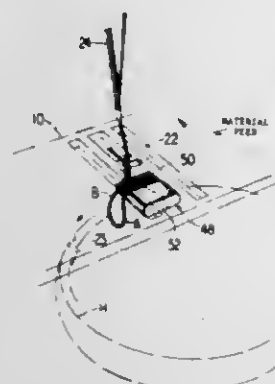
Stanley J. Ketterer, Jamesburg, N.J., assignor to The Singer Company, Stamford, Conn.

Division of Ser. No. 940,935, Sep. 11, 1978, Pat. No. 4,266,494.
This application Oct. 17, 1979, Ser. No. 85,849

Int. Cl.³ D05B 57/08, 73/12

U.S. Cl. 112—184

3 Claims



1. In a sewing machine having a bed, a reciprocating thread carrying needle and a loop taker rotatably supported within said bed for grasping and expanding a loop of thread forming a work limb and a take-up limb as said needle penetrates the material being sewn, an anti-haloing device comprising a throat plate having an aperture formed therein through which said needle traverses, means on said throat plate for separating and for positively restraining said work limb from said take-up limb of said loop of thread thereby preventing said work limb from being prematurely drawn through the material being sewn due to friction with said take-up limb, said means comprising a resilient plate fastened to said throat plate, said resilient plate to capture and accommodate said work limb of thread, said resilient plate being deflected away from the throat plate as a result of said work limb interposed therebetween, the deflection of said resilient plate exerting a force against said work limb of thread.

4,316,422

COMBINED SEWING MACHINE HOUSING AND CLAMPING JIG

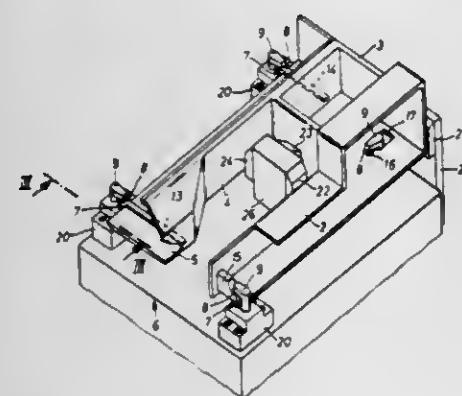
Willi Meier, Karlsruhe-Durlach, Fed. Rep. of Germany, assignor to Dorina Nahmaschinen GmbH, Fed. Rep. of Germany
Filed Sep. 10, 1979, Ser. No. 73,636

Claims priority, application Fed. Rep. of Germany, Sep. 8, 1978, 2839090

Int. Cl.³ C05B 73/00

U.S. Cl. 112—258

7 Claims



1. A combined housing particularly a sewing machine housing and a clamping jig therefor to position the housing for machining purposes, comprising a housing having a bed arm, a column with a bottom end connected to one end of said bed arm and extending upwardly therefrom and having an opposite top end, and an upper arm having an inner end connected to the top end of said column with an opposite outer end having

a head portion said bed arm and upper arm having respective bottom and top ends opening outwardly, said housing including a plurality of bearing surfaces defined on the interior thereof located in exteriorly accessible locations including said bed arm and upper arm openings, and a clamping jig having an open top receiving surface onto which said housing is placed and having a movable clamping member disposed alongside each of said bearing surfaces and being movable to engage over said bearing surfaces and clamp said housing to said jig.

4,316,423

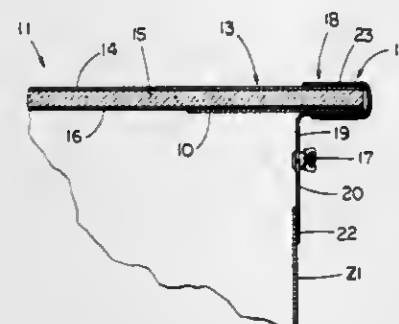
METHOD FOR MAKING A HYBRID WATERBED MATTRESS

Manfred A. Nordstrom, 1618 River St., Burlington, Iowa 52601
Filed Feb. 26, 1981, Ser. No. 238,419

Int. Cl.³ D05B 97/00; A47C 27/08

U.S. Cl. 112—262.1

8 Claims



1. A method for making the border and top panel of a hybrid waterbed mattress which comprises the steps of:

- (a) sewing a flanging material to a top panel along first and second parallel lines, the first line being adjacent the edge of the mattress and the second line being spaced inwardly therefrom along the top panel;
- (b) sewing the top half of a zipper simultaneously to the top panel and flanging material along a third line parallel with and spaced between the first and second lines;
- (c) sewing the top half of the zipper simultaneously to the top panel and flanging material along about the first line;
- (d) sewing the bottom half of the zipper to the side panel of the mattress, thereby permitting the top panel to be removed from the mattress by operation of the zipper; and
- (e) sewing a tape over the edges of the top panel, flanging material and top half of the zipper along a fourth line parallel with and intermediate the first and second lines.

4,316,424

WIND PROPELLED CRAFT

Quentin M. McKenna, 2 Ave de la Boussole, Port La Galere, Theoule-sur-Mer, 06590, France

Filed Jan. 2, 1980, Ser. No. 109,085

Int. Cl.³ B63B 35/00

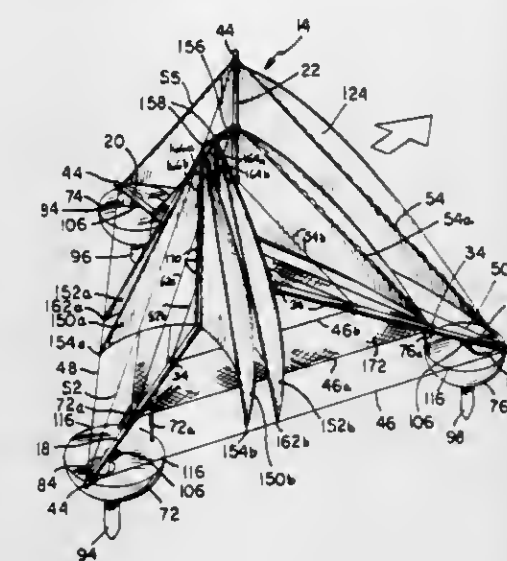
U.S. Cl. 114—39

27 Claims

1. A wind propelled craft adapted to move over a surface comprising:

- three substantially equidistantly spaced support members adapted to engage and be supported on the surface,
- four substantially rigid spars connected together at a juncture and extending radially outward therefrom, each of said spars forming an angle of about 110° with each of the other spars, said spars having ends distal from the juncture,
- a plurality of substantially equilateral taut, flexible stays connected to and between each one of said spars and the other spars, respectively, said stays being connected to said spars at points substantially equidistant from said juncture so as to form with said spars a frame of substantially equilateral tetrahedral shape,
- three of said spars extending laterally and downwardly from

the juncture and the fourth spar extending vertically upward from the juncture,



said support members being connected to said frame at points near the distal ends of the spars extending laterally and downwardly from the juncture, and a sail connected to said frame.

4,316,425

LIFTING KEEL FOR SPORTING SAIL BOATS

Jurgeo Guido, Borsigstrasse 4, and Norbert Binzer, Ingenieur Rontgen-Str. 54, both of D-8402 Neutraubling, Fed. Rep. of Germany

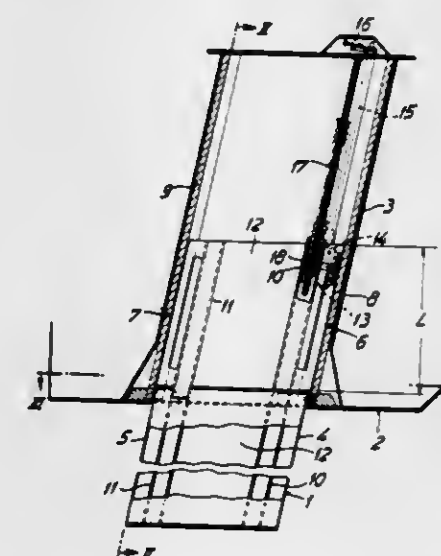
Filed Aug. 3, 1979, Ser. No. 63,122

Claims priority, application Fed. Rep. of Germany, Aug. 10, 1978, 2835085

Int. Cl.³ B63B 41/00

U.S. Cl. 114—141

22 Claims



1. A lifting keel assembly for a sailboat, comprising: a keel having forward and rearward longitudinal edges; a shaft for receiving said keel within the sailboat; a first sliding shoe on the upper portion of one of said longitudinal edges of said keel, said first shoe having two sides with protruding V-profiles; a second sliding shoe on the upper portion of the other of said longitudinal edges of said keel; a first prismatic guide along the interior of said shaft, said first guide having opposing guide surfaces in an inner double V-profile corresponding to the protruding V-profiles of said first sliding shoe, said guide surfaces enclosing and limiting forward, backward and sideways movement of said first shoe; and a second prismatic guide along the interior of said shaft, said

second shoe being received between two opposing surfaces on said second guide.

4,316,426

STRUCTURE FOR THE MOORING OF YACHTS AND SIMILAR CRAFT

Pieter Meeusen, Barendrechtseweg 30, 2992 XB Barendrecht, Netherlands

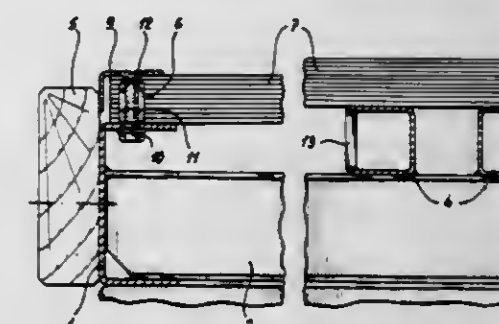
Filed Apr. 10, 1979, Ser. No. 28,922

Claims priority, application Netherlands, Jan. 19, 1979, 7900463

Int. Cl.³ B63B 35/00

U.S. Cl. 114—263

5 Claims



1. A structure for berthing marine craft comprising longitudinal beams and transverse boards for walking thereon between such beams, characterized in that an elongated retaining strip extends parallel to and above the longitudinal beams and engages the upper sides of the terminal edges of the boards to retain them in vertical direction, the retaining strips extending both above and alongside the transverse terminal edges of the boards, and in that fastening means extend upwardly from the longitudinal beams between two adjacent boards and engage the retaining strips in order to secure them and to press them downwardly onto the upper sides of the terminal edges of the transverse boards, the transverse boards being free from any member that penetrates them to hold them in place.

4,316,427

DEPLETION INDICATING MECHANISM FOR A STORAGE BIN

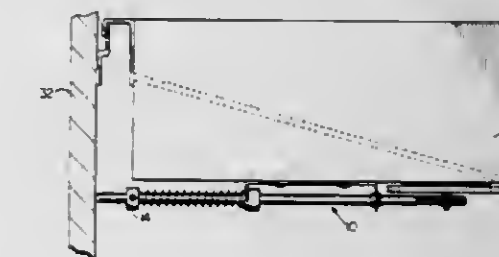
Robert H. Sand, Canton, Conn., assignor to The Vulcan Radiator Company, South Windsor, Conn.

Filed Jun. 30, 1980, Ser. No. 164,184

Int. Cl.³ B65D 91/00

U.S. Cl. 116—215

17 Claims



1. In a depletion indicating mechanism for attachment to a storage bin which is pivotally supported above its center of gravity in a fixed frame structure, said indicating mechanism comprising: means defining an elongated member, said member having a first and second end and including a flange adjacent the first of said ends, a mounting base with collars for slidably receiving said elongated member, said elongated member being slidable along its longitudinal axis, a compression spring received loosely about said elongated element and imposing a force between said flange and one

of said collars of said base so that when said indicating mechanism is mounted to said storage bin and said first end of said elongated member engages said fixed structure, said spring holds said bin in an upper elevated tilt position in opposition to the gravitational bias of the center of gravity of said bin when said bin is depleted, said spring holding said bin in a lower elevated position when said bin is filled to capacity, and means for indicating angular displacement of said bin between said upper and lower elevated positions.

4,316,428

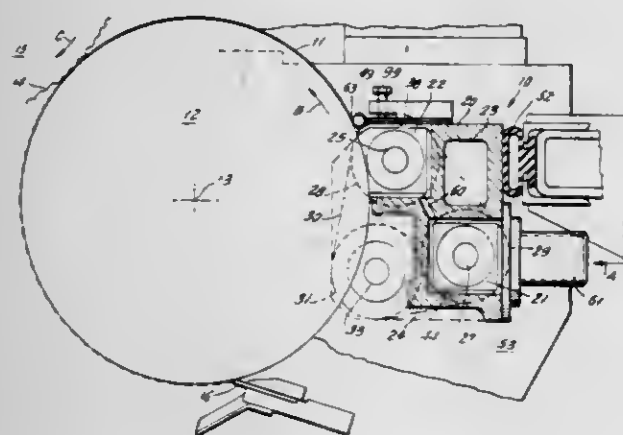
FLUID METERING DEVICE

Stephen S. Flaum, Brooklyn, and Jozef Z. Zielinski, Flushing, both of N.Y., assignors to S&S Corrugated Paper Machinery Co., Inc., Brooklyn, N.Y.

Filed Dec. 1, 1980, Ser. No. 211,832
Int. Cl.³ B05C 1/08

U.S. Cl. 118—203

10 Claims



1. Fluid metering means including a fluid carrying cylinder for applying a fluid film to an element moving relative to said cylinder; said fluid carrying cylinder being mounted for rotation on its relatively stationary cylindrical axis; shoe means extending parallel to said cylindrical axis; said fluid carrying cylinder having an outer cylindrical surface and said shoe means having a side confronting a portion of said cylindrical surface; an elongated fluid cavity extending generally parallel to said cylindrical axis; said fluid cavity being formed by a depression in said side of said shoe means and being partially bounded by a portion of said cylindrical surface; and elongated fluid distribution slot partially bounded by said cylindrical surface and positioned along the downstream edge of said fluid cavity; means movably mounting said shoe means to permit said fluid distribution slot to vary in thickness; biasing means urging said fluid distribution slot to close; an elongated fluid manifold; means defining a plurality of passages connecting said cavity with said manifold; said passages being distributed along the length of said cavity and constituting fluid outlet means for said manifold; first means including spaced end dam elements disposed in said cavity and mounted for movement between positions near the ends thereof and selected positions inboard thereof; second means including spaced end dam elements disposed in said manifold and mounted for movement between positions near the ends thereof and selected positions

inboard thereof in relation to movement of the dam elements of said first means; the dam elements of said first and said second means being positionable inboard of some of said passages; said manifold having fluid inlet means at a central region thereof disposed inboard of the elements of said second means; said inlet means being operatively connected to receive fluid from a fluid supply means, which fluid flows through said manifold to said cavity through those of said passages positioned inboard of the elements of said first means and flows from said cavity through said slot to form a fluid film on said cylinder having a width equal substantially to the spacing between the elements of said first means.

4,316,429

Patent Not Issued For This Number

4,316,430

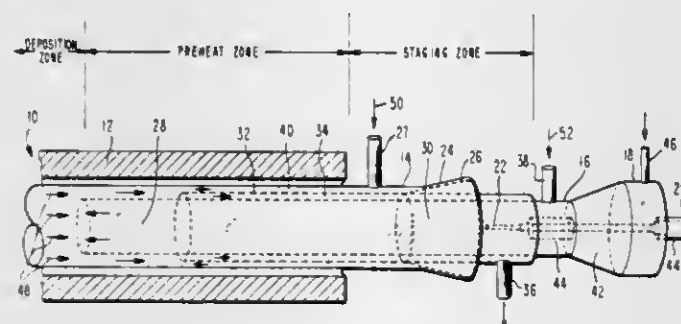
VAPOR PHASE DEPOSITION APPARATUS

Stuart T. Jolly, Yardley, Pa., and John P. Paczkowski, Kingston, N.J., assignors to RCA Corporation, New York, N.Y.

Filed Sep. 30, 1980, Ser. No. 192,476
Int. Cl.³ C23C 13/08

U.S. Cl. 118—725

10 Claims



1. A vapor phase deposition apparatus, comprising: a reactor tube, having an open end; means for heating a portion of the reactor tube which is displaced from said open end; a jacketed assembly tube, having first and second open ends and being movable to a position which is coaxial within said reactor tube, such that when it is in said coaxial position; the first end of the assembly tube is within the heated portion of the reactor tube, the second end of the assembly tube extends from the open end of the reactor tube, and the assembly tube forms an annular channel with the reactor tube; means for sealing said channel, in proximity to the open end of the reactor tube and the second end of the assembly tube; a reactor tube gas inlet, in proximity to the open end of the reactor tube, providing a passage to said channel;

a vent, providing a passage to the jacketed portion of the assembly tube in proximity to the second end of the assembly tube; an assembly tube gas inlet, providing a passage to a central portion of the assembly tube; a bearing/plug assembly, mountable so as to seal the second end of the assembly tube; and a rod, having a substrate holder on the end thereof, said rod being slidably mounted within the bearing assembly such that the substrate holder is movable, within the central portion of the assembly tube, from a position in proximity to the second end of the assembly tube to a position within the heated portion of the reactor tube.

4,316,431

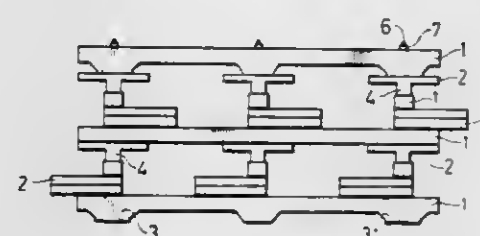
ARTIFICIAL FISH-GATHERING UNDERWATER REEF

Koichi Kimura, 16-6, Mikunihonmachi 2-chome, Yodogawa-ku, Osaka-shi, Osaka-fu, Japan

Filed Aug. 29, 1980, Ser. No. 182,496
Int. Cl.³ A01K 61/00

U.S. Cl. 119—3

4 Claims



3. An artificial fish-gathering reef comprising: a plurality of interconnected reef forming layers, each said layer having a substantially horizontal extent and being vertically spaced apart from the adjacent layer; each said layer including plural transverse interconnection means aligned in mutually spaced apart relation, and plural plate means disposed in fixed relation to each interconnection means at intervals therealong so that an open space exists between adjacent plate means; upstanding means associated with each plate means and extending in vertical spaced apart relation to the plate means; each reef forming layer being separated from adjacent said layers by said upstanding means to form a stack of such layers maintained in mutually spaced apart relation; and each reef forming layer being rotated a certain fixed extent relative to the adjacent layer, as viewed downwardly, so that the plate means of each said layer are vertically overlaid and said open spaces are vertically aligned to admit sunlight through the artificial reef.

4,316,432

BATTERY CAGE ARRANGEMENT FOR LAYING HENS

Josef H. Kuhlmann, Königstrasse 51, D-4401 Laer, Fed. Rep. of Germany

Filed Oct. 1, 1979, Ser. No. 80,493

Claims priority, application Fed. Rep. of Germany, Jul. 21, 1979, 7920942[U]

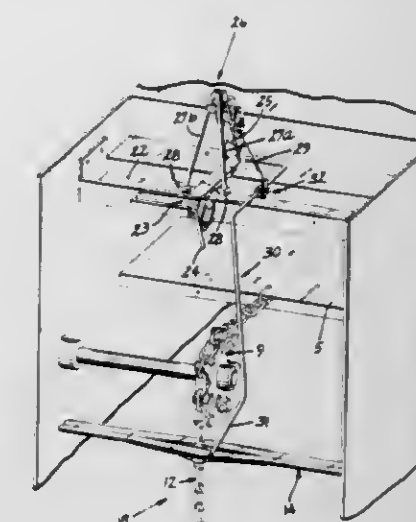
Int. Cl.³ A01K 31/04; B65G 45/02

U.S. Cl. 119—22

5 Claims

1. Dung removal conveyor for multideck poultry battery-nest installations having upper and lower decks with roost grates and with droppings plates, arranged under the roost grates, across which can be displaced dung removal conveyors having upper and lower runs, each dung removal conveyor consisting of a drawing means bearing scraper crosspieces and led over upper and lower guide pulleys, and looping around the installation in a longitudinal direction so that the upper conveyor runs sweep over the droppings plates of the upper deck and the lower conveyor runs sweep over the droppings plate of the lower deck, characterized by (a) a single-chain conveyor as a dung removal conveyor

having a central draw chain to which are centrally connected by eyelets the scraper crosspieces; and (b) an oil pan above the upper guide pulley of each dung removal conveyor, with an oil dispensing contrivance



actuated by contact with said crosspieces which feeds oil onto the draw chain in the region of the guide pulley, said oil dispensing contrivance including two plungers, of which one loads an intermediate oil pan and the other the eyelet of the scraper crosspiece.

4,316,433

ANIMAL WASHING STAND

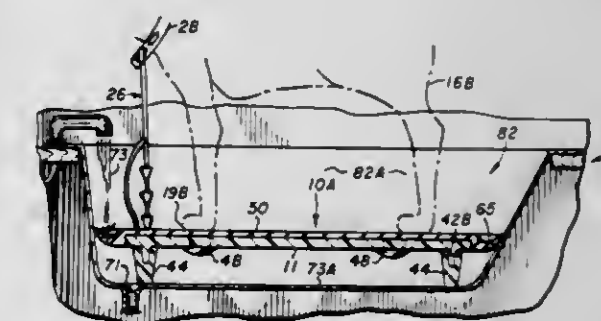
Kenneth B. Hebert, 1200 Dixon Rd., Little Rock, Ark. 72206

Filed Jan. 21, 1980, Ser. No. 113,469

Int. Cl.³ A01K 13/00

U.S. Cl. 119—158

4 Claims



1. An animal bathing stand adapted to be disposed within a wash basin or the like, said stand comprising: a rigid, generally planar central supporting surface; foot means for elevating said central supporting surface a predetermined distance above a lowermost surface within said basin, said foot means comprising a plurality of nubs integrally attached to said supporting surface and stand-offs selectively attachable to said nubs for varying the height at which said central surface may be positioned within said basin; resilient non perforated pad means disposed on said supporting surface for providing firm footing for an animal to be washed, said pad means including a peripheral skirt for adapting said stand for use in differing sizes of basins, said skirt provided with a plurality of spaced-apart drain holes; and, means for coupling leash means to said stand whereby to restrain said animal to be washed.

4,316,434

METHOD AND APPARATUS FOR IMPROVING HEAT TRANSFER

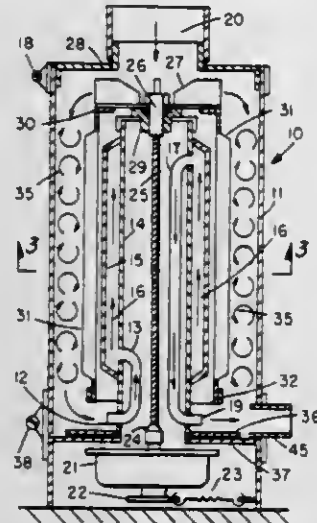
Frank W. Bailey, New York, N.Y., assignor to Bailey Burners, Inc., Haskell, N.J.

Filed Feb. 13, 1980, Ser. No. 120,978

Int. Cl.³ F22B 33/00

U.S. Cl. 122—20 B

16 Claims



1. A process for improving convective heat exchange between a generally cylindrical exchanger and surrounding fluid the steps of

- mounting a pervious cylindrical stirring mechanism with a single end support baffle and central rotary drive means for rotation in the fluid boundary layer surrounding said generally cylindrical exchanger,
- rotating said pervious stirring mechanism with external power delivered through said central rotary device means and single support baffle,
- generating hydrodynamic bearing support for a portion of said pervious cylindrical stirring mechanism relative to said generally cylindrical exchanger through rotation in said fluid boundary layer,
- maintaining a rotary stirring velocity in said fluid boundary layer,

whereby instability generated within said fluid boundary layer assures improved convective heat exchange with said generally cylindrical exchanger and convective vorticity exchange with surrounding fluid in accordance with Taylor Vorticity Transport Principle.

4,316,435

BOILER TUBE SILENCER

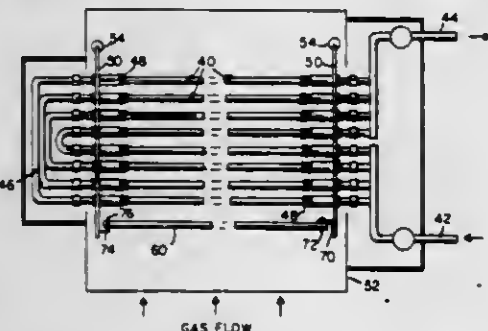
Brian H. Nagamatsu, Peabody, and Barney Rolsma, Topsfield, both of Mass., assignors to General Electric Company, Lynn, Mass.

Filed Feb. 27, 1980, Ser. No. 125,188

Int. Cl.³ F22B 15/00

U.S. Cl. 122—235 F

7 Claims



1. A heat exchange apparatus comprising a gas carrying duct having a plurality of fluid carrying tubes disposed across the duct, said heat exchange apparatus having an upstream end and

a downstream end with respect to gas flow through the duct and further including:

- a single row of baffles disposed across said duct; each baffle having an equivalent cross section height substantially equal to or greater than the diameter of a fluid carrying tube; and, said single row of baffles being spaced upstream from the first row of fluid carrying tubes at a minimum distance of about twice the equivalent cross section height.

4,316,436

HEAT EXCHANGER

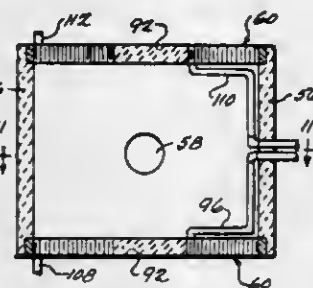
Roy E. McAlister, 5285 Red Rock, North, Phoenix, Ariz. 85018

Continuation of Ser. No. 774,501, Mar. 4, 1977, abandoned. This application Jan. 24, 1979, Ser. No. 6,240

Int. Cl.³ F22D 5/26

U.S. Cl. 122—451 S

11 Claims



1. A fluid heat exchanger comprising a plurality of elongated strips of rigid heat conductive material,

- each of said strips having a cross-sectional configuration which is elongated in a direction transverse to the elongated extent of the strip so as to provide a pair of spaced relatively thin end edges and a pair of relatively wide opposed surfaces extending between said end edges, said strips being generally transversely aligned and wound into a coil formation in which each of the surfaces of each strip is disposed in facing relation to the opposite surface of an adjacent strip in the coil,

each pair of facing surfaces including passage defining portions and force transmitting portions,

certain of the strips having both end edges thereof sealingly secured to the corresponding end edges of an adjacent strip so as to define with the passage defining portions of the facing surfaces associated therewith longitudinal fluid passage means having a coil formation flow direction extending generally in the direction of longitudinal extent of said strips,

certain of said strips having both end edges thereof disposed out of sealing engagement with corresponding end edges of the adjacent strip so as to define with the passage defining portions of the facing surfaces associated therewith transverse fluid passage means having a flow direction extending generally in a direction transverse to the direction of longitudinal extent of the strips,

the force transmitting portions of each pair of facing surfaces being disposed in force transmitting relation with respect to one another so that forces created by the fluid pressure and temperature conditions within said fluid passage means tending to deform said strips in said facing directions are resisted to thereby prevent deformation which would otherwise occur in the absence of said force transmitting relationship and permit the utilization of wall thicknesses less than that required to be self-sustaining in order to prevent such deformation,

means for supporting said coil formation including the end loops thereof,

means for directing heated fluid into and out of said transverse fluid passage means, and

means for cyclically introducing successive incremental

4,316,438

INTERNAL COMBUSTION ENGINE

Haruhiko Iizuka, Yokosuka, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

Filed May 29, 1979, Ser. No. 43,104

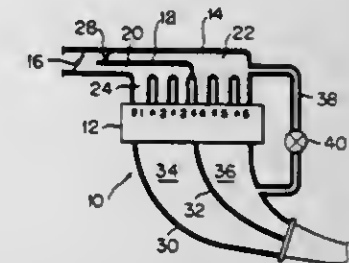
Claims priority, application Japan, Jan. 31, 1979, 54-9887

The portion of this patent subsequent to May 6, 1997, has been disclaimed.

Int. Cl.³ F02D 17/00

U.S. Cl. 123—198 F

3 Claims



4,316,437

ACCELERATION CONTROLLING DEVICE FOR AN AUTOMOBILE VEHICLE

Bernard Bertrand, Vernouillet, France, assignor to Automobiles Peugeot, Paris, France

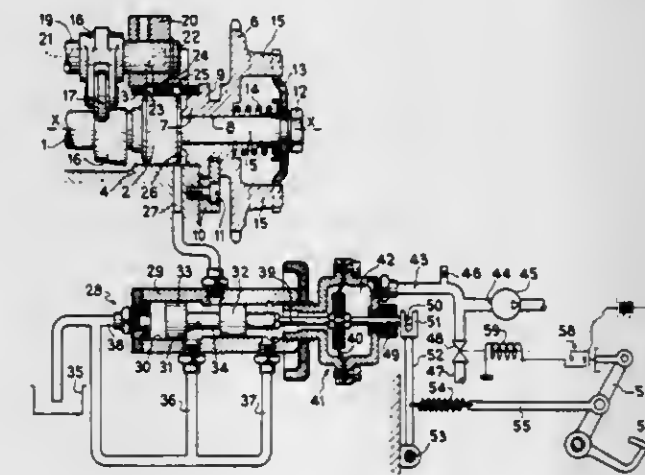
Continuation of Ser. No. 859,209, Dec. 9, 1977, abandoned. This application May 30, 1980, Ser. No. 154,991

Claims priority, application France, Dec. 29, 1976, 76 39459

Int. Cl.³ F01L 1/34

U.S. Cl. 123—90.18

6 Claims



1. An acceleration controlling device for an automobile vehicle comprising an accelerator pedal, an internal combustion engine having a camshaft which is operative to achieve variation in the timing and extent of opening of cylinder valves which are associated with the camshaft and controlled by the camshaft, axial shifting means combined with the camshaft for axially shifting the camshaft, modulating means including a slide valve which is combined with the shifting means for modulating the action of said shifting means, means for controlling said modulating means as a function of the position of the accelerator pedal, said axial shifting means for the camshaft comprising a fixed cylinder, a piston cooperative with the fixed cylinder and defining a chamber, means for feeding oil employed for lubricating the engine to said chamber, means connecting the chamber to discharge through said modulating means and comprising means defining a discharge orifice, mechanical means connecting said slide valve to the accelerator pedal, a source of pressure which represents the speed of the engine, a pressure-responsive vessel which is connected to said source, said vessel having a movable diaphragm connected to the slide valve of the modulating means, the mechanical means connecting said slide valve to the accelerator pedal comprising a connecting rod connecting the slide valve to the diaphragm of the vessel, an extension of said rod extending beyond said diaphragm, a pivotal lever having an end portion, said rod extension being pivoted to the end portion of the pivotal lever, the accelerator pedal having an arm and elastically yieldable means and a rod connecting the accelerator pedal arm to said end portion of the lever.

4,316,439

ROTARY ENGINE WITH INTERNAL OR EXTERNAL PRESSURE CYCLE

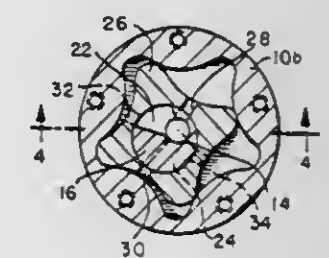
Joe W. Tyree, 3201 SW. 110th, Seattle, Wash. 98146

Filed Mar. 10, 1969, Ser. No. 805,615

Int. Cl.³ F02B 53/00

U.S. Cl. 123—246

3 Claims



1. A rotary mechanism for fluid pumps, fluid motors, combustion engines or the like comprising: housing means forming an internal surface means, valve shaft means mounted in the housing and provided with an eccentric means, a rotor journaled on the eccentric portion for rotation about its axis while the rotor axis describes a planetary motion relative to the axis of the housing, the rotor having projecting sealing means disposed intermittently around the outer periphery of the rotor in sealing engagement with

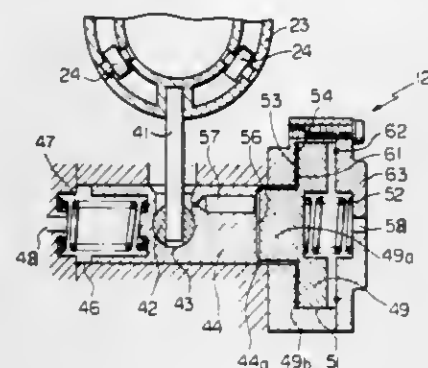
the internal surface means of the housing thereby forming a plurality of variable volume working chambers between the rotor and housing means, and

inlet and outlet passages communicating with each of the working chambers disposed within the eccentric valve shaft and rotor with opening and closing of the inlet and outlet passages to each working chamber controlled by rotation of the rotor relative to the eccentric valve shaft means,

the internal surface means of the housing means has a plurality of symmetrically arranged circumferentially spaced concave lobe portions and the rotor has a plurality of symmetrically arranged circumferentially spaced convex lobe portions on the peripheral outer surface, there being one less lobe on the rotor than the housing means, the lobes of the rotors substantially filling the lobes of the housing as the rotor rotates in the housing,

an air-fuel mixture is received at predetermined intervals into the working chambers, compressed, expanded and released in a normal work cycle.

spring urging the first piston toward abutment with the second piston, a second spring urging the second piston toward abutment with said end wall, engine driven pump means for pumping fuel at a pressure which increases with engine speed and a passageway connecting the pump means with a space between adjacent ends of the first and second pistons respectively, characterized by comprising an annular seal coaxially disposed



4,316,440

KNOCK DETECTING APPARATUS FOR INTERNAL COMBUSTION ENGINE

Hiroaki Yamaguchi, Anjo; Tadashi Hattori, and Yoshinori Oot-suka, both of Okazaki, all of Japan, assignors to Nippon Soken, Inc., Nishio, Japan

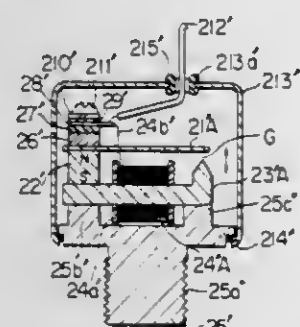
Filed Nov. 28, 1979, Ser. No. 98,247

Claims priority, application Japan, Apr. 28, 1979, 54-53142

Int. Cl.³ G01L 23/22, 33/22; F02P 5/14

U.S. Cl. 123-428

5 Claims



1. A knock detecting apparatus for internal combustion engines comprising:

a plurality of vibration detectors having different resonance characteristics each so as to detect a knocking vibration in one of a plurality of different frequency bands and generate a vibration output corresponding to said one frequency band, and

means for combining the vibration outputs of said vibration detectors to produce a cumulative output.

4,316,441

FUEL INJECTION ADVANCE ANGLE CONTROL APPARATUS

Toru Sakuranaka; Masayoshi Kobayashi, and Sachio Nakagawa, all of Higashi Matsuyama, Japan, assignors to Diesel Kiki Company, Ltd., Tokyo, Japan

Filed Jul. 11, 1979, Ser. No. 56,567

Claims priority, application Japan, Sep. 29, 1978, 53-133561[U]

Int. Cl.³ F02D 1/12

U.S. Cl. 123-502

5 Claims

1. A fuel injection control apparatus for an engine including a housing having a first bore, a second bore having an end wall, the first bore colinearly communicating with the second bore through said end wall, a diameter of the second bore being larger than a diameter of the first bore, a first piston slidable in the first bore and being connected so that a fuel injection advance angle of the apparatus corresponds to a position of the first piston, a second piston slidable in the second bore, a first

between said end wall of the second bore and the second piston, the inner diameter of the seal being larger than the diameter of the first bore and the outer diameter of the seal being smaller than the diameter of the second bore, whereby the fluid pressure receiving area of the second piston is relatively small when the second piston abuts against the end wall and is greater when the second piston is moved away from the end wall.

4,316,442

INLET MANIFOLD PREHEATING DEVICE

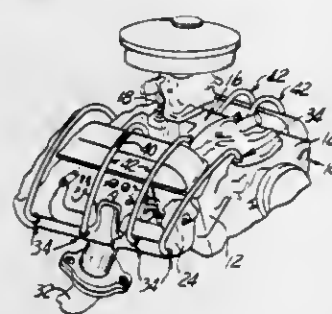
George P. McGinnis, 3426 Hammerberg, Flint, Mich. 48507

Filed Nov. 20, 1979, Ser. No. 96,047

Int. Cl.³ F02M 31/00

U.S. Cl. 123-546

8 Claims



1. An inlet manifold preheating device for internal combustion engine having an inlet manifold and an exhaust manifold, said device comprising at least a first heat conductive probe mounted in said inlet manifold and having a portion disposed projecting within said inlet manifold, a second heat conductive probe mounted in said exhaust manifold and having a portion disposed projecting within said exhaust manifold, and heat conductive means connecting said first probe to said second probe, wherein each of said probes is a single metallic elongated member having a threaded peripheral portion engaged with an internally threaded aperture through a wall of each of said manifolds and said heat conductive means is a metallic conduit having an end connected to one of said probes and another end connected to the other of said probes.

4,316,443

BOW STRING RELEASE AID

Pack Giacomo, Box 584, Krebs, Okla. 74554

Filed Jun. 24, 1980, Ser. No. 162,447

Int. Cl.³ F41B 5/00

U.S. Cl. 124-35 A

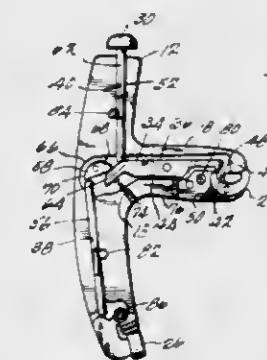
10 Claims

1. A release device for a bow string comprising:
(1) a generally T-shaped housing having a central portion

and first and second arm portions respectively extending outwardly from said central portion to first and second free ends, said first and second arm portions being contoured for gripping by a hand, said T-shaped housing having a generally T-shaped passageway extending through said first and second arm portions and said central portion, said central portion having an open end and a recess for receiving a flexible element, said recess communicating with the central portion of said passageway;

(2) latch means, mounted within said housing at said recess for selective engagement with the flexible element, for alternate opening and closing thereof to alternately retain and release the flexible element with respect to said recess;

(3) first mechanical linkage means, including a first part disposed in the first arm portion of said passageway and a second part disposed in said central portion of said passageway, engageable with said latch means and movable between a first position and a second position, for closing said latch means when said first linkage means is in said



first position and for opening said latch means when said first linkage means is in said second position; and

(4) second mechanical linkage means disposed in the second arm portion of said passageway, engageable with and operative through said second part of said first mechanical linkage means and movable between a third position and a fourth position, for opening said latch means when moved from said third position to said fourth position;

said first linkage means including first mechanical means, disposed at said first free end and engageable by one of the group consisting of a finger other than the thumb and the thumb of said hand when said housing is gripped by said hand, for moving said first linkage means from said first position to said second position;

said second linkage means including second mechanical means, disposed at said second free end and engageable by the other of said group when said housing is gripped by said hand, for moving said second linkage means from said third position to said fourth position.

4,316,444

STOVE CONSTRUCTION

Russell C. Gullickson, 745 Georges Ave., Brookfield, Wis. 53005

Continuation-in-part of Ser. No. 960,037, Nov. 13, 1978,

abandoned, which is a continuation-in-part of Ser. No. 832,336,

Sep. 12, 1977, abandoned. This application Nov. 28, 1979, Ser. No. 98,078

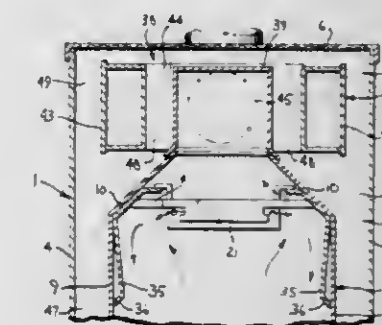
Int. Cl.³ F24C 1/14, 15/28; F24B 5/00; F24H 3/00

U.S. Cl. 126-77

7 Claims

1. A stove construction, comprising a firebox defining a combustion chamber for primary combustion of combustible material, said firebox having an exhaust gas outlet in its upper end communicating with the combustion chamber, a preheat manifold disposed within the upper portion of the combustion chamber and defining a pre-heat chamber communicating with the atmosphere whereby air is drawn from the atmosphere into said preheat chamber and introduced into said combustion chamber, a wall connected to said firebox and spaced from the manifold to provide a passage therebetween for discharge of gases to the outlet, said wall sloping upwardly and inwardly in a direction toward said manifold, a flange extending inwardly

from the sloping wall, the inner edge of the flange being spaced from the side edge of the manifold and the space between said inner edge of the flange and the side edge of the manifold constituting said passage, said manifold having a series of apertures communicating with said pre-heat chamber and facing said sloping wall, air being drawn from the atmosphere into said manifold being preheated in said pre-heat chamber and thereafter being discharged through said apertures toward



said sloping wall and into contact with the waste gases of combustion passing upwardly through said passage, and a combustion member disposed beneath said sloping wall and spaced inwardly from the wall of the firebox, said construction effecting a downwardly recirculation of the mixture of combustible waste gases and air along the combustion member toward the primary combustion region to achieve substantially complete combustion of the combustible waste gases.

4,316,445

COMBUSTION AIR INTAKE SYSTEM FOR WOOD-BURNING STOVE

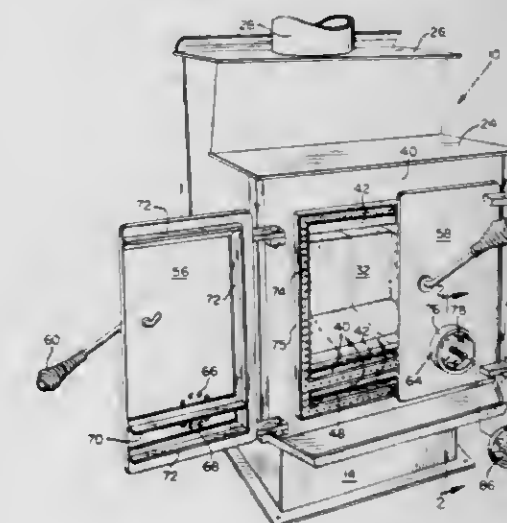
Larry D. Eisiminger, Sweet Home, Oreg., assignor to Sweet Home Stove Works, Inc., Sweet Home, Oreg.

Filed May 21, 1980, Ser. No. 151,823

Int. Cl.³ F24B 5/00

U.S. Cl. 126-77

4 Claims



1. A wood-burning apparatus for heating a room of a dwelling comprising:

a firebox having a front wall and a major opening in said front wall for access to the firebox from the room for loading logs or the like into the firebox;

door means for closing the opening, the door means and the firebox defining the walls of a combustion chamber;

means for carrying combustion gases from the combustion chamber to the exterior of the dwelling;

first wall means defining a preheating chamber adjacent to the combustion chamber;

air intake means for communicating air from outside the dwelling into the preheating chamber;

second wall means defining a draft chamber, the second wall means forming a part of the door means, the draft chamber being defined on the exterior of the door means, the second

wall means including first port means providing fluid communication between the preheating chamber and the draft chamber and second port means providing fluid communication between the draft chamber and the combustion chamber, the first and second port means being formed by holes through the door means, the three chambers otherwise being isolated from each other and from the room when the door means is closed; and

draft control means controllable from the room for varying the size of the draft chamber selectively to restrict the flow of air from the preheating chamber to the combustion chamber, the draft control means being operational only when the door means is closed.

4,316,446

WOODBURNING HEATER WITH PROTECTED VIEWING WINDOW

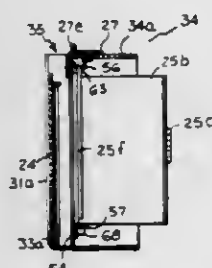
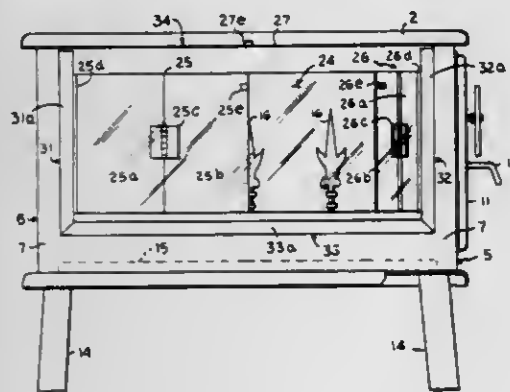
Richard A. Russo, Holbrook, Mass., assignor to Russo Manufacturing Corp., Randolph, Mass.

Division of Ser. No. 936,357, Apr. 18, 1977, abandoned. This application Jun. 25, 1979, Ser. No. 52,121

Int. Cl.³ F23M 7/00

U.S. Cl. 126—200

3 Claims



1. A stove comprising in combination:
 - a housing enclosing a combustion chamber adapted to burn a solid fuel;
 - a side opening in said housing for viewing the interior of said combustion chamber;
 - a frame surrounding said side opening and secured to said housing;
 - a transparent panel supported by said frame at a fixed position spaced forwardly of said side opening;
 - a vent opening in said frame between said transparent panel and said side opening;
 - a vent cover movable on said frame between a closed position blocking said vent opening and an open position providing access therethrough to the space between said transparent panel and said side opening; and
 - door means mounted on said frame within said space, said door means being accessible solely through said vent opening when said vent cover is open and being adjustable between an open position exposing said transparent panel to the interior of said combustion chamber and a closed position providing a protective heat shield between said

transparent panel and the interior of said combustion chamber.

4,316,447

STEAM COOKING APPARATUS

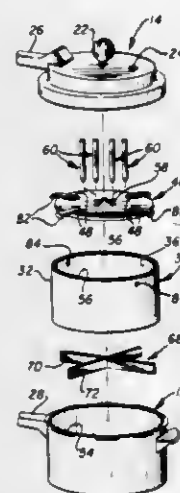
Dave O. Foreman, 606 E. Broadway, Andrews, Tex. 79714

Filed Dec. 3, 1979, Ser. No. 99,842

Int. Cl.³ F24D 1/00; A47J 27/06; B65D 90/04

U.S. Cl. 126—369

9 Claims



1. In a pressure cooker having an upwardly opening cooker body to which there is removably affixed a lid, with seal means between the lid and body to provide a sealed enclosure, and a pressure regulator means by which the pressure within the sealed enclosure is regulated to a value above ambient, the improvement comprising:

an upwardly opening food container of a size to be received within said body, such that an annulus is formed between the body and the container; means supporting the container bottom in spaced relationship respective to the bottom of the body to form a boiler therebetween; a cover plate removably received at the upper end of said container for closing the opening in said container; said cover plate, said container, and said lid jointly form a vapor space above said cover plate;

said cover plate is a relatively thick heating plate which forms a heat sink so that the plate can be preheated to a temperature above 400° F. and subsequently placed into position whereupon the upper surface area of any food contained within the food container is heated;

said cover plate is provided with a plurality of apertures; an elongated heat conducting rod received through each of said apertures, such that one marginal end of said rod is disposed within said vapor space and the other marginal end thereof is disposed within said container;

whereby water can be placed within the boiler, the bottom of the cooker body elevated in temperature to cause the boiler to form steam, whereupon the steam flows up through the annulus, into the vapor space, and is exhausted through the pressure regulator to ambient without condensing onto the heated cover plate.

4,316,448

SOLAR ENERGY CONCENTRATOR SYSTEM

Robert J. Dodge, Houston, Tex., assignor to Pennwalt Corporation, Philadelphia, Pa.

Filed Oct. 6, 1980, Ser. No. 194,536

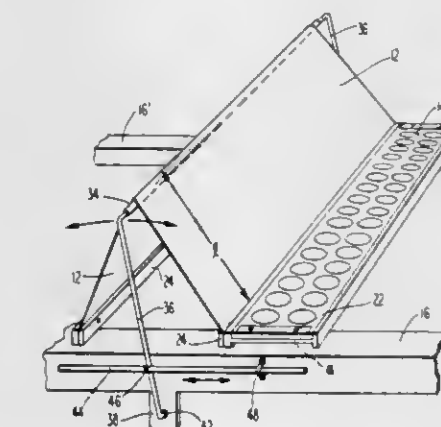
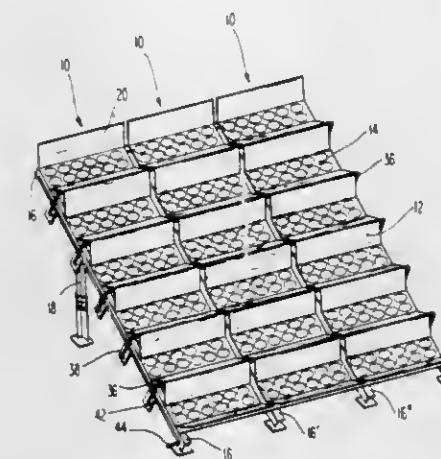
Int. Cl.³ F24J 3/02; G02B 7/18

U.S. Cl. 126—424

11 Claims

1. A solar energy concentrator system comprising
 - a flexible sheet material reflective of radiation from the sun, said sheet forming a V-shaped concentrator having an apex and a pair of free ends,
 - a plurality of support members,
 - collecting means secured across said support members, each

of said free ends secured to a different one of said collecting means at opposing support points, an apex-forming member articulating with pivoting means pivotable on said support members at pivot points substantially equidistant from said opposing support points, and



means for pivoting said pivoting means to thereby shift said apex for varying angle that a face of said concentrator makes with the sun, said collecting means collecting sun's radiation reflected from said concentrator.

4,316,449

SOLAR HEATER

Joseph E. Fodor, 712 Shore Dr., Boynton Beach, Fla. 33435

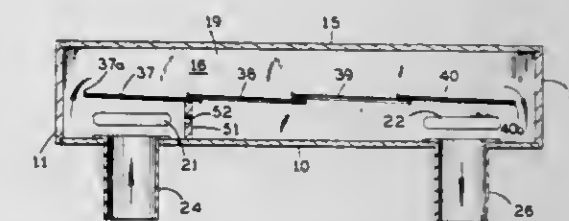
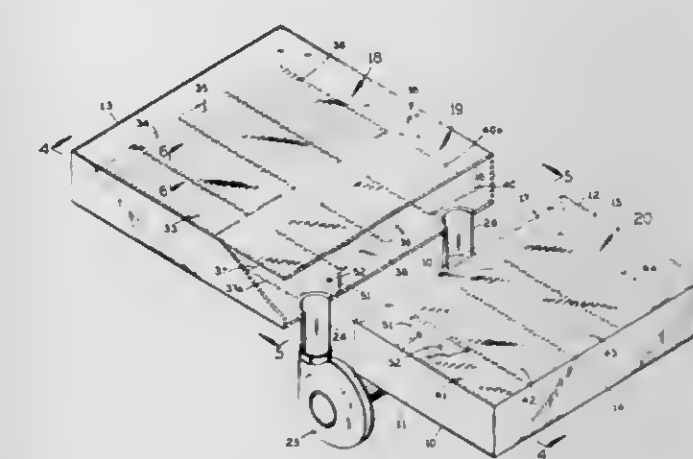
Filed Nov. 6, 1980, Ser. No. 204,457

Int. Cl.³ F24J 3/02

U.S. Cl. 126—429

9 Claims

1. In a solar heater having:
 - a housing having a bottom and upstanding sides and a top cover which passes solar radiation into the interior of the housing;
 - and a plurality of inclined solar radiation-absorbing panels of high heat conductivity material in said housing spaced below said top cover, said panels partially overlapping each other in succession between opposite sides of the housing and defining air passages between them where they overlap;
- the improvement which comprises:
 - means defining an air inlet leading into the interior of said housing directly below the panel closest to one of said opposite sides of the housing;
 - means defining an air outlet leading from the interior of said housing at a location spaced from said air inlet;
 - an upstanding partition inside said housing below said panels between said air inlet and said air outlet, said partition having openings therein for passing a limited flow of air from said air inlet to said air outlet across the bottom of the panels on the same side of said partition as the air outlet;
 - said panel above the air inlet being spaced from the adjacent side of the housing to pass air from said air inlet up into the



and said air passages between neighboring overlapping panels on the same side of said partition as the air outlet passing air from said space down between the overlapping panels and across the bottom of the panels on said same side of said partition to said air outlet.

4,316,450

PROCESS AND APPARATUS FOR THE UTILIZATION OF SOLAR AND GEOTHERMAL ENERGY IN DOUBLE WALL STRUCTURES

Andras Somos; Istvan Turi; Ferenc Zatyko; Janos Gyuros, and Laszlo Borsody, all of Budapest, Hungary, assignors to Kerteszeti Egyetem, Budapest, Hungary

Continuation of Ser. No. 971,937, Dec. 21, 1978, abandoned.

This application Sep. 15, 1980, Ser. No. 187,572

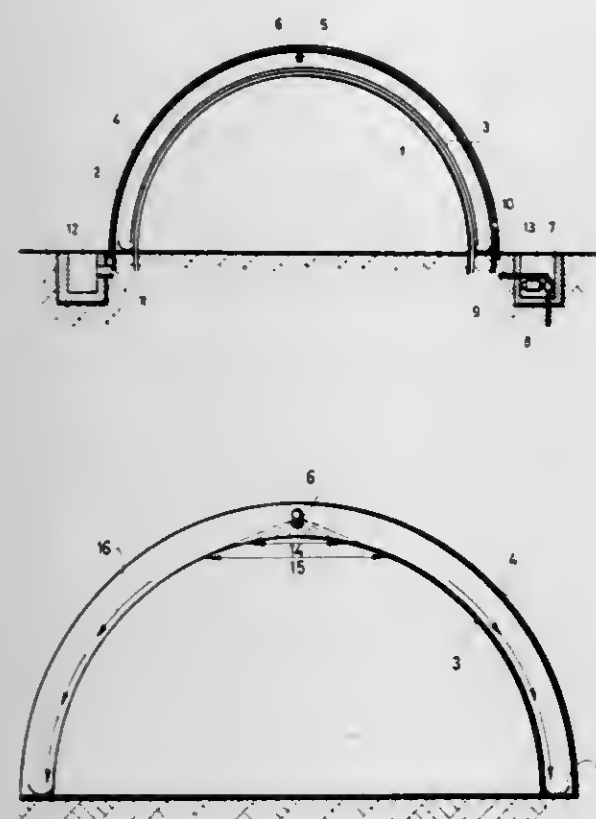
Int. Cl.³ F24J 3/02

U.S. Cl. 126—432

2 Claims

2. An apparatus for using geothermal energy as a source of heat and solar energy as an additional source of heat to control the temperature of the area enclosed by a double wall structure standing on the ground, said structure comprising an inner wall and an outer wall defining an air enclosed space, said inner and outer walls each being a solar transparent foil from front to back of the structure, a water spray means attached to the inner top surface of the outer foil wall facing the outer top surface of the inner foil wall, a pipe connected to said spray means and a pumping means, which pumping means is adapted to pump naturally occurring water through said pipe to said spray means; a water collecting means at the bottom of said enclosed air space to collect runoff water and means to carry the runoff water to a location remote from the source of the naturally occurring water to enable the runoff water to seep into the

ground; wherein said spray means is directed so the water forms a curtain whereby heat from the water is transferred to



the enclosed area and solar energy is permitted to enter the enclosed area, thus controlling its temperature.

4,316,451

SOLAR ENERGY COLLECTOR

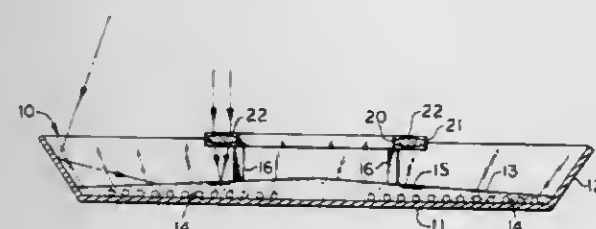
Versal C. Hicks, 501 Delavan Ave., Collinsville, Ill. 62234

Filed Apr. 4, 1980, Ser. No. 137,455

Int. Cl.³ F24J 3/02

U.S. Cl. 126—440

4 Claims



1. A solar energy collector comprising:

- a base,
- a collar carried by the base and angularly related thereto, the collar having a mirror finish,
- an energy absorbing substance for absorbing solar energy carried by the base,
- heat exchange conduit means located within the energy absorbing substance,
- said conduit means receiving fluid passed through the conduit means for absorbing heat from the energy absorbing substance,
- the energy absorbing substance being pine tar,
- the pine tar being formed into a generally conical pad,
- a metallic ring operatively disposed on top of the pine tar, and
- a plurality of lenses located above the metallic ring for focusing solar energy on the metallic ring for heating the pine tar.

4,316,452

SOLAR COLLECTOR

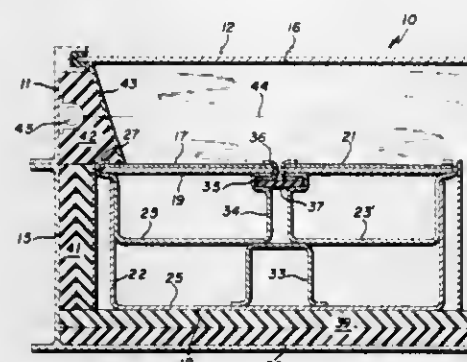
Philip Levine, Bourne, Mass., assignor to Thomassen U.S., Inc., Bourne, Mass.

Filed Aug. 21, 1980, Ser. No. 179,950

Int. Cl.³ F24J 3/00

U.S. Cl. 126—450

22 Claims



1. Solar collector, comprising:

- a box-like rectangular frame adapted to be mounted facing the sun, the frame being formed by two spaced parallel end members and two spaced parallel side members, all members having upper edges facing the sun,
- a glass enclosure mounted in the frame adjacent to the upper edges of the members,
- a heat absorbent sheet mounted in the frame spaced from and parallel to the glass enclosure and located midway between the edges,
- a duct mounted in the frame in a portion thereof away from the glass enclosure, the heat absorbent sheet forming at least part of a wall of the duct, and
- a tension plate forming part of the duct and lying in contact with the said heat absorbent sheet and held in fixed connection therewith, the duct being in the form of two troughs of rectangular cross-section that are nested together and having upper edges, the bottom wall of one trough being spaced from and parallel to the bottom wall of the other trough, the sheet extending between the upper edges of the said other trough, these edges being bound together with the edges of the sheet in heat conductive relationship, the upper edges of the upper trough being folded over the corresponding upper edges of the other trough and the sheet to provide the said relationship.

4,316,453

PORTABLE BODY ELECTRODE

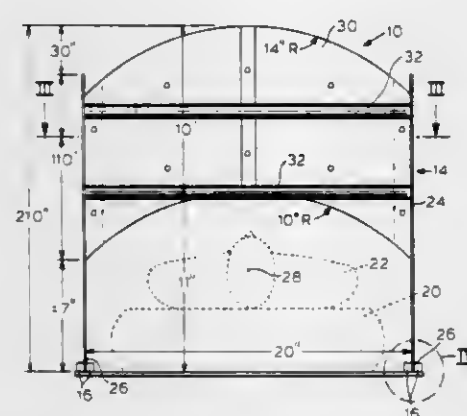
William H. Harrison, Woodland Hills, Calif., assignor to Donald L. Morton & Associates, Pacific Palisades, Calif.

Filed Dec. 26, 1979, Ser. No. 106,667

Int. Cl.³ A61N 1/40

U.S. Cl. 128—1.3

12 Claims



- In an electrode adapted for operative connection to a source of radio frequency energy for use in the treatment of animal tissue by hyperthermia comprising a plurality of electri-

cally interconnected plate members each having at least a pair of plates of electrically conductive material disposed in overlapped relationship with dielectric material disposed between the overlapped portions and wherein the electrically interconnected plate members form a self-resonant single turn loop, the improved electrode comprising:

- a pair of side plate members disposed in parallel spaced relationship with a longitudinal working axis therebetween and parallel to both said side plate members;
- a power plate member disposed between said side plate members in electrical contact with said side plate members and being on one side of said working axis and normal thereto; and,
- a back plate of electrically conductive material disposed between said side plate members on the other side of said working axis and parallel thereto, said back plate being electrically connected to both of said side plate members to thereby complete the self-resonant single turn loop.

4,316,454

THERAPEUTIC POSITIONING DEVICE

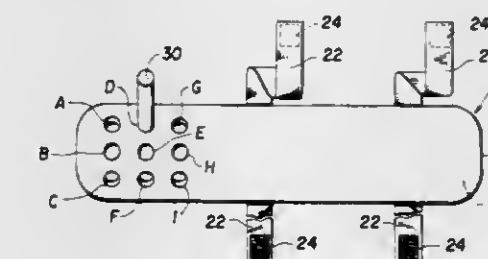
Francis A. Perka, 3314 Arundel Ave., Alexandria, Va. 22306

Filed Aug. 25, 1980, Ser. No. 181,334

Int. Cl.³ A61F 5/10

U.S. Cl. 128—77

7 Claims



1. A therapeutic device used for positioning a limb against pronation or supination as may result from a spastic or a flaccid condition, respectively comprising:

- a support board for supporting said limb; and
- a limb positioning means extending from said support board for preventing limb pronation in the case of a spastic limb or limb supination in the case of a flaccid limb, wherein said support board is provided with a plurality of integrally formed adjustment means for varying the physical relationship between the support board and the limb positioning means and wherein said limb positioning means is removably mounted on said support board in any one of said plurality of integrally formed adjustment means.

4,316,455

METHOD OF DRAPING A SURGICAL PATIENT

W. Keith Stoneback, Arlington Heights, Ill., assignor to American Hospital Supply Corporation, Evanston, Ill.

Filed Jan. 25, 1980, Ser. No. 115,471

Int. Cl.³ A61F 13/00

U.S. Cl. 128—132 D

8 Claims



1. A method of draping a surgical patient comprising the steps of:

- securing a bottom drape to a patient;
- placing a top drape having an opening smaller than the bottom drape in superimposed relationship over the bot-

tom drape so that a portion of the bottom drape is exposed through the top drape's opening; and

- securing the top drape in fixed relationship to the bottom drape.

4,316,456

SURGICAL DRAPE SYSTEM

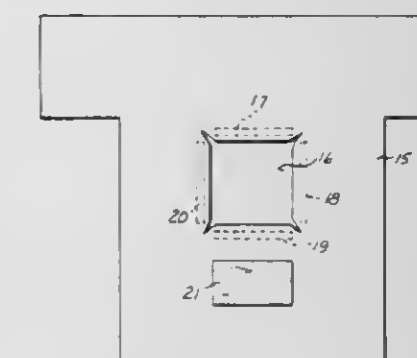
W. Keith Stoneback, Arlington Heights, Ill., assignor to American Hospital Supply Corporation, Evanston, Ill.

Filed Jan. 25, 1980, Ser. No. 115,585

Int. Cl.³ A61F 13/00

U.S. Cl. 128—132 D

11 Claims



- A surgical drape system comprising a plurality of bottom drapes having different fenestrations; a top drape with an opening smaller than the bottom drape, but larger than the bottom drape's fenestration; and the system includes means to secure the bottom drape to a patient and the top drape in superimposed position on the bottom drape, whereby the top drape can be coupled with one of a plurality of bottom drapes to provide a drape system with the desired fenestrations.

4,316,457

PROCESS FOR PRODUCING ORTHOPEDIC STRUCTURES AND A THERMOPLASTIC LINEAR POLYURETHANE FOR USE IN SUCH PROCESS

Jean Marie C. G. Liegeois, Charneux-Herve, Belgium, assignor to Hexcel Corporation, San Francisco, Calif.

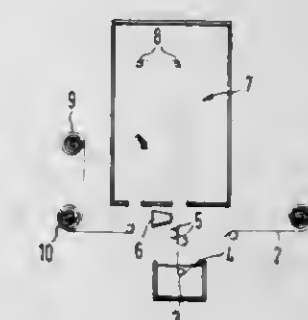
Continuation of Ser. No. 1,261, Jan. 5, 1979, abandoned. This application Oct. 9, 1980, Ser. No. 195,370

Claims priority, application European Pat. Off., Jun. 19, 1978, 78100201

Int. Cl.³ A61L 15/00

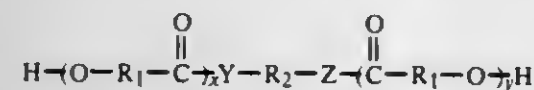
U.S. Cl. 128—156

10 Claims



- A bandage material for forming in place a rigid orthopedic cast, comprising a pliant fabric material comprising low density strands of relatively bulky heat insulating material and defining openings of relatively large diameter; each strand being coated and at least partially impregnated with a solvent solution of a polymer composition comprising a prepolymeric polyurethane having two isocyanate end groups, a chain-extender, and a solvent wherein the solvent is removed under evaporation conditions in the presence of the pliant fabric such that the final thermoplastic linear polyurethane is formed in situ, comprising recurring units of the prepolymeric polyurethane which are linked by radicals of a bifunctional chain-

extender, characterized in that the prepolymeric polyurethane is formed by reacting a diol of the general formula



with a diisocyanate of the general formula $\text{OCN}-\text{R}_3-\text{NCO}$, wherein R_1 represents an alkylene radical having 4 to 6 carbon atoms, which is unsubstituted or may be substituted with lower alkyl groups, cycloalkyl groups, lower alkoxy groups, the number of substituents being 1 to 3, the radicals R_1 being identical radicals or mixed radicals, R_2 represents a lower alkylene radical having 2 to 6 carbon atoms, R_3 comprising the group consisting of a radical of an aromatic or aliphatic diisocyanate, and Y and Z comprise the group of $-\text{O}-$, $-\text{NH}-$ or $-\text{COO}-$, x and y are 10 to 20.

4,316,458

PATIENT VENTILATORS

Allan M. Hammerton-Fraser, Farnham, England, assignor to National Research Development Corporation, London, England

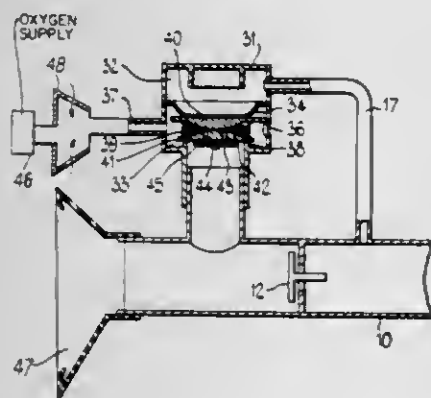
Filed May 8, 1979, Ser. No. 37,519

Claims priority, application United Kingdom, May 9, 1978, 18539/78

Int. Cl.³ A61M 16/00

U.S. Cl. 128—205.24

7 Claims



1. A delivery tube array for a patient ventilator usable for delivering a compression stroke and a suction stroke, the delivery tube array comprising:

- a gas delivery tube including means adapted in use to couple a patient to the patient ventilator for delivering compression and suction strokes to the patient;
- a non-return valve within the delivery tube operable to be open during the ventilator compression stroke and to be closed during the ventilator suction stroke;
- a casing having an upper and lower chamber, said lower chamber having an inlet connected to said gas delivery tube downstream of the non-return valve, said lower chamber also having an outlet vent connected to atmosphere;
- an air bleed pipe communicating between the upper chamber and the gas delivery tube upstream of the non-return valve;
- diaphragm means in said casing for sealing said upper chamber from said lower chamber;
- relief valve means in said lower chamber for closing said lower chamber inlet and providing one way flow from said gas delivery tube to said vent;
- biasing means operatively associated between said diaphragm means and said relief valve means for holding said relief valve means closed during a suction stroke, said diaphragm means responsive to pressure in said upper chamber during a compression stroke for holding said relief valve means closed during said compression stroke;
- an inlet valve means through said relief valve means for providing one way flow from said lower chamber to said

gas delivery tube whereby in use the relief valve means opens when the pressure within the patient's lungs is greater than the gas pressure upstream of the non-return valve, and closes when the gas pressure upstream of the non-return valve is equal to or greater than the gas pressure within the patient's lungs, and the inlet valve means is operable to allow gas to enter the delivery tube when the patient attempts to inhale during a suction stroke.

4,316,459

ENDOTRACHEAL TUBE NOT REQUIRING ADHESIVE TAPE

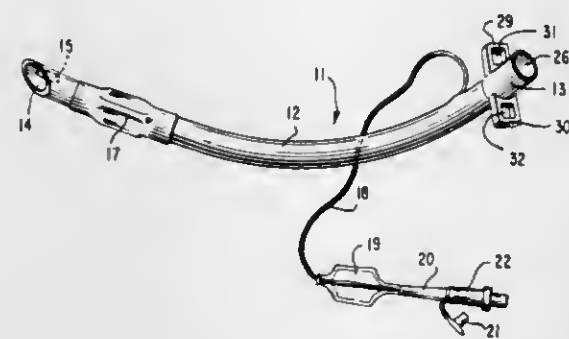
Donald J. Walski, 5733 North Kenmore, Chicago, Ill. 60660

Filed Aug. 9, 1979, Ser. No. 65,128

Int. Cl.³ A61M 16/00

U.S. Cl. 128—207.17

6 Claims



1. In an endotracheal device having a tube with first and second ends with said first end insertable through the mouth of a person and into that person's trachea, the improvement comprising:

- (A) an adaptor, coupled to and removable from said second end of said tube, said adaptor being adapted to couple to mechanical respirating equipment;
- (B) a narrow elongated web of substantially nonadhesive material of sufficient length to extend around said tube and around the head of said person; and
- (C) holding means, attached to said adaptor, for maintaining said web, when around said tube and around the head of said person, in proximity to said adaptor.

4,316,460

GRAVITATIONAL FLOW SYSTEM FOR THE SEQUENTIAL ADMINISTRATION OF MEDICAL LIQUIDS

Joseph N. Genese, Waukegan, and Andrew J. Muetterties, Gages Lake, both of Ill., assignors to Abbott Laboratories, North Chicago, Ill.

Continuation-in-part of Ser. No. 16,227, Feb. 28, 1979,

abandoned, and Ser. No. 16,228, Feb. 28, 1979, Pat. No.

4,223,695, and Ser. No. 16,230, Feb. 28, 1979, Pat. No.

4,250,879, and Ser. No. 16,232, Feb. 28, 1979, Pat. No.

4,219,022, and Ser. No. 16,461, Feb. 28, 1979, Pat. No.

4,256,104. This application Jul. 14, 1980, Ser. No. 167,948

Int. Cl.³ A61M 5/00

U.S. Cl. 128—214 R

22 Claims

1. A gravitational flow system for the sequential administration of medical liquids to a patient comprising:

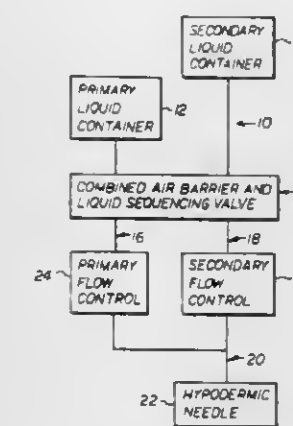
- a primary container suspended in space for containing a primary medical liquid,
- a primary tube having its distal end in fluid communication with said primary container,
- a secondary container suspended in space at a height greater than that of said primary container for containing a secondary medical liquid,
- a secondary tube having its distal end in fluid communication with said secondary container,
- a common tube having its distal end in fluid communication with the proximal ends of said primary and secondary tubes and its proximal end open for the flow of liquid therethrough to form a primary liquid path comprising

said primary tube and said common tube and a secondary liquid flow path comprising said secondary tube and said common tube,

secondary flow control means in said secondary liquid flow path for adjusting the flow rate of said secondary liquid therethrough,

primary flow control means on said primary tube for adjusting the flow of said primary liquid through said primary liquid flow path at a rate independent of the flow rate of said secondary liquid through said secondary liquid flow path, and

a combined air barrier and liquid sequencing valve interposed in said primary and secondary flow paths which



allows primary liquid to flow from said primary container whenever the height of said primary liquid is less than or equal to the height of said secondary liquid in said system and which prevents primary liquid from flowing from said primary container whenever the height of said primary liquid is less than the height of said secondary liquid in said system,

said combined air barrier and liquid sequencing valve comprising a housing having an air capturing pocket disposed in the primary liquid flow path through said valve, said air capturing pocket being constructed and arranged for the entrapment of a quantity of air therein during dispensing of secondary liquid whereby the flow of primary liquid is halted.

4,316,461

INTRAVENOUS VASCULAR STABILIZER

Henri J. Marais, 218 South St., Waltham, Mass. 02154, and Kevin M. Morrison, 320 Lynnfield St., Lynn, Mass. 01904

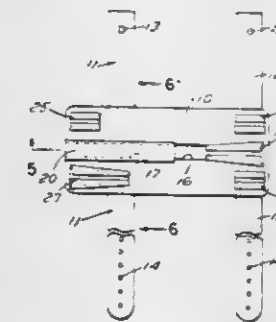
Continuation-in-part of Ser. No. 770,684, Feb. 22, 1977,

abandoned. This application Feb. 22, 1980, Ser. No. 123,893

Int. Cl.³ A61M 5/00

U.S. Cl. 128—214 R

7 Claims



7. An intravenous vascular stabilizer comprising a substantially rigid rectangular base plate having a substantially medial longitudinal aperture defined by edges that closely embrace a vascular strand with an open bracket substantially rigid inverted U-shape bubble hood means overlying substantially the entire length of said aperture, the sides of said hood means connected to the edges of said aperture along a major length thereof to rigify the edges of the longitudinal aperture whereby the bubble hood will cover a substantial portion of

the longitudinal aperture and the edges of the longitudinal aperture will engage the raised vein when pressed from above.

4,316,462

FILTERING DEVICE FOR AN INJECTION DEVICE

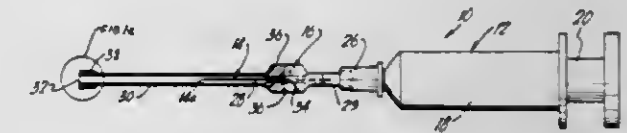
John W. Baker, Flemington, N.J., assignor to Siloam, Inc., Three Bridges, N.J.

Filed May 21, 1980, Ser. No. 151,808

Int. Cl.³ A61M 5/00

U.S. Cl. 128—218 N

47 Claims



1. A filtering device for an injection device which includes a syringe and a needle affixed to the syringe, said filtering device comprising:

an elongated hollow tubular element having a first end and a second end with a hollow tubular body portion extending longitudinally therebetween, said first end including mounting means for mounting said tubular element on said injection device to sealingly enclose at least a portion of said needle within said tubular body portion, said second end being open for the introduction of fluids therethrough into the hollow interior of said tubular body portion, and the longitudinal length of said tubular body portion being such that said second end is spaced from the end of said needle remote from said syringe when said tubular element is mounted on said injection device;

filtering means for filtering fluids drawn through said second end of said tubular element, said filtering means including a central filtering portion corresponding in size to the size of said opening at said second end of said tubular element and an outer peripheral portion surrounding said central filtering portion;

sleeve securing means for securing said filtering means to said tubular element at said second end, said sleeve securing means being mounted on said tubular element at said second end, and said sleeve securing means and said tubular element including respective mating portions for securing said peripheral portion of said filtering means between said sleeve securing means and said tubular element so that only filtered fluid will be drawn into said tubular body portion through said opening at said second end of said tubular element; and

said mounting means mounting said tubular element on said injection device so as to be removable therefrom to expose said needle after filtered fluid has been introduced into said syringe.

4,316,463

CORROSIVE PROTECTED HYPODERMIC MODULE

William L. Schmitz, Hemet, and John B. Schmitz, Arcadia, both of Calif., assignors to Vac-O-Cast, Inc., Hemet, Calif.

Filed Jan. 26, 1981, Ser. No. 228,628

Int. Cl.³ A61M 5/00

U.S. Cl. 128—218 F

18 Claims



1. A corrosive protected hypodermic module comprising: a cylindrical barrel open at its forward end, a pierceable seal across said forward end of said barrel,

a piston in said barrel in slidable sealed relation to the interior wall of the barrel, said barrel, between said pierceable seal and said piston defining a medicament chamber, said piston having a longitudinal bore therein, a pierceable diaphragm across the forward end of said bore, sealing the bore from said medicament chamber, and a tissue piercing needle supported in said bore behind the pierceable diaphragm and longitudinally slidable in said bore.

4,316,464

POULTRY VACCINATION SYSTEM

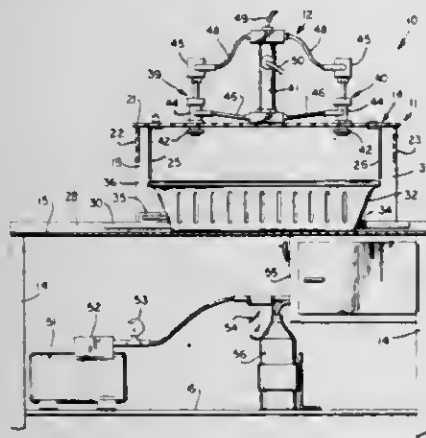
Walter L. Peterson, Gainesville, Ga., assignor to Select Laboratories, Inc., Gainesville, Ga.

Filed Mar. 9, 1981, Ser. No. 241,495

Int. Cl.³ A61M 11/00

U.S. Cl. 128—253

7 Claims



1. A method of vaccinating poultry comprising placing a multiple number of chicks in an open top container in a crowded condition in which the chicks are in physical contact with one another, moving the container along a horizontal path until the container is located beneath at least one spray nozzle, and in response to the container moving toward its position beneath the spray nozzle ejecting a vaccine spray from the nozzle downwardly onto the upper portions of and into the eyes of the chicks in a droplet size large enough to fall onto the chicks substantially without remaining airborne long enough to be inhaled by the chicks, removing the container from beneath the spray nozzle, and retaining the chicks in the container for a period sufficient for the normal movement of the chicks with respect to one another to cause some of the droplets of vaccine on the bodies of some of the chicks to make contact with the bodies of adjacent chicks.

4,316,465

OPHTHALMIC HANDPIECE WITH PNEUMATICALLY OPERATED CUTTER

Robert S. Dotson, Jr., 421 Warner Park Rd., Manhattan, Kans. 66442

Continuation-in-part of Ser. No. 25,537, Mar. 30, 1979, Pat. No. 4,274,411. This application Nov. 29, 1979, Ser. No. 98,491

Int. Cl.³ A61M 1/00

U.S. Cl. 128—276

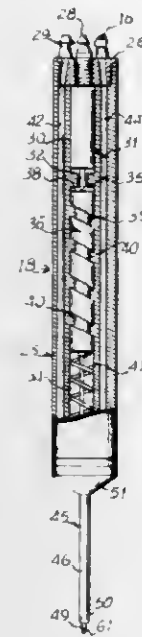
5 Claims

1. A pneumatic surgical instrument for use in ophthalmic surgery comprising:

a handpiece having a body and a needle extending from said body,

said needle including an aspiration port in communication with an aspiration passage coaxial therewith, and a cutting device, rotatable and reciprocable within said aspiration passage, said cutting device being movable across said aspiration port for severing tissue extending therethrough, said needle further including an irrigation needle coaxial therewith and terminating short of said aspiration port,

said body defining a first bore therein and a second bore coaxial with said first bore, a driving device within said first bore and reciprocable therein, said driving device having said cutting device fixed thereto for movement therewith, fluid operated means for causing said driving device to move in a first direction, said fluid operated means comprising a pneumatic cylinder having a rod projecting therefrom



toward the driving device, said rod being arranged to engage said driving device on projection from said pneumatic cylinder, resilient means to cause said driving device to move in the opposite direction, and helical means on said driving device for causing rotation of said driving device about its axis as said driving device moves in said first bore.

4,316,466

BODY FLUID DRAINAGE DEVICE

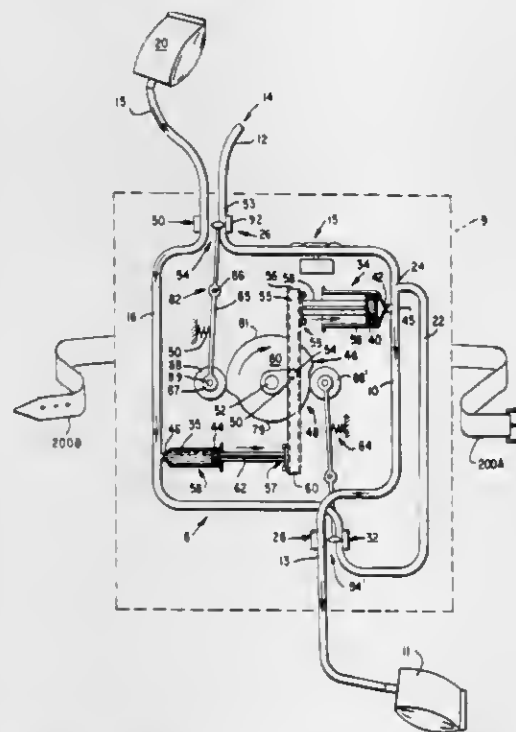
Albert L. Babb, Seattle, Wash., assignor to Biomedics, Inc., Arlington Heights, Ill.

Filed Jun. 27, 1980, Ser. No. 163,888

Int. Cl.³ A61M 1/00

U.S. Cl. 128—278

25 Claims



1. Apparatus suitable for withdrawing a body fluid from a duct in a patient comprising:

(a) a frame;

(b) first reciprocating pumping means, mounted on said frame, for pumping body fluid, said first pumping means including a body fluid reservoir and a first piston plugging said fluid reservoir at one end, said fluid reservoir having an opening at the opposite end defining the inlet and outlet of said first pumping means, said first piston being free to move reciprocatingly within said fluid reservoir between an "in" and an "out" position, thereby defining the suction and discharge strokes of said first pumping means;

(c) a body fluid passageway associated with said frame and having an inlet end and an outlet end, said body fluid passageway being in communication with said opening in said body fluid reservoir at a location intermediate the inlet and outlet ends of said body fluid passageway;

(d) second reciprocating pumping means, mounted on said frame, for pumping liquid, said second pumping means including a liquid reservoir and a second piston plugging said liquid reservoir at one end, said liquid reservoir having an opening at the opposite end defining the inlet and outlet of said second pumping means, said second piston being free to move reciprocatingly within said liquid reservoir between an "in" and an "out" position;

(e) a liquid passageway associated with said frame and having an intake end and a discharge end, said liquid passageway being in communication with said opening in said liquid reservoir at a location intermediate said intake end and discharge end;

(f) first and second valving means, situated respectively at said body fluid passageway inlet end and outlet end and means operatively connecting said first and second valve means with said first pumping means, for controlling fluid flow therethrough, said first and second valving means each having open and shut positions;

(g) third and fourth valving means, situated respectively, at said liquid passageway intake end and discharge end and means operatively connecting said first and second valve means with said second pumping means, for controlling liquid flow therethrough, said third and fourth valving means each having open and shut positions; and

(h) motor means, mounted on said frame, for operating said first and second pumping means to induce flow through said body fluid passageway and through said liquid passageway,

the discharge end of said liquid passageway communicating with said body fluid passageway at a location upstream of the inlet to said first pumping means whereby liquid flowing out of said liquid passageway is commingled with the body fluid in said body fluid passageway as an aliquot of the body fluid is drawn into said body fluid reservoir by the reciprocating action of said first pumping means.

4,316,467

CONTROL FOR LASER HEMANGIOMA TREATMENT SYSTEM

Myron C. Muckerbeide, Schofield, Wis., assignor to Lorenzo P. Maun, Belleville, Ill., a part interest

Filed Jun. 23, 1980, Ser. No. 161,837

Int. Cl.³ A61B 17/36

U.S. Cl. 128—303.1

2 Claims

1. In a system for laser beam treatment of lesions on the body which lesions have color variations and correspondingly different coherent radiation reflection and absorption characteristics, said system comprising a laser, a power supply coupled to the laser for energizing the laser, an adjustable control for varying the output power level of the power supply and the radiation output power of the laser, a first fiber optic bundle optically coupled to the laser for conducting radiation from the laser and for directing a radiation beam onto the lesion,

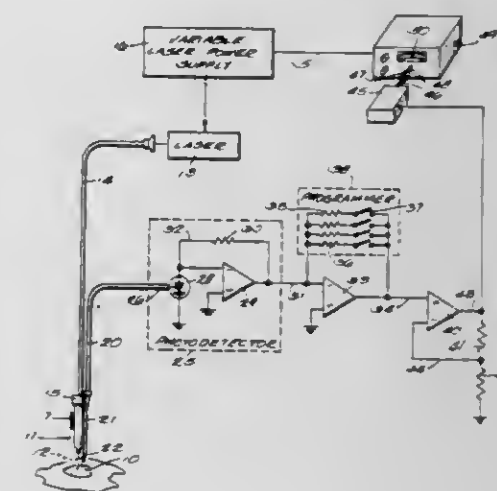
the improvement for automatically increasing and decreasing the radiation output power of the laser correspondingly with increasing and decreasing reflection of radiation from the lesion, comprising:

a second fiber optic bundle having radiation input and output ends, the input end adapted to be located for receiving

radiation reflected from the region on which the laser beam is directed by said first fiber optic bundle within or outside of the boundaries of the lesion,

photodetector means optically coupled to said output end of said second fiber optic bundle, said photodetector means being operative to produce an electric signal varying in correspondence with the intensity of the reflected radiation emitted from the output end of said second fiber optic bundle,

said adjustable control for said power supply comprising a potentiometer having a shaft rotatable in opposite directions for respectively increasing and decreasing the power output from the power supply and said laser correspondingly,



a galvanometer having electric signal input means and having a driven shaft, a circuit coupling said signal produced by the photodetector means to the galvanometer input means, said galvanometer responding to signals corresponding to increasing and decreasing reflection from said lesion by turning its shaft in respectively opposite directions, and

means for coupling the galvanometer shaft to the potentiometer shaft such that when said galvanometer shaft turns in a direction corresponding to detection of increasing reflected radiation said potentiometer shaft turns in a direction corresponding with increasing the power output of said laser and when said galvanometer shaft turns in a direction corresponding to detection of decreasing reflected radiation said potentiometer shaft turns in a direction corresponding to decreasing the laser power output.

4,316,468

SURGICAL STAPLER

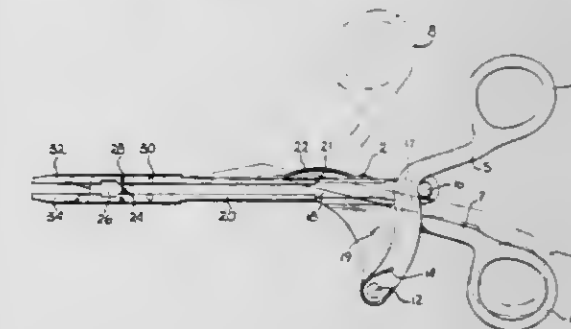
Charles H. Klieman, 3737 Century Blvd., Lynwood, Calif. 90262, and Richard M. Densmore, South Gate, Calif., assignors to Charles H. Klieman, Lynwood, Calif.

Continuation of Ser. No. 822,096, Aug. 5, 1977, abandoned. This application Aug. 29, 1980, Ser. No. 182,641

Int. Cl.³ A61B 17/12; B31B 1/00

U.S. Cl. 128—325

14 Claims



1. A surgical clip applying device comprising:

- (i) a main body having means for receiving clips;
 (ii) a clip magazine coupled to the exterior of said main body and having a housing adapted to store a plurality of said clips in a parallel relationship with said main body, said housing including a plurality of inwardly biased leaf springs;
 (iii) clip loading means slideably disposed within said housing for moving said clips from said magazine to said clip receiving means, said clip loading means comprising a blade member having a plurality of leaf springs disposed thereon so as to be in substantially opposed relationship with said leaf springs of said housing, said leaf springs of said housing and said leaf springs of said loading blade having a "V"-shaped leading edge so as to engage the correspondingly shaped portions of said clips, whereby said leaf springs of said loading blade sequentially move said clips to said clip receiving means while said leaf springs of said housing prevent movement of said clips away from said clip receiving means;
 (iv) clip deforming means coupled to said main body for deforming clips disposed therein;
 (v) clip feed means slideably disposed within said main body for moving said clips from said clip receiving means to said clip deforming means, said clip feed means adapted to slide through said main body into said clip deforming means so as to place a clip therein, and to retract from said deforming means prior to the actuation of said deforming means; and
 (vi) actuating means coupled to said clip feed means, said clip loading means and said clip deforming means for actuating said clip feed means, said clip loading means, and said clip deforming means.

4,316,469

SURGICAL APPARATUS FOR SUTURING SOFT TISSUES WITH LENGTHS OF SUTURING MATERIAL WITH SPICULES

Nikolai N. Kapitanov, ulitsa Levchenko, 3, kv. 9, Moscow, U.S.S.R.

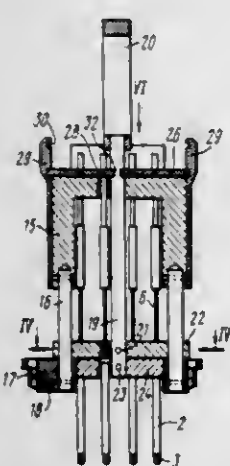
Continuation of Ser. No. 831,259, Sep. 7, 1977, abandoned. This application Oct. 5, 1979, Ser. No. 82,634

Claims priority, application U.S.S.R., Sep. 7, 1976, 2403384

Int. Cl.³ A61B 17/04

U.S. Cl. 128—334 R

8 Claims



1. A surgical apparatus for suturing soft tissues by means of pieces of a suture material with spicules, comprising: a housing being in the form of hollow rods with handle means for receiving fingers of a surgeon's hand; a set of detachable needles being movable in the longitudinal direction relative to said housing, whereby, each of said needles is provided with a through longitudinal bore for placement of said piece of the suture material therethrough and into said needle; drive means being stationary and movable relative to said needles and said housing, respectively; a stop member being mounted within said housing being stationary relative to said housing in the form of stems having a variable cross-section whereby the free

ends of said stems being placed within said needles in a stopped position with said pieces of the suture material and an actuator means for imparting longitudinal movement to said needles, said actuator being defined by a slide member having holes therein whereby, said needles have their rear ends secured in the holes of the slide; said actuator being further defined by a rod, one end of which is fastened to the slide; and said handle means disposed on the other end of said rod.

4,316,470

APPROXIMATOR FOR ANASTOMOTIC SURGERY

Karl Braun, Talbeim, and Erich Wintermantel, Tübingen, both of Fed. Rep. of Germany, assignors to Aesculap-Werke Aktiengesellschaft, vormals Jetter & Scheerer, Tuttlingen, Fed. Rep. of Germany

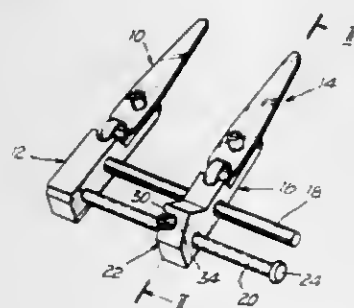
Filed Dec. 10, 1979, Ser. No. 101,679

Claims priority, application Fed. Rep. of Germany, Dec. 27, 1978, 2856386

Int. Cl.³ A61B 17/00, 17/04, 17/08

U.S. Cl. 128—346

13 Claims



1. An approximator, comprising two spaced guide bars substantially parallel to each other defining a space therebetween, a first clamp holder connected rigidly to a first end of said two guide bars, a second clamp holder displaceably guided on said two guide bars, two clamps, having jaws respectively movable relative each other, mounted on said first and second clamp holders, respectively, one of said clamps mounted in said second clamp holder defining a plane of displacement by displacement of the latter, one of said two guide bars constitutes a meshing bar non-rotatably connected to said first clamp holder constituting the first-mentioned rigid connection of the first clamp holder to said first end, and at least one driver being mounted on said second clamp holder rotatably about an axis crossing the longitudinal axis of said meshing bar and penetrating said plane of displacement of said one clamp, said driver is formed with a toothed gear operatively engaging with said meshing bar, the latter and said toothed gear forming a rack and pinion gearing.

4,316,471

ORGAN STIMULATING APPARATUS WITH SEALING SETSCREW

Frederick J. Shlpko, Spring Church, and Robert D. Norman, Indiana, both of Pa., assignors to Coratomic, Inc., Indiana, Pa.

Filed May 19, 1980, Ser. No. 151,379

Int. Cl.³ A61N 1/00

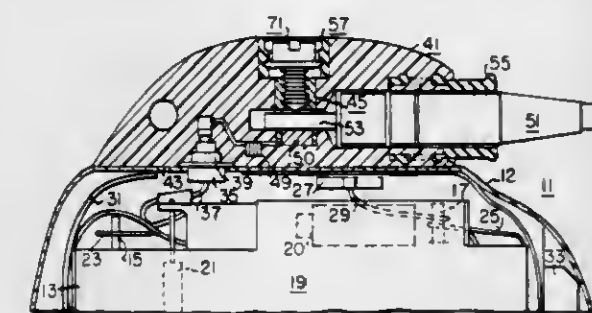
U.S. Cl. 128—419 P

17 Claims

1. Organ-stimulating electrical apparatus to be implanted in a body including a catheter for connecting said apparatus to an organ of said body, the said catheter to extend into said apparatus and to be electrically connected thereto, said apparatus also including a threaded receptacle extending into said apparatus generally laterally of said catheter, a resilient member extending into said apparatus coextensive with said receptacle and a

setscrew for securing said catheter in said apparatus, the said setscrew including:

- (a) a threaded member for screwing into the thread of said receptacle and engaging and securing said catheter; and
- (b) a head secured to said threaded member, the maximum transverse dimension of said head being greater than the transverse dimension of at least the portion of said resilient



member which is engaged by said head, throughout the peripheries of said head and portion, when said threaded member is screwed into said receptacle into securing engagement with said catheter, so that when said threaded member is so screwed into said receptacle, the engagement of said resilient member by said head seals the region of said apparatus extending inwardly of said head against the penetration of body fluids.

4,316,472

CARDIOVERTING DEVICE WITH STORED ENERGY SELECTING MEANS AND DISCHARGE INITIATING MEANS, AND RELATED METHOD

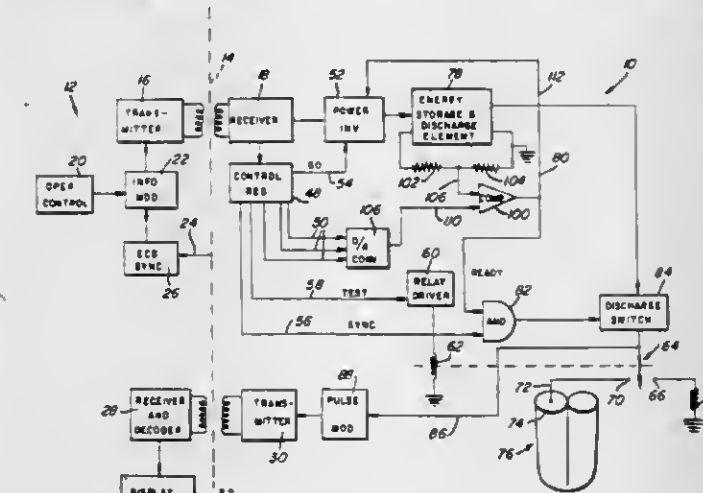
Mieczyslaw Mirowski, Rte. 3, Velvet Valley Way, Owings Mills, Md. 21117; Morton M. Mower, Baltimore, Md., and Alois A. Langer, Pittsburgh, Pa., assignors to Mieczyslaw Mirowski, Owings Mills, Md.

Continuation of Ser. No. 641,381, Dec. 17, 1975, abandoned, which is a continuation of Ser. No. 464,180, Apr. 25, 1974, Pat. No. 3,952,750. This application Aug. 9, 1979, Ser. No. 65,228

Int. Cl.³ A61N 1/36

U.S. Cl. 128—419 D

18 Claims



1. In a cardioverting device, comprising: storage means for storing energy to convert an abnormal cardiac rhythm to normal sinus rhythm, delivery electrode means for discharging the stored energy into the heart of a wearer of the device, and switch means for controlling the discharge of the stored energy into the heart of the wearer; said device further comprising: charging means for delivering to said storage means said energy to convert said abnormal cardiac rhythm, determining means for determining when the stored energy

has reached a predetermined magnitude for converting said abnormal cardiac rhythm, and initiating means for initiating the discharge of converting energy into the heart of the wearer after the stored energy has reached said predetermined magnitude; the improvement wherein said device is an implantable externally programmable cardioverting device, and includes receiving means for receiving commands from external to the skin of the wearer of the device, said programming commands designating a predetermined magnitude of stored energy for converting said abnormal cardiac rhythm, said device also including selecting means responsive to said programming commands received by said receiving means for selecting said predetermined magnitude, from among a plurality of selectable magnitudes, of stored energy, for converting said abnormal cardiac rhythm.

4,316,473

PORTABLE BLOOD SAMPLE TEMPERATURE CONTROL SYSTEM

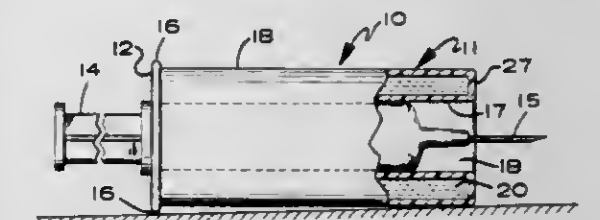
Gerald S. Beskin, Minneapolis, Minn., assignor to Therapac Division, Krellitz Industries, Inc., Minneapolis, Minn.

Filed Apr. 18, 1980, Ser. No. 141,423

Int. Cl.³ A61B 5/14

U.S. Cl. 128—763

9 Claims



1. A portable temperature control system which comprises: a syringe containing a blood sample, first wall means defining a chamber having access means for accepting said blood sample containing syringe, said chamber being at least coextensive with said contained blood sample; second wall means cooperating with said first wall means for defining reservoir means surrounding said chamber; heat sink means within said reservoir means for uniformly withdrawing heat from said chamber; and support means extending from said second wall means for selectively orienting said chamber.

4,316,474

HIGH FREQUENCY RADIATION THERAPY APPARATUS

Jens Spethmann, Lüneburg, Fed. Rep. of Germany, assignor to Firma Electric Electronic Service Jens Spethmann, Lüneburg, Fed. Rep. of Germany

Filed May 8, 1980, Ser. No. 148,175

Claims priority, application Fed. Rep. of Germany, Aug. 17, 1979, 7923476[U]

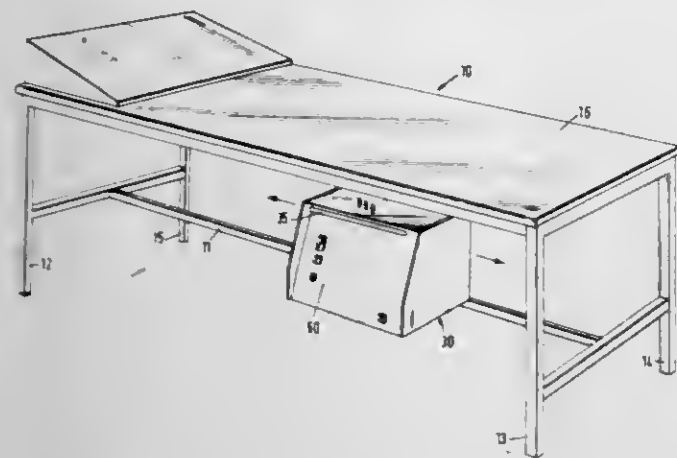
Int. Cl.³ A61B 5/00

U.S. Cl. 128—804

9 Claims

1. High frequency radiation therapy apparatus comprising: a couch defining a generally horizontal surface upon which a patient may lie in the prone position; a slide assembly slidably mounted on said couch immediately beneath said surface so as to be movable in the longitudinal direction thereof; high frequency generator means mounted in said slide assembly and movable therewith relative to said couch surface; wave guide means mounted as part of said slide assembly through which high frequency radiation from said generator means is delivered from beneath said surface to a patient lying thereon; said wave guide means comprising a hollow wave guide housing extending lengthwise laterally beneath said surface and having

a length at least approximately equivalent to the width of said surface, a plurality of slotted openings formed in the top of said wave guide housing facing upwardly toward the underside of said horizontal surface, said slotted openings being arranged in



a plurality of groups and distributed across the width of said surface and means for selectively closing the slotted openings of each group independently of the openings of another group to block passage of radiation therethrough.

4,316,475

TOBACCO SMOKE FILTER PLUG AND PRODUCING METHOD THEREFOR

Migaku Suzuki, Kawanoe, and Takashi Sakai, Toyoma, both of Japan, assignors to Mitsubishi Rayon Co. and Mitsubishi Adetate Co., both of Tokyo, Japan

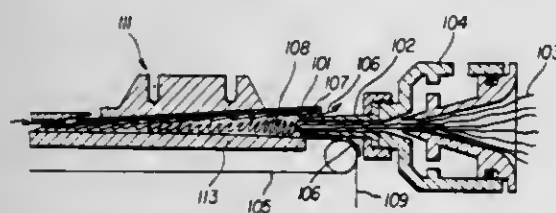
Filed Apr. 4, 1980, Ser. No. 137,267

Claims priority, application Japan, Apr. 12, 1979, 54-44647

Int. Cl.³ A24C 5/50

U.S. Cl. 131-340

8 Claims



1. A tobacco smoke filter plug comprising fiber tow fillings in the form of cylinder, composed of an inner core phase A and an outer skin layer B different from each other in fibrous arrangement structure thereof, said inner core phase A being consisting of fillings in a folded arrangement structure having a folding axis forming an angle of α with respect to the central longitudinal axis of the filter plug in cross section, and said outer skin layer B being consisting of fillings in a folded structure substantially parallel to the central longitudinal axis of the filter plug in cross section and surrounding said inner core phase.

4,316,476

FLAT CURLER TO CURL OR UNDULATE HAIR

Marco Merges, Cologne, Fed. Rep. of Germany, assignor to Heinz Merges, Cologne, Fed. Rep. of Germany

Filed Mar. 24, 1980, Ser. No. 133,311

Claims priority, application Fed. Rep. of Germany, Apr. 7, 1979, 7910247[U]; Sep. 25, 1979, 2938701

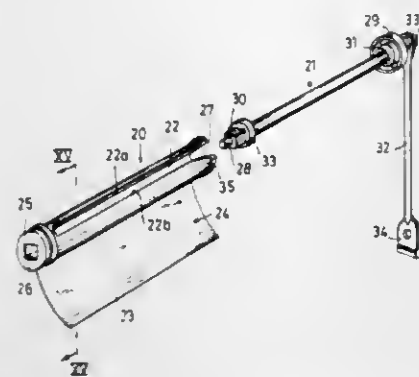
Int. Cl.² A45D 2/00

U.S. Cl. 132-40

15 Claims

1. A hair curler comprising an elongated bar having a medial portion and opposite end portions, said elongated bar medial portion being adapted to have first wound thereon first portions of strands of hair disposed remote from a persons scalp, a band having axially opposite end portions, a tubular sleeve defined by a tubular wall into which is telescopically slideably received through an open end portion thereof at least one of

said elongated bar opposite end portions, a longitudinal slot in said tubular sleeve wall opening axially through said tubular sleeve wall open end portion whereby unwound second portions of said strands of hair can be slid axially into said longitudinal slot through said axial opening thereof and thereafter said



second strand portion can be wound about said tubular sleeve, said band including means for cooperatively interconnecting said elongated bar and said tubular sleeve, and flexible flap means carried by said tubular sleeve for circumferentially overlapping said longitudinal slot in its entirety and for having wound thereupon said second strand portion.

4,316,477

WASHING MACHINE FOR DISHES

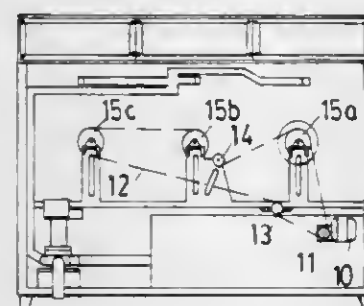
Hu-Kuo Song, 24, Alley 3, Lane 100, Ta Ya Rd., Taichung City, Taiwan

Filed Aug. 8, 1980, Ser. No. 176,505

Int. Cl.³ B08B 3/02

U.S. Cl. 134-96

10 Claims



1. An apparatus for washing dishes and other small items comprising:

- a casing body;
- a washing compartment provided in said casing body;
- driving means mounted within said casing body;
- replaceable means rotatably supported in said washing compartment for receiving articles to be washed;
- transmission means engaged with said driving means for rotating said replaceable means;
- means for storing water and rinsing liquid;
- turnable injection pipes mounted on the upper portion of said washing compartment and connected with said storing means; and
- means for pressuring the water or the rinsing liquid stored in said storing means to be injected out of said injection pipes onto the articles placed in said replaceable means.

4,316,478

FLUID CONTROL VALVE

Calvin A. Gongwer, Glendora, Calif., assignor to Innerspace Corporation, Glendora, Calif.

Division of Ser. No. 943,574, Sep. 18, 1978, Pat. No. 4,205,696.

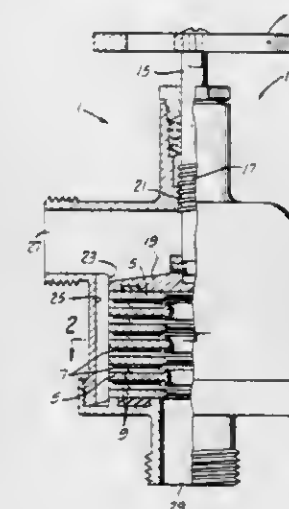
This application May 27, 1980, Ser. No. 153,419

The portion of the term of this patent subsequent to Jun. 3, 1997, has been disclaimed.

Int. Cl.³ F16K 47/04

U.S. Cl. 137-14

3 Claims



1. A fluid control valve comprising:

- a housing;
- a plurality of first annular fluid control elements stacked within said housing;
- a plurality of second annular fluid control elements stacked within the center space within said first annular fluid control elements, alternate second fluid control elements being provided with a taper of greater than 0° and less than about 3° adjacent the center space within said first annular fluid control elements;
- retainer means for spacing said first stacked fluid control elements from the interior surface of said housing;
- axial force exerting means for causing said first control elements to move toward each other thereby restricting the fluid flow between said first fluid control elements, and ultimately causing said first fluid control elements to come into contact thus preventing fluid flow between said first fluid control elements;
- conduit means in flow communication between said stacked first and second flow control elements and said housing;
- conduit means in flow communication with the center space within said second annular fluid control elements;
- means for preventing fluid flow communication directly between said housing and said center space within both said first and second annular fluid control elements; and
- said first fluid control elements being further defined as forming seats adapted to receive a resilient means and said second fluid control elements further including means for producing an interference fit about the periphery of said second fluid control elements adjacent said center space within said first annular fluid control elements.

4,316,479

VACUUM MODULATOR VALVE AND SUBASSEMBLY THEREFOR

Rudolph J. Franz, Schaumburg; Dennis DeVera, Mundelein, both of Ill., and James A. Dahlstrom, Versailles, Ohio, assignors to Eaton Corporation, Cleveland, Ohio

Filed Oct. 29, 1979, Ser. No. 88,806

Int. Cl.³ G05D 16/00

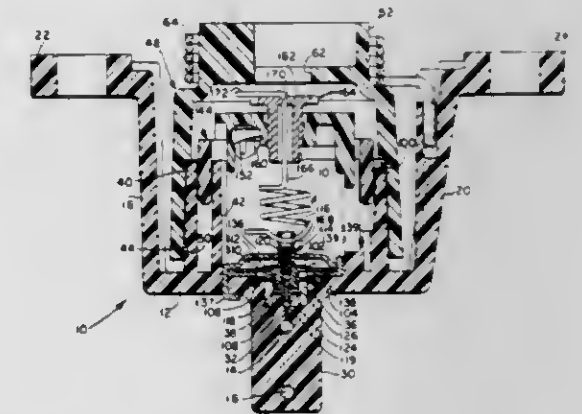
U.S. Cl. 137-85

13 Claims

1. A vacuum modulator valve assembly, comprising:

- (a) housing means, said housing means including means defining,

- (i) an inlet port adapted for connection to a vacuum source,
- (ii) an outlet port;
- (b) modulator valve means operably connected to said housing means, said modulator means defining in cooperation with said housing means a fluid chamber in fluid communication with said inlet port and said outlet port, said modulator valve means including means defining
- (i) force balance valve means having portions disposed within said fluid chamber, said force balance valve means including structure movable to control the fluid pressure within said chamber;
- (c) means for preloading said force balance valve means, said preload means including



- (i) rotary input means for receiving a rotational input, said input means including a cup member received over said housing means and an annular drive member slidably received in said housing means, said drive member being operatively connected to said cup for rotation therewith,
- (ii) axially movable means operatively contacting said drive member movable relative to said housing means in response to rotation of said rotary input means, said axially movable means being operative to vary the preload on said force-balance valve means, wherein said fluid pressure in said chamber acting on said force-balance valve means is operative to balance a preload externally applied thereto such that a modulated vacuum output signal representative of said preload is produced at said outlet port.

4,316,480

SEQUENCING VALVE

Carl L. C. Kah, Jr., 778 Lakeside Dr., North Palm Beach, Fla. 33408

Filed Oct. 30, 1978, Ser. No. 955,950

The portion of the term of this patent subsequent to Nov. 14, 1995, has been disclaimed.

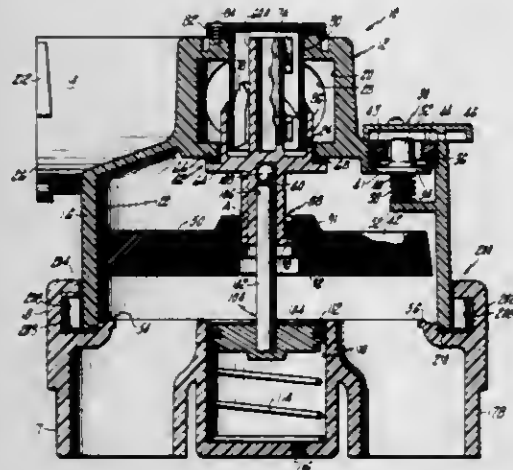
Int. Cl.³ F16K 21/00

U.S. Cl. 137-119

14 Claims

1. A sequencing valve comprising a housing, said housing including an inlet port and an outlet section having a plurality of outlet ports, said housing having a first chamber connected to said outlet ports, said housing further defining an internal flow passage whereby fluid communication may be established between said inlet port and said first chamber, said internal flow passage having a cylindrical opening entering into said first chamber, a valving member located in said first chamber having at least one opening therethrough, said valving member being movable between a seated and unseated position, in the seated position one or more valving member openings each registers with one of said housing outlet ports while the remainder of the valving member blocks flow through the remaining outlet ports, in the unseated position the valving member is spaced from said outlet ports, valve means located in said housing for cooperation with said cylindrical opening in said internal flow passage, said valve means being movable between a position where it coacts with said internal flow pas-

sage to prevent flow therethrough to a position allowing flow from said cylindrical opening of said internal passage into said first chamber, stem means connecting said valve means to said valving member, biasing means for biasing said valve means into a position coacting with said opening in said internal passage to prevent flow therethrough until sufficient force has been generated on said valve means to overcome said biasing means and for biasing said valving member into its unseated position, said housing having a circular sealing surface for said valve means to sealably bear against when fully biased by said biasing means to prevent flow through said internal flow pas-



sage, said valve means being movable to its position in said first chamber allowing flow in response to a sufficient force generated on said valve means, said movement of said valve means permitting said valving member to move to its seated position, cam means operatively connected to said housing and said stem means to cause said valving member to be rotatably indexed in response to movement of said valve means in one direction by a sufficient force and in the other direction by said biasing means so that said valving member opening or openings can be sequentially aligned with each of said outlet ports, said biasing means including means for controlling the force exerted by said biasing means.

4,316,481

WALL HYDRANT

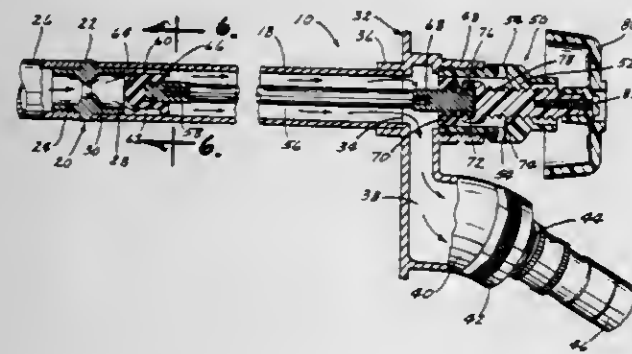
Russell L. Fillman, Colorado Springs, Colo., assignor to Woodford Manufacturing Company, Colorado Springs, Colo.

Filed Apr. 11, 1980, Ser. No. 138,581

Int. Cl.³ F16K 11/04, 11/04

U.S. Cl. 137—302

4 Claims



1. A wall hydrant, comprising, a hollow cylindrical tube having an inlet end and an outlet end, a valve seat connector having an outwardly facing valve seat therein and opposite inner and outer ends, means for connecting said inner end of said valve seat connector to a source of fluid under pressure, means for connecting said outer end of said valve seat connector to the inlet end of said hollow tube, a valve means in said tube adjacent said inlet end, said valve means comprising a cylindrical body portion having in-

ward and outward ends, with the inward end terminating in an arcuate nose portion, and a plurality of spaced apart integral tab elements extending outwardly from said body portion at the outward end thereof, said tab portions slidably engaging the interior surface of said hollow tube, said valve seat being complementary in shape to the arcuate nose portion of said valve means, and valve control means extending through said tube and being connected to said valve means to selectively longitudinally slide said valve means inwardly on said tabs to a closed position on said valve seat, and to selectively slide said valve means outwardly on said tabs to an open position whereby fluid may enter the inlet end of said tube and flow outwardly therethrough around said nose portion and said body portion and between said spaced apart tabs.

4,316,482

DIAPHRAGM VALVES

Michael I. Pearce, South Glamorgan, and Glyn Cocking, Gwent, both of Wales, assignors to Saunders Valve Company Limited, Gwent, Wales

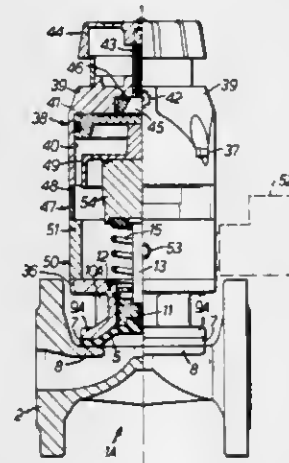
Filed Jul. 20, 1979, Ser. No. 59,171

Claims priority, application United Kingdom, Jul. 25, 1978, 30953/78

Int. Cl.³ F16K 43/00

U.S. Cl. 137—315

11 Claims



1. A diaphragm valve comprising first and second self-contained sub-assemblies:
 - (a) the first sub-assembly comprising:
 - (1) a valve body defining a flow passage and a diaphragm opening;
 - (2) a diaphragm closing the diaphragm opening and movable between a closed position in which the diaphragm is in engagement with a seat formed in the flow passage to close the flow passage to fluid flow and an open position in which the diaphragm is spaced from the seat and the passage is open to fluid flow;
 - (3) a diaphragm clamping member;
 - (4) means securing the diaphragm clamping member to the valve body for clamping the periphery of the diaphragm in fluid-tight contact with the surface of the body surrounding the diaphragm opening; and
 - (5) an operating member in engagement with the diaphragm and mounted for axial movement relative to the clamping member towards the seat to move the diaphragm towards the closed position;
 - (b) the second sub-assembly comprising:
 - (1) a drive assembly releasably secured to the clamping member by means separate from said securing means, the drive assembly including force means selectively operable to apply a force to the operating member towards the seat to move the diaphragm towards the closed position, said force means being separable with said drive assembly from a force applying relationship with respect to said operating member upon release of

said drive assembly from said clamping member and without requiring separation of any component of either of said sub-assemblies from its respective sub-assembly and said first sub-assembly being constructed and arranged so as to be capable of remaining in its fully operable condition relative to said flow passage upon separation of said second sub-assembly from said first sub-assembly.

4,316,483

VALVE HAVING WEAR-PRONE PARTS REMOVABLE THROUGH BONNET AREA

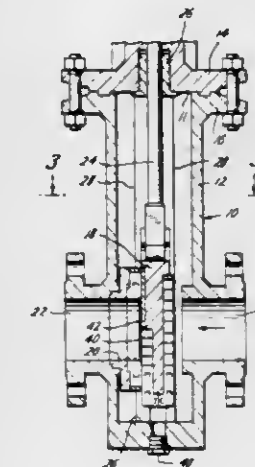
Frank J. Jandrasi, Houston, Tex., assignor to Tapco International, Inc., Houston, Tex.

Filed Aug. 9, 1979, Ser. No. 65,019

Int. Cl.³ F16K 43/00

U.S. Cl. 137—315

12 Claims



1. A valve having wear-prone parts removable through its bonnet area comprising, a body having an opening at one end, a stop spaced from the one end, and a flow passage extending through the body between the one end and the stop, at least one valve seat releasably disposed in the body and forming a portion of the flow passage, a valve movable in the body arranged to move across the flow passage and to seat on the valve seat for closing the valve and to move out of the flow passage for opening the valve, a pair of elongated guides in the flow passage, one each disposed on each side of the valve and extending lengthwise in the direction of movement of the valve, the guides disposed to be freely movable with respect to internal walls of the flow passage, slides on the valve cooperating with the guides, the guides and slides operable to guide the valve into the open and closed positions, and a bonnet releasably secured to the body and closing the opening, the opening being of a size permitting insertion of and the withdrawal from the body of the guides, the slide valve, and the valve seat, the bonnet end and the stop end having recessed portions into which ends of the guides project operable to maintain the guides in operating position while the guides are free to move with respect to the internal walls of the flow passage to allow for thermal expansion of the guides. the guides the slides, the valve and at least the one valve seat being released for removal from the body by removing the bonnet.

4,316,484

LIQUID LEVEL VALVE

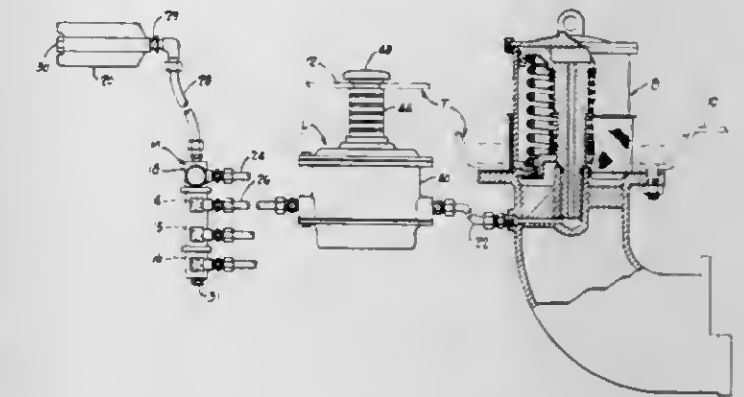
Joseph H. De Frees, 505 Liberty St., Warren, Pa. 16365

Filed Jan. 4, 1979, Ser. No. 1,002

Int. Cl.³ F16K 31/143, 31/145

U.S. Cl. 137—389

17 Claims



1. A liquid level valve having a valve housing and adapted for use in the interior top portion of a liquid storage tank having an emergency loading valve held open by a remote source of auxiliary pressurized air comprising; air control valve means disposed interiorly of the valve body in isolated relation to the liquid in the tank for reducing the auxiliary pressurized air to the emergency loading valve, the housing having an inlet for communicating the auxiliary pressurized air to the air control valve means as well as to the emergency loading valve, and coacting air pressure responsive actuating means disposed interiorly of the valve body responsive to increased valve interior air pressure within the liquid level valve caused by rising liquid in the tank for actuating the air control valve means to reduce the auxiliary pressurized air via a portion of the auxiliary pressurized air inlet and the air control valve means to permit closing of the emergency loading valve.

4,316,485

SINGLE HANDLE MIXING VALVE WITH IMPROVED SEAT

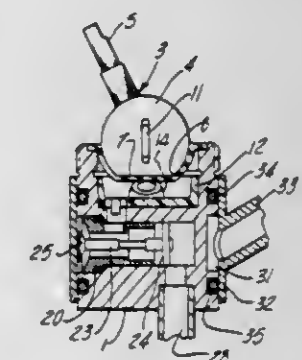
Gerald E. Christiansen, and William E. Politz, both of Flora, Ind., assignors to Stephen A. Young Corporation, Flora, Ind.

Filed Jun. 18, 1979, Ser. No. 49,197

Int. Cl.³ F16K 7/12

U.S. Cl. 137—625.4

1 Claim



1. In a mixing valve for a single lever faucet wherein the valve has a body formed with an upwardly opening control cavity having a bottom wall, a control member in said cavity having a portion extending therefrom for moving said member, a seal in said cavity engaged by said member, a pair of fluid inlets to the body communicating with said cavity, at least one outlet from the body also communicating with said cavity, said control member comprising a spherical element with a flat portion thereon to manipulate the seal, and the seal comprising a diaphragm conforming to the element; the improvement comprising a removable seat unit positioned in said control

cavity to regulate the flow of fluid into and through said body, said seat unit comprising a disc-like part having a pair of inlet passages extending therethrough at positions in alignment with said fluid inlets, and inlet passages terminating at the upper ends thereof in tubular raised portions on the top side of said disc-like part at positions adjacent said diaphragm, said top side of said disc-like part being shaped at said inlet passages to conform to the spherical shape of said element so that said inlet passages can be closed and opened by manipulation of the element to cause the diaphragm to cover and uncover said inlet passages, said top side of said disc-like part around said inlet passages being sufficiently recessed relative said spherical element to provide a mixing chamber which is in continuous fluid communication with said outlet, and a snap-ring releasably mounted on said body and engaged with said top side of said disc-like part so as to maintain said part in engagement with the bottom wall of said cavity.

4,316,486

ELECTROHYDRAULIC CONTROL APPARATUS

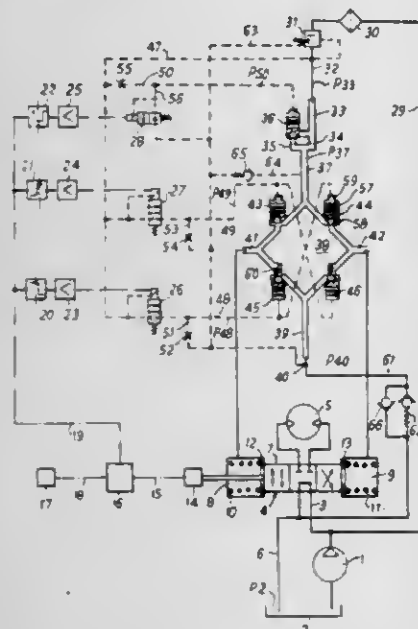
Niels Tandrup, Nordborg, and Alex Petersen, Sonderborg, both of Denmark, assignors to Danfoss A/S, Nordborg, Denmark
Continuation of Ser. No. 19,076, Mar. 9, 1979, abandoned, which is a continuation of Ser. No. 840,383, Oct. 7, 1977, abandoned.
This application Feb. 28, 1980, Ser. No. 125,502

Claims priority, application Fed. Rep. of Germany, Oct. 9, 1976, 2645768

Int. Cl.³ F15B 13/043

U.S. Cl. 137—625.64

5 Claims



1. An electrohydraulic control assembly for controlling the operating direction of a bidirectional hydraulic work motor, comprising, a control valve unit including a motor controlling slide valve with pressure chambers on opposite sides thereof, neutral position springs and means in said chambers for maintaining said slide valve in a neutral position in the absence of unequal pressures in said chambers, said slide valve being selectively movable in opposite directions from a neutral position in response to pressure in either of said chambers for motor controlling purposes, a source of pressurized fluid and an exhaust tank, a hydraulic bridge circuit between said source and said tank having two supply branches connected to said source and two exhaust branches connected to said tank, pressure holding means between said exhaust branches and said tank for holding the bridge outlet pressure above atmospheric pressure, said bridge circuit having diagonally opposite ports between said supply and exhaust branches connected to said slide valve pressure chambers, valves having pressure operated chambers including a pressure operated supply valve in each supply branch and a pressure operated exhaust valve in each exhaust branch, said supply and exhaust valves being pressure operable to closed positions, pressure dissipation means between said pressure operated chambers of said exhaust valves

and said tank to effect unloading of said exhaust valves in the absence of loading pressures, said exhaust valves having ball type closure elements, solenoid pilot valve means connected to respective pairs of said pressure operated chambers of said supply and exhaust valves to effect selective closing of said valves to selectively pressurize and exhaust said control valve unit chambers to cause said slide valve to move in a selected direction, said slide valve having rapid movement to a neutral position upon the deenergization of a respective pair of solenoid pilot valve means and the subsequent release of operating pressures in said bridge valves by the action of one of said neutral position springs causing said slide valve to move and force fluid from one of said chambers to the other through said bridge valves in said exhaust branches, and valve opening spring biasing means for each of said exhaust valves for rapidly overcoming said pressure holding and dissipation means to rapidly open said ball type closure elements thereof in the absence of a closing control pressure to avoid a cavitation action by preventing the closing of an exhaust valve due to a strong suction developed in one of said chambers as a result of said rapid movement of said slide valve.

4,316,487

TUBULAR OBTURATOR FOR USE WITH A HOLLOW BODY

Gaston Denoor, Paris, and Georges Thillet, Grenoble, both of France, assignors to Neyrpic, Grenoble, France

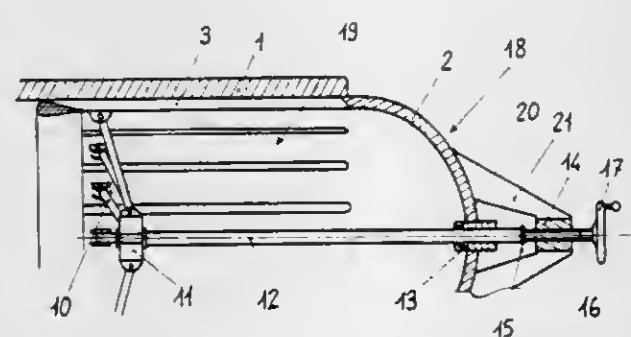
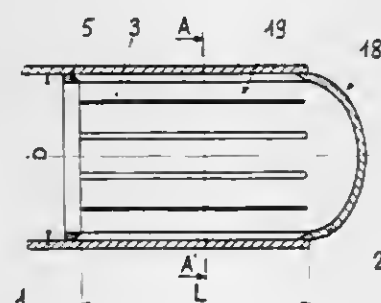
Filed Mar. 7, 1980, Ser. No. 127,964

Claims priority, application France, Mar. 8, 1979, 79 05997

Int. Cl.³ F16L 55/12

U.S. Cl. 138—89

2 Claims



1. A self-locking tubular obturator for a hollow body having a cylindrical free opening and intended to be subjected to a pressure test, said obturator comprising a cover having a thickness sufficient to withstand the pressure under which the body is to be tested, and having an external diameter which is equal to the internal diameter of the opening of the body to be tested, with a reduction to allow for the play required for said cover to fit into the body, said cover being extended by a cylindrical skirt of the same diameter, said skirt being open at the end remote from said cover and being adapted to expand under the effect of the testing pressure and an annular sealing ring provided at said open end of said cylindrical skirt.

4,316,488

HIGH SPEED CIRCULAR LOOM FOR THE PRODUCTION OF TUBULAR FABRICS STARTING FROM THREADS, STRAPS AND THE LIKE MADE OF SYNTHETIC AND NATURAL SUBSTANCES

Benito Manini, Florence; Edoardo Furia, La Romola; Eugenio Stefani; Giuliano Baldi, both of Florence; Pasquale Baracchia, Milan; Beniamino Cacciapuoti, Aulla, and Bruno Mattei, La Spezia, all of Italy, assignors to Moplefan S.p.A., Milan, Italy

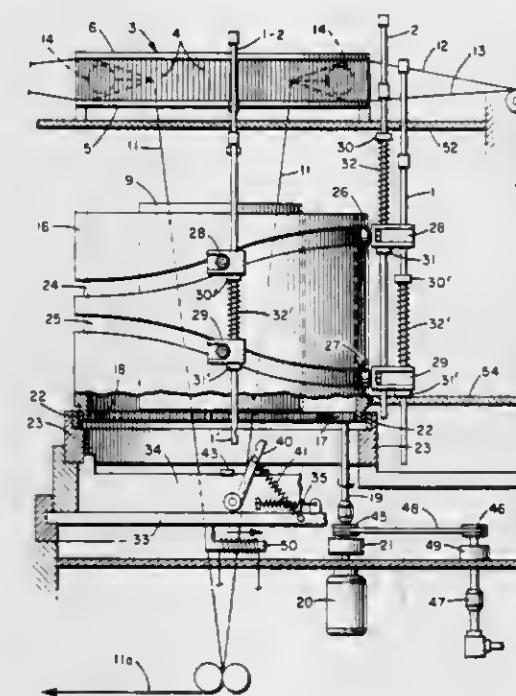
Filed Apr. 7, 1980, Ser. No. 137,912

Claims priority, application Italy, Apr. 11, 1979, 21772 A/79

Int. Cl.³ D03D 37/00

U.S. Cl. 139—13 R

5 Claims



1. A circular loom for tubular fabric consisting essentially of strips of synthetic, artificial and natural substances, and especially strips of synthetic polymers, said loom being of the vertical heald type with healds arranged on concentric rings, with the drawing and the winding up of the fabric being formed on a fabric gauging cylinder arranged downstream of the shuttles, characterized in that said loom comprises one single rotary positive cam with a double track for the control of the alternate motion of the healds, said cam consisting essentially of a hollow cylinder turing coaxially inside the fabric-gauging cylinder and on whose outside cylindrical surface there are provided two closed track guide cams having a substantially helicoidal development, of which one is the cam controlling the motion of the external healds, while the other controls the internal healds, those guiding cams being associated with guide-pads which are integral with saddles carrying the healds mounted slidably in fixed vertical guides, thereby imparting to the two series of healds their alternate up-and-down motion, said healds being, moreover, axially constrained by elastic or resilient means to the corresponding supporting saddles so that they may be all blocked automatically in their lower position by the hooking in of their lower ends on corresponding oscillating hooks mounted displaceably in a coaxial alignment with the healds themselves, so as to retain all the warp strips on a level below the plane of sliding of the shuttles.

4,316,489

METHOD AND DEVICE FOR ELIMINATING AIR FROM WATER BED MATTRESSES

William A. Price, Salt Lake City, Utah, assignor to Anthony J. Bova, Stockton, Calif.

Filed Jul. 7, 1980, Ser. No. 166,318

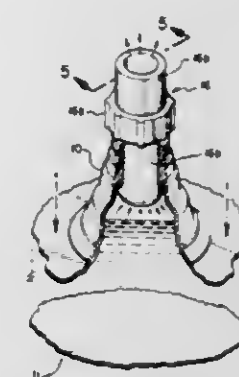
Int. Cl.³ B65B 3/04

U.S. Cl. 141—1

11 Claims

1. A method of eliminating air or other gas from a water bed mattress equipped with a plugged and capped filling spout,

comprising removing the plug and cap from the filling spout of such a mattress; fitting a check valve device fluid-tight into the filling spout; moving air or other gas toward the filling spout



by manipulating the mattress while it is filled with water, thereby releasing the air or other gas to atmosphere through the check valve; removing the check valve device from the filling spout; and re-plugging and re-capping the filling spout.

4,316,490

ICE CREAM MAKING AND PACKAGING SYSTEM AND METHOD

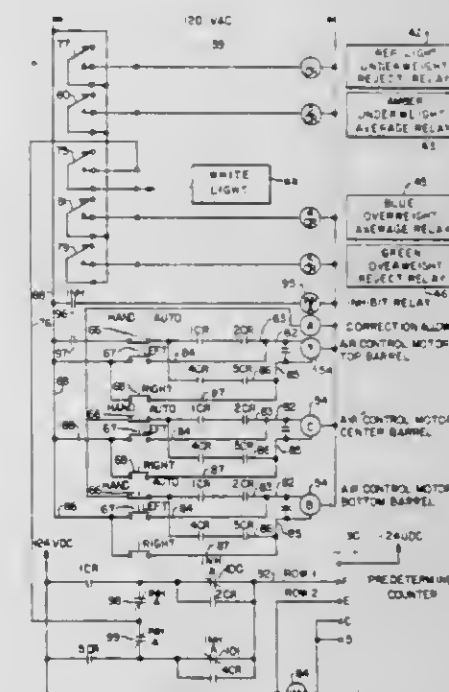
Jerome K. Meyer, 380 Harrison St., Midvale, Utah 84047

Filed Oct. 2, 1979, Ser. No. 81,049

Int. Cl.³ B65B 3/04

U.S. Cl. 141—9

21 Claims



19. A continuous method for the manufacture of packaged ice cream, comprising the following steps:

- continuously mixing air in a controlled amount with an unfrozen ice cream mix;
- continuously delivering the mix to a freezing unit of the continuous type whereby air is incorporated in the frozen mix to produce ice cream with overrun;
- continually discharging equal metered volumes of ice cream into packaging containers;
- continually conveying the containers through a weighing station;
- automatically weighing each filled container as it is conveyed through the weighing station and deriving an underweight signal when a container is underweight relative to a target weight and, an overweight signal when it is overweight relative to the target weight, and also a signal when the weight is on the target;
- deriving an average underweight signal and an average overweight signal when a predetermined number of a

- plurality of weighed containers are underweight or overweight.
- (g) automatically adjusting the amount of air supplied to the mix to increase the amount incorporated in the frozen ice cream responsive to the occurrence of a predetermined number of overweight, average overweight and target signals.
- (h) automatically adjusting the amount of air supplied to the mix to decrease the amount incorporated in the frozen ice cream responsive to the occurrence of a predetermined number of underweight, average underweight and target signals; and
- (i) imposing a predetermined time delay between successive automatic adjustments of the amount of air supplied; steps (g) and (h) serving to cause the weight of the filled containers to be adjusted to be within predetermined limits.

4,316,491

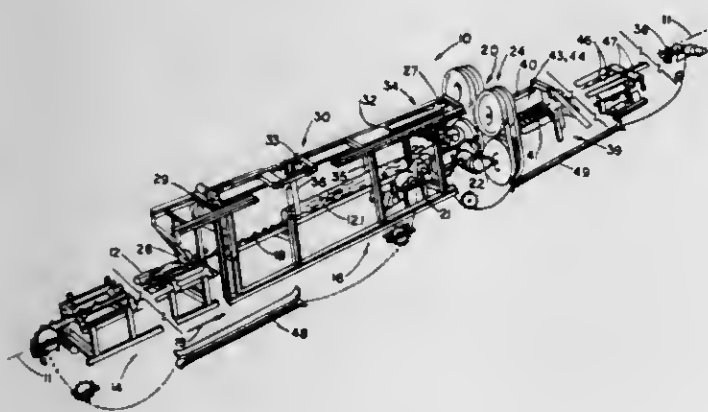
AUTOMATIC LOG PROCESSING APPARATUS AND METHOD

Roger M. Kearnes, 1994 W. 43rd Ave., Vancouver, B.C., Canada (V6M 2C6), and Gianni Q. Scaramella, 8695 Oak St., Vancouver, B.C., Canada V6P 4B2

Filed Nov. 13, 1979, Ser. No. 93,280
Int. Cl.³ B27M 1/00; B27C 1/08

U.S. Cl. 144—39

14 Claims



1. An apparatus for processing a log, after scanning dimensionally, by feeding the log along a longitudinal axis through a cutting means mounted adjacent the axis, the apparatus having: a rail means disposed parallel to the longitudinal axis, and a carriage means mounted on the rail means for movement therealong, the apparatus being further characterized by:
- (a) clamp means mounted on the carriage means and adapted to clamp the log on side faces thereof to hold the log for feeding into the cutting means,
- (b) orienting means cooperating with the carriage means and the clamp means to move the clamp means relative to the longitudinal axis to reposition the log in a desired orientation relative to the axis in accordance with the scanned dimensions.

4,316,492

WALLET WITH BADGE HOLDER

Stephan E. Plough, 15805 Oak Valley Rd., Ramona, Calif. 92065, and David L. Swartzendruber, Ramona, Calif., assignors to Stephan E. Plough, Ramona, Calif.

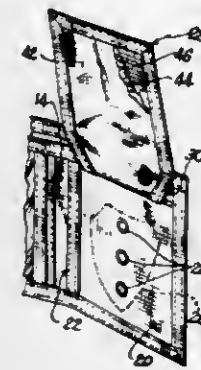
Filed Sep. 29, 1980, Ser. No. 191,990
Int. Cl.³ A45C 11/00

U.S. Cl. 150—35

4 Claims

1. A combination wallet and badge holder comprising:
- (a) a generally rectangular flexible back panel;
- (b) a flexible front panel fastened to said back panel along at least two contiguous edges thereof to define a bill compartment;

- (c) a badge-mounting panel mounted to at least one of the above stated panels;
- (d) a badge cover flap mounted to at least one of the above-mentioned panels to removably protect and conceal a badge mounted on said badge-mounting panel, and



- (e) said flap having a taffeta badge-contacting surface and a layer of soft foam bonded to the side thereof remote from said badge-mounting panel, said taffeta and foam being capable of deforming to define a shaped mask for a badge.

4,316,493

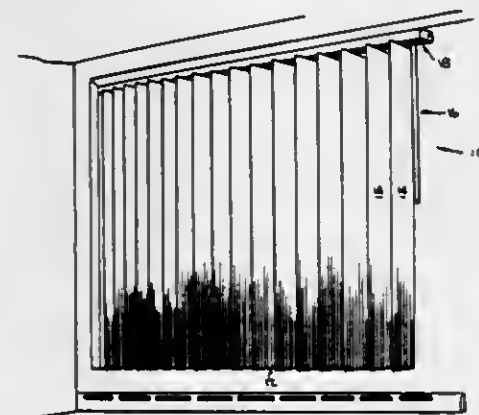
VERTICAL BLIND CONTROLS

Joseph P. Arena, 254-43 Pembroke Ave., Great Neck, N.Y. 11020

Filed Aug. 15, 1977, Ser. No. 824,834
Int. Cl.³ E06B 9/30

U.S. Cl. 160—168 R

14 Claims



1. Apparatus for traversing and rotating vertical blinds comprising:
- support means for supporting the blind vanes including horizontally-extending track means and vane carrier means supported by said track means disposed to be horizontally traversed therealong, the vanes being supported by said carrier means;
- traverse means for traversing the vanes including traverse actuating means therefor; and
- rotation means for rotating the vanes including rotation actuating means therefor, a horizontally-extending rotation rod and first coupling means in said carrier means coupling the rotation rod and the vanes for rotating the vanes in response to rotation of the rotation rod;
- said traverse actuating means and said rotation actuating means including control means coupled to said traverse actuating means and to said rotation actuating means, said control means being traversable along said rotation rod, and said traverse and rotation actuating means being located together and traversable with one another.

4,316,494

SUPPORTING AND GUIDING STRAND ARRANGEMENT TO BE USED IN A BOW-TYPE CONTINUOUS CASTING PLANT

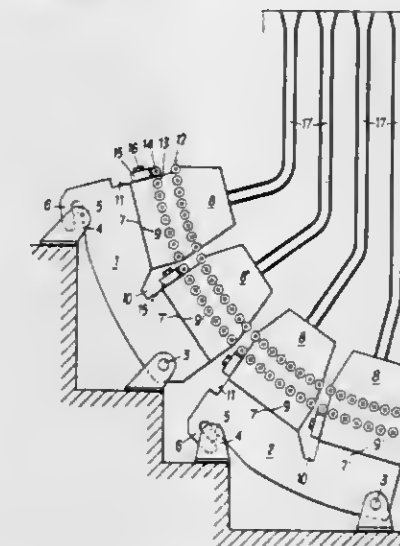
Werner Scheurecker, Linz, Austria, assignor to Voest-Alpine Aktiengesellschaft, Linz, Austria

Filed Feb. 25, 1980, Ser. No. 124,533

Claims priority, application Austria, Mar. 7, 1979, 1725/79
Int. Cl.³ B22D 11/00

U.S. Cl. 164—448

3 Claims



1. In a supporting and guiding strand arrangement to be used in a bow-type continuous casting plant of the type defining an arcuate guide path and including a carrying frame, an inner guideway and an outer guideway arranged opposite each other, exchangeable supporting segments supported on said carrying frame and movable along rails associated with said carrying frame towards an inner side of the arcuate guide path, space being provided between said segments to accommodate such movement, and rollers forming said inner and outer guideway and being mounted in said exchangeable supporting segments at a distance from one another, the improvement which is characterized in that each of said exchangeable supporting segments comprises at least one rim-side roller of said outer guideway which is detachably fastened to said segments, said carrying frame further including a recess defined in said carrying frame and a beam extending transversely to said carrying frame and being detachably fastened to said segment, said rim-side roller being mounted on said beam, said beam being unjournalled with respect to said carrying frame and being displaceable into the recess defined in said carrying frame after detachment from the segment.

4,316,495

METHOD AND INSTALLATION FOR CENTRIFUGAL CASTING

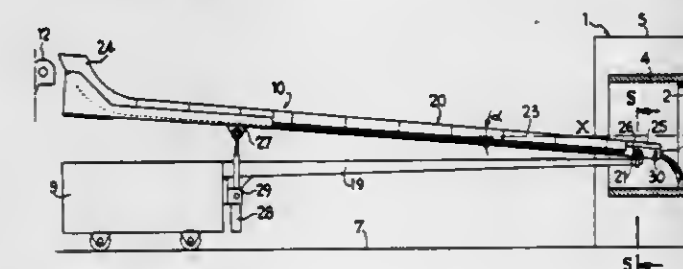
Michel Pierrel, Pont-a-Mousson, France, assignor to Pont-a-Mousson S.A., Nancy, France

Filed Jun. 18, 1980, Ser. No. 160,706

Claims priority, application France, Jun. 25, 1979, 79 16251
Int. Cl.³ B22D 13/02, 13/12

U.S. Cl. 164—457

3 Claims



1. A method for manufacturing a tubular body by centrifuga-

tion wherein molten iron is poured into a rotary mold via a feed channel, comprising the steps of:

- (a) inserting a pouring spout end of the feed channel through the mold to a position proximate a remote end thereof,
- (b) establishing relative longitudinal movement between the feed channel and the mold in a direction to gradually withdraw the feed channel from the mold,
- (c) supplying the feed channel with molten iron at a constant rate during said relative longitudinal movement,
- (d) terminating the supply of molten iron to the feed channel at a predetermined time before the pouring spout reaches a near, exit end of the mold,
- (e) progressively increasing the inclination of the feed channel after said supply termination to maintain a constant flow rate of molten iron from the pouring spout and into the mold until the pouring spout leaves the mold, and to empty the feed channel, and
- (f) maintaining said relative longitudinal movement constant during steps (c), (d) and (e).

4,316,496

CONTINUOUS CASTING OF METAL STRIP

Gene D. Spenceley, Stokesley, England, assignor to British Steel Corporation, London, England

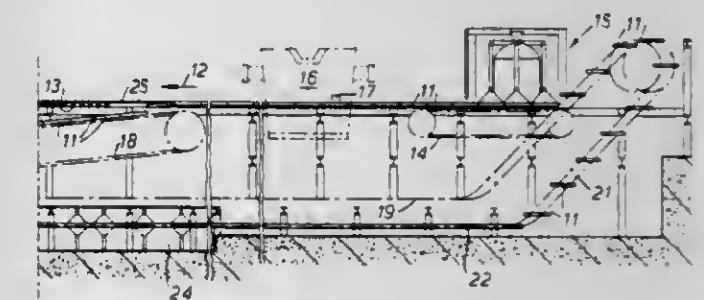
Filed Jul. 23, 1980, Ser. No. 171,440

Claims priority, application United Kingdom, Jul. 25, 1979, 25990/79

Int. Cl.³ B22D 11/06

U.S. Cl. 164—477

13 Claims



1. Apparatus for producing a ferrous feedstock for subsequent use in a melting or smelting furnace comprising a multiplicity of abutting separable and independent channel shaped mould segments, means operable to drive such mould segments continuously about an endless path which includes a generally horizontal upper flight and a vertical displaced lower flight such drive means comprising a member positioned at the upstream end of such horizontal upper flight and movable into engagement with a complementary part of an adjacent mould segment to drive such segment along the upper flight so as to present a continuous substrate surface with no spacings between individual mould segments, a casting station operable to cast molten ferrous material continuously on to said upper flight of said substrate surface to produce on cooling a solidified ferrous strip, means for stripping such strip from the substrate and for transferring said separable and independent channel shaped mould segments to said vertical displaced lower flight, means for returning said separable and independent channel shaped mould segments from said vertical displaced lower flight to said generally horizontal upper flight and means for fragmenting the solidified strip into segments of a size suitable for use as a ferrous feedstock.

10. A method of producing a fragmented feedstock comprising the steps of continuously casting molten material from a casting station on to a channel shaped substrate surface consisting of a multiplicity of abutting separable and independent channel shaped mould segments moving in a generally horizontal path continuously past the casting station to produce a solidified metal strip, separating the solidified strip from the substrate, transferring said separable and independent channel shaped mould segments from said generally horizontal path to a vertical displaced path, returning said separable and independent

dent channel shaped mould segments to said generally horizontal path and fragmenting the solidified strip separated from said substrate into fragments of a size suitable for use as the required feedstock.

4,316,497

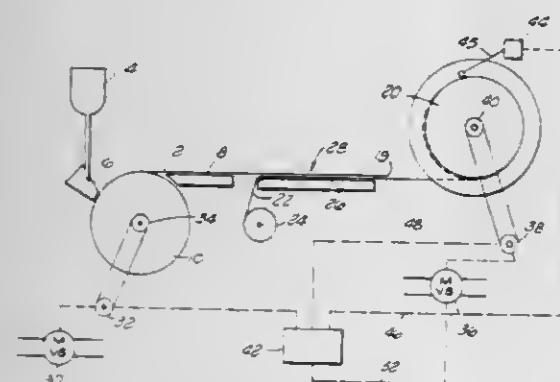
METHOD AN APPARATUS FOR FEED ON TO A TAKE-UP REEL IN HIGH SPEED SILICO

G. Felix Wakefield, Woodland Hills, and David L. Bender, Thousand Oaks, both of Calif., assignors to Atlantic Richfield Company, Los Angeles, Calif.

Filed May 9, 1980, Ser. No. 148,319
Int. Cl.³ B22D 11/06

U.S. Cl. 164—479

11 Claims



1. In a method for manufacturing a thin ribbon of material by depositing a ribbon of molten material onto the surface of a rotating drum to allow crystallization of the molten material into a ribbon of cast material to occur, which cast ribbon is to be stored on a take-up reel, an improvement in the method, comprising:

pre-winding of a starting strip onto the take-up reel, which starting strip passes through a contact zone prior to being wrapped around the take-up reel, said contact zone being a zone for contact between the strip and the cast ribbon; passing the leading edge of the cast ribbon over the starting strip in the contact zone at a speed sufficiently close to that of the starting strip in the contact zone to allow the cast ribbon to be frictionally engaged with, and guided onto the take-up reel by, the starting strip and to pass onto the take-up reel in contact with the starting strip without bunching of the cast ribbon or significant stretching of the cast ribbon.

4,316,498

INVESTMENT SHELL MOLDING MATERIALS AND PROCESSES

Robert A. Horton, Chesterland, Ohio, assignor to Precision Metalsmiths, Inc., Cleveland, Ohio

Filed Jan. 18, 1980, Ser. No. 113,180
Int. Cl.³ B22C 1/00

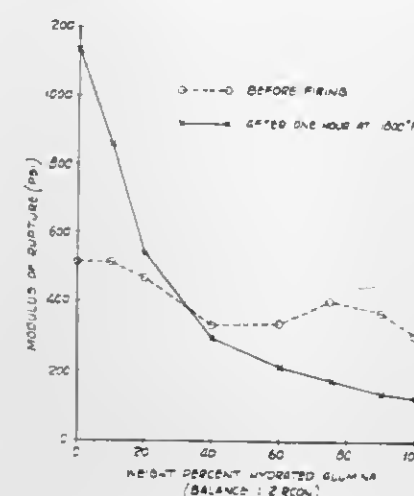
U.S. Cl. 164—519

2 Claims

1. An unfired, multi-layered ceramic shell mold which consists essentially of particulate refractory material and a binder, the refractory material containing in amount by weight from about 20% to 100% hydrated alumina.

2. In a method of making a refractory ceramic shell mold by the repeated steps of dipping a pattern in a slurry to form a coating, the slurry consisting essentially of a binder liquid and a refractory powder, stuccoing the coating while wet with

refractory grains, and drying the stuccoed coating, the improvement wherein the refractory powder content of the



slurry used for at least some of the coatings contains in amount by weight from 20% to 100% hydrated alumina.

4,316,499

ROTARY, REGENERATIVE HEAT EXCHANGER HAVING FLOATING SEALING RINGS

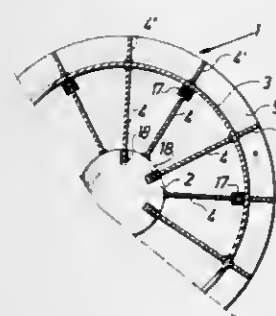
Werner Schlageter, Saltsjö-Boo, Sweden, assignor to Svenska Rotor Maskiner Aktiebolag, Stockholm, Sweden

Filed Apr. 16, 1980, Ser. No. 140,678

Int. Cl.³ F28D 19/00

U.S. Cl. 165—9

9 Claims



1. In a rotary regenerative heat exchanger comprising first and second main parts relatively rotatable with respect to each other about a common central axis, a clearance being defined between said main parts, said first main part comprising a regenerator body (1) which includes an inner cylindrical post shell (2), an outer cylindrical shell (3), and a plurality of radial partition walls (4) interconnecting said outer shell (3) with said inner shell (2), said radial partition walls each having an inner end coupled to said inner shell (2) and an outer end coupled to said outer shell (3), said radial partition walls (4) forming a plurality of open-ended sectorial compartments containing a regenerative heat transferring mass providing passages for flow of fluid media therethrough from and to the ends of the regenerator body (1); said second main part comprising a duct part (1b) providing ducts having inlets and outlets for flow of heat emitting and heat absorbing fluid media to and from the opposite ends of said regenerator body (1a); at least one of the ends of said outer shell (3) being provided with a sealing ring (8,9) positioned in said clearance between said main parts; the improvement comprising:

a plurality of axial slots (17) provided in at least said outer shell (3), the outer ends of at least every second radial partition wall (4) being slidably located in a respective one of said axial slots in said outer shell, the other ends of each of said every second partition walls (4) being fixedly attached to the inner shell (2), each alternate radial partition wall, located between said every second partition walls, being slidably coupled at one side thereof to one of said inner and outer shells and being fixed to the other of

said shells at the other side of said partition walls, said partition walls (4) further slidably engaging said sealing ring (8,9) in the radial direction of said rotary regenerative heat exchanger.

4,316,500

CERAMIC HEAT EXCHANGER WITH HOT ADJUSTMENT FACE SEALS

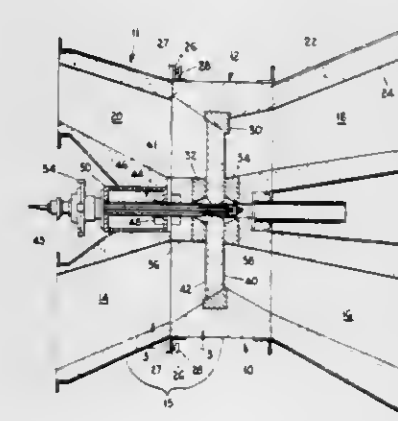
Charles B. Gentry, Belmont, and Robert M. Scanlon, Rockford, both of Mich., assignors to Granco Equipment, Inc., Belding, Mich.

Filed May 28, 1980, Ser. No. 153,928

Int. Cl.³ F28D 19/04

U.S. Cl. 165—9

20 Claims



1. In a heat exchanger for hot gases including a heat exchanger wheel having a plurality of axially extending gas passages therethrough and means for mounting said wheel for rotation about a central axis thereof comprising:

first and second housing sections defining a heat exchanger housing;

shaft means journaled within said first housing section for rotatably mounting said wheel;

bearing means mounted to said first housing section for supporting said shaft means;

a first sealing member secured within said first housing means and a second sealing member secured within said second housing section, said sealing members being disposed adjacent opposite faces of said wheel and diametrically across the face of said wheel to form gap seals;

the improvement which comprises:

means for axially displacing said wheel relative to said sealing members while said wheel is hot and rotating; and

means for displacing said first and second housing sections relative to each other;

whereby said wheel is axially displaceable to adjust the gap of the seal and to form the gap seal between said wheel and said first sealing member and said first sealing member and said housing sections are displaceable to adjust the gap of the seal and to form the gap seal between said wheel and said second sealing member.

4,316,501

HEAT EXCHANGER WITH LEAKAGE COLLECTOR

Donald R. Bowden, and Bruce J. Novell, both of Huntsville, Ala., assignors to Solar Unlimited, Inc., Huntsville, Ala.

Continuation-in-part of Ser. No. 836,812, Sep. 26, 1977, abandoned. This application Aug. 8, 1979, Ser. No. 64,668

Int. Cl.³ F28D 7/02; F28F 13/14

U.S. Cl. 165—70

1 Claim

1. A heat exchanger for transferring heat between a first liquid and a second liquid comprising:

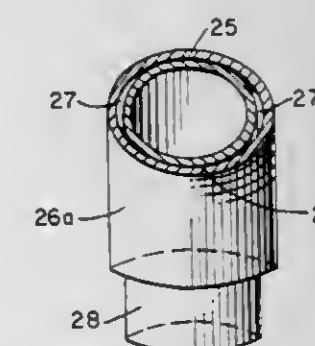
a heat exchanger shell member having a central portion extending between and terminating in two end portions which respectively include an inlet duct and an outlet duct for said liquid;

a double-walled member of the heat exchanger comprising

two tubes including an outer tube of one diameter having outwardly extending fins, and an inner tube of smaller diameter extending concentrically through the outer tube and being a snug fit therewithin, the inner tube carrying said second liquid, the outer tube comprising a seamless tube having a helical fin integrally formed on its outer surface, and its inner surface having an undulating helical pattern of ridges and depressions whose pitch is the same as the pitch of the helical fin;

an annular core member extending lengthwise in the central portion of the shell member, the diameter of the core member being within a range extending from about the diameter of said outer tube as measured without the fins to about twice that diameter;

the double-walled member being distorted to form a helical volute tightly surrounding said core member for a length about equal to the length of said central portion of the shell member so that the fins of successive convolutions substantially lie against the core member, and the inside diameter of the central portion of the shell member being



about equal to the outer diameter of the convolutions of the volute as measured to the outer surfaces of the fins; the outer tube of the double-walled member being elliptical in cross-section with said ridges pressed tightly against and distorting the outer surface of the inner tube to form tube zones having a high degree of mutual contact; the outer tube of the double-walled member having ends which are aligned along the axis of the helical volute and are spaced apart therealong by a distance greater than the length of the heat exchanger shell member, the outer tube being integrally continuous between its outer ends; and the volute being contained in the central portion of the shell member and the ends of the outer tube being free of fins and extending through and to the outside of both end portions of the shell member and having their external peripheries sealed to the shell member where they pass through each end portion, and the inner tube extending from the shell member beyond said sealed peripheries of the outer tube ends, whereby any leakage of either tube will escape between the tubes and discharge outside of the shell member.

4,316,502

HELICALLY FLIGHTED HEAT EXCHANGER

David M. Sanborn, Roswell, and Andrew L. Blackshaw, Dunwoody, both of Ga., assignors to E-Tech, Inc., Atlanta, Ga.

Filed Nov. 3, 1980, Ser. No. 202,888

Int. Cl.³ F28D 7/02

U.S. Cl. 165—140

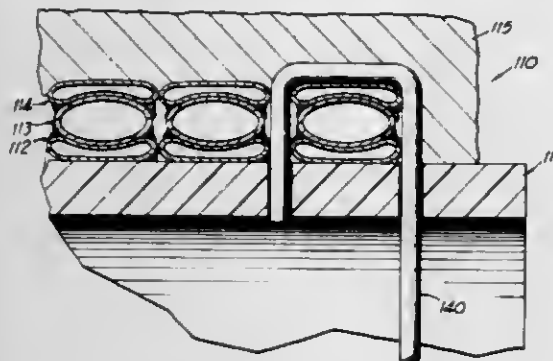
8 Claims

1. A heat transfer coil for use with heat transfer fluids between which heat is to be transferred comprising:

a first piece of heat conductive tubing wound in a helical configuration defining a plurality of first helical flights having an outboard portion thereon; and

a second piece of heat conductive tubing wound in a helical configuration defining a plurality of second helical flights having an inboard portion thereon, said first and second helical flights arranged so that said outboard portion of said first helical flights is aligned with and in conforming

intimate physical contact with said inboard portion of said second helical flights, each of said first and second pieces of tubing defining a fluid passage therethrough whose cross-sectional areas have been adjusted by internally



pressurizing said pieces of tubing to non-elastically deform both of said pieces of tubing to change the cross-sectional area of said passage through each of said pieces of tubing to a desired final size while maintaining intimate physical contact between said first and second helical flights.

4,316,503

SOLDERLESS HEAT EXCHANGER

Shogo Kurachi, Nishio; Masami Tamura, Kariya, and Akio Ueda, Nagoya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

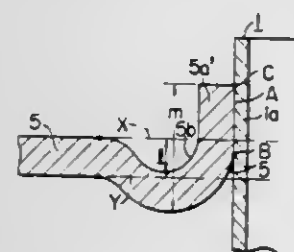
Filed Sep. 16, 1980, Ser. No. 187,959

Claims priority, application Japan, Oct. 12, 1979, 54-132146

Int. Cl.³ F28F 9/16

U.S. Cl. 165—175

5 Claims



1. In a heat exchanger having a pair of opposing tanks, a metal header plate of uniform thickness fixed to the open end of each of said tanks, a plurality of metal tubes extending through said header plates and providing a communication between said tanks, and a plurality of metal plate fins disposed on the outer surface of said tubes, said tubes being joined to said fins and said header plates solely through expansion of said tubes,

an improvement which comprises a collared portion on the header plate formed at each joint between each header plate and each tube, and an annular corrugation formed in the plate around the periphery of each collared portion and defining an annular groove, whereby said header plate and said tube are rigidly connected to each other solely by the pressure contact therebetween, due to a resiliency provided by said annular corrugation.

4,316,504

CHECK/RELIEF VALVE FOR AN INFLATABLE PACKER SYSTEM

Randy S. Baker, Long Beach, and Gerald C. Eckmann, La Puente, both of Calif., assignors to BJ-Hughes Inc., Long Beach, Calif.

Filed Feb. 11, 1980, Ser. No. 120,585

Int. Cl.³ E21B 33/127; F16K 15/08

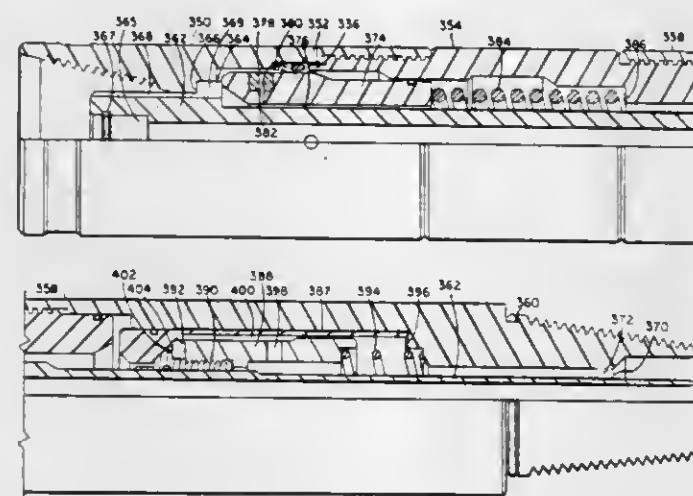
U.S. Cl. 166—53

4 Claims

1. A relief valve adapted for use in an inflatable packer system of the type having a positive displacement pump lo-

cated upstream in the system and at least one packer element located downstream in the system below the pump, comprising:

- a longitudinally extending cylindrical outer member located intermediate said pump and said packer elements;
- vent means through the wall of said outer member;
- a cylindrical inner member spaced apart from said outer member, thereby providing an inflation fluid passageway between said inner and outer cylindrical members said inner member being positioned in a fixed manner with respect to said cylindrical outer member;
- a ring-shaped relief piston surrounding said cylindrical inner member in said inflation fluid passageway, said ring-shaped relief piston having a grooved inner wall providing a fluid passageway for fluid pumped between said



piston and said inner cylindrical member and said piston having a port passing between said groove in said inner wall and the outer wall of said piston, said port providing a passageway for fluid pumped through said piston to said vent means;

an annular valve seal extending circumferentially about said relief piston between said piston outer wall and said cylindrical outer member; and

said relief piston being adapted to move longitudinally between an upward non-vented position with said piston port located above said valve seal and a downward vented position with said piston port located below said valve seal and aligned with said vent means in said cylindrical outer member to vent inflation fluid to the exterior of the valve when inflation fluid pressure exceeds the pressure externally of said valve by a predetermined amount.

4,316,505

PUMPING OF AQUEOUS SLURRIES

Steven A. Lammiman, Rua Ministro de Godoi, 628 - Perdizes - SP, Brazil, and Michael P. Hardman, 36 Shrublands Rd., Berkhamsted, Herts., England

Filed Jan. 11, 1980, Ser. No. 111,429

Claims priority, application United Kingdom, Jan. 12, 1979, 01166/79

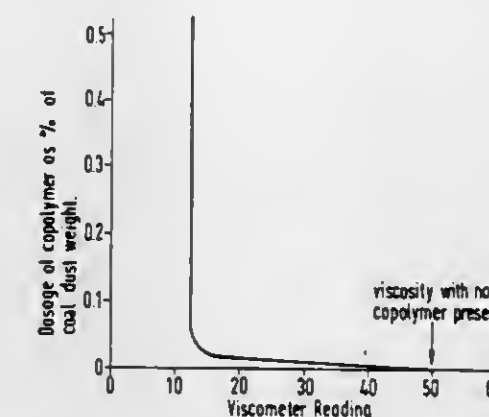
Int. Cl.³ E21B 33/13

U.S. Cl. 166—293

3 Claims

1. A method for the sealing of a disused mining tunnel involving mineral dust produced during mining, said method comprising the step of forming a pumpable aqueous slurry of the mineral, water, cement and a dispersing agent comprising a copolymer of a hydrophilic material and a less hydrophilic material, said less hydrophilic material being present in the copolymer in an amount between 5 and 50% by weight, the ratio of carboxyl groups to carbon atoms in the copolymer being about 0.4 and the molecular weight of the copolymer is

7000 and 8000 to achieve the desired copolymer properties, said dispersing agent being a water soluble copolymer of poly-



acrylic acid and polymethacrylic acid, and then pumping the slurry into the mine and allowing it to set there.

4,316,506

OIL WELL BLOW-OUT SAFETY SYSTEM

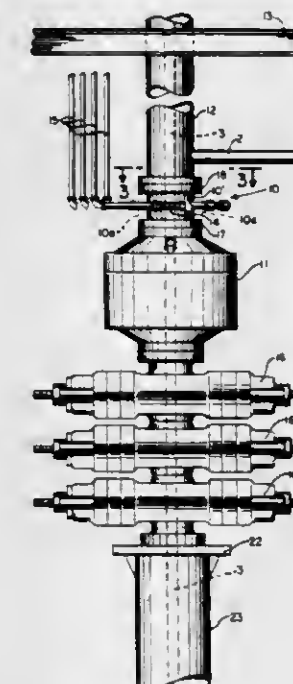
Douglas Poole, Jonesville, La., assignor to Lizzy Emergency Systems, Inc., New Orleans, La.

Filed Nov. 1, 1979, Ser. No. 90,487

Int. Cl.³ A62C 35/12

U.S. Cl. 169—69

7 Claims



1. A system for delaying the ignition of and assisting in the extinguishing of a fire around the oil pipe stem on an oil drilling rig during a blowout by injecting chemicals into the flow of hydrocarbons in the drill stem before the hydrocarbons are exposed to the ambient at the well head, the drilling rig having a stack of safety devices for horizontally closing off the well located between the well casing and the rig floor and below the mud return line element, comprising:

- a. spool chemical injection apparatus incorporated as an in-line section of the stack above the safety devices but below the rig floor and having one-way flow valve means associated therewith for allowing the injection of pressurized chemicals directly into the flow of hydrocarbons in the drill pipe before the hydrocarbons are exposed to the atmosphere above the safety devices; said spool apparatus further including
 - i. steel ring flange seal means at each vertical end of said spool apparatus for fixedly attaching the ends of said spool apparatus at the bottom to the upper most one of the safety devices and at the top to the mud return line element;
 - ii. a plurality of check valves located equidistant from one another around the exterior, circumferential surface of

said spool apparatus with each connected to said conduit means; and

- iii. openings in the exterior surface of said spool apparatus at each location of each said check valve extending from said check valve through the wall of said spool apparatus to the interior surface of said spool apparatus for injecting chemicals from said check valve to the flow of hydrocarbons within said spool apparatus;
- b. conduit means attached to said check valve means on said spool injection apparatus for transporting the chemicals from storage to said spool injection apparatus;
- c. a storage source of chemicals associated with the rig and operatively connected to said conduit means; and
- d. activation means associated with said conduit means for activating the system for delivery of the chemicals when desired to said spool injection apparatus and into the flow of hydrocarbons.

4,316,507

REVERSIBLE PLOW

Rolf E. Lindqvist, Linköping, Sweden, assignor to Aktiebolaget Overums Bruk, Overum, Sweden

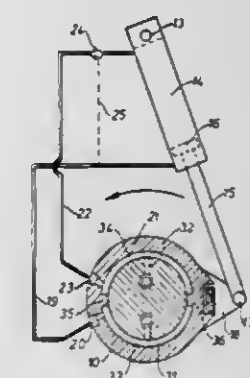
Filed Apr. 24, 1980, Ser. No. 143,330

Claims priority, application Sweden, Apr. 26, 1979, 7903661

Int. Cl.³ A01B 3/34

U.S. Cl. 172—225

7 Claims



1. In a reversible plow having a frame provided with plow shares directed to the left and to the right, said frame being mounted to turn in a support part through about 180° about a horizontal axis extending in the direction of movement of said plow, said turning being caused by a hydraulic cylinder that is swingably supported in a support part and having a piston that moves forward and backward in said cylinder during said turning action, the improvement comprising: a turning shaft on said frame, a reversing valve, said valve being combined with said shaft, the latter being part of said reversing valve controlling the flow of oil to said cylinder, and a housing surrounding said shaft and being connected to said support part and being a coacting part of said reversing valve.

4,316,508

AUTOMATIC RIPPER RESET MECHANISM

Carroll J. Whitfield, Tifton, Ga., assignor to Beatrice Foods Co., Chicago, Ill.

Filed Feb. 8, 1980, Ser. No. 119,922

Int. Cl.³ A01B 13/08

U.S. Cl. 172—271

11 Claims

1. In a sub-soil ripper apparatus having a ripper blade bearing a distally disposed and forwardly extending soil engaging ripper shank and a proximally disposed and forwardly extending ripper head, said ripper head mounted for downward pivotal motion of the ripper head and rearward pivotal motion of the attached ripper shank about a ripper pivot shaft disposed near the proximal end of the ripper shank when the ripper blade strikes a substantial sub-soil obstruction and for return forward pivotal motion when the ripper is reset from a sprung position to a ripping functional position, the improvement of an automatic ripper reset mechanism comprising:

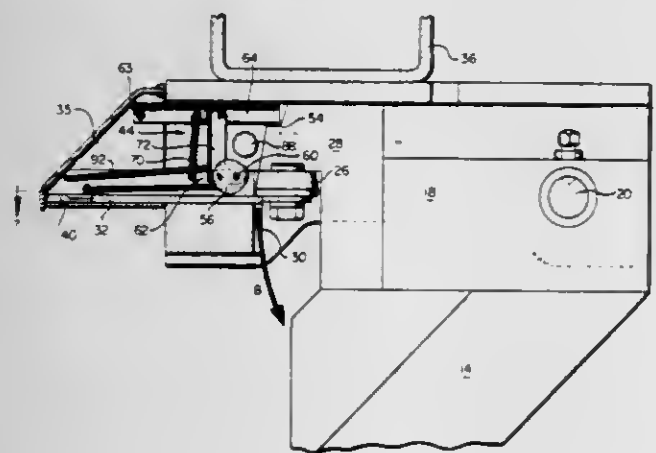
a punch fixedly disposed near the distal, free end of the ripper head for downward arcuate motion in response to rearward pivotal motion of the ripper shank upon the ripper blade striking an obstruction;

a die disposed adjacent said punch and having a surface contour corresponding to that of said punch for mating cooperation therebetween;

an incrementally fed shear bar disposed opposite said punch and supported and movable in a shear bar track, said shear bar having a distal end which is disposed between said punch and said die to secure the ripper in ripping functional configuration;

a reset mechanism frame attached to and supported by the implement frame;

spring loaded push block means disposed on said reset mechanism frame for urging engagement with the proximal end of said shear bar to advance said shear bar radially of and intersecting the path of arcuate motion of said punch to dispose said shear bar between said punch and said die when in the ripping position;



brake means for overcoming the radial advance of said shear bar when the ripper blade is disposed in the rearwardly sprung position when the ripper blade has struck an obstruction, said brake means including an eccentrically mounted brake disc having a friction radial edge for engagement with said shear bar, and further having biasing means disposed opposite the eccentric journal of said brake disc for pivoting said brake disc downwardly about its eccentric journal into frictional contact with said shear bar to halt movement of said shear bar in response to said push block means; and

torque storage means connected to the ripper pivot shaft for receiving torque from the turning of the shaft in response to pivoting of the ripper blade caused by the striking of a sub-soil obstruction and for retransmitting the stored torque to the ripper shaft when the obstruction is removed from the path of the ripper blade, thereby to return and reset the ripper from the spring position to the ripping position.

4,316,509

AGRICULTURAL VEHICLE FOR FORMING WATER RINGS

Morris M. Hallum, 3558 Sunset Ave., P.O. Box 86, Scottsmeer, Fla. 32775

Filed Sep. 19, 1979, Ser. No. 77,101

Int. Cl.³ A01B 59/046, 79/00

U.S. Cl. 172-297

9 Claims

1. An agricultural vehicle for forming a substantially circular water ring in the soil for the planting of a young tree or the like comprising:

a vehicle body having an operator position;

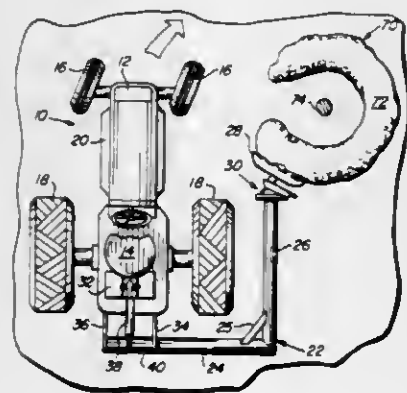
a pair of rear drive wheels supporting said body;

engine means for rotating said wheels to move said body

across the soil in a direction of travel responsive to control by the operator in said operator position;

a single blade having a front face directed generally forwardly and away from said vehicle body, said blade having a peripheral edge adapted to engage and turn up the soil;

a boom including a first portion extending normal to said direction of travel and a second portion extending forwardly from said first portion substantially parallel with the direction of travel, said first portion coupled with said vehicle body rearwardly of said operator position and said rear drive wheels with said second portion extending forwardly of said rear drive wheels and spaced further from said vehicle body than either of said rear drive wheels along the entire length of said second portion, with said single blade being fixedly mounted to the forward



extremity of said second portion, said boom being free of structure spaced as close or closer to the vehicle than either of said rear drive wheels forwardly of said first portion of said boom;

said single blade being spaced outside the direction of travel of the one of said rear drive wheels adjacent thereto in a direction away from said vehicle body such that said blade is spaced further from said vehicle body than either of said rear drive wheels and said face of said blade being oriented at a substantial angle with respect to the direction of travel of said adjacent wheel;

means for raising and lowering said blade; and wherein said substantially circular water ring is formed in the soil by movement of said vehicle body in a generally circular direction of travel, causing said blade to push up said soil across said face of said blade and form said ring under observation of said operator.

4,316,510

SOIL CULTIVATING MACHINE WITH INTERCONNECTED PIVOTED MEMBERS

Cornelis van der Lely, 7 Brüchenrain, Zug, Switzerland

Filed Jan. 2, 1980, Ser. No. 109,149

Claims priority, application Netherlands, Jan. 11, 1979, 7900218; Apr. 6, 1979, 7902707

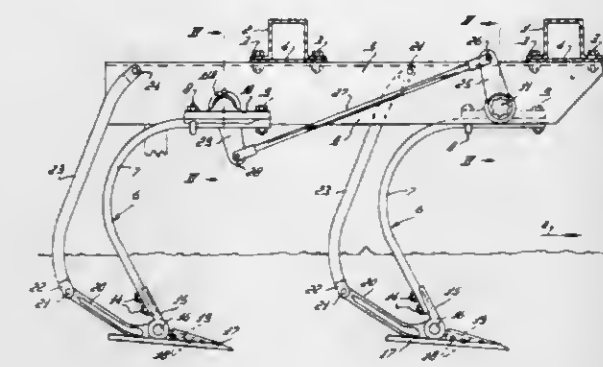
Int. Cl.³ A01B 15/00

U.S. Cl. 172-657

15 Claims

1. A soil cultivating machine comprising a frame and at least two soil working members being mounted on a common beam of said frame, one behind the other with respect to the normal direction of machine travel and on opposite sides of said beam, said two members being linked to one another and detachably fastened with said beam as a unit to the remainder of the frame, said common beam extending in the direction of travel and bridging two transverse frame beams, said common beam being a channel beam with sides and said members being located adjacent a respective beam side, each working member

comprising a supporting arm and said arm having an upper end pivotally connected to said common beam, said upper end



being fastened to stub shaft means that comprises a stub shaft journaled to the sides of said common beam.

4,316,511

IMPLEMENT FRAME, ESPECIALLY FOR AGRICULTURAL MACHINES

Helge H. Andersen, Soroe, Denmark, assignor to Kongskilde Koncernselskab A/S, Soroe, Denmark

Filed Nov. 9, 1979, Ser. No. 92,848

Claims priority, application Denmark, Dec. 12, 1978, 55791/78

Int. Cl.³ A01B 63/10

U.S. Cl. 172-776

3 Claims



1. An implement frame, particularly for agricultural machines, comprising

a main section to be mounted on a tractor or another vehicle; at least one end section or wing which is hinged to the main section and by means of a driving cylinder is foldable between an operating position in which it is in alignment with this main section and a transport position approximately perpendicular thereto;

first and second stops secured to said main section; and first and second latch members for arresting the end section in its operating and transport positions, respectively, said first latch member being pivotally mounted on said end section at a distance from the axis of its hinge connection with the main section and being, at one end, pivotally connected with the piston rod of the driving cylinder and forming, at its other end, a hook arranged for engagement with a stop on the main section, when the end section is folded into its operating position, and for disengagement on retraction of the piston rod, and

said second latch member being hingedly connected with the first latch member so as to engage said second stop on the main section at the end of the movement of the end section toward its transport position and to disengage therefrom when pressure is exerted on the first latch member through the piston rod, wherein

both latch members are journaled on a common axis in relation to the end section, and that the second latch member by means of a spring is urged against a predetermined basic position in relation to the first latch member corresponding to the mutual angular position of the two latch members, when the end section is arrested in its transport position.

1015 O.G.-45

4,316,512

IMPACT WRENCH

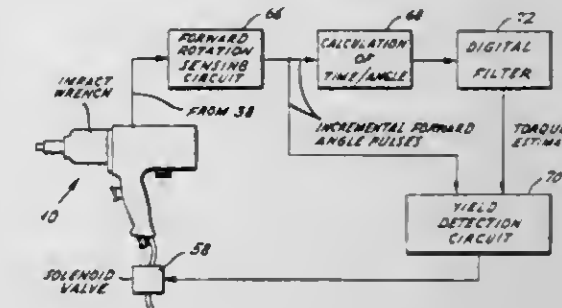
Ian E. Kibblewhite, Dublin, Ireland; John T. Boys, Birkenhead, New Zealand, and Angelo L. Tambini, Manor Kilbride, Ireland, assignors to SPS Technologies, Inc., Jenkintown, Pa.

Filed Apr. 4, 1979, Ser. No. 27,127

Int. Cl.³ B25B 23/147

U.S. Cl. 173-12

77 Claims



1. Apparatus for providing a parameter representative of torque in a tightening system having a pulsed output for periodically applying a tightening moment to a member, said parameter being derived from forward rotation angle measurement of the member being tightened.

4,316,513

NAIL DRIVING IMPACT HAMMER

Dwight Harris, 685 Maryland Ave., Washington, Pa. 15301

Filed Feb. 4, 1980, Ser. No. 118,573

Int. Cl.³ B25C 5/06

U.S. Cl. 173-91

1 Claim



1. A reciprocating hammer for use in mines and the like comprising an elongated cylindrical tube, a cup-shaped end cap screw threaded to and closing the top of said tube, said end cap having a hole, a ram contained in said tube and having a rod extending through said hole and being operable by a knob externally of the tube, a second cup-shaped end cap screw threaded to the other end of said tube, and having a hole, a drive rod and surrounding sleeve extending through said last mentioned hole, an anvil supported by said drive rod, a spring surrounding said sleeve in said tube and having a free end biased against the bottom of said anvil, a well portion in the outer portion of said sleeve for holding said nail, and a permanent magnet embedded in said well portion of said sleeve for magnetically and stationarily holding the nail to be driven by reciprocation of said ram against said anvil, whereby sparks created between the ram and anvil will be totally enclosed by said cylindrical tube.

4,316,514

METHOD OF BINDING DUST CREATED WHEN DRILLING ROCK WITH A DRILLING ROD

Göran H. Jysky, Nyköping, Sweden, assignor to Atlas Copco AB, Stockholm, Sweden

Filed Aug. 15, 1980, Ser. No. 178,414

Claims priority, application Sweden, Aug. 22, 1979, 7907026

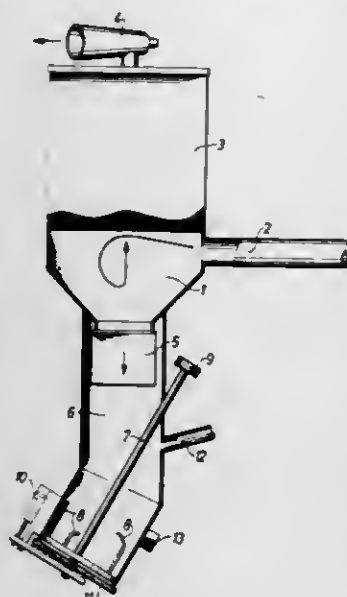
Int. Cl.³ E21C 7/02; B01D 45/12, 46/48

U.S. Cl. 175-66

6 Claims

1. A method of binding dust created when drilling rock with a drilling rod having a bit, by mixing said dust with a liquid, comprising the steps of collecting the dust on the bottom of a dust-separating means, feeding the dust in batches of given size to a mixing chamber, supplying to said chamber a liquid binder

in an amount corresponding to the size of said batch of dust; mixing the dust and liquid by stirring while a further batch of



dust is collected in the separating means; and discharging the resultant mixture from the mixing chamber before the next batch of dust is fed to the mixing chamber.

4,316,515

SHAFT DRILL BIT WITH IMPROVED CUTTER BEARING AND SEAL ARRANGEMENT AND CUTTER INSERT ARRANGEMENT

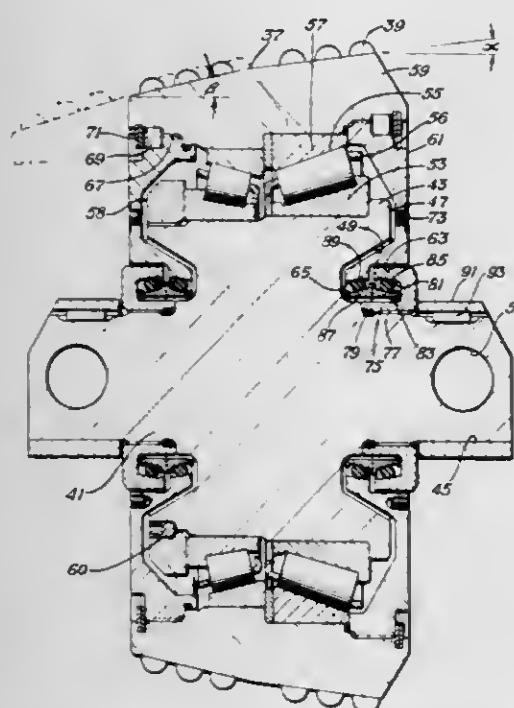
Rudolph C. O. Pessier, West University Place, Tex., assignor to Hughes Tool Company, Houston, Tex.

Filed May 29, 1979, Ser. No. 43,533

Int. Cl.³ E21B 10/22

U.S. Cl. 175—372

18 Claims



1. A rotatable cutter for earth boring equipment comprising: an axle having an enlarged central portion and reduced portions on both sides of lesser diameter than the central portion;

a cutter sleeve rotatably mounted on the central portion; and seal means between the reduced portions and the cutter sleeve for preventing ingress of grit.

WEIGHING BALANCE WITH AUTOMATIC ZERO CORRECTION

Walter Kupper, Madison, N.J., assignor to Mettler Instrumente AG, Greifensee, Switzerland

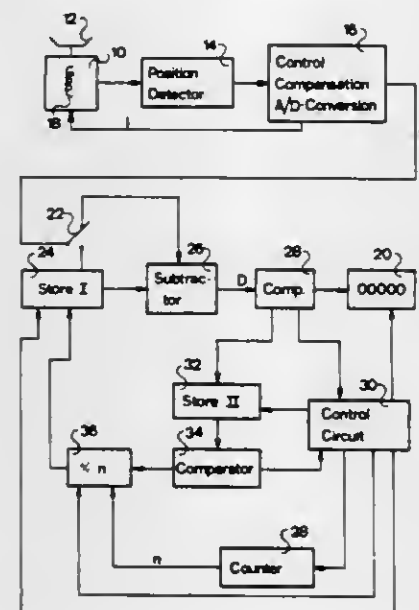
Filed Oct. 9, 1980, Ser. No. 195,331

Claims priority, application Switzerland, Dec. 20, 1979, 11309/79

Int. Cl.³ G01G 19/04, 19/52, 23/10

U.S. Cl. 177—25

3 Claims



1. In weighing method comprising the steps of periodically generating digital weight proportional signals, comparing said weight proportional signals to a reference signal and generating main difference signals corresponding to the difference therebetween, comparing said main difference signals to a predetermined threshold signal and furnishing a first or a second difference signal when said main difference signal is, respectively, less than or at least equal to said predetermined threshold signal, the improvement comprising the steps of

storing a first difference signal; algebraically adding subsequently generated first difference signals to the so-stored first difference signal, thereby creating a cumulative first difference signal;

comparing said cumulative first difference signal to a predetermined limiting value and furnishing a comparator output signal only when said cumulative first difference signal exceeds said limiting value;

counting the number of first difference signals received until said cumulative first difference signal exceeds said limiting value signal and furnishing a counting signal signifying the number of so counted first difference signals;

dividing said cumulative first difference signal by said counting signal thereby creating an average difference signal; and

wherein said average difference signal is applied to said weight proportional signals or said reference signal when generating said main difference signals.

4,316,517

WEIGHING SCALE WITH IMPROVED ZERO CORRECTION

Eberhard Jonath, Volketswil, Switzerland, assignor to Mettler Instrumente AG, Greifensee, Switzerland

Filed Oct. 9, 1980, Ser. No. 195,477

Claims priority, application Switzerland, Dec. 20, 1979, 11311/79

Int. Cl.³ G01G 19/04, 19/52, 23/10

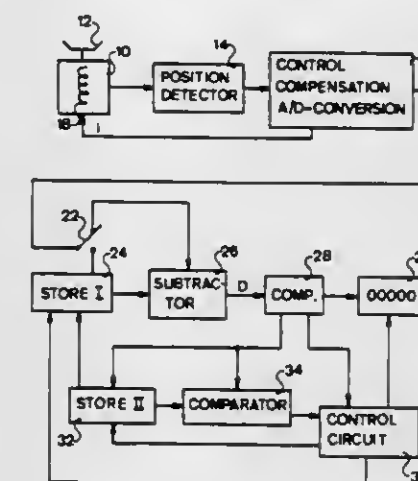
U.S. Cl. 177—25

3 Claims

1. In a weighing method comprising the steps of periodically generating digital weight proportional signals, comparing said weight proportional signals to a reference signal and generat-

ing main difference signals corresponding to the difference therebetween, comparing said main difference signals to a predetermined threshold signal and furnishing a first or a second difference signal when said main difference signal is, respectively, less than or at least equal said threshold signal, and displaying said second difference signal, the improvement comprising the steps of

when a first difference signal is generated: storing said first difference signal thereby creating a stored difference signal;



comparing the sign of a first difference signal generated in a subsequent measuring to the sign of said stored difference signal and

furnishing a comparator output signal only when the so compared signs are the same; and

changing said reference signal by a value corresponding to said stored difference signal only in response to said comparator output signal.

4,316,518

AUTOMATIC ZERO CORRECTION APPARATUS FOR WEIGHING BALANCES

Eberhard Jonath, Volketswil, Switzerland, assignor to Mettler Instrumente AG, Greifensee, Switzerland

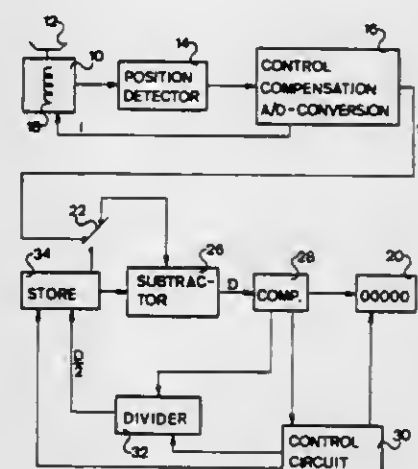
Filed Oct. 9, 1980, Ser. No. 195,332

Claims priority, application Switzerland, Dec. 20, 1979, 11310/79

Int. Cl.³ G01G 19/04, 19/52, 23/10

U.S. Cl. 177—25

5 Claims



1. In a weighing method comprising the steps of periodically generating digital weight proportional signals, comparing said weight proportional signals to a reference signal and generating main difference signals corresponding to the difference therebetween, comparing said main difference signals to a predetermined threshold signal and displaying only main difference signals at least equal to said threshold signal, the improvement comprising the steps of

dividing each of said main difference signals less than said

threshold signal by a predetermined factor, thereby creating a fractional difference signal; and including said fractional difference signal when comparing the next subsequent one of said weight proportional signals to said reference signal, whereby the next furnished one of said main difference signals depends in part upon said fractional difference signal.

4,316,519

SELF-ENERGIZED POWER STEERING UNIT

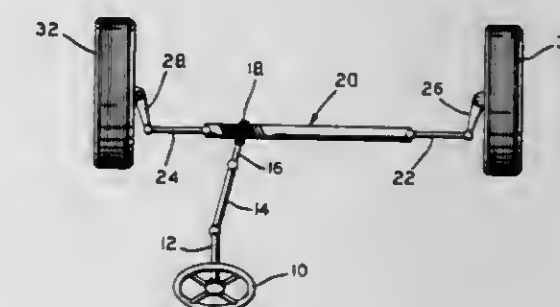
Alistair G. Taig, South Bend, Ind., assignor to The Bendix Corporation, Southfield, Mich.

Filed Nov. 13, 1979, Ser. No. 93,326

Int. Cl.³ B62D 5/06

U.S. Cl. 180—148

35 Claims



23. A self-contained power steering unit comprising an elongate housing, a tubular sleeve held in said housing for longitudinal movement therein, means in said sleeve forming a hydraulic accumulator at one end portion and a fluid reservoir at another end portion, pump means carried at one end of said sleeve, outlet means in said sleeve connecting said pump means with said accumulator, inlet means in said sleeve connecting said pump means with said reservoir, said housing having a partition extending inwardly in slidable but sealing contact with the outer surface of said sleeve, a first annular piston affixed to said sleeve on one side of said partition and forming a first annular cylinder therebetween and between said housing and said sleeve, a second annular piston affixed to said sleeve on the side of said partition opposite said first piston and forming a second annular cylinder therebetween and between said housing and said sleeve, passage means connecting said accumulator and said first annular cylinder, valve means carried by said sleeve, a gear rack slidable on said sleeve for controlling said valve means, second passage means connecting said valve means and said second annular cylinder, third passage means connecting said accumulator and said valve means, and fourth passage means connecting said reservoir and said valve means, said valve means being movable relative to said sleeve to communicate one of said annular cylinders with said accumulator and to communicate the other of said annular cylinders with said reservoir.

4,316,520

UNILATERAL REAR-DRIVE TYPE THREE-WHEELED VEHICLE

Hitoshi Yamamoto, Shiki; Masaki Watanabe, Urawa, and Shini-chi Koizumi, Tokyo, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 8, 1980, Ser. No. 120,123

Claims priority, application Japan, Feb. 14, 1979, 54-15874

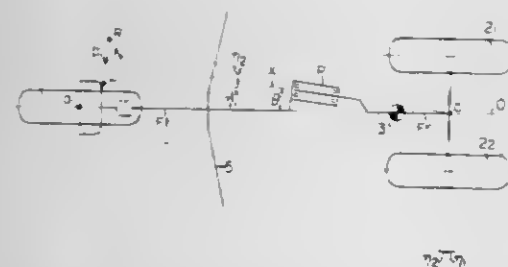
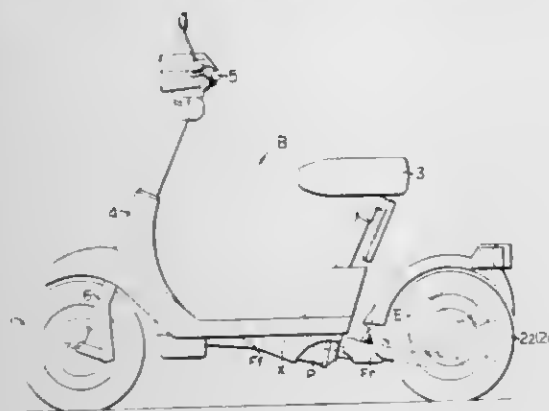
Int. Cl.³ B62K 5/06

U.S. Cl. 180—215

6 Claims

1. A three-wheeled vehicle of the type including a body comprised of a front frame supporting a single front wheel, a rear frame supporting a pair of right and left rear wheels on a common transverse axis, the front and rear frames being interconnected by means of a pivot joint so that the front frame may tilt to one side or other about the turning axis of the pivot joint, and a power drive unit operatively connected with one of the

rear wheels, wherein the improvement comprises that said front wheel is arranged in the longitudinal plane of symmetry of the vehicle while said rear wheels are arranged symmetrically with respect to said plane, and wherein said pivot joint is



arranged so that the turning axis thereof is generally offset from said plane to that side of the vehicle at which said one rear wheel is arranged and is inclined laterally outwardly from the rear towards the front of the vehicle.

4,316,521

PIVOTED ELEVATOR MOUNTING FOR MOBILE LAND SEISMIC ENERGY SOURCE

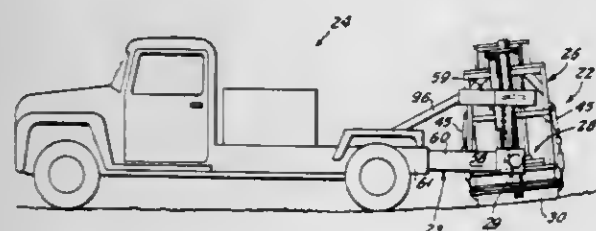
Stephen V. Chelminski, West Redding, Conn., assignor to Bolt Associates, Inc., Norwalk, Conn.

Continuation of Ser. No. 871,602, Jan. 23, 1978, abandoned. This application Dec. 7, 1979, Ser. No. 101,123

Int. Cl.³ G01V 1/09

U.S. Cl. 181-114

15 Claims



2. A mobile land seismic energy source for surveying on the earth by transmitting powerful seismic energy impulses down into the earth, said land source comprising:

- a seismic energy generating assembly including a seismic energy generator for generating a seismic impulse;
- an outer supporting frame adapted for mounting on a land vehicle;

vertical guide means for guiding said generating assembly in vertical movement relative to said outer supporting frame; said vertical guide means being pivotally mounted to said outer supporting frame for swinging movement about a generally horizontal axis;

said vertical guide means comprising two rigid, linear tubular channel members each having a longitudinal opening therein facing inwardly toward said seismic energy generating assembly,

said seismic energy generating assembly including horizontal extensions which fit into said tubular channel members

and are free to move longitudinally along within said channel members, said horizontal extensions from said generating assembly extending through said longitudinal openings, said extensions including tough, slippery plastic polymer sleeves at least partially surrounding vertical cylindrical mandrels positioned within and coaxial with said tubular channel members; and lifting means for lifting said generating assembly relative to said vertical guide means to elevate said seismic energy generating assembly from an operating position in contact with the ground to a raised position above the ground in readiness for transport.

4,316,522

ACOUSTIC FILTER SILENCER

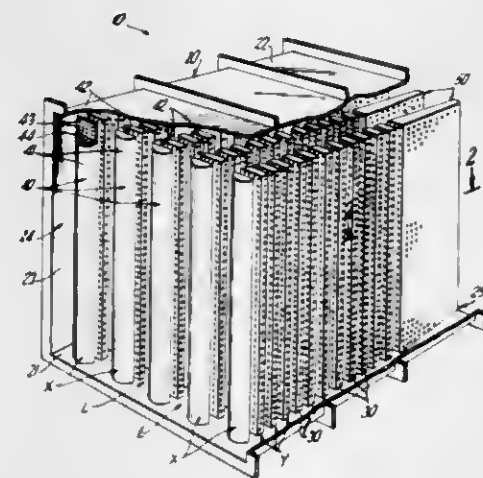
Martin Hirschorn, New York, N.Y., assignor to Industrial Acoustics Company, Inc., Bronx, N.Y.

Filed Nov. 7, 1979, Ser. No. 91,990

Int. Cl.³ E04F 17/04; F01N 1/10; F02N 35/12

U.S. Cl. 181-224

15 Claims



1. A sound silencer for insertion in a duct having a fluid medium flowing therethrough comprising:

- an outer housing having an open entry end, an open exit end, a base portion, a roof portion, and a pair of opposed side walls; the main flow of the fluid medium being from the entry end of the housing of the exit end thereof; and

a plurality of spaced apart sound attenuating members disposed within the housing, said sound attenuating members being arranged in columns and rows, each of said sound attenuating members being disposed substantially normal to said housing base and extending from said base to said housing roof such that said sound attenuating members define a first plurality of fluid passageways substantially parallel to the direction of the main flow of the fluid medium and extending from the entry end of the housing to the exit end thereof, and a second plurality of fluid passageways disposed substantially perpendicular to the direction of the main flow of the fluid medium and extending from one of said housing sidewalls to the other sidewall, each of said sound attenuating members having a first pair of opposed faces disposed substantially parallel to said first plurality of fluid passageways and a second pair of acoustically transparent opposed faces disposed substantially parallel to said second plurality of fluid passageways, said attenuating members being substantially filled with a sound absorptive filler material.

4,316,523

SILENCER FOR GAS DISCHARGE DEVICES

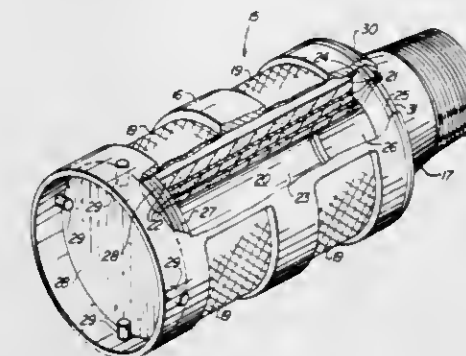
Napoleon P. Boretti, 13834 Del Webb Blvd., Sun City, Ariz. 85351

Filed Jun. 4, 1980, Ser. No. 156,479

Int. Cl.³ F01N 1/10, 1/24, 7/18

U.S. Cl. 181-226

23 Claims



1. An air exhaust silencer comprising:

- a housing having an air inlet means at one end of said housing for attachment to an air exhaust and at least one exhaust port, and

a detachably mounted cartridge axially arranged within said housing,

said cartridge comprising a plurality of contiguous layers of wire mesh and resilient porous material arranged sequentially in the path of movement of all of the air flow under pressure through the silencer,

said layers of resilient porous material confined between adjacent layers of wire mesh deflect under pressure surges of the air passing therethrough to substantially prevent premature loading of the porous material and excessive flexing and disintegration thereof.

4,316,524

TWO-SPEED LADDER

James M. Lapeyre, New Orleans, La., assignor to The Laitram Corporation, New Orleans, La.

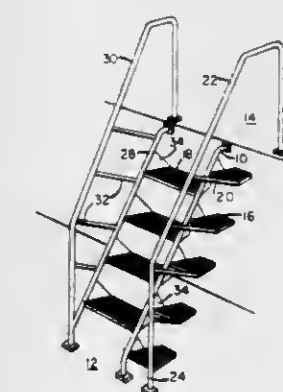
Filed Jun. 12, 1980, Ser. No. 158,883

The portion of the term of this patent subsequent to Apr. 22, 1997, has been disclaimed.

Int. Cl.³ E06C 9/02, 7/08

U.S. Cl. 182-93

5 Claims



1. A ladder comprising:

- a central tread support member adapted for mounting between an upper level and a lower level at a predetermined angle of inclination;

a first plurality of half tread members disposed on one side of said support member and equally spaced along the length thereof;

a second plurality of full tread members disposed along the opposite side of said support member and equally spaced along the length thereof;

said first and second plurality of tread members being dis-

posed in alternating arrangement on respective sides of said support member;

each of said half tread members having a foot support portion outwardly extending from said support member and rail support means outwardly extending from the foot support portion and terminating substantially in a plane forward and parallel to a plane passing through the front edges of the foot support portions;

a first handrail attached to said rail support means and lying in the forward plane; and

a second central tread support member adapted for mounting between said upper and lower levels and affixed to the outer ends of said full tread members.

4,316,525

LADDER FOR PLAY STRUCTURE

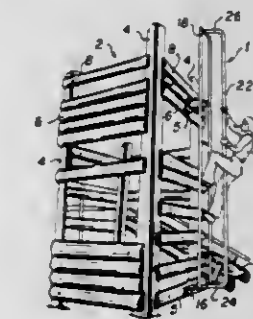
Roger D. Gehlbach, White Rock, Canada, assignor to Gehlbach Engineering Ltd., White Rock, Canada

Filed May 5, 1980, Ser. No. 146,812

Int. Cl.³ E06C 5/36; A63B 9/00

U.S. Cl. 182-106

6 Claims



1. A ladder for a children's play structure, comprising:

- a pair of spaced-apart, elongate side members extending from a first end of the ladder to a second end thereof;

a plurality of rungs extending perpendicularly between the side members, adjacent rungs having a distance therebetween, said distance increasing successively between adjacent rungs from the first end of the ladder towards the second end; and

a third elongate member, parallel to the side members and midway therebetween, extending substantially from the first end of the ladder to the second end, the third member being outwardly spaced-apart a substantial distance from the rungs, whereby a child climbing the ladder from the first end towards the second end, having his feet on the rungs and grasping the third member, exercises arm, torso and leg muscles in lifting his body.

4,316,526

APPARATUS FOR AND METHOD OF CLIMBING AN UPRIGHT COLUMNAR MEMBER

Joseph A. Amacker, Tallulah, La., assignor to Amacker, Inc., Tallulah, La.

Continuation-in-part of Ser. No. 873,285, Jan. 30, 1978, abandoned. This application Nov. 17, 1978, Ser. No. 961,640

Int. Cl.³ A47C 9/10; A01M 31/02

U.S. Cl. 182-135

33 Claims

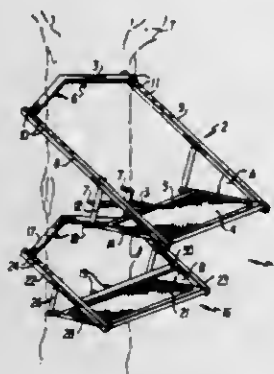
1. An apparatus for climbing upright columnar members comprising:

first climbing means including first means for gripping an upright member and a first platform means, said first platform means spaced from said upright member, accommodating the body of the user;

second climbing means including second means for gripping the upright member and a second platform means, adjacent to said upright member, for accommodating the feet of the user;

the first climbing means further including first and second bar means for supporting the body of the user from the side;

the first climbing means further including first means for adjusting an angle formed by the first platform means with the first and second support bar means; and



the first angle adjusting means including first telescoping members positioned within side edges of the first platform means.

4,316,527

APPARATUS FOR THE PARKING OF VEHICLES ON MOBILE PLATFORMS

Kaspar Klaus, Dr.-Berndt-Str. 5, D-8940 Memmingen, and Franz Treppesch, Herbisrieder-Str. 2a, D-8944 Gröbenbach, both of Fed. Rep. of Germany

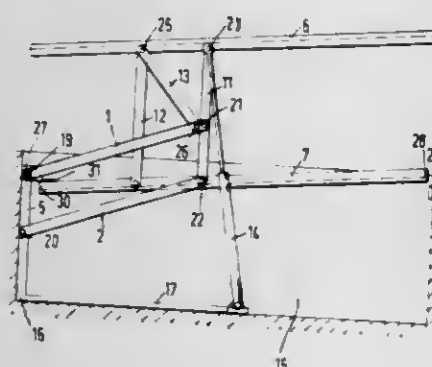
Filed Sep. 18, 1979, Ser. No. 76,790

Claims priority, application Fed. Rep. of Germany, Sep. 30, 1978, 2842700; Aug. 4, 1979, 2931713

Int. Cl.³ B60S 13/00

U.S. Cl. 187—8.71

9 Claims



1. In apparatus for the multitier parking of vehicles, comprising at least two vehicle-receiver platforms, equipment to mount the platforms in superposed relationship and to raise the platforms simultaneously in a substantially vertical direction in this condition to bring a selected platform into communication with a stationary vehicle-access area, the improvement in which said equipment comprises at least one parallelogram linkage arranged in a superposed spaced relation and which extends substantially horizontally when collapsed, said at least one parallelogram linkage being attached at one end to a fixed substantially vertical support forming part of said linkage by means solely for pivotal mounting, said pivotal mounting means being vertically disposed and, said at least one parallelogram linkage being attached at its other end to strut means connecting said platforms by pivotal connecting means, said pivotal connecting means being vertically disposed.

4,316,528

MECHANISM FOR LATCHINGLY CONNECTING TELESCOPING MEMBERS

Max J. Dechantsreiter, Milwaukee, Wis., assignor to Har-nischfeger Corporation, West Milwaukee, Wis.

Filed Mar. 11, 1980, Ser. No. 129,196

Int. Cl.³ B66C 19/00

U.S. Cl. 187—9 E

11 Claims

1. In apparatus having first and second members which are

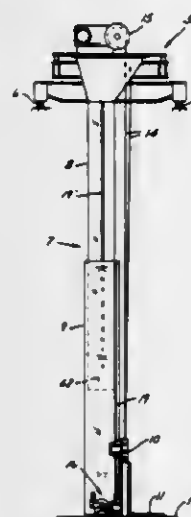
movable in a pair of opposite directions relative to one another and to a third member, said first member having a range of motion in said directions that extends to opposite sides of a medial zone, and said second member being biased in the direction towards one side of said zone, automatic connection means whereby said second member is constrained to move with said first member when the latter is at said one side of said medial zone and whereby said second member is confined against motion relative to said third member when the first member is at the other side of said zone, said automatic connection means comprising:

A. a toggle element carried by said second member and confined to swinging motion relative thereto between a pair of locking positions;

B. a pair of latching elements carried by said second member, one at each side of said toggle element, each of said latching elements being movable relative to said second member

(1) substantially in said one direction to a releasing position and

(2) substantially in the other of said directions to a latching position towards which the latching element is biased,



at which it confines the toggle element in one of its locking positions, but to which the latching element can move only when the other latching element is in its releasing position;

C. means defining a pair of locking abutments, each having a surface facing substantially in said other of said directions,

(1) one on said first member having its said surface engageable by said toggle element when one of said latching elements is in its releasing position, and

(2) the other on said third member having its said surface engageable by said toggle element when the other of said latching elements is in its releasing position;

D. cooperating displacement abutments on the first member and on said one latching element whereby the latter is displaced to its releasing position by movement of said first member through said zone in said one direction; and

E. other cooperating displacement abutments on the third member and on said other latching element whereby the latter is displaced to its releasing position by movement of the second member through said zone in said other direction.

4,316,529

BRAKE BOOSTER

Ichiro Yanagawa, Higashimatsuyama; Tokio Kurita, and Kei Nakasu, both of Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Japan

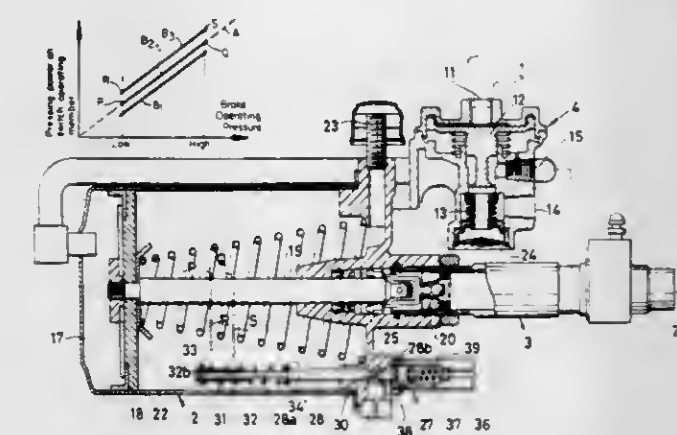
Filed May 2, 1980, Ser. No. 146,088

Claims priority, application Japan, May 23, 1979, 54/63462

Int. Cl.³ F16D 63/00; B60T 17/22

U.S. Cl. 188—1.11

4 Claims



1. In a brake booster having a power cylinder which receives pressure fluid and a hydraulic cylinder actuable by the power cylinder when it receives pressure fluid, in combination and having a wear detector for detecting the wear of a brake lining when it has reached a predetermined level, the wear detector comprising:

a switch operating member (28) so arranged as to be moved by means of a power piston (18) disposed in the power cylinder and provided with a spring (31) at one end;

a switch (29) adapted to be actuated due to the movement of said switch operating member; and

means for exerting a pressure corresponding to the operating pressure of the power piston onto an other end (28b) of said switch operating member;

said switch operating member (28) being so constituted as to be pressed and moved by the power piston through said spring (31);

said pressure exerting means having a pressure chamber (37) arranged to face said other end of said switch operating member, a pressure-receiving and sliding member (38) disposed in said pressure chamber and provided at said other end of said switch operating member, and means for connecting said pressure chamber to a portion of the power piston exposed to pressure fluid, the area of said pressure-receiving and sliding member being such that when the wear of a brake lining remains slightly less than the predetermined level, power from said pressure exerting means acting on said other end (28b) of said switch operating member (28) becomes equal to the pressing power of said spring (31).

4,316,530

FLOATING CALIPER DISC BRAKE

Jakob Geblen, and Hans Wortmann, both of Bad Soden, Fed. Rep. of Germany, assignors to ITT Industries, Inc., New York, N.Y.

Continuation of Ser. No. 67,572, Aug. 17, 1979, abandoned. This application Jan. 19, 1981, Ser. No. 226,310

Claims priority, application Fed. Rep. of Germany, Sep. 7, 1978, 2838921

Int. Cl.³ F16D 55/224, 65/02

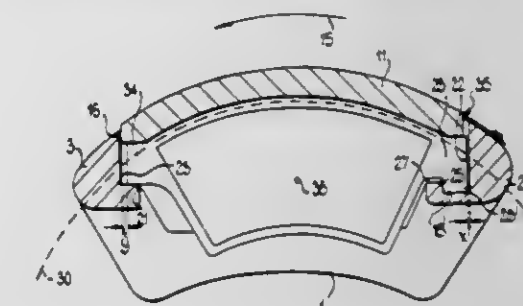
U.S. Cl. 188—73.39

11 Claims

1. A floating caliper disc brake comprising:
a brake disc having a main direction of rotation about a rotational axis such that said disc enters said brake on an entry side thereof and leaves said brake on an exit side thereof;

a brake support member disposed on one side of said disc,

said support member having a first arm disposed on said entry side embracing the periphery of said disc and a second arm disposed on said exit side embracing the periphery of said disc, said first arm including at least a first groove disposed adjacent a selected side of said disc extending parallel to said axis formed by a first surface extending vertically parallel to said axis, a second surface disposed on said selected side of said disc perpendicular to said first surface extending from said first surface toward the center of said disc and a third surface disposed on said selected side of said disc perpendicular to said second surface extending from said second surface, spaced from and facing said first surface and extending parallel to said first surface and said second arm including a fourth surface disposed on said selected side of said disc extending vertically parallel to and facing said first surface and a fifth surface disposed on said selected side of said disc perpendicular to said fourth surface extending from said fourth surface toward the center of said disc;



a brake caliper carried and guided on said support member and embracing the periphery of said disc, said caliper being in a positive direct engagement with said second arm and spaced from said first surface in an inoperative position of said brake; and

a pair of brake shoes each disposed on opposite sides of said disc, at least one of said pair of shoes having a first friction lining on the surface thereof remote from said disc to frictionally engage said caliper and said one of said pair of shoes is disposed on said selected side of said disc having an inwardly directed first projection on an end thereof adjacent said first arm engaging said first groove in an abutting relationship with said third surface and spaced from said first surface a first predetermined distance and the other end of said one of said pair of shoes being in an abutting relationship with said fifth surface and spaced from said fourth surface a second predetermined distance in said inoperative position of said brake.

4,316,531

CLUTCH LOCKOUT LATCH

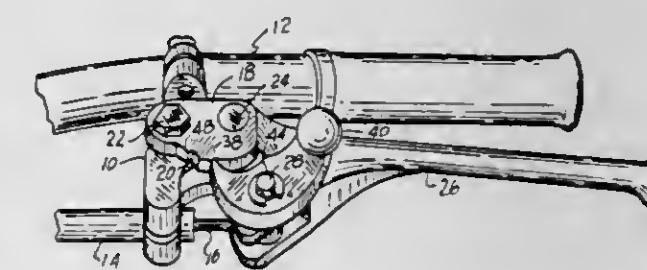
Anthony B. Harpster, 16577 State Rd., North Royalton, Ohio 44133

Filed Aug. 18, 1976, Ser. No. 715,548

Int. Cl.³ F16D 23/12

U.S. Cl. 192—114 R

2 Claims



1. A clutch control latchable in selected degrees of clutch engagement and mounted on a motorcycle handle bar having a handgrip, said clutch control being operably connected to the motorcycle clutch and independent of said handgrip, said

latchable control comprising a body clamped to said handle bar adjacent said handgrip, an arcuate rack rigidly affixed to said body, a clutch control lever pivoted in said body and operably connected to the motorcycle clutch, and a detent pivotally mounted on said lever, said detent having a tongue engagable with said arcuate rack and having an arm with a rounded end opposite to said tongue, said rounded end being adjacent the end of the handgrip proximate to the control lever pivot, said detent being engagable with said rack for releasably holding said clutch lever at one end of its path of travel.

4,316,532

VERSATILE PRICING MEANS

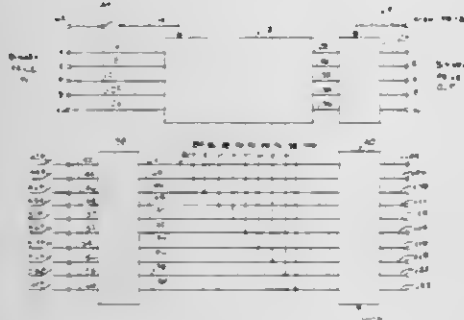
Joseph L. Levasseur, Chesterfield, Mo., assignor to H. R. Electronics Company, High Ridge, Mo.

Filed Sep. 13, 1979, Ser. No. 75,015

Int. Cl.³ G07F 11/00

U.S. Cl. 194—1 N

21 Claims



1. A price control circuit for vending and like devices having actuatable vend selection means, credit entry means, vend delivery means for delivering vend selections, each vend selection having vend delivery means associated therewith, and means for generating a price retrieval signal and for producing a vend initiation signal when the amount of credit entered at least equals the price of a selected vend, comprising

a read-write memory having a plurality of address locations where price information can be stored for later readout, control means for the memory including price entry connection means, price readout connection means, write control connection means, readout control connection means, and a plurality of memory address control connections operatively connected to respective ones of the address locations,

means for producing price information in binary form for entry into the memory, said means being operatively connected to the price entry connection means,

means, including addressing signal outputs, responsive to actuations of the vend selection means for producing addressing information at said addressing signal outputs, the addressing signal outputs being connected to the memory address control connections for establishing a particular address location in the memory for respective entry thereinto or readout therefrom of price information,

means to apply a control response to the write control connection means at a time when a memory address has been selected to effect entry of the pricing information present on the price entry connection means into memory at the selected address location,

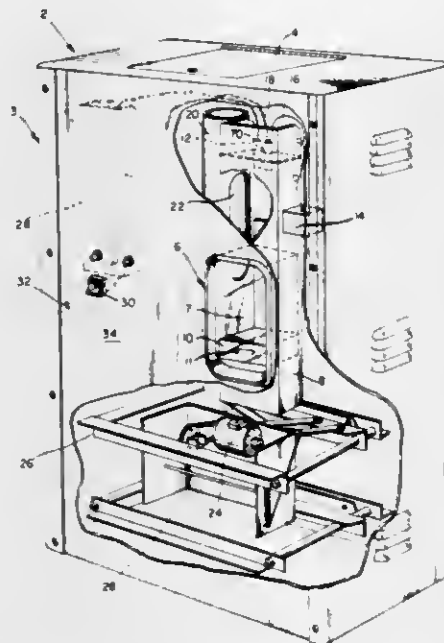
means responsive to generation of a price retrieval signal to apply a control response to the readout control connection means to effect readout of a previously entered price from a selected address location, and

means, including first input means operatively connected to the addressing signal outputs and second input means operatively connected to receive the vend initiation signals, responsive to vend initiation signals to effect operation of the vend delivery means associated with the vend selection that has been selected.

4,316,533
CONTAINER DEPOSIT REFUND SYSTEM
Robert D. Hughes, and James Brazell, both of Atlanta, Ga., assignors to The Coca-Cola Company, Atlanta, Ga.
Filed Mar. 4, 1980, Ser. No. 127,036
Int. Cl.³ G07F 7/06

U.S. Cl. 194—4 C

12 Claims



1. An automatic refund device for refunding the deposit on deposit containers determined to be authentic, said containers having an identification means mounted thereon, comprising: a housing containing an opening for receiving said containers therein;

detection means for detecting the authenticity of said containers by recognition of said identification means and for generating a refund signal in response thereto;

elevator means for moving said container from a first position adjacent said opening in said housing to a second position in close proximity to said detection means, said elevator means being selectively movable from the first to the second position;

container transport means for transferring said container from said elevator means for storage;

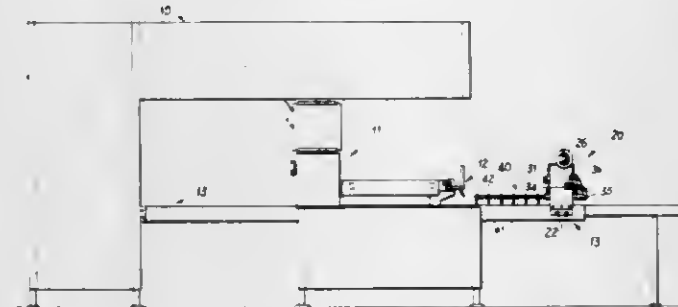
ejector means for moving said container from said elevator means to said container transport means in response to the refund signal from said detector means; and

deposit refund means for returning the deposit in response to the refund signal from said detector means.

4,316,534
PAN INDEXING APPARATUS
Donald L. Cummins, Hopewell, Va., assignor to AMF Incorporated, White Plains, N.Y.
Filed Jun. 24, 1980, Ser. No. 162,548
Int. Cl.³ B65G 37/00

U.S. Cl. 198—345

9 Claims



1. Indexing apparatus for baking pans on an endless belt type conveyor, comprising frame means adapted to be mounted on the frame of the conveyor;

carrier means movably mounted on said frame means; a cantilevered template connected at one end to said carrier means and extending therefrom longitudinally along the conveyor; said template being disposed parallel to and spaced above the conveyor, and having an equally spaced series of tangs extending downwardly toward the conveyor sequentially engaging pans thereon; and means for momentarily moving said carrier means and template upwardly from the conveyor thereby disengaging one of said tangs from a pan and engaging the pan by the next successive tang permitting the pan to move in successive discrete steps.

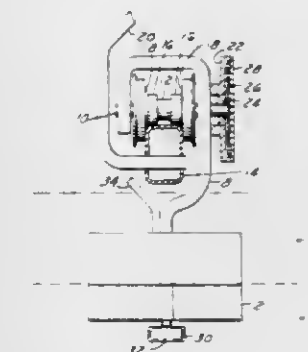
4,316,535

WORKPIECE STORAGE SYSTEM

John H. Brems, and James T. Graham, both of Birmingham, Mich., assignors to F. Jos. Lamb Company, Warren, Mich.
Continuation of Ser. No. 908,941, May 24, 1978, abandoned.
This application Aug. 8, 1980, Ser. No. 176,562
Int. Cl.³ B65G 37/00

U.S. Cl. 198—473

5 Claims



1. In a series of automatic workpiece processing equipment, including individual machines, transfer machines, or individual sections of transfer machines which sequentially operate on a workpiece, thereby constituting a processing line, a gravity actuated workpiece transfer and storage system, comprising:

A. track means forming a topologically closed loop comprising a first track means having track surfaces which slope downwardly in a given topological direction around said loop,

B. a plurality of workpiece holding pallets, each of which comprises:

1. a body adapted for supporting and holding one or more workpieces which is appropriate to said workpiece size,

2. two unpowered primary wheels of different diameters mounted on said pallet body for selectively supporting and guiding said pallet body on and with respect to said first track means,

3. retarding means acting between said pallet body and each of said primary wheels to generate a retarding torque substantially proportional to the angular velocity of said first primary wheel,

C. lifting means positioned between segments of said track means and within said topological closed loop, and adapted to raise said pallet bodies sequentially from a lower level segment of said track means to a higher level segment of said track means,

D. means for loading and unloading workpieces to and from said pallet bodies comprising a pallet body loading mechanism forming a first division which divides said track means into two portions: a first portion for carrying empty pallet bodies and a second portion for carrying pallet bodies loaded with workpieces, and a pallet body unloading mechanism which forms a second division between said second portion and said first portion of said track means, and

E. said first and second portions of said track means being spatially related relative to said primary wheels to cause the smaller diameter primary wheel to ride on said second

4,316,536

CONVEYOR BELT

John M. Verbeek, Belwood, Canada, assignor to Agri-Canvas Inc., Ontario, Canada

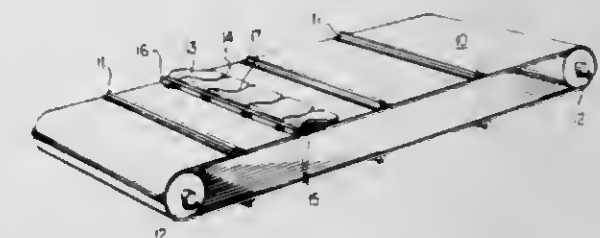
Filed Mar. 17, 1980, Ser. No. 131,178

Claims priority, application Canada, Dec. 12, 1979, 341744

Int. Cl.³ B65G 15/44

U.S. Cl. 198—699

5 Claims



1. A conveyor belt comprising a web woven from an extruded nylon cord and having a polyvinyl chloride coating with a plurality of transverse, spaced, vinyl slats heat sealed thereto, the vinyl slats comprising an inner core of rigid vinyl and an outer main body of less rigid vinyl, the rigid core having a T-shaped cross-section and the outer main body having an inverted T-shaped cross-section with a slot of corresponding shape to the inner rigid core for receiving same, the inner core being secured to the outer main body with a polyvinyl chloride solvent.

4,316,537

CHAIN CONVEYOR

Werner Rieger, Hau Häselbach, and Horst A. Elsässer, Sauerbruch 15, both of 7084 Aalen-Unterkochen, Fed. Rep. of Germany

Filed Jun. 13, 1980, Ser. No. 159,199

Claims priority, application Fed. Rep. of Germany, Jun. 19, 1979, 2925045

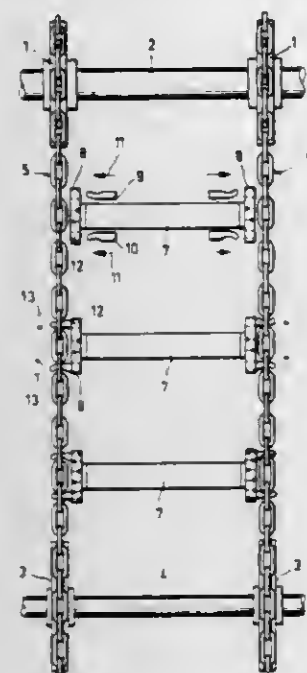
Int. Cl.³ B65G 19/24, 19/00

U.S. Cl. 198—731

15 Claims

1. A chain conveyor having at least two chain strands, formed from oval chain links and running over sprockets, and conveyor elements which are connected to the chain strands via pairs of projections which engage in the free inner space between two successive chain links oriented perpendicular to the sprocket axis, the shortest distance a_{min} between the free ends of the projections of each pair of projections in the operating position being smaller than the length L of the particular chain link gripped by the projection in the manner of a fork, and one of the projections having an arcuate outline on the side facing the front of this chain link, wherein the second projection (10; 27) also has an arcuate outline on one side and at least one of the projections (9, 10; 26, 27; 37, 38) of each pair of projections is pivotally mounted on the conveyor element (7) in such a way that it can be transferred from an assembly position, in which its side with the arcuate outline faces away from the front (20) of the chain link (21) gripped by the projec-

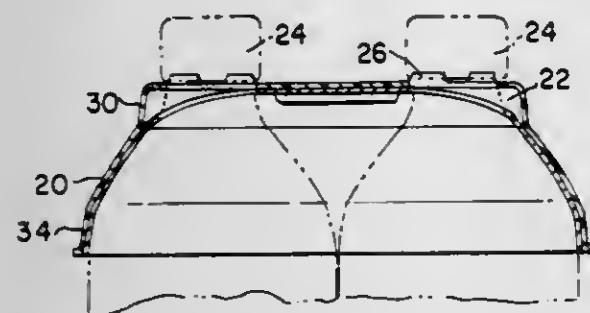
tions (9, 10, 26, 27, 37, 38) and the distance a_{min} is greater than the length L, into the operating position in which the sides,



having arcuate outlines, of both projections (9, 10, 26, 27, 37, 38) face the fronts (20) of this chain link (21).

4,316,538 BOTTLE PACKAGE WITH PROMOTIONAL CARD INSERT

Guelfo A. Manizza, Blauevelt, N.Y., assignor to Federal Paper Board Company, Inc., Montvale, N.J.
Filed Sep. 8, 1980, Ser. No. 184,639
Int. Cl.³ B65D 77/24, 85/62, 75/54
U.S. Cl. 206—216 6 Claims

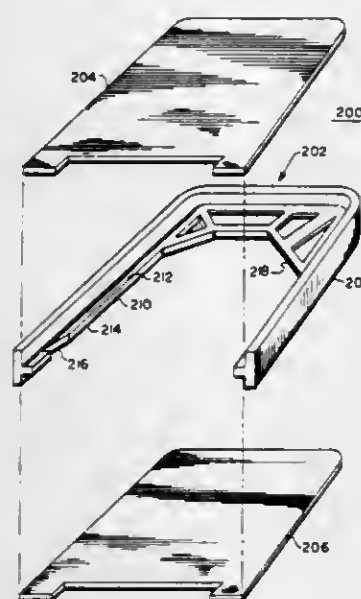


1. An article package comprising a group of articles having the general form of short neck bottles with cap type closures, which articles are arranged in double row transversely paired relation and held in group arrangement by a top gripping shroud formed of a continuous plastic which is at least semi-transparent and which is shaped or otherwise formed so as to provide a top wall forming panel and a depending sidewall formation extending about the perimeter of the top wall forming panel, said top wall forming panel having apertures therein which are in row relation, and spaced according to the spacing of the articles so as to fit down over the necks of the articles with portions of the edges of the apertures engaging beneath depending skirt forming portions of the cap closures, said sidewall formation extending in the form of a band about top portions of the articles and having a depth which extends below at least to the bottom of the neck forming portions of the articles with a peripheral dimension which results in tightly gripping outboard portions of the surfaces of the corner articles in the group, and a promotional display card of bendable sheet material trapped between the shroud and the top portions of the articles, which display card has a center panel with spaced apertures adapted to accommodate the neck portions of the middle row of articles and panel formations at opposite ends of the center panel which extend approximately to the

bottom edges of the side wall formation and which lie in close proximity to the inner face of the sidewall formation so that display material on the surface is visible through the shroud material.

4,316,539 VIDEO DISC CADDY

Leslie A. Torrington, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.
Filed Dec. 10, 1980, Ser. No. 214,854
Int. Cl.³ B65D 85/57; G11B 5/82, 25/04
U.S. Cl. 206—307 10 Claims



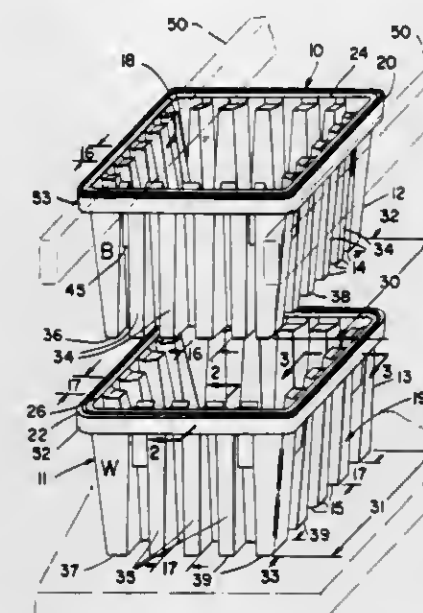
1. A package for a disc record comprising:
(A) a substantially U-shaped frame made from relatively rigid material; said U-shaped frame having an edge wall and an intermediate flange extending inwardly from said edge wall; said flange being disposed generally perpendicularly to said edge wall; the interior surfaces of said edge wall in cooperation with said intermediate flange defining a plurality of channels; and
(B) a pair of panels made from sheet material; each of said panels being securely mounted in the respective ones of said channels in said frame; the interior surfaces of said intermediate flange and said panels forming a record enclosing cavity.

4,316,540 NESTING OR STACKING BOX

Sidney D. Lapham, 2324-3 Tice Creek Dr., Walnut Creek, Calif. 94595
Filed May 31, 1979, Ser. No. 44,086
Int. Cl.³ B65D 21/04
U.S. Cl. 206—507 16 Claims

1. A substantially square tote box having an open top, a bottom and substantially identical side walls, said tote box being adapted to nest or stack with a similar tote box, each side wall of said box being formed of similar individual corrugations, each of said corrugations having spatial amplitudes and spacial wave lengths that are small relative to the length, and large relative to the thickness, of said side wall, with the train of individual corrugations forming each of said side walls being identical with the train of the other three sides of said box in number of corrugations and spacing of said corrugations from the edge of the side wall when considered in relation to movement in a clockwise direction around the periphery of the box, and each of said corrugations being tapered inwardly from said open top toward said bottom, and
a lip member surrounding said open top forming a landing surface surrounding the periphery of each of said corruga-

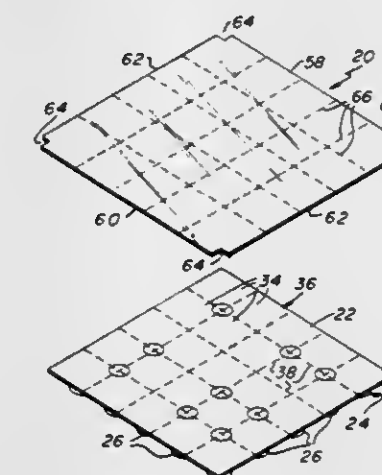
tions and thereby enveloping the outer extremities of said individual corrugations in said landing surface, and



said lip being external to said corrugations to form a bottom lift or grip surface for handling said box.

4,316,541 MOISTURE IMPERVIOUS COVER SHEET FOR UNIT DOSE PACKAGING

Milton Braverman, and Leonard Zink, both of Philadelphia, PA, assignors to Medi-Dose, Inc., Feasterville, Pa.
Filed Mar. 31, 1980, Ser. No. 135,562
Int. Cl.³ B65D 83/04, 75/42, 85/56, 75/32
U.S. Cl. 206—532 15 Claims



1. A moisture impervious barrier sheet for use on a multi-compartment medicinal dispensing device having a base, said base including a plurality of medicine-holding chambers releasably secured to each other along weakened lines and to which a cover sheet is secured, said cover sheet including plural closures, one for each of said chambers and releasably secured to one another along weakened lines corresponding to the weakened lines of said base, said barrier comprising a sheet formed of a moisture impervious material and having a central portion, a top edge portion, a bottom edge portion and an opposed pair of side edge portions, said central portion and edge portions each including an inner surface having an adhesive thereon, each of said edge portions being in the form of an elongated foldable flap, said central portion corresponding in size with the cover sheet of said dispensing device and including weakened lines corresponding to the weakened lines of the cover sheet, said barrier sheet being securable to said cover sheet by disposing the barrier sheet on the cover sheet so that said adhesive contacts the cover sheet permanently securing the barrier sheet to the cover sheet and with the weakened lines of the barrier sheet being coincident with the weakened lines of the cover sheet and with said flaps being folded around

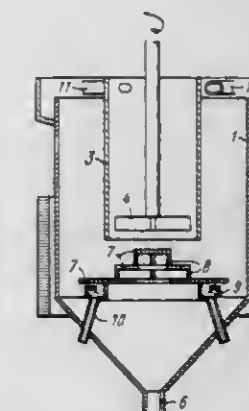
the edges of said cover sheet and into engagement with said base to render the cover sheet and the interface between it and said base impervious to the ingress of moisture into said device.

4,316,542 ELECTROMAGNETIC SEPARATOR

Petr I. Zelenov, Leningradsky prospekt, 7, kv. 253, Olenegorsk Murmanskoi oblasti; Petr A. Usachev, ulitsa Fersmana, 20, kv. 54; Jury V. Davydov, ulitsa Zinovieva, 8, kv. 13, both of Apatity Murmanskoi oblasti; Vyacheslav P. Lyakhov, 3 mikroraiion, 2, kv. 56; Irina M. Zelenova, Leningradsky prospekt, 7, kv. 253, both of Olenegorsk Murmanskoi oblasti; Nikolai A. Aleinikov, ulitsa Fersmana, 16, kv. 21, Apatity Murmanskoi oblasti; Vladlen F. Sladkovich, ulitsa Komsomola, 6, kv. 4, and Viktor I. Titov, ulitsa Mira, 8, kv. 9, both of Olenegorsk Murmanskoi oblasti, all of U.S.S.R.
Filed Jul. 15, 1980, Ser. No. 169,214
Int. Cl.³ B03C 1/30 8 Claims

U.S. Cl. 209—39

8 Claims



1. An electromagnetic separator comprising:
a cylindrical housing with a conical bottom, said housing having a top part and a bottom part;
a circular electromagnetic system installed on the outside of said housing and embracing a part thereof;
a cylindrical pulp feeding device installed inside said housing coaxially therewith, said device having a top part and a bottom part;
a non-magnetic product discharging device located in said top part of said housing;
a magnetic product discharge branch located in said bottom part of said housing;
a system of disks spaced apart and rigidly installed one under the other in said bottom part of said housing coaxially therewith, directly underneath said pulp feeding device, said system comprising the top, the second and all the subsequent disks, including the bottom one; center holes in said second and all the subsequent disks, including the bottom one, the diameters of said holes decreasing from said bottom disk to said second disk, said holes being smaller than the diameter of the next upper disk, the diameters of said disks increasing from said top disk to said bottom disk, the diameters of said top and bottom disks being respectively smaller and larger than the diameter of said pulp feeding device;
a wash water feeding device located underneath said bottom disk coaxially therewith and constructed in the form of a circular element including means for distributing the wash water between said system of disks and said separator housing;
directional feeding means designed for feeding wash water in a predetermined direction and installed tangentially on said circular element;
a paddle agitator of said cylindrical pulp feeding device, said paddle agitator being installed inside said pulp feeding device in said bottom part thereof directly over said system of disks, coaxially therewith, the paddles of said agita-

tor being designed to rotate in the direction coinciding with the direction of wash water feed; and tangential means installed in said top part of said pulp feeding device for the purpose of feeding pulp in the direction coinciding with the direction of wash water feed and with that of rotation of said agitator paddles; said system of disks, wash water feeding device and agitator located in said part of the housing embraced by said circular electromagnetic system for the purpose of creating the required magneto hydrodynamic conditions of pulp flow.

4,316,543

SIEVING ROLLER CONVEYOR FOR GREEN PELLETS
Alexander Leonhardt, Bonn, Fed. Rep. of Germany, assignor to Dravo Corporation, Pittsburgh, Pa.

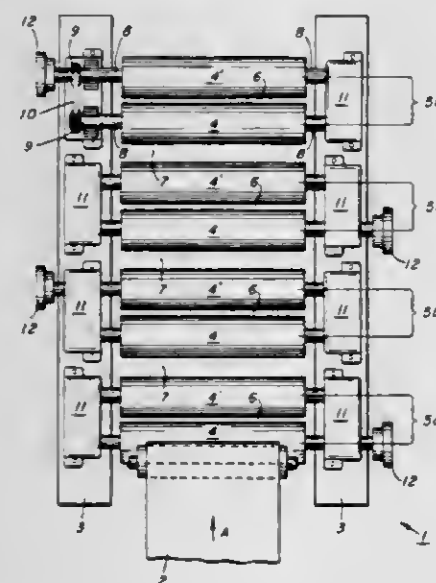
Filed May 19, 1980, Ser. No. 150,898

Claims priority, application Fed. Rep. of Germany, May 31, 1979, 2922174

Int. Cl.³ B07B 13/05

U.S. Cl. 209—673

8 Claims



1. In a sieving roller conveyor for conveying green pellets and for sieving off fines having a series of horizontal rollers which are spaced apart so that the clearance between adjacent rollers is smaller than the smallest diameter of the pellets to be carried and sieving clearances are defined between certain adjacent rollers, the rollers extending transversely to the direction in which the pellets are to be conveyed and being rotatably connected in a frame provided with means for driving the rollers in the direction in which the pellets are to be conveyed, the improvement wherein:

- a portion of said series of rollers are spaced so as to provide sieving clearance, and
- a further portion of said series are spaced so as to provide cleaning clearance, said cleaning clearance being smaller than said sieving clearance.

4,316,544

INCLINED BICYCLE STORAGE RACK EMPLOYING CHANNEL WITH MIDPOINT FRAME SHACKLE
Irv Goldstein, 2049 Brown Ave., #B-4, Cornwells Heights, Pa. 19020

Filed Feb. 25, 1980, Ser. No. 124,284

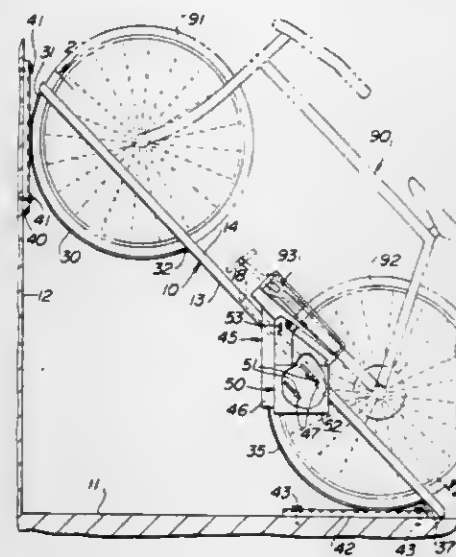
Int. Cl.³ E05B 73/00

U.S. Cl. 211—5

9 Claims

1. A bicycle rack comprising:
 - a framework having an elongated channel member, the front end of said channel member being elevated with respect to its rear end.
 - a front portion of said channel member having an opening therein for receiving a bicycle's front wheel,
 - a front wheel receiver comprising a concave wheel support carried by said channel and extending below said opening,
 - a rear portion of said channel member being at an elevation

lower than said front portion and having an opening therein for receiving a bicycle's rear wheel,
a rear wheel receiver comprising a concave wheel support carried by said channel and extending below said rear wheel opening, thereby to be able to carry a bicycle in an inclined position, with its front wheel higher than its rear wheel, and



shackle means on said channel member between said front and rear portions thereof for movement into and out of retaining and locking engagement with a bicycle, when carried by said rack, at a frame portion of said bicycle between the wheels thereof.

4,316,545

HANGING TOOL TRAY

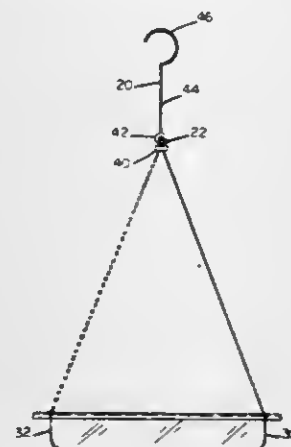
Dale A. Hartnell, 410 E. Eighth St., Centralia, Ill. 62801

Filed Jun. 11, 1979, Ser. No. 47,204

Int. Cl.³ A47F 7/00; E21B 19/14

U.S. Cl. 211—60 T

1 Claim



1. A hanging tool tray comprised of a flat rectangular tray base having four sides connected to four shallow vertical walls and means for suspending the tray from a support, said means comprising flexible and axially yieldable suspension cable-like members connected to each of the corners of said tray, means connecting said members together below a loop formed in said cables and hook means connecting said loop through an elongated shank to an open hook member adapted to be connected to a support for supporting said tray therefrom, the four walls of said tray being provided with outwardly extending flanges and said flanges being provided with a plurality of openings receiving tools therein, said cable-like members and means connecting said members comprising a pair of cables, each of said cables being connected to a separate corner of said tray and being gathered at two separate points by a constricting member adjacent a middle portion of said cables to define an intermediate loop which is passed through an eye of said hook member to provide for free pivoting movement with respect to

said hook, the constricting member being a collar which connects the cables together to form said loop.

4,316,546

HANG RAIL SUPPORT AND HANG RAIL

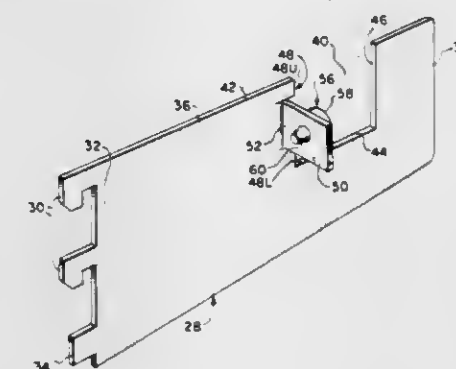
David S. Varon, Highland Park, and Irving Silverman, Lincolnwood, both of Ill., assignors to Crown Metal Mfg. Co., Chicago, Ill.

Filed Feb. 20, 1980, Ser. No. 123,110

Int. Cl.³ A47H 1/02

U.S. Cl. 211—105.1

23 Claims



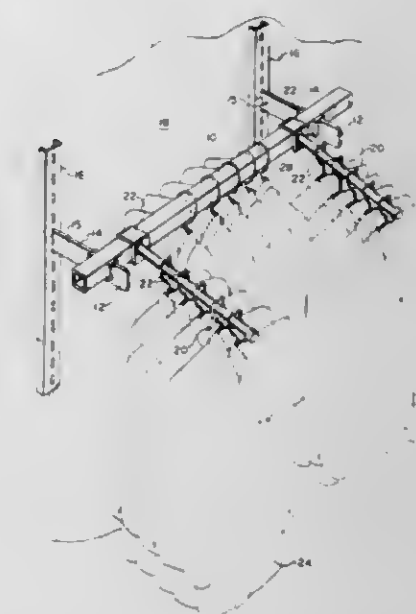
1. A support assembly for merchandise and including a rectangular cross section hang rail or bar extending between and supported by spaced apart brackets, said hang rail or bar being subject to rotational force during use thereof and said support assembly serving to resist said force, said assembly including the hang rail or bar in combination with said brackets for supporting same, and each bracket comprising:

- A. an elongate bracket body having a proximal end and a distal end, the proximal end having means to enable the bracket body to be mounted to a vertical support structure,
- B. said bracket body comprising a vertically arranged sheet metal member having an upper edge, the sheet metal member defining generally a vertical plane,
- C. a vertically extending notch formed in said bracket body spaced rearwardly from the distal end thereof, said notch having front and rear support edges and a bottom support edge and the notch opening to the upper edge of the bracket body, said notch also having substantially the same configuration as the cross sectional configuration of at least a substantial portion of the lower part of the hang rail or bar if not all of the cross sectional configuration of the bottom and side faces of said hang rail or bar,
- D. a vertically disposed tab integrally connected at one of said front and rear support edges by means of a bend and extending generally at a right angle to the said plane of said bracket body, said tab being formed of at least a portion of the metal removed to provide said notch, the surface of said tab facing the notch being spaced slightly from the said one of said front and rear support edges at which it is connected and outside of said notch,
- E. a bumper member of yieldable material mounted on the said surface of the tab facing the notch and having a thickness which is greater than the spacing of the said surface from the support edge at which said tab is connected whereby the bumper member interferes with the hang rail or bar when the same is pressed into the notch thereby frictionally resisting removal of the hang rail or bar and endwise movement thereof, and
- F. the hang rail or bar adapted to be engaged into the notch with its lower face resting on the bottom support edge and its side faces substantially juxtaposed closely to the respective front and rear support edges if not engaging the same.

4,316,547
HANG RAIL SUPPORT AND HANG RAIL
David S. Varon, Highland Park, Ill., assignor to Crown Metal Manufacturing Co., Chicago, Ill.
Filed Mar. 14, 1980, Ser. No. 130,572
Int. Cl.³ A47H 1/02

U.S. Cl. 211—105.1

7 Claims



1. A support assembly for merchandise and including a rectangular cross section hang rail or bar extending between and supported by spaced apart brackets, said hang rail or bar being subject to rotational force during use thereof and said support assembly serving to resist said force, said assembly including the hang rail or bar in combination with said brackets for supporting same, and each bracket comprising:

- A. an elongate bracket body having a proximal end and a distal end, the proximal end having means to enable the bracket body to be mounted to a vertical support structure,
- B. said bracket body comprising a vertically arranged sheet metal member having an upper edge, the sheet metal member defining generally a vertical plane,
- C. a vertically extending notch formed in said bracket body spaced rearwardly from the distal end thereof, said notch having front and rear support edges and a bottom support edge and the notch opening to the upper edge of the bracket body, said notch also having substantially the same configuration as the cross sectional configuration of at least a substantial portion of the lower part of the hang rail or bar if not all of the cross sectional configuration of the bottom and side faces of said hang rail or bar but being somewhat larger than the hang rail or bar,
- D. an integral U-shaped liner member of firm but somewhat yieldable material engaged in the notch and having a pair of side arms engaged respectively to the front and rear support edges of the notch and a bottom connecting part engaged to the bottom support edge, the liner member presenting an upwardly opening throat formed of the interior surfaces of said side arms and bottom connecting part, the distance between said interior surfaces of said side arms being slightly less than the width of said hang rail or bar whereby there is interference with the hang rail or bar when the same is pressed into said throat thereby resisting frictional removal of the hang rail or bar and endwise movement thereof, each of said liner member side arms having a vertical groove in its exterior surface along the length of side arm and said front and rear support edges being respectively engaged in said grooves whereby to lock the liner member into said notch and
- E. the hang rail or bar engaged into said throat with its lower face resting on the interior surface of the bottom connecting part and its side faces frictionally engaging said interior surfaces of said side arms.

4,316,548

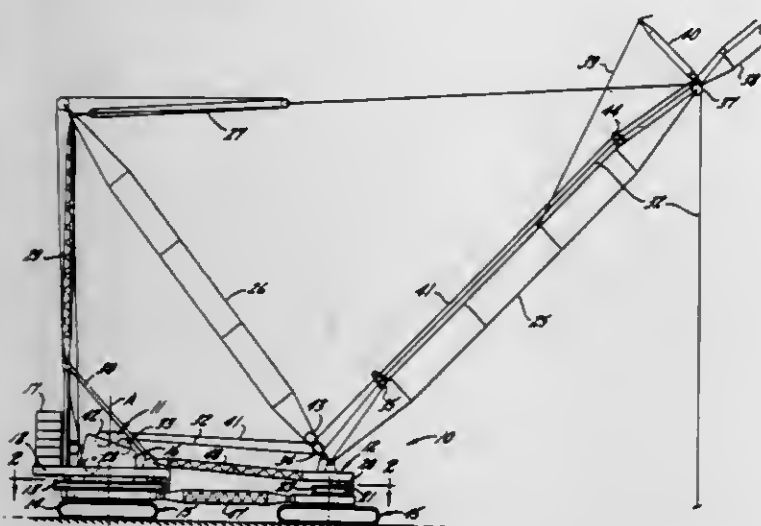
CONCENTRIC RING SEGMENT SUPPORTED LIFT CRANE

Percy R. Helm, and James G. Morrow, Sr., both of Manitowoc, Wis., assignors to The Manitowoc Company, Inc., Manitowoc, Wis.

Filed Mar. 7, 1980, Ser. No. 128,248
Int. Cl.³ B66C 23/76

U.S. Cl. 212—196

5 Claims



1. A lift crane having a forwardly inclined boom and a rearwardly inclined mast, said boom and mast being pivotally mounted on a boom carrier mechanism, rigging means interconnecting the tip of the mast and the tip of the boom, counterweight means supported by rollers on a rear ring segment for rotation about a vertical axis, means interconnecting said counterweight and the top of said mast, said boom carrier supported by rollers on a front ring segment for at least partial circumferential rotation about said vertical axis, said front and rear ring segments each mounted on a mobile support mechanism and means interconnecting said front and rear support mechanisms to permit movement of said crane as a unit.

4,316,549

RAILWAY CAR COUPLER

Richard F. Klimowicz, W. Seneca, N.Y., assignor to Dresser Industries, Inc., Dallas, Tex.

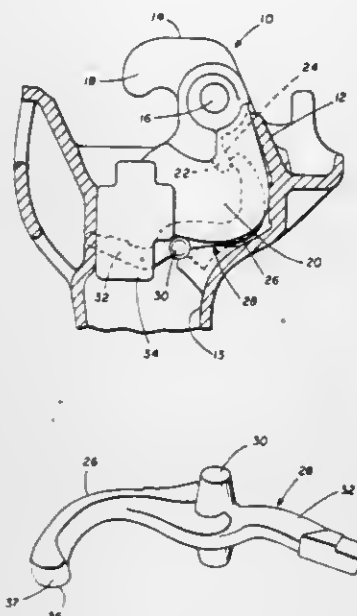
Filed Apr. 11, 1980, Ser. No. 139,491
Int. Cl.³ B61G 3/08

U.S. Cl. 213—127

3 Claims

1. A railway car coupler comprising:
a head having a lock receiving chamber;
a knuckle, including a knuckle pad extending from a main body of the knuckle and having a generally concave surface joining the pad to said main body, pivoted to said head and having a closed position and an open position;
a lock in said chamber for locking said knuckle in said closed position; and
a pivotable knuckle thrower having first and second outwardly extending legs, said thrower being positioned within said head, said lock being movable out of locking position to engage a first of said legs to pivot said thrower to effect opening of said knuckle, the second of said legs being in engagement with the knuckle and including surface means being configured to effectively shorten the distance from the thrower pivot to the point of engagement between said second thrower leg and said knuckle pad and lengthen the distance between said point of engagement and said knuckle pivot and limit shortening of the effective length of the moment arm generated by said

second leg for rotating the knuckle during the knuckle opening movement, the surface means of said second leg



remaining in spaced relation relative to said concave surface during the entire knuckle opening movement.

4,316,550

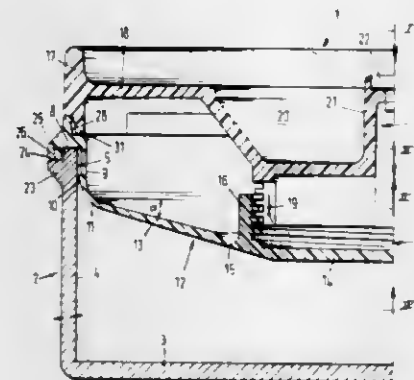
CANISTER CLOSURE

Koen M. M. de Winter, Lochem, Netherlands, assignor to Me-palservice B.V., Lochem, Netherlands

Filed Jul. 5, 1979, Ser. No. 54,893
Int. Cl.³ B65D 39/12, 39/16

U.S. Cl. 215—360

3 Claims



1. In combination, a canister and an appurtenant closure, said canister having a closed bottom, a cylindrical sidewall and a canister opening or mouth at the upper end thereof having a rim, the canister sidewall being provided adjacent to its upper end with a radially outwardly extending flange, and said canister closure being of two-piece construction comprising a bottom portion and top portion, said bottom portion having a radially outwardly extending peripheral flange provided on its radially outer side with a depending portion having at least one recess, and said rim of said canister having a complementary marginal recess for receiving said depending portion, said marginal recess having a fitting dog for engaging said recess on said depending portion, a radially expandable peripheral skirt depending from said radially outwardly extending peripheral flange, and a transverse wall flexibly connected to said radially expandable peripheral skirt, said transverse wall comprising a substantially rigid, conically-shaped intermediate ring panel extending inwardly and downwardly inclined from said skirt, and a rigid, substantially flat, central panel hinged to said intermediate ring panel through local material reduction, an

4,316,552

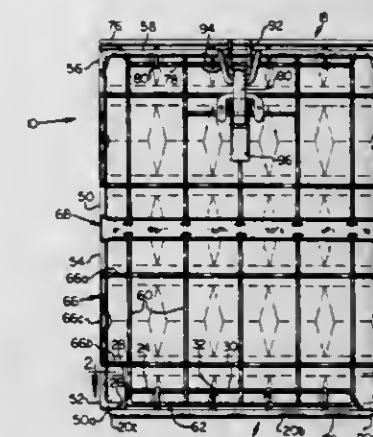
WIRE EGG CASE

George L. Hurley, III, Philomath, Ore., assignor to Hensway, Inc., Corvallis, Ore.

Filed May 5, 1980, Ser. No. 146,388
Int. Cl.³ B65D 6/08

U.S. Cl. 220—19

3 Claims



internally threaded tubular stub arranged on the upper side of said central panel, the top portion having a peripheral rim and a cover wall provided centrally on its bottom surface with an externally threaded tubular stub, the portions being arranged to allow the stub carried by the top portion to be screwed into the stub on the bottom portion with the peripheral rim of the top portion resting on the peripheral flange of the bottom portion, thereby to cause the central panel of the bottom portion to be pulled towards the top portion, thereby to decrease the slope of the intermediate panel from its initial angle to a smaller angle measured from the central panel and thereby to increase the outer diameter of the skirt of the bottom portion and, when placed in the canister opening or mouth, the closure is thereby clamped against the canister sidewall.

4,316,551

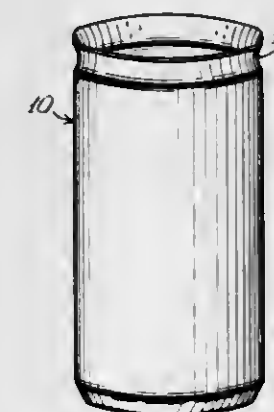
ALUMINUM CONTAINER

Paul Belokin, Jr., Rte. 4, Hayward, Wis. 54843

Filed Feb. 25, 1980, Ser. No. 123,989
Int. Cl.³ B65D 1/40, 8/04

U.S. Cl. 220—1 R

19 Claims



1. A metal container adapted to be axially collapsed in a predetermined pattern when exhausted of its contents, comprising: an endless peripheral sidewall of thin metal material affording a lateral surface of right circular cylindrical shape and having open opposite end portions each provided with a closure member to afford an inner chamber for the contents of the container, access to the chamber being provided through one of the closure members, the lateral surface of said sidewall being provided with a plurality of peripheral adjacent rows of inwardly directed, similarly shaped embossments affording between adjacent rows an outwardly directed peripherally extending rib means providing an annular line of fold between adjacent rows, each embossment of each row being spaced from adjacent embossments of each row to afford a narrow arcuate increment of the lateral surface of the sidewall therebetween, and each embossment being elongate peripherally to provide a major portion of arcuate cross section and outwardly curved end minor portions each joining an adjacent increment of the lateral surface, each row of said embossments being positioned substantially perpendicular to the axis of the container and each being angularly offset in a peripheral direction from an adjacent row of embossments to position each lateral surface increment of a row in axial alignment with a major embossment portion in an adjacent row, whereby manual axial pressure on the container through said peripheral sidewall will collapse said sidewall in a predetermined pattern by bending peripherally on each rib means and by folding inwardly the major and minor portions of each embossment of each row to form in each row an annular series of folded segments, each segment extending between adjacent increments of the lateral surface in a row, and the segments of each row being angularly offset in a peripheral direction with respect to the segments formed in an adjacent row.

1. A wire case for holding stacked egg-carrying trays comprising:
a wire-strand floor and opposed wire-strand end walls joined to and projecting upwardly from opposed ends of said floor;
a wire-strand cover for the case, hinge means connecting the cover at one end to the upper margin of one end wall, and means detachably fastening the cover at its opposite end to the upper margin of the other end wall,
said cover on detachment from said other end wall being swingable about the axis provided by said hinge means to open up the top of the case,
said end walls, on each of the opposed sides of the case, in a region extending up from the floor being unjoined from each other save for the joinder provided by said cover when such is detachably fastened to said other end wall,
said cover having tray-seating means located downwardly from the plane of the top of the cover for seating the top of a tray placed thereagainst and inhibiting its lateral shifting,
said floor having tray-seating means located upwardly from the plane of the bottom of the floor for seating a tray placed thereon and inhibiting its lateral shifting.

4,316,553

AUTOMATIC LOTTERY TICKET VENDING MACHINE

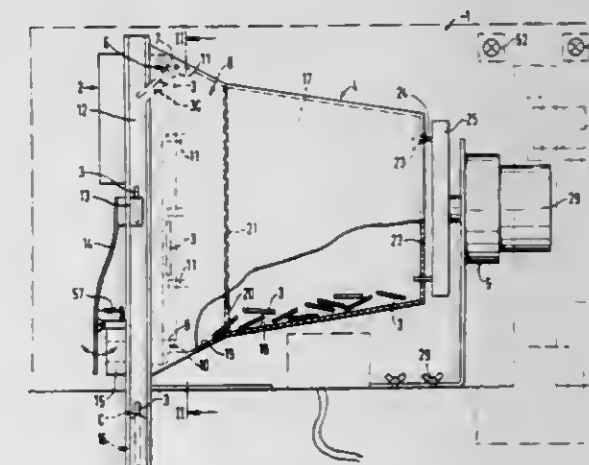
Frans-Erik Persson, Vargatan 17, Lomma, Sweden (234 00)

Filed Jan. 16, 1980, Ser. No. 112,785

Claims priority, application Sweden, Jan. 17, 1979, 7900407
Int. Cl.³ B23O 7/12

U.S. Cl. 221—167

10 Claims



1. An improvement in an automatic lottery ticket vending

machine, whereby a rotatable drum (4) is adapted for mixing lottery tickets (3) which, upon ticket purchase, are dispensed one or in a definite number at a time from the machine via a dispensing means (2), characterized in that the drum comprises a separate ticket storage container (4) which is connectable to a guiding means (6) of the dispensing means (2), rotating means (5) for said drum, said guiding means (6) provides a separation path (10) with a ticket-guiding member (9) and which includes a ticket-driving portion (8) which upon rotation of the ticket storage container (4) feeds tickets (3) towards and into the separation path (10), said separation path (10) being adapted to permit discharge of one or a definite number of tickets (3) through an opening (7) and via the dispensing means (2) but prevent other tickets (3) from moving out of the ticket storage container (4).

4,316,554

AERIAL MARKER LAUNCHER

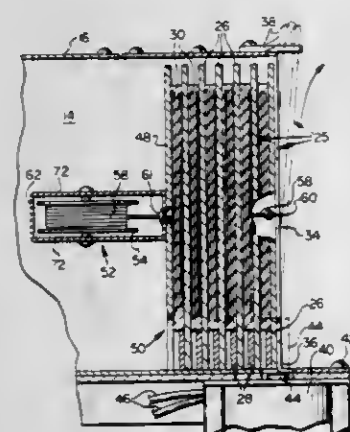
William R. J. Lloyd, Tacoma, Wash., assignor to Pacific Paper Products, Inc., Tacoma, Wash.

Filed Feb. 22, 1980, Ser. No. 123,897

Int. Cl.³ B64D 1/02

U.S. Cl. 221—232

4 Claims



1. An aerial marker launcher for dropping a series of markers from an aircraft, while it is in flight, to the ground to indicate its line of flight, each marker including a stiff base member and a flexible, streamer-like strip attached to one face of the base member, the launcher comprising:

- (a) an elongated container having means to attach it to an aircraft, the container being configured to hold a plurality of markers in a stack and having an opening in one end thereof to allow ejection of the markers,
- (b) ejector means secured to the container and arranged to releasably engage the marker nearest the container opening and eject it from the container,
- (c) a pusher plate abutting the end of the stack inside the container and movable therein toward the container opening to position the markers one at a time for ejection by the ejector means, and
- (d) a spring assembly comprising a spool mounted rotatably on the pusher plate, a cable wound around the spool and extendable therefrom, the extended end of the cable being attached to the container adjacent said ejection opening, a spring operable to applied torque to the spool, and a housing attached to the pusher plate and covering the spool and having an opening therein adjacent the pusher plate to allow passage of the cable.

4,316,555

SYSTEM FOR DISPENSING FLUIDS

Randel P. Smith, Chicago, Ill., assignor to Steiner Corporation, Salt Lake City, Utah

Filed Mar. 3, 1980, Ser. No. 126,420

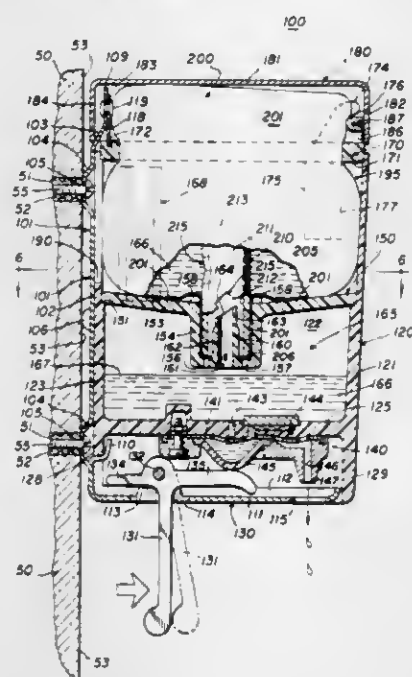
Int. Cl.³ B67B 7/28

U.S. Cl. 222—83.5

20 Claims

1. A system for dispensing fluid comprising a closed wall structure defining a container, partition means separating said

container into a lower compartment and an upper compartment, dispensing means carried by said container for dispensing fluid from said lower compartment, said partition means having a refill well therein including a side wall portion extending into said lower compartment and an inner wall portion closing the inner end of said side wall portion, a piercing member carried by said inner wall portion and projecting therefrom into said refill well, said inner wall portion having a refill aperture therethrough providing direct communication between said lower compartment and said upper compartment, a fluid refill pouch removably enclosed within said upper compartment in a refill configuration, said fluid refill pouch including a flexible encompassing wall sealed to form a hollow flexible container with a quantity of fluid therein, and a docking adaptor initially loosely disposed within said pouch completely unrestrained with respect to the flexible encompassing wall of said pouch, said docking adaptor including an outer wall hav-



4,316,556

FLEXIBLE CONTAINER AND EXPELLER

Mario Ferrari, 8 Holden Rd., Cherry Hill, N.J. 08034

Filed Dec. 6, 1979, Ser. No. 100,898

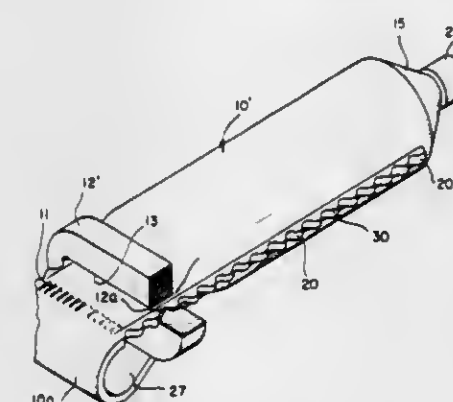
Int. Cl.³ B65D 35/28

U.S. Cl. 222—95

12 Claims

1. In a flexible container and expeller, the combination of a body comprising flexible sidewalls, which sidewalls define a compressible storage space, the body terminating forwardly in a contents dispensing opening and rearwardly in a fixed closure; expeller means positioned between the closure and the open-

ing and being movable relative to the body to urge the contents from the closure toward the dispensing opening, the expeller means being provided with a slot, a part of the flexible sidewalls always being positioned within the slot as the expeller means is moved, whereby movement of the expeller means toward the dispens-



ing opening compresses the storage space and urges the contents toward the dispensing opening; characterized in that the container includes a flattened section, in transverse sectional view, said flattened section extending rearwardly of the closure and being affixed to the expeller means rearwardly of said closure, the flattened section being adapted to be grasped as the expeller means is moved.

4,316,557

BEVERAGE DISPENSER WITH REMOVABLE TANK CONNECTION MEANS

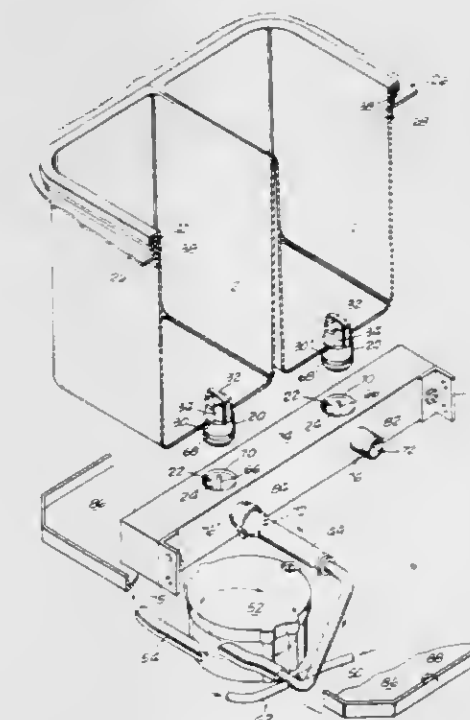
Samie Benoun, Sepulveda, and Charles R. Lacy, Orange, both of Calif., assignors to Sunkist Growers, Inc., Sherman Oaks, Calif.

Filed Dec. 17, 1979, Ser. No. 104,136

Int. Cl.³ B67D 1/00

U.S. Cl. 222—129.1

9 Claims



1. In a liquid beverage dispenser having a housing, a tank removably disposed in the housing and having a bottom outlet, a beverage dispensing valve spout, pumping means for delivering liquid beverage from the tank to the valve spout, and means for removably connecting the tank bottom outlet with said pump, the improvement comprising:

- a cylindrical downwardly extending outlet element connected with said tank;
- receptacle means fixedly mounted on said housing and having a cylindrical walled passage formed therein;
- one end of said passage being adapted to slidably engage

and disengage said outlet element respectively during placement and removal of said tank, and the other end being adapted for connection with said pump;

a normally closed valve in said outlet element;

a valve at said other end of said passage for enabling flow from said connected tank to said pump, but preventing reverse flow; and

means fixedly mounted in said passage and extending through said one end of said passage for opening said valve in the outlet element, when the outlet element is slidably engaged by said one end of said passage.

4,316,558

APPARATUS FOR PIPETTING DILUENT INTO A SEALED MEDICAL CONTAINER

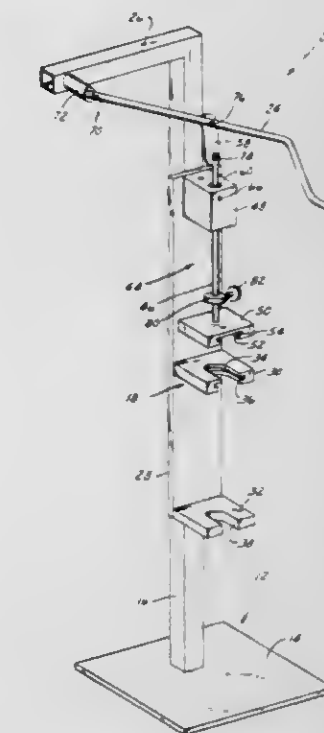
Robert J. Kubiak, 8042 Old E. Rte. 1, Omro, Wis. 54963

Filed Jan. 21, 1980, Ser. No. 114,070

Int. Cl.³ B67D 5/06

U.S. Cl. 222—181

7 Claims



1. A syringe dispensing apparatus comprising a base, support column mounted on said base and having a support arm extending transversely to the axis of the support column, means mounted on the support column for supporting a plunger actuated syringe, an actuating lever pivotally mounted on the support arm, plunger means for connecting said actuating lever to the plunger of a syringe, means mounted on the support column for guiding the axial movement of the plunger means with respect to the syringe plunger, whereby pivotal movement of the actuating lever on the support arm will move the syringe plunger axially into the housing of the syringe to dispense fluid from the syringe.

4,316,559

ROTARY SOLIDS FEEDER

Jerry R. McLemore, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Mar. 4, 1980, Ser. No. 127,024

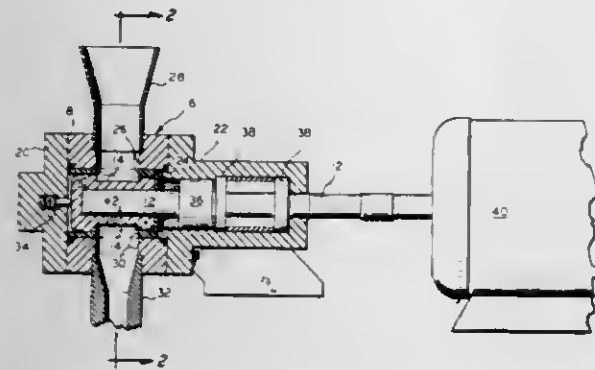
Int. Cl.³ G01F 11/00

U.S. Cl. 222—225

11 Claims

1. A rotary solids feeder, comprising: a horizontally disposed, generally tubular housing having an upper inlet opening through the tubular sidewall of said tubular housing and a lower outlet opening diametrically opposite said inlet opening through said tubular sidewall of said tubular housing; a solid, rotatable rotor means mounted in said tubular housing in close, bearing relationship thereto, having at least one trough cut in

the outer periphery thereof in a direction perpendicular to the axis of said rotor and having a width greater than the diameter of said inlet and outlet openings; said housing being closed, except for passage therethrough of shaft means fixedly attached to said rotor and adapted to rotate said rotor; resilient



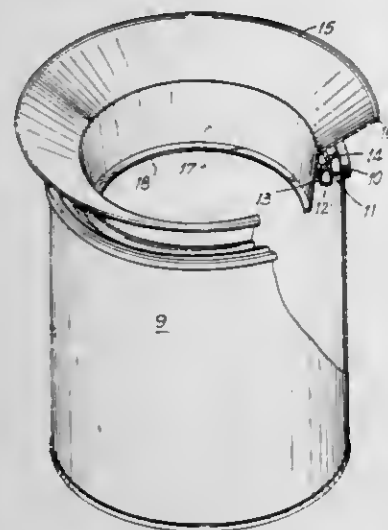
scraper means having one end fixedly mounted in said tubular housing adjacent said outlet opening and a free flat end substantially equal in width to the width of the bottom of said trough resiliently urged against the bottom of said trough when said trough is passing said outlet and against the outer periphery of said rotor when said slot is not passing said outlet.

4,316,560

PAINT CAN DISPENSING RING ATTACHMENT
Richard T. Carter, 13 Spring Hill, Mont Vernon, N.H. 03057
Continuation-in-part of Ser. No. 704,746, Jul. 12, 1976,
abandoned. This application Dec. 26, 1978, Ser. No. 972,951
Int. Cl.³ B65D 25/48

U.S. Cl. 222-567

1 Claim



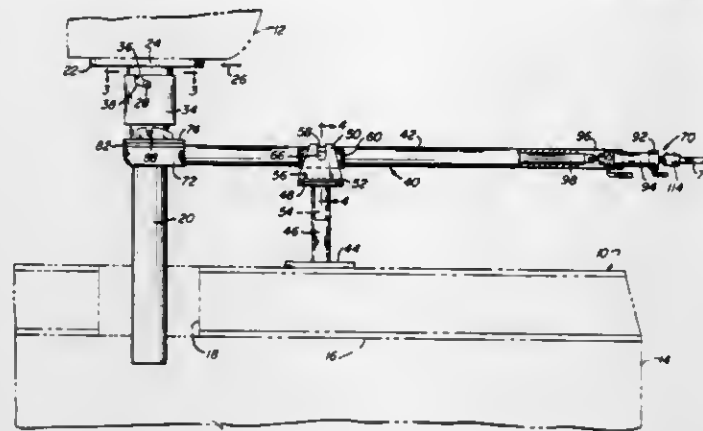
1. A dispensing ring attachment for a container having a circular opening defined by a sealing rim communicating with the peripheral wall of the container, said attachment being of unitary construction and comprising a circumferentially extending pouring lip issuing from said opening outwardly over said rim and the peripheral wall of the container, said lip terminating with a downwardly turned peripheral edge and communicating inwardly with a downwardly and inwardly tapering thin conical skirt of constant thickness adapted to compressively engage with and provide a continuous liquid tight seal against the sealing rim of the container, said thin conical skirt being circumferentially compressed by engagement with the said rim to form a temporary depressed seat locally changing the contour of both sides of the skirt, said inwardly tapering skirt being disposed at a tapering angle to the plane of said sealing rim in the range of 2 to 10 degrees, and maintaining substantially the same taper both above and below said rim after insertion therewithin, said skirt terminating at its lowermost extremity with an annular collar defined by concentric inner and outer surfaces both smaller in diameter than the sealing rim of the can.

4,316,561 POUR TUBE LATCHING APPARATUS

John A. Grosko, South Park Township, Allegheny County, Pa.,
assignor to United States Steel Corporation, Pittsburgh, Pa.
Filed Aug. 5, 1980, Ser. No. 175,469
Int. Cl.³ B22D 41/08

U.S. Cl. 222-606

18 Claims



1. Apparatus for mounting a shroud tube in operative relation to the pour opening in a bottom-pour teeming vessel comprising:

- (a) a stationary base;
- (b) a pivot saddle mounted on said base for rotation about a vertical axis thereof;
- (c) open-ended journal means pivotally mounted to said saddle;
- (d) an elongated arm received in said journal means and supported therein for axial and rotatable movement;
- (e) means at one end of said arm for vertically suspending a shroud tube, said means including means for rotating said shroud tube about its longitudinal axis;
- (f) means at the other end of said arm for manually moving said arm with respect to said journal means; and
- (g) means operable from said other end of said arm for actuating said shroud tube rotating means.

4,316,562

BUTTON ATTACHING TOOL

Donald R. Davidson, Berkeley Heights, and Wesley R. Peterson,
Boundbrook, both of N.J., assignors to The Singer Company,
Stamford, Conn.

Filed May 2, 1980, Ser. No. 145,939

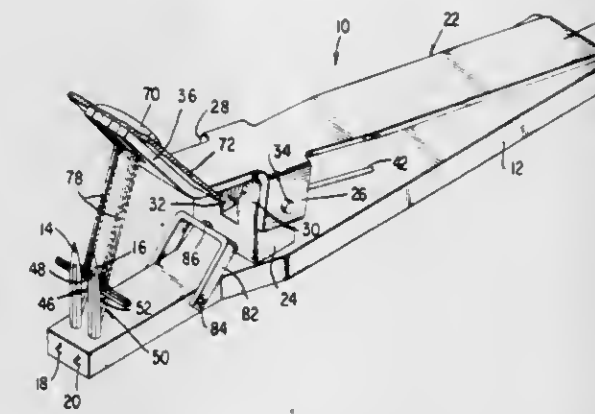
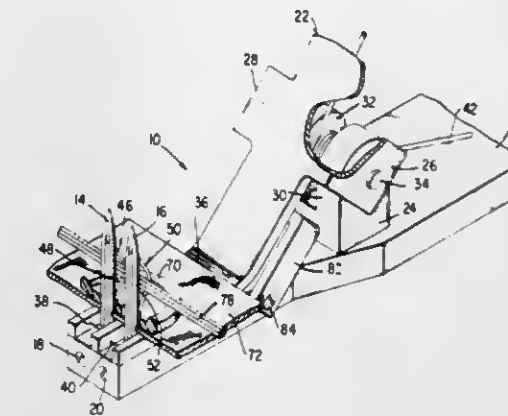
Int. Cl.³ D05B 85/00, 3/14

U.S. Cl. 223-102

11 Claims

1. A button attaching tool including a base; a pair of needles projecting from the base for use in penetrating a layer of material and extending through the holes of a button to be attached to the material, each such needle having a length of resilient wire thereon forming an eye which can collapse to pass through the material and buttonholes, and expand to receive

and hold a thread bundle over the material and button; and a member mounted for movement on the base, engageable with



the underside of the material, and operable to strip the material and button from the needles.

4,316,563

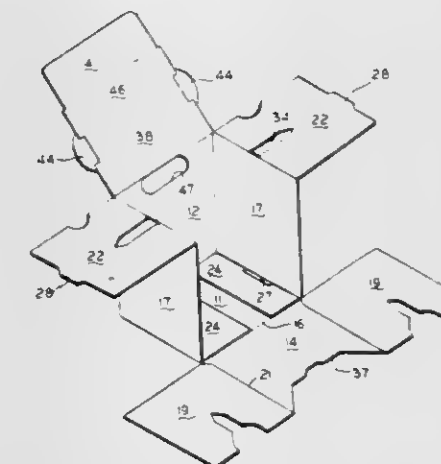
CONTAINER FOR DISPENSING ROLLED PRODUCT
Gerald W. Turner, Norristown, Pa., and Donald F. Wischoff,
Fulton, N.Y., assignors to Container Corporation of America,
Chicago, Ill.

Filed Aug. 18, 1980, Ser. No. 179,053

Int. Cl.³ B26F 3/02

U.S. Cl. 225-41

8 Claims



1. A shipping container for a product supported upon a core in turn supported on the walls of said container, said container being formed from a cut and scored blank of paperboard or the like and comprising:

- (a) a bottom panel having opposed end panels foldable with respect thereto to erected position;
- (b) opposed side panels foldable with respect to one of said end panels to erected position to define opposed outer side panels, said opposed side panels having flaps foldable with respect thereto along bottom edges and into position over said bottom panel;
- (c) opposed first inner reinforcing panels foldable with re-

spect to the sides of the other of said end panels and erectable into position against the insides of said opposed side panels;

- (d) second inner reinforcing panels foldable with respect to said opposed side panels along the upper edges thereof and into position against said first reinforcing panels;
- (e) said first and second reinforcing panels being provided with slots in register and in facing relationship with the slots of an opposite pair of reinforcing panels to receive the ends of a core having product wound thereon; and
- (f) said bottom panel and one of said flaps being cut and scored to provide a removable blank for holding into position to define a core for support of said product.

4,316,564

DISPENSER FOR TINFOIL AND THE LIKE

Luigi Felicetti, Milan, Italy, assignor to Euram Italia S.p.A.,
Milan, Italy

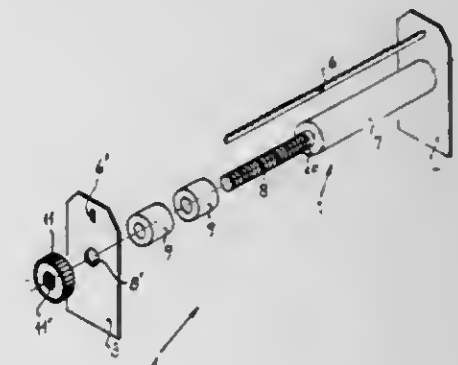
Filed Jul. 22, 1980, Ser. No. 171,105

Claims priority, application Italy, Jul. 27, 1979, 22221/79[U]

Int. Cl.³ B26D 1/02

U.S. Cl. 225-77

8 Claims



1. A dispenser for sheet material wound on a roll, comprising:

- a first and a second cheek;
- a roll-supporting cylindrical mandrel having a first extremity secured to said first cheek and a second extremity passing through a hole in said second cheek;
- a serrated blade parallel to said mandrel having one end fixed to said first cheek and another end traversing a slot in said second cheek; and
- fastening means engaging said second extremity and said second cheek for removably holding same at a selected distance from said first cheek, thereby accommodating rolls of different lengths.

4,316,565

SHEET TRANSFER APPARATUS

Joseph B. Hodgkinson, Billinge, near Wigan, and Geoffrey H. Branch, Golborne, near Warrington, both of England, assignors to Pilkington Brothers Limited, St. Helens, England

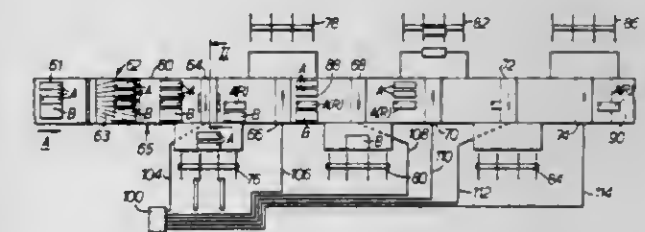
Filed Feb. 21, 1979, Ser. No. 13,632

Claims priority, application United Kingdom, Feb. 20, 1978, 6685/78

Int. Cl.³ C03B 33/02; B65H 29/32

U.S. Cl. 225-99

15 Claims



1. Apparatus for marshalling sheets comprising a conveyor capable of conveying an array of sheets lying in a transverse

sheet array across the conveyor to a sheet removal station, transverse conveying means extending transversely above the conveyor so as to be capable of receiving a sheet from each and every position in said sheet array at said sheet removal station, transfer means operable to transfer a sheet or sheets from the conveyor to the transverse conveying means at the sheet removal station, said transfer means comprising a plurality of selectively and separately operable transfer devices extending in an array across the array of sheet positions, and control means for controlling the action of said transfer devices to cause simultaneous operation of any selected transfer devices and thereby transfer a selected sheet or sheets to the transverse conveying means.

4,316,566

APPARATUS FOR REGISTRATION AND CONTROL FOR A MOVING WEB

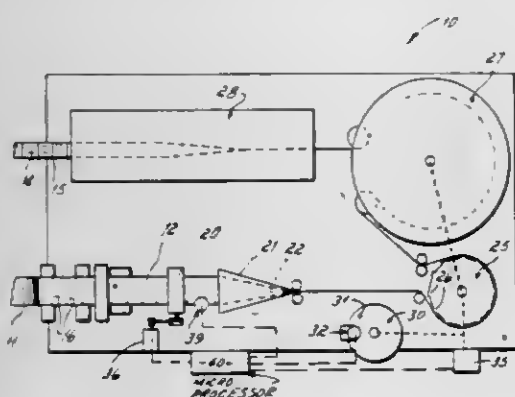
Norman Arleth, Cincinnati, Ohio, and Paul E. Dieterlen, Covington, Ky., assignors to R. A. Jones & Co. Inc., Covington, Ky.

Filed Jul. 17, 1980, Ser. No. 169,852

Int. Cl.³ B65H 23/18; B65B 57/16

U.S. Cl. 226—2

8 Claims



1. Apparatus for achieving and maintaining proper registration of a web to a rotating member around which it passes, said web having a plurality of longitudinally spaced registration marks and being driven by a machine which includes the rotating member, said apparatus comprising, drive rolls through which said web passes, a stepping motor connected to said drive rollers to drive said rollers, means for supplying pulses to said stepping motor to continuously rotate said motor, means producing an output of pulses whose frequency is proportional to the speed of the machine, a scanner associated with said web for producing a registration pulse as each registration mark passes said scanner, means generating a land pulse each time a registration mark is to land on said rotating element, means for monitoring the interval of time between the occurrence of said registration mark and land pulses, respectively, and means for varying the frequency of the pulses supplied to said stepping motor to shorten said interval between registration mark and land pulses.

4,316,567

TRACTOR FOR ENGAGING AND ADVANCING A WEB OF PAPER

Horace S. Grear, Mount Prospect, and Theodore M. Leno, Arlington Heights, both of Ill., assignors to Teletype Corporation, Skokie, Ill.

Filed Apr. 21, 1980, Ser. No. 141,821

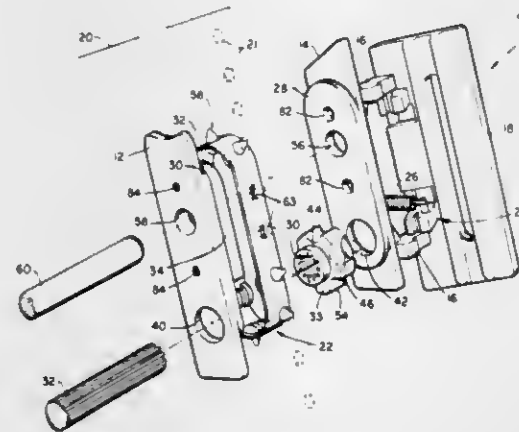
Int. Cl.³ G03B 1/30, 1/34

U.S. Cl. 226—74

8 Claims

1. A tractor 10 for engaging and advancing a paper web 20 across the print station of a printer, said paper web 20 having spaced holes 21 along at least one edge thereof, said tractor 10

including a pair of generally planar side plates 12, 14 being spacially and parallelly positioned, an elongated guide shoulder 32 defining a continuous guide surface 34 positioned between said side plates 12, 14 so as to define a guide channel 36 in cooperation with said guide plates 12, 14, a drive belt assembly 22 including a continuous belt 62 carrying a plurality of spaced drive members 38, said belt 62 having a plurality of spaced holes 63 with each of said drive members 38 located at selected ones of the holes on said belt 62 and adapted to engage the holes 21 along the edge of said paper web 20, a drive sprocket 33 defining a generally circular shape and rotatably positioned between said side plates 12, 14 and located at one end of said elongated shoulder 32, the surface of said drive sprocket 33



being adapted to releasably engage said drive members 38 so as to provide linear movement to the belt 62 as the drive sprocket 33 is rotated, said guide channel 36 and said drive sprocket 33 defining a continuous path for said drive belt assembly 22, characterized by:

each of said drive members 38 having a substantially hemicylindrically shaped base 64, the longitudinal axis of the base 64 is oriented transverse to the direction of travel of the belt 62, the longitudinal edges of said hemicylindrical base 64 being relieved 68, 68a to allow the belt 62 to conform to the curved contour of the drive sprocket 33 and the guide channel 36 as the base 64 of the drive members 38 are engaged by the drive sprocket 33 and the drive belt assembly 22 is thereby moved along the guide channel 36.

4,316,568

METHODS AND APPARATUS FOR GUIDING TAPE

Frederic F. Grant, Bellflower, and Nancy L. Sarkisian, Pasadena, both of Calif., assignors to Bell & Howell Company, Chicago, Ill.

Filed Aug. 2, 1979, Ser. No. 63,323

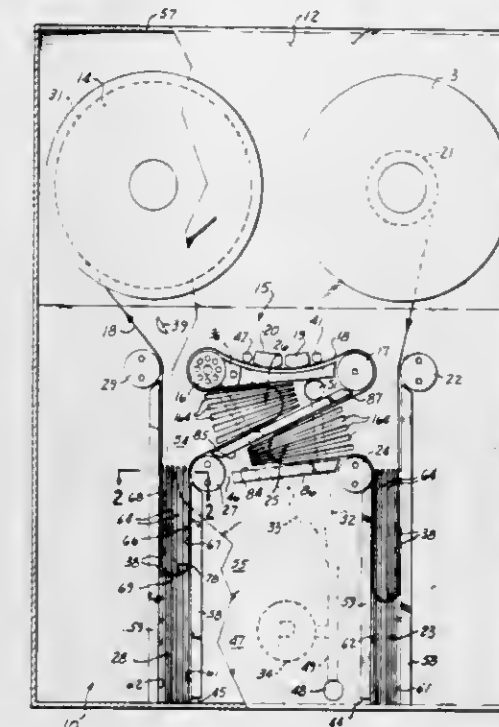
Int. Cl.³ B65H 17/42; G11B 15/58

U.S. Cl. 226—118

34 Claims

21. Apparatus for guiding a tape having two opposite tape edges, comprising in combination: means for providing in said tape a floating arcuate bend having equal radii at both of said tape edges; means coupled to said tape for advancing said tape through said bend having said equal radii; and means for creating within said bend at said tape edges an unbalance providing a net force transversely of said tape for applying said advancing tape at one of said tape edges with said net force to a reference surface while maintaining said equal radii, said means for creating said unbalance including: spaced channels in said reference surface extending below said reference surface; a further surface spaced from said reference surface; means for establishing at said bend a first fluid leakage be-

tween the other of said tape edges and said further surface; and



means for establishing at said bend a second fluid leakage past said one tape edge and through said channels.

4,316,569

OSCILLATING CAM FEED APPARATUS FOR A PRESS

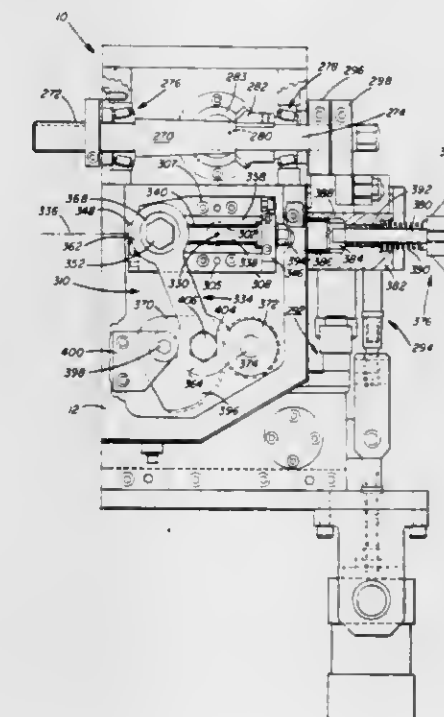
Joseph P. Gentile, Pittsburgh, Pa., assignor to Vamco Machine and Tool, Inc., Pittsburgh, Pa.

Continuation-in-part of Ser. No. 112,066, Jan. 14, 1980, abandoned. This application Aug. 28, 1980, Ser. No. 182,463

Int. Cl.³ B65H 17/36

U.S. Cl. 226—158

30 Claims



22. Apparatus for intermittently clamping a workpiece comprising, an input shaft supported for rotation at a continuous preselected speed, a linkage pivotally mounted at a first end relative to said input shaft, cam means nonrotatably connected to said input shaft for generating oscillating pivotal movement of said linkage, clamp means for intermittently engaging the workpiece to prevent movement of the workpiece,

cylinder means having a rod extending from one end of said cylinder means, said clamp means being connected to said rod, support means for supporting said cylinder means for upward and downward reciprocal movement, said linkage being positioned in abutting relation at a second end to said cylinder means, said linkage being intermittently pivoted upwardly and downwardly upon rotation of said cam means to reciprocate said cylinder means upwardly and downwardly on said support means, and said clamp means being intermittently movable into and out of clamping engagement with the workpiece upon movement of said cylinder means.

4,316,570

APPARATUS FOR FEEDING STRIPS OF RUBBER COMPOSITIONS SIMULTANEOUSLY INTO AN EXTRUDER

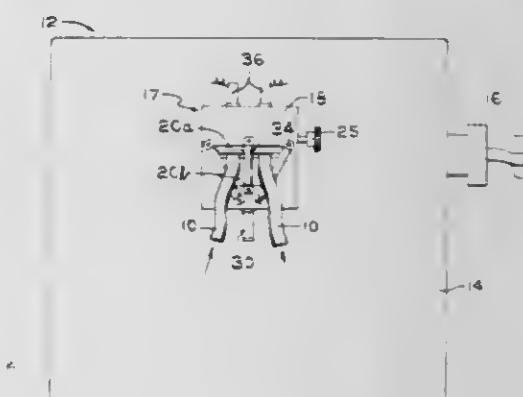
Howard L. Kuster, Stow, Ohio, assignor to The B. F. Goodrich Company, Akron, Ohio

Filed Apr. 28, 1980, Ser. No. 144,514

Int. Cl.³ B65H 17/22

U.S. Cl. 226—176

4 Claims



1. A feeder device adapted to be associated with a screw-type extruder for insuring that separate strips of unvulcanized rubber composition feed simultaneously through said feeder device and into said extruder at substantially the same linear rate, said feeder device comprising a pair of opposed feed rolls mounted to rotate freely about their respective axis, means for guiding said strips of rubber composition between the opposing faces of said feed rolls, and means for resiliently urging said feed rolls together whereby said feed rolls will positively grip said strips of rubber composition as said strips are advanced between said feed rolls.

4,316,571

WALL CONSTRUCTION METHOD FOR SWIMMING POOLS

John F. Corna, 1542 N. Crest Ave., Columbus, Ohio 43220, and Marcel H. Blais, 8085 Manitou Dr., Westerville, Ohio 43081

Division of Ser. No. 918,793, Jun. 26, 1978, Pat. No. 4,179,761.

This application Jul. 16, 1979, Ser. No. 57,647

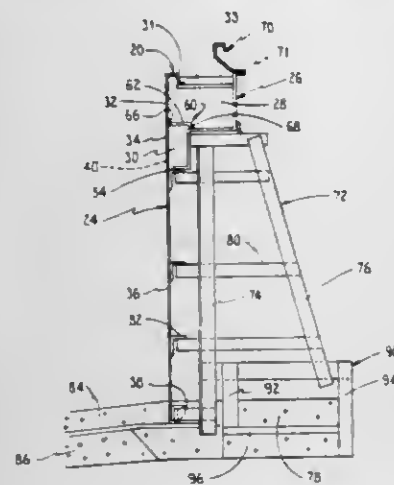
Int. Cl.³ E04H 3/20

U.S. Cl. 228—173 C

1 Claim

1. The steps in the method of making swimming pool wall sections that include a gutter and recirculating conduit, which method comprises forming a first main sheet metal member from a single sheet of stock that is continuous from a top gutter-forming upper edge to bottom seal forming lower edge; forming a second main sheet metal member from a sheet of stock to include a gutter outer portion and a conduit outer portion; positioning said second member at a vertical position relative to said first member to establish a preselected cross-sectional area for the gutter; welding said second member to said first member whereby said first member forms inner walls for said gutter and conduit; forming a third sheet metal mem-

ber with a vertical dimension selected to provide a preselected cross-sectional area for the conduit; welding said third sheet metal member between said two main members to form a top closure for the conduit; forming a deck coping member with a



vertical dimension selected to position the top of the coping member at a preselected height above said gutter forming upper edge of the first main member; and welding said coping member to said gutter outer portion of the second main member.

4,316,573 HOMOGENEOUS BRAZING FOILS OF COPPER BASED METALLIC GLASSES

Nicholas J. DeCristofaro, Chatham, and Claude Henschel, Mt. Freedom, both of N.J., assignors to Allied Corporation, Morristown, N.J.

Division of Ser. No. 88,431, Oct. 26, 1979, Pat. No. 4,253,870, which is a division of Ser. No. 947,329, Oct. 2, 1978, Pat. No. 4,209,570. This application Jul. 18, 1980, Ser. No. 170,249 Int. Cl.³ B23K 35/30

U.S. Cl. 228—263 R 8 Claims
4. A process for joining together two or more metal parts which comprises:

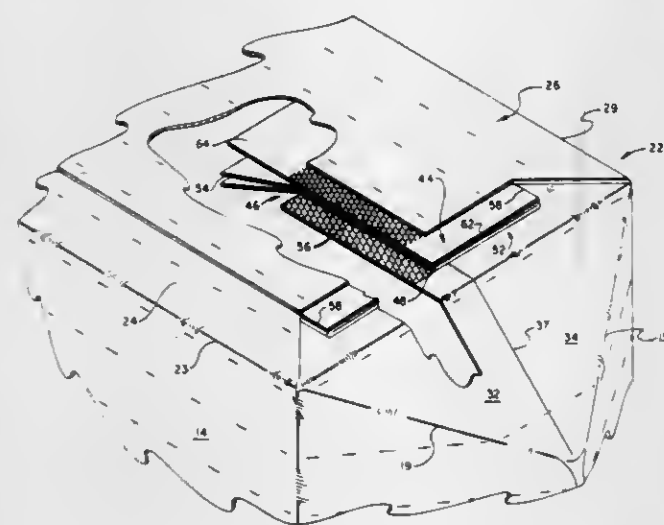
- interposing a filler metal between the metal parts to form an assembly, the filler metal having a melting point less than that of any of the parts;
- heating the assembly to at least the melting temperature of the filler metal; and
- cooling the assembly; wherein the improvement comprises employing, as the filler metal, a homogeneous copper based foil having a composition consisting essentially of 5 to 40 atom percent nickel, 15 to 20 atom percent phosphorus, the balance being copper and incidental impurities.

4,316,574 SLEEVE VALVE FOR FLEXIBLE BAGS

J. George Lepisto, Middletown, Ohio, assignor to Champion International Corporation, Stamford, Conn.

Filed Apr. 4, 1980, Ser. No. 137,247 Int. Cl.³ B65D 31/14

U.S. Cl. 229—62.5 11 Claims



- A bag comprising:
 - a flexible tube adapted to contain a flowable product therein, said tube having first and second opposed ends, said first end of said tube being closed, said second end of said tube having a filler opening therein through which said flowable product may be delivered into said bag, said tube including a first and second flap overlapping each other on said second end thereof; and
 - a flexible, elongated sleeve valve extending through said opening, said sleeve valve having first and second extremities, said first extremity being disposed within said opening being interposed between said first and second flaps, and said second extremity extending into the interior of said tube and freely suspended within said interior of said tube.

4,316,575 MAILBOX INDICATOR

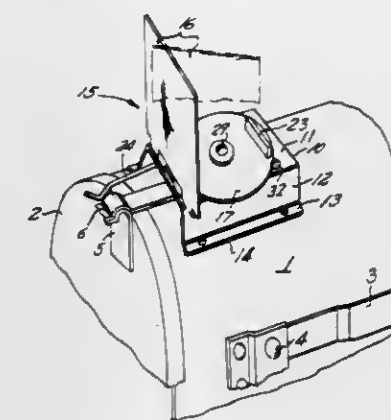
Juel L. VanDarwarka, 2120 W. 23rd, Eugene, Oreg. 97405

Filed Jun. 10, 1980, Ser. No. 158,323

Int. Cl.³ A47G 29/12

U.S. Cl. 232—35

6 Claims



- An indicator for mailbox attachment comprising,
 - a base for securement to a door closed mailbox, said base including a wall spaced from the mailbox,
 - a flag assembly on said base including a carrier plate, a spring biased flag hingedly mounted on said plate, pivot means mounting said carrier plate on said base wall, latch means operable to retain the flag in a retracted position, and,
 - a flag release assembly including an arm swingably mounted at one of its ends to said base and terminating at its distal end in the path of the mailbox door, flag release means carried by said arm and engageable with said flag upon door opening to disengage same from said latch means.

4,316,576 METHOD AND CHAMBER FOR SEPARATING GRANULOCYTES FROM WHOLE BLOOD

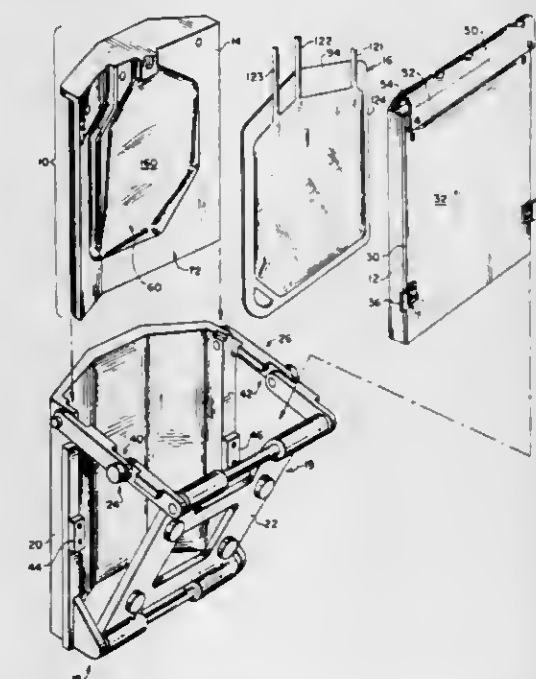
Herbert M. Cullis, and Luiz F. Gutierrez, both of Silver Spring, Md., assignors to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Nov. 6, 1980, Ser. No. 204,724

Int. Cl.³ B04B 5/02

U.S. Cl. 233—26

79 Claims



- A method for separating whole blood into the components thereof within a separation chamber mounted in a centrifuge device during centrifugation of the chamber, the chamber having inner and outer wall surface and first and second side edges, said method comprising the steps of arranging and configuring the chamber such that it has (a) an inlet on the first

side thereof through which whole blood is received, (b) a first upper outlet at the top of the chamber from which plasma with particles therein is withdrawn, (c) a second lower outlet at the bottom corner of the chamber on the second side thereof from which red blood cells are withdrawn, and (d) the inner wall surface positioned in a plane including a tangent to a circle about the axis of rotation and the plane positioned about normal (in a vertical direction) to a radius extending from the axis of rotation of the centrifuge device; directing whole blood into the chamber from the first side thereof at a point between the bottom and top of the chamber; directing heavier particles such as red blood cells downwardly and outwardly along the outer wall surface toward the lower bottom corner of the chamber; and directing plasma upwardly along the inner wall surface of the chamber, so that there is separation of white blood cells, particularly granulocytes, from the whole blood, which are directed with the plasma, toward and out the first outlet from the chamber.

4,316,577 ENERGY SAVING THERMOSTAT

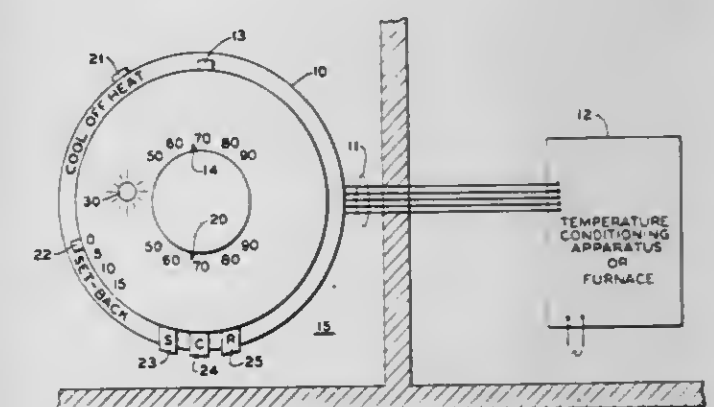
John T. Adams, Minneapolis; Arlon D. Kompelien, Richfield; Marvin D. Nelson, St. Louis Park, and B. Hubert Pinckaers, Edina, all of Minn., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Oct. 6, 1980, Ser. No. 194,210

Int. Cl.³ F23N 5/20

U.S. Cl. 236—46 R

11 Claims



- A thermostat adapted to be connected to a remote temperature conditioning apparatus for controlling the temperature of air in a space to maintain a first temperature during a first period of time and a second temperature during a second period of time, comprising:
 - temperature responsive means responsive to a space temperature,
 - control circuit means adapted to be connected to the temperature conditioning apparatus,
 - means connecting said temperature responsive means to said control circuit means for establishing a control temperature to maintain the first temperature in the space,
 - single button manually settable electronic time interval means for providing a second period of time, and
 - means connecting said time interval means to said control circuit means to change said control temperature to maintain a second temperature in the space for said second period of time each day.

4,316,578 DIRECT FIXATION RAIL FASTENER UTILIZING A PAD OF ELASTOMER

Clarke Reynolds, 16 St. Bernard La., Tiburon, Calif. 94920, and Richard J. Quigley, 25538 Adobe La., Los Altos Hills, Calif. 94022

Filed Jun. 2, 1980, Ser. No. 155,427

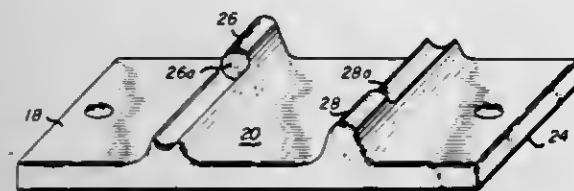
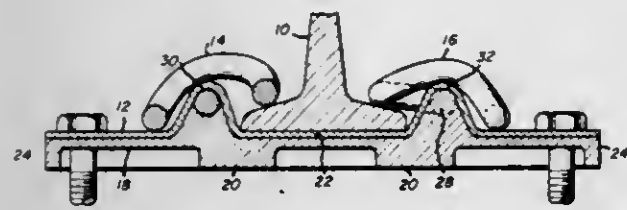
Int. Cl.³ E01B 9/48, 9/62, 9/68

U.S. Cl. 238—283

3 Claims

- In a fastener for supporting a rail on a support structure

which includes, a rail plate for supporting the rail which has a well dimensioned to accommodate the rail, the sides of the well being formed by bows of generally U-shaped configuration in the rail plate, the bows defining channels on the underside of the rail plate, a pair of clips anchored in and occupying a first portion of each channel for resiliently clamping the rail to the rail plate, a pad of elastomer mounted between the rail plate and the support structure, and a pair of posts connected to the support structure for laterally restraining the rail plate with



respect to the support structure, the improvement of the pad of elastomer comprising:

at least one generally U-shaped boss integral with and extending from one surface of the pad, said boss being dimensioned to be received within a second portion of one of said channels for laterally and longitudinally restraining said pad from movement with respect to the rail plate, the opposing end portions of said boss and said clip facing each other within said channel and defining an unoccupied channel midportion therebetween.

4,316,579

MULTI-PURPOSE SEAL FOR POP-UP SPRINKLER

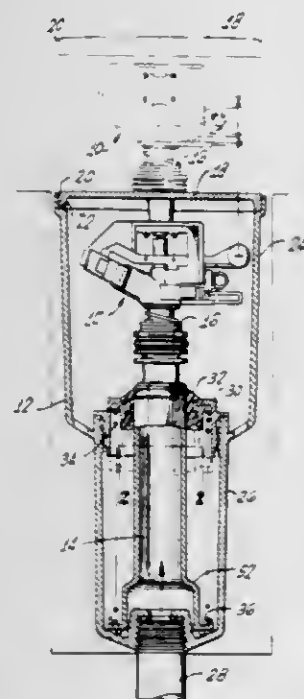
Charles A. Ray, Arcadia, and John L. Kent, Ontario, both of Calif., assignors to Anthony Manufacturing Company, Azusa, Calif.

Filed Apr. 11, 1980, Ser. No. 138,868

Int. Cl.³ B05B 15/10

U.S. Cl. 239—123

22 Claims



1. In combination with a pop-up type irrigation sprinkler having a generally stationary housing and a pop-up stem arranged for reciprocation in said housing, a seal disposed be-

tween said pop-up stem and a mounting base on said housing; said seal comprising:

- a grit wiper surrounding said pop-up stem and being disposed generally adjacent the top of said seal;
- a central bearing arranged to slidably engage said stem for guiding said reciprocation of said stem;
- a pressure activated sliding seal adjacent to and below said central bearing, said sliding seal being arranged to bear against said stem in response to water pressure thereon; and

an annular static seal below said sliding seal and arranged to cooperate with said stem to provide a watertight seal between said stem and said mounting base during operation of said sprinkler.

4,316,580

APPARATUS FOR FRAGMENTING FLUID FUEL TO ENHANCE EXOTHERMIC REACTIONS

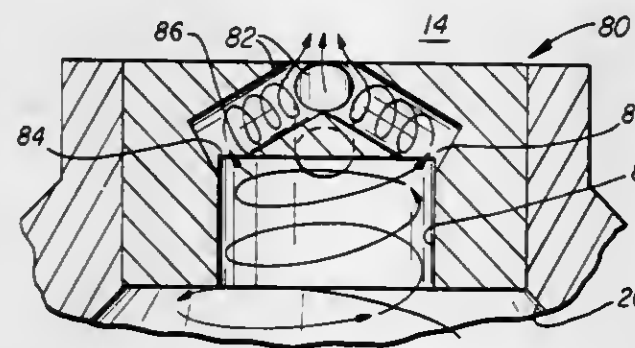
Conrad A. Bodai, Davis, Calif., assignor to Sontek Industries, Inc., Dallas, Tex.

Filed Jul. 13, 1979, Ser. No. 57,394

Int. Cl.³ B05B 1/34, 17/06

U.S. Cl. 239—466

16 Claims



1. Apparatus for fragmenting fluids into superfine constituents comprising:

- a vortex generator of generally circular cross section into which a fluid under pressure is tangentially fed to produce a vortical flow;

means for supplying fluid to the swirl chamber;

- a frequency multiplier and amplitude amplifier disposed downstream of the swirl chamber, responsive to the fluid pressure for generating a high frequency sonic field in the flow;

- a frequency multiplier and amplitude amplifier having a generally circular compression chamber disposed coaxially of the swirl chamber, the compression chamber being open at the upstream end and closed at the downstream end; and

the frequency multiplier and amplitude amplifier also having a plurality of generally cylindrical multiplier cavities of smaller diameter than the compression chamber, the multiplier cavities being arranged in a ring which is coaxial with the compression chamber and slightly downstream thereof with the cavities peripherally intersecting the outer wall of the compression chamber to define a series of ports through which the flow may be discharged.

4,316,581

SPREADER SUITABLE FOR SPREADING GRANULAR AND/OR POWDERY MATERIAL

Cornelis van der Lely, Zug, Switzerland, and Ary van der Lely, Maasland, Netherlands, assignors to C. van der Lely, N.V., Maasland, Netherlands

Filed May 9, 1979, Ser. No. 37,449

Claims priority, application Netherlands, May 5, 1978, 7804823

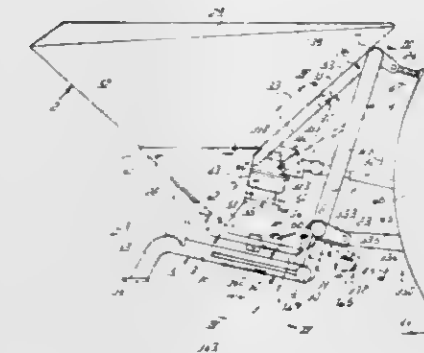
Int. Cl.³ A01C 17/00

U.S. Cl. 239—682

36 Claims

1. A spreader for spreading granular and/or powdery mate-

rial comprising frame means, a hopper and at least one distributor in communication with said hopper, said distributor being mounted for movement to eject material during operation and turnable about an upwardly extending axis, driving means including a transmission connected to turn said distributor, said



hopper including feeding means located in a lower delivery portion of said hopper, said delivery portion being rigidly contiguous with and projecting substantially perpendicularly to said axis relative to the rest of said hopper from which it directly receives material, said feeding means comprising at least one port located above said distributor.

4,316,582

DEVICE FOR PAINTING BY ELECTROSTATIC POWDER SPRAYING

Nobuo Kobayashi, Toyota, and Hiroyoshi Kako, Aichi, both of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

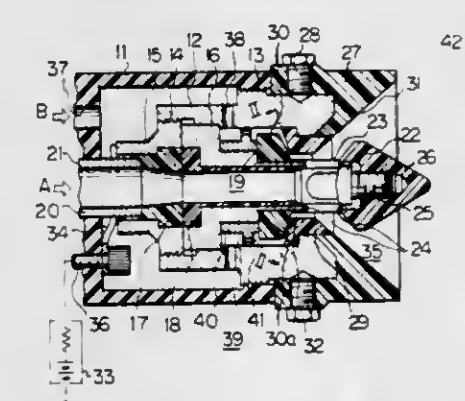
Filed Apr. 22, 1980, Ser. No. 142,660

Claims priority, application Japan, Oct. 3, 1979, 54/136256[U]

Int. Cl.³ B05B 5/00

U.S. Cl. 239—692

4 Claims



1. A device for painting by electrostatic powder spraying, which device comprises: a nozzle member having a passage to which spray powder particles are supplied in a wafting state in air and in which the particles are triboelectrically charged, said nozzle member being provided with powder discharge windows at the peripheral wall of the discharge end of the nozzle, a diffuser member arranged so as to diffuse the powder particles discharged from said windows, vortex air generating means having an annular vortex chamber defined between said diffuser member and said windows, said means injecting vortex air to the powder particles discharged from said windows, the inner wall of said passage of the nozzle member, the peripheral wall of said powder discharge window and the surface of said diffuser member being covered with fluorocarbon resin of low friction coefficient, and said diffuser member being capable of being removed.

4,316,583

DEMOLITION AGENT FOR BRITTLE MATERIALS
Toshio Kawano, Ichihara, and Shiro Ishii, Zushi, both of Japan, assignors to Onoda Cement Company, Ltd., Onoda, Japan

Filed Mar. 18, 1980, Ser. No. 131,537

Claims priority, application Japan, Mar. 20, 1979, 54-31763
Int. Cl.³ B02C 19/00

U.S. Cl. 241—1

6 Claims

1. In a method for demolition which breaks brittle materials by means of the expansive stress generated by the hydration of a demolition agent, the improvement comprising pouring into a hole drilled in the brittle material an aqueous slurry of a demolition agent of pulverized clinker consisting essentially of 24-65% by weight of 3CaO.SiO₂ crystals, 30-60% by weight of CaO crystalline particles and 5-17% by weight of CaSO₄, wherein more than 50% by weight of said CaO crystalline particles are included in said 3CaO.SiO₂ crystals.

4,316,584

LIQUID DISPENSER FOR FOOD PROCESSOR

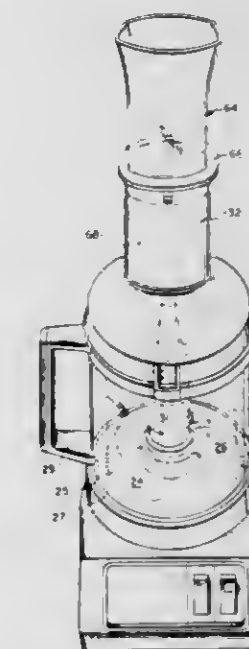
Bruno M. Valbona, Hartford County, Conn., assignor to Dynamics Corporation of America, Greenwich, Conn.

Filed Apr. 12, 1979, Ser. No. 29,132

Int. Cl.³ B02C 18/22

U.S. Cl. 241—38

7 Claims



1. A fluid metering dispenser for use in combination with a food processor having a bowl means with a base wall and at least one sidewall extending from said base wall to form an open ended enclosure, rotatable blade means mounted within the confines of said enclosure and a removable cover means adapted to seat on the sidewall at the open end of said enclosure, said cover means including a top wall for extending across the open end of said enclosure, an inlet opening in said top wall and an open ended chute means extending annularly around said inlet opening and outwardly from said top wall away from the enclosure for a predetermined distance to form an enclosed inlet passage leading to said inlet opening, said fluid metering dispenser including a bottom wall having a fluid dispensing opening formed therein and a sidewall shaped to permit only partial insertion of said fluid metering dispenser into said inlet passage, said sidewall having an upper portion with a top open end remote from said bottom wall, said sidewall also having a lower portion with both an internal surface connected to said bottom wall to form a metering chamber which holds a supply of fluid for dispensing from said fluid dispensing opening and an external surface with a stop means for positioning said top open end of said upper portion at a predetermined distance from the open end of said chute means while simultaneously positioning said bottom wall near the open end of said chute means such that an air space of predetermined constant dimension is maintained between said fluid

dispensing opening and said inlet opening in said top wall of said cover means to permit the free fall of fluid from said fluid dispensing opening along an unperturbed path to said inlet opening, said stop means having an outwardly extending surface which contacts said chute means after said fluid metering dispenser has been only partially inserted into said inlet passage and which subsequently prevents any further insertion of said fluid metering dispenser into said inlet passage.

4,316,585

GYRATORY CRUSHER

Didier Guzik, Denain, France, assignor to Fives-Cail Babcock, Paris, France

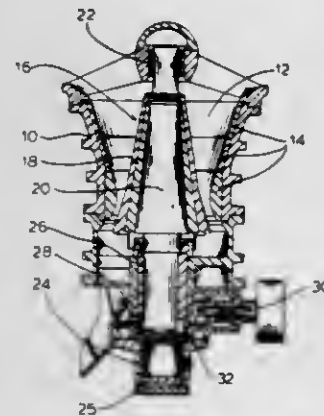
Filed Mar. 17, 1980, Ser. No. 130,864

Claims priority, application France, Mar. 26, 1979, 79 07493

Int. Cl.³ B02C 2/06

U.S. Cl. 241—211

5 Claims



1. A gyratory crusher comprising a breaking head, a hydraulic ram having a cylinder and a piston, the breaking head resting on said piston, a rack fitted in a longitudinal groove formed on the outer surface of the piston, a pinion meshing with the rack and fixed to one end of a shaft going through a wall of the ram cylinder and a sensor coupled to the other end of said shaft, said sensor delivering an electric signal according to the position of the shaft.

4,316,586

PROCESS FOR WINDING, ON A TAKE-UP SHAFT, A SHEET MATERIAL FED FROM A SUPPLY SOURCE

Henri A. Mocco, 95, Ave. Mahieu, 94100 Saint-Maur des Fosses, France

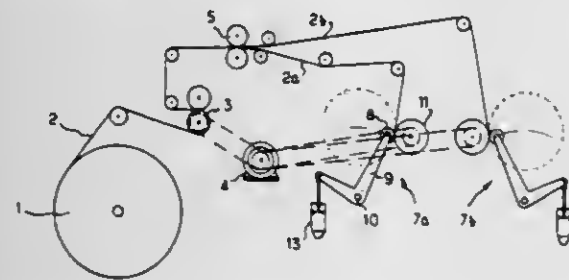
Filed Jul. 21, 1980, Ser. No. 170,708

Claims priority, application France, Jul. 27, 1979, 79 19455

Int. Cl.³ B65H 17/08

U.S. Cl. 242—65

6 Claims



1. A process for winding, on a take-up shaft, a sheet material fed at a selected linear speed from a supply source, which consists in taking up the sheet of material on an idler shaft and driving this take-up shaft by means of a bearing drive cylinder rotating at the selected linear speed of the supply source, wherein linear speed identity between the bearing cylinder and the supply source is obtained by driving the bearing drive cylinder by an adjustable friction means driven at overspeed with respect to the selected linear speed by a motor.

4,316,587
DEVICE FOR REGULATING THE TENSION OF A TRAVELLING WEB

Jean Gauthier, Le Mur Barre, France, assignor to Astin-France Assistance Technique Industrielle, France

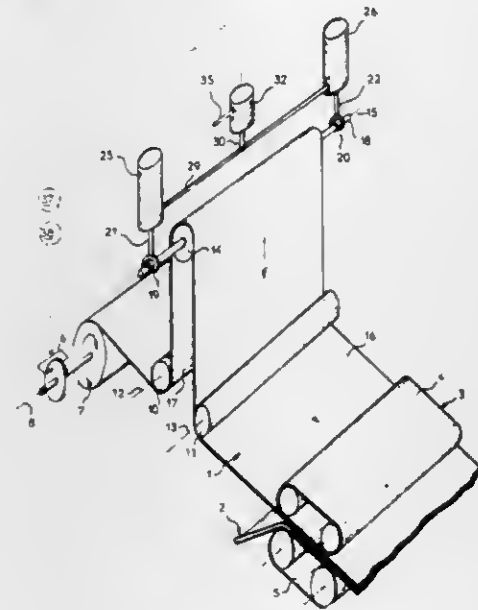
Filed Jun. 3, 1980, Ser. No. 156,022

Claims priority, application France, Jun. 8, 1979, 79 15211

Int. Cl.³ B65H 59/00, 25/22

U.S. Cl. 242—75.53

6 Claims



1. A device for regulating the tension of a web travelling under the action of traction, comprising spaced guide means over which said web travels and a roller which is free to rotate about its axis arranged transversely with respect to the direction of web travel, the roller being in contact with one side of the web between said guide means and deflecting the web relative to said guide means upstream of the traction means, and the device being characterized by means rotatably supporting said roller for two modes of movement in addition to rotation, namely translational movement toward and away from said guide means in a direction perpendicular to said web and tilting movement about a median transverse axis perpendicular to the axis of rotation of said roller, said supporting means comprising a support supporting the spindle of the roller at each end and allowing a movement of the corresponding end in a direction substantially perpendicular to the web, and means applying to each end, in said direction and towards the web, a predetermined force which is identical from one support to the other and is constant whatever the position of the end during its movement.

4,316,588

FISHING LINE SPOOL HOLDER

Bobby K. Walthall, Arlington, and Sammy E. Harris, Onalaska, both of Tex., assignors to Chaparral Marine Products, Inc., Onalaska, Tex.

Filed May 22, 1980, Ser. No. 152,488

Int. Cl.³ B65H 49/00

U.S. Cl. 242—129.62

5 Claims

1. A fishing line spool holder used for transferring fishing line to and from a fishing reel and comprising:

- (a) A U-shaped frame having a base and two essentially nonparallel, spaced-apart, resiliently flexible upright arms attached on opposite sides to said base and inwardly biased so as to provide sufficient tensile strength to suspend a spool of fishing line between said upright arms and a frictional braking effect against the rotation of said spool;
- (b) first and second trunnions, one protruding from each interior wall of said spaced apart upright arms affixed substantially opposite one another along the longitudinal center line of each said interior wall of each said upright arms, and removably and rotatably supporting a spool of fishing line held essentially between them along the center

axis of the spool while preventing any substantial transverse movement of the spool, whereby the spool is able to be rotated and to unwind fishing line in the amount desired;

(c) a suction cup selectively attachable to a fixed object such as the gunwale or seat of a boat;



- (d) fastening means connected in firm assembly to said suction cup and to the base of said U-shaped frame whereby said spool holder may be used in situ to transfer fishing line to a reel by a single individual; and
- (e) a protuberance positioned at the apex of one of the said spaced apart upright arms through which protuberance a slit is placed so as to permit the fishing line to be locked into said slit when the fishing line is not being used.

4,316,589

SPOOL HUB FOR TAPE CARTRIDGES OR THE LIKE

Rolf Stranders, Thalwil, Switzerland, assignor to ICM Cassettes Merchandiser Limited, Buttiko, Switzerland

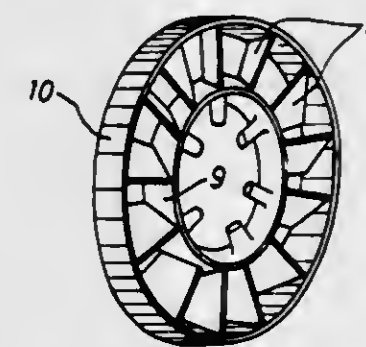
Filed Oct. 11, 1979, Ser. No. 83,739

Claims priority, application Switzerland, Oct. 16, 1978, 10711/78

Int. Cl.³ G03B 1/04; G11B 15/32

U.S. Cl. 242—197

3 Claims U.S. Cl. 248—97



1. A spool hub for tape cartridges, especially sound recording tape cartridges provided with slide foils, comprising a hub body which comprises an inner hub ring, an outer hub ring spaced from the inner hub ring, and a multiplicity of successively arranged webs disposed between said inner hub ring and said outer hub ring and forming passages which are angularly spaced about the center of said hub body in such manner as to enhance air circulation in the associated cartridge.

4,316,590

TAPE CASSETTE

Ken Satoh, Akikawa; Sinichi Saitou, Hachioji; Toshikazu Kato, Hachioji; Seizo Watanabe, Hachioji; Toyoo Nishiyama, Musashimurayama; Misao Shimoda, Hamura; Tutomu Shibata, Hachioji, and Kenji Kimura, Tachikawa, all of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

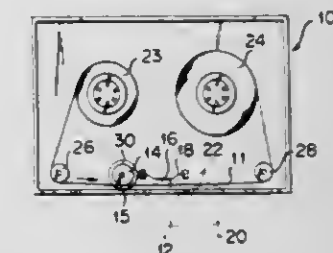
Filed Mar. 25, 1980, Ser. No. 133,816

Claims priority, application Japan, Apr. 2, 1979, 54-39515

Int. Cl.³ G03B 1/04; G11B 15/32

U.S. Cl. 242—199

7 Claims



1. In a tape cassette comprising a housing, a supply reel hub, a take-up reel hub, a length of magnetic tape which is supplied from said supply reel hub to said take-up reel hub, and a pair of guide rollers located at opposite end portions of said housing and around which said magnetic tape passes from said supply reel hub to said take-up reel hub, a portion of said housing intermediate said guide rollers being provided with an opening through which a magnetic head is placed in contact with one side of said magnetic tape;

the improvement comprising in accordance with the invention:

a rotatable impedance roller mounted to said housing intermediate one of said guide rollers and said opening for receiving a magnetic head, and located to contact the side of said magnetic tape opposite the side which contacts a magnetic head, said guide rollers and impedance roller all contacting the same side of said magnetic tape, said impedance roller being mounted closely upstream of said opening for receiving a magnetic head as viewed from the direction in which the magnetic tape runs from said supply reel hub to said take-up reel hub.

4,316,591

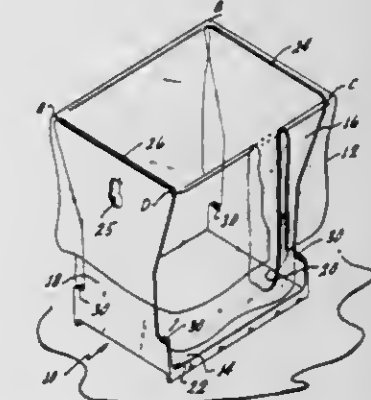
FIXTURE FOR HOLDING BAG

Masao Muraoka, 16210 S. Bonsallo Ave., Gardena, Calif. 90247

Filed Jan. 21, 1980, Ser. No. 113,973

Int. Cl.³ B65B 67/12

2 Claims



1. A unitary stackable fixture for holding open a bag, said fixture comprising:

- a base extending horizontally;
- a pair of arms unitary with said base and cantilevered from said base in upwardly divergent spaced relationship and terminating in upper ends to define a space above said base

and between said arms into which a user places the bag in an upright position;
 said base and said pair of arms constituting a structure sufficiently flexible to permit the user to flex the upper ends towards each other from their original positions by application of a modest force to facilitate the user in engaging the bag to the structure by folding the top edge of the bag down over the upper ends of said arms;
 the structure being sufficiently elastic that when the user removes the applied modest force the arms spring back to their original positions thereby holding the bag open;
 said arms including generally solid walls constructed so as to contain said bag between said arms against substantial outward spread of solid matter deposited in said bag, which spread would interfere with the easy unimpeded removal of said bag from said fixture;
 said base not extending beyond said arms to form a stackable U-shaped structure, each of said arms including one or more lugs extending into said space between said arms to prevent excessive spreading of the arms when the fixtures are stacked by limiting the extent to which such stacked fixtures can nest one within the other.

4,316,592

CAMERA-TO-TRIPOD ALIGNMENT HOLDER

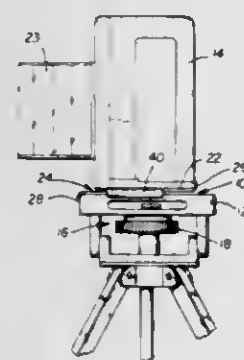
Earl A. Jett, 7782 W. Woodard Dr., Lakewood, Colo. 80227

Filed Jun. 20, 1980, Ser. No. 161,264

Int. Cl.³ F16M 11/04

U.S. Cl. 248—187

4 Claims



1. A device for maintaining selected alignment between a camera and a planar tripod platform wherein the camera is of the type having a tripod mounting socket and the tripod platform is of the type carrying a mounting screw engageable in the camera tripod socket, comprising:

a planar body defining a plurality of longitudinally elongated apertures adapted to receive a tripod mounting screw therethrough, wherein said apertures are transversely juxtaposed and mutually substantially parallel;

said planar body including at least two overlapping plates in parallel planes, each of said plates defining a plurality of longitudinally elongated slots therein, wherein said slots of each plate are adapted to overlap slots of the other plate and thereby define said apertures;

a substantially linear rib connected to a first of said two plates and protruding in relief from a first face of said planar body; and

a substantially linear rib connected to the second of said two plates and protruding in relief from a second face of said planar body opposite from the first face thereof, one of said ribs being for engagement with an edge of the tripod platform and the other rib being for engagement with an edge of the camera wherein the longitudinal dimension of said apertures is parallel to the longitudinal dimension of said elongated slots; and wherein said planar body further comprises means for permitting relative sliding motions between said overlapping plates only along the longitudinal axis of the apertures, said plates having substantially equal transverse dimension and unequal longitudinal dimension, said slots in the longitudinally longer plate being

of greater longitudinal dimension than the slots in the longitudinally shorter plate.

4,316,593

COMBINATION CONNECTING PLATE

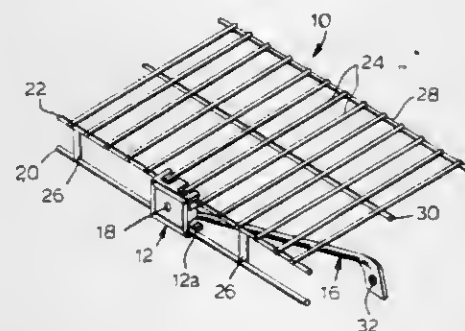
Kevin S. Miner, 11794 Inverness Cir., and Abraham Trachtenberg, 167 Forrester Ct., both of West Palm Beach, Fla. 33411

Filed Oct. 22, 1979, Ser. No. 87,579

Int. Cl.³ A47G 29/02

U.S. Cl. 248—250

2 Claims



1. A connecting means for attaching a supporting bracket to shelving, said shelving having different size members, said connecting means comprising:

a plate;

said shelving having at least a first pair of parallel members, a second pair of parallel members and a third pair of parallel members, said second pair of parallel members transversely connectable to said first pair of parallel members and a third pair of parallel members, having a greater distance therebetween than said second pair of parallel members, said third pair of parallel members transversely connectable to said first pair of parallel members;

said plates having a first pair of receiving groove means for receiving said first and second pairs of parallel members and a second receiving groove means for receiving said second and first pairs of parallel members, said first pair of receiving groove means for receiving said first pair of parallel members when said second pair of parallel members is disposed in said second pair of receiving groove means and for receiving said third pair of parallel members when said first pair of parallel members is disposed in said second pair of receiving groove means and said second pair of receiving groove means for receiving said second pair of parallel members when said first pair of parallel members is disposed in said first pair of receiving groove means, and a means for fastening said plate to said supporting bracket.

4,316,594

FORMWORK PANEL FOR CONCRETE WALLS

Artur Schwörer, Senden, Fed. Rep. of Germany, assignor to Peri-Werk Artur-Schwörer KG, Weissenhorn, Fed. Rep. of Germany

Filed Feb. 27, 1980, Ser. No. 125,270

Claims priority, application Fed. Rep. of Germany, Mar. 3, 1979, 2908284

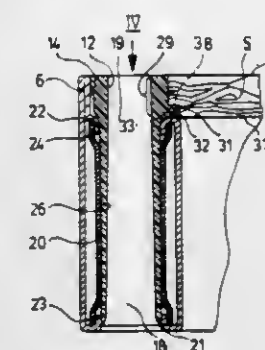
Int. Cl.³ E04G 11/00

U.S. Cl. 249—18

17 Claims

1. A form for concrete construction, comprising a sheet like panel having a front face and a rear face mounted on a supporting frame, said form having a plurality of openings extending through the panel and frame perpendicularly to the front face, a bushing secured within at least one of said openings, said bushings comprising a unitary tubular plastic member having a conically tapered inner bore, the surface of which is continu-

ous and substantially smooth, said bushing having a length corresponding substantially to the thickness of said form and



4,316,595

CONCRETE POST FORMING APPARATUS

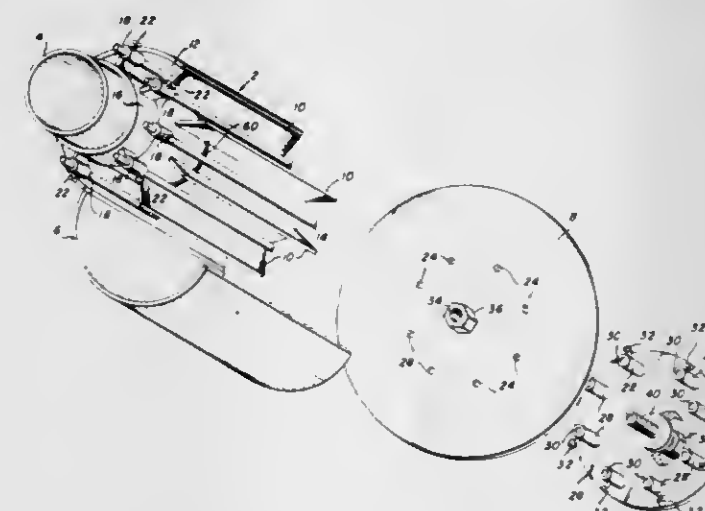
Ronald M. Wheeler, and Joan L. Muirhead, both of Vicksburg, Miss., assignors to Ronald M. Wheeler, Vicksburg, Miss.

Filed Oct. 27, 1980, Ser. No. 201,229

Int. Cl.³ B22D 5/00

U.S. Cl. 249—94

10 Claims



1. Molding apparatus for forming a plurality of reinforced concrete posts, comprising

(a) housing means (2), including

(1) a fixed horizontal first plate (8);

(a) a vertically arranged central cylindrical pipe (4) supported at its lower end on said first plate;

(3) an outer cylindrical sleeve (6) arranged in concentrically spaced relation about said pipe and supported at its lower end on said first plate, thereby to define an annular chamber between said pipe and said sleeve;

(4) a plurality of circumferentially spaced radial fin members (10) connected with said pipe for dividing said chamber into a plurality of circumferentially arranged vertical compartments;

(5) said first plate containing a plurality of openings (24) arranged circumferentially in equally spaced relation opposite said compartments, respectively;

(b) means for suspending a plurality of reinforcing rods in spaced relation within each of said compartments, respectively, the rods being adapted to extend vertically through each of said compartments and said first plate openings, respectively, said suspension means including

(1) an annular ring (16) connected with the upper portion of said pipe adjacent the upper extremity of said sleeve; and

(2) a plurality of first chuck means (18) connected with said ring and arranged opposite said compartments adapted for gripping the upper portions of the rods, respectively; and

(c) tension means adapted for tensioning the reinforcing rods, comprising

(1) a horizontal second plate (26) arranged beneath said first plate;

(2) clamping means (28) adapted for clamping the lower ends of the rods to said second plate, respectively; and

(3) means for displacing said second plate downwardly relative to said first plate, whereby when a plurality of reinforcing rods are suspended in said compartments by said suspension means and tensioned by said tension means, and when concrete is delivered to said compartments, a plurality of reinforced concrete posts are simultaneously cast.

4,316,596

POWER ACTUATED VALVE

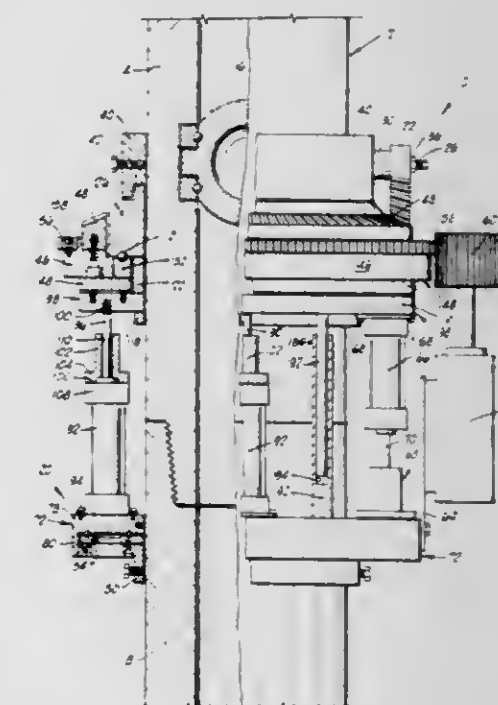
Hubert D. Krober, P.O. Box 338, Cheyenne, Okla. 73628, and Thomas Kelly, 1729 Westminster Pl., Oklahoma City, Okla. 73120

Filed Apr. 2, 1979, Ser. No. 26,340

Int. Cl.³ F16K 31/122, 31/53

U.S. Cl. 251—58

21 Claims



1. An actuator for a valve, said valve including a valve body having a valve member disposed in said valve body with a first gear attached to said valve member, said actuator comprising:

a second gear means for drivingly engaging said first gear to operate said valve;

moving means for selectively moving said second gear means into and out of engagement with said first gear;

power means for driving said second gear means;

support member means constructed for attachment to said valve body;

first frame means, rotatably connected to said support member means so that said valve body may rotate relative to said frame means, said frame means also being attached to said moving means; and

locking means for selectively locking said frame means to said support member means prior to operating said valve to prevent said support member means from rotating relative to said frame means.

4,316,597

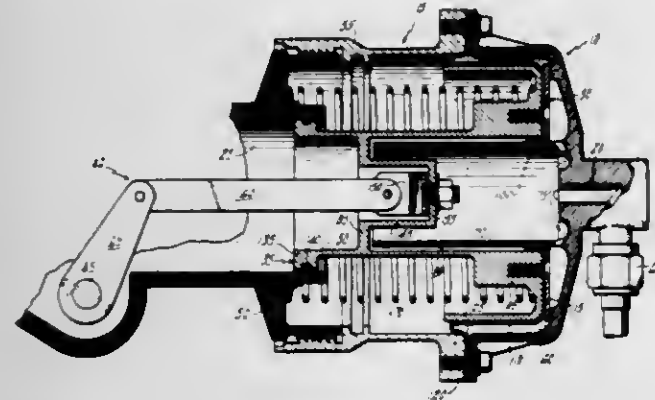
COMPACT VALVE ACTUATOR

Robert B. Goodman, West Hartford, and Charles C. Seger, West Suffield, both of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Jan. 24, 1980, Ser. No. 115,304
Int. Cl.³ F16K 31/122

U.S. Cl. 251—58

11 Claims



1. Valve actuator comprising means adapted to operatively connect said actuator to an actuated valve, a housing having high and low pressure operating fluid inlets thereto, first and second pistons disposed in said housing and adapted to drive said connecting means; said first piston pressurized by low pressure fluid admitted to said housing through said low pressure inlet; said second piston being movable with said first piston and pressurized by high pressure fluid admitted to said actuator through said high pressure inlet, said first and second pistons being maintained in equilibrium at least in part by a force balance of said high and low pressure fluids acting thereon; said valve actuator further comprising means along which at least one of said first and second pistons is guided in reciprocal movement thereof, said at least one of said pistons including bearing means engaging said guide means, said guide means along the entire length thereof, and said bearing means on opposite sides thereof communicating with, and being uniformly pressurized by operating fluid from one of the fluid inlets corresponding to said at least one of said pistons uniform pressurization of said guide means and opposite sides of said bearing means minimizing leakage of said fluid between said at least one of said pistons and said guide means, and around said bearing means due to a pressure differential across said bearing means.

4,316,598

BALANCED RELIEF VALVE WITH NOVEL SEAL

Robert L. Maggio, Elmhurst, Ill., assignor to Vapor Corporation, Chicago, Ill.

Filed Jul. 25, 1980, Ser. No. 172,399
Int. Cl.³ F16K 31/122

U.S. Cl. 251—63

4 Claims

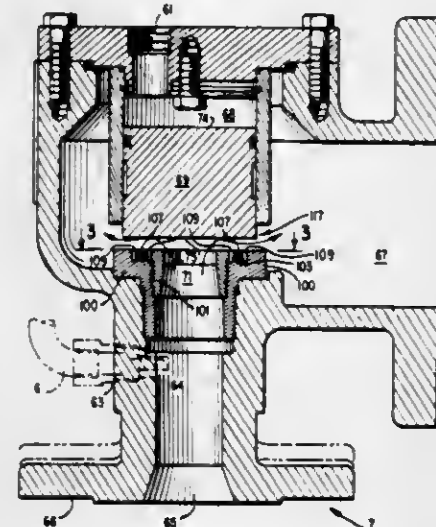
1. A pilot operated pressure relief valve having a housing, a reciprocating shut-off member in said housing defining first and second pressurized volumes above and below the shut-off member, respectively, comprising:

- a first aperture communicating with said first volume;
- second aperture communicating with said second volume, and defining an orifice;
- an orifice insert concentric with said orifice, and an orifice seat secured to said housing, said orifice insert mounted on said orifice seat, said orifice insert and said orifice seat defining first and second sides, respectively, of a seal retention groove;
- said orifice insert and said orifice seat defining a planar surface facing said shut-off member;
- a seal in said groove, said seal and said groove defining a valve seat for said shut-off member;
- a first plurality of apertures communicating with said first side of said seal retention groove in spaced relationship in the periphery of said orifice insert, said first plurality of

apertures terminating in said planar surface and communicating with said second volume;

a second plurality of apertures communicating with the second side of said seal retention groove in spaced relation in the periphery of said orifice seat, said second plurality of apertures terminating in said planar surface and communicating with said second volume;

means seating said seal on said closure member;



means maintaining said closure member in sealing engagement with said seal for equal pressure in said volumes; and means selectively venting said first volume, wherein said product pressure displaces said shut-off member from said seat, and increased pressure in said seat groove beneath said seal caused by product flow through said orifice is relieved by said apertures.

4,316,599

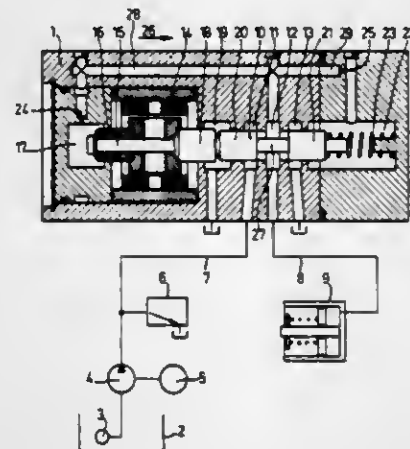
SERVO-CONTROL VALVE

Jean M. Bouvet, Boulogne-Billancourt; Claude Berthou, Fontenay le Fleury, and Michel Jallas, Garches, all of France, assignors to Regie Nationale des Usines Renault, Boulogne-Billancourt, France

Filed Mar. 24, 1980, Ser. No. 133,079
Claims priority, application France, Mar. 26, 1979, 79 07577
Int. Cl.³ F15B 13/044

U.S. Cl. 251—129

5 Claims



1. A hydraulic servo-control valve comprising:

a polarized electromagnet adapted for connection to an electric current source and having a movable shaft with a first plunger member on one end thereof and a second plunger member on the second end thereof and responsive to electric current of one polarity from the source for urging said shaft, said first plunger member and said second plunger member to move in a first direction and to electric current of opposite polarity for urging said shaft, said first plunger member and said second plunger member to move in the opposite direction;

a slide member with a third plunger member on one end thereof and a fourth plunger member on the second end thereof, said first plunger member and said fourth plunger member being of different cross-sections; and means defining a housing having:

- (a) a first chamber with said first plunger member therein;
- (b) a second chamber with said second and third plunger members therein and in contact with each other;
- (c) a third chamber with said fourth plunger member therein;
- (d) said slide member aligned with said movable shaft;
- (e) spring means acting to oppose movement of said shaft and said slide members in the direction of the smaller cross-section plunger;
- (f) an inlet adapted for connection to a source of hydraulic fluid;
- (g) an outlet adapted for connection to a utilizer of pressurized hydraulic fluid; and
- (h) a plurality of conduits interconnecting said chambers, said inlet, and said outlet, for flow of hydraulic fluid therebetween, and subjecting said outlet to the hydraulic fluid pressure of said first and third chambers while substantially isolating said second chamber therefrom.

4,316,600

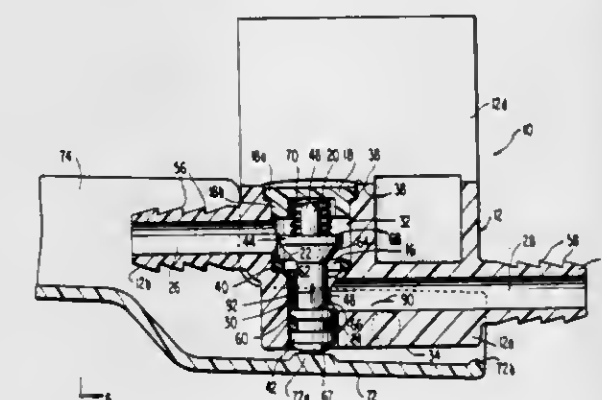
FAST ACTING, NONREPAIRABLE PLASTIC ON/OFF VALVE

Carl Parise, and Rainer R. Schulz, both of Sparks, Nev., assignors to Parise & Sons, Inc., Sparks, Nev.

Filed Jun. 4, 1980, Ser. No. 156,240
Int. Cl.³ F16K 1/34

U.S. Cl. 251—245

7 Claims



1. A fast acting on/off valve comprising:

a molded plastic valve body, said including offset, parallel inlet and outlet passages extending partially through said body from opposite ends thereof,

a transverse flow passage intersecting said parallel inlet and outlet passages, said transverse flow passage passing through said valve body and being comprised of a bore intersecting said outlet passage and a counterbore intersecting said inlet passage, with said counterbore defining with said bore a radial shoulder intermediate of said inlet and outlet passages,

a spring biased valve plunger slidably mounted within said bore and including a portion closing off said bore and said counterbore at said radial shoulder,

the improvement wherein:

said valve plunger comprises a spool type valve member including a first land at one end thereof slidably and sealably mounted within said bore and partially projectable externally of said valve body and a second land at the opposite end thereof having a diameter in excess of the diameter of said bore but less than the diameter of said counterbore and including a conical valve contact face on the side facing said first land, an O-ring seal valve seat positioned within said counterbore against said radial shoulder and engageable by said conical valve contact face of said second land to provide a high integrity seal between said inlet and said outlet passages when said

valve plunger is in said valve closed position under the spring bias of said biasing means and under the pressure of the fluid in said inlet passage, the edge of said bore at the radial shoulder being chamfered to form a conical surface at the same angle as the conical valve contact face of said second land, and wherein said first land comprises a peripheral recess, and said peripheral recess bears an O-ring sealing member whose outer diameter is slightly in excess of the diameter of said bore, and said O-ring sealing member is of a thickness in excess of the depth of said peripheral recess so as to provide a high pressure resilient seal between said valve plunger and said bore.

4,316,601

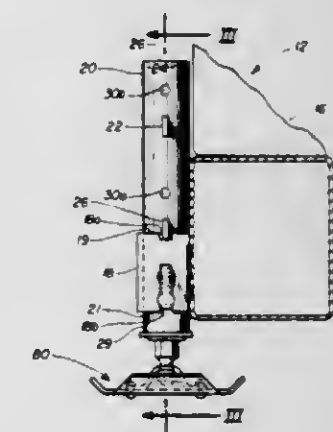
QUICK-ADJUSTING JACKSTAND APPARATUS

Donald L. Osborne, Quarryville, and Joe E. Shriver, New Holland, both of Pa., assignors to Sperry Corporation, New Holland, Pa.

Filed Dec. 8, 1980, Ser. No. 214,059
Int. Cl.² B60S 9/02

U.S. Cl. 254—86 R

7 Claims



1. A jackstand apparatus comprising:

means for coarse adjusting said jackstand, said coarse adjusting means including a first member movable on a support between a first and a second position;

means for fine adjusting said jackstand, said fine adjusting means including a second member threadably engaged within said first member, said second member being extendable from and retractable into said first member;

a supportive base;

means for rotating said second member relative to said first member and relative to said base, said rotating means including a grip member connected to and protruding from said second member and further including a rounded portion received by said base;

a first pair of ears connected adjacent a first end of said first member, said first ears protruding radially outwardly from said first member in opposite directions;

a second pair of ears connected adjacent a second end of said first member, said second ears protruding radially outwardly from said first member in opposite directions and being aligned with said first ears;

said support has a pair of opposed notches formed therein, said notches being of a construction sufficient for receiving a pair of ears; and

said support includes a locking member, said locking member being resiliently urged into engagement with said first member.

4,316,602

DEVICE FOR PRESSING A CABLE AGAINST THE BOTTOM OF A PULLEY GROOVE

Andre Desplats, Boulogne Billancourt, France, assignor to Tractel S.A., France

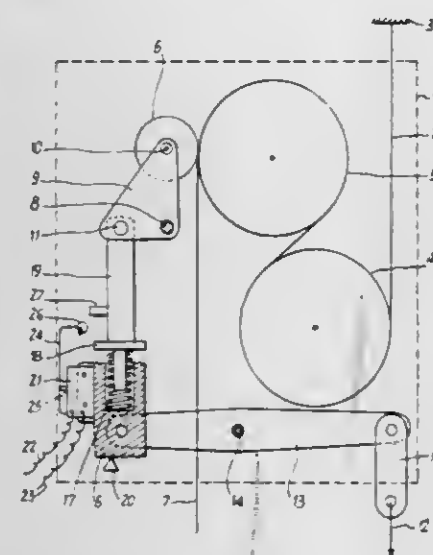
Filed Aug. 22, 1979, Ser. No. 68,812

Claims priority, application France, Jun. 1, 1979, 79 14188

Int. Cl.³ B66D 1/48, 1/58

U.S. Cl. 254—270

4 Claims

**1. A hoisting apparatus comprising:**

- (i) a support
- (ii) a driving pulley rotatable about a pivot on said support and having a peripheral groove
- (iii) a cable having one of its ends secured to an anchorage point and being passed about said driving pulley and having its other end slack
- (iv) a first lever pivotable about a pivot on said support
- (v) at least one roller carried rotatably on said first lever and engaging said cable to press it into the peripheral groove thereof
- (vi) a two-arm second lever pivoted on said support, said two arm lever having one of its arms connected to a suspension means for a load, said two-arm lever having the other of its arms connected to a strap,
- (vii) a thrust rod connected to said first lever
- (viii) a compression spring having a first end acting on said strap and a second end acting on said thrust rod, and
- (ix) a stop on said support against which said strap is urged by said compression spring when said second lever is under no-load or low-load condition,

whereby under no-load and low-load condition said compression spring acts through said thrust rod and first lever to urge said at least one roller to press said cable into the peripheral groove of the driving pulley, and under greater load condition said second lever is moved to move said strap away from said stop and compress said spring so as to transmit to said at least one roller a cable pressing force which increases with the load applied.

4,316,603

STOCKLINE ARMOR CONSTRUCTION FOR BLAST FURNACES

Howard W. Steffen, Peters Township, Washington County, Pa., assignor to United States Steel Corporation, Pittsburgh, Pa. Continuation of Ser. No. 81,725, Oct. 4, 1979, abandoned. This application Sep. 15, 1980, Ser. No. 187,293

Int. Cl.³ C21B 7/08

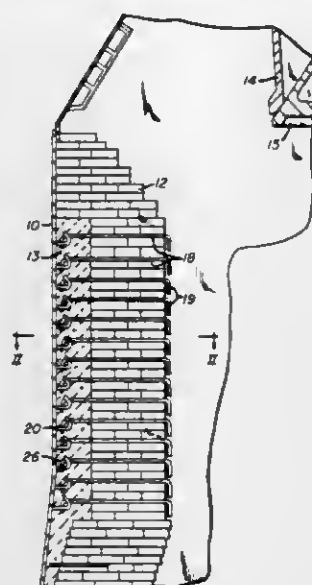
U.S. Cl. 266—282

4 Claims

1. In a blast furnace, said furnace including a shell, courses of brickwork forming a lining within said shell, and stockline armor apparatus for protecting said brickwork, said apparatus including rows of plates adapted to be placed over each course of brickwork in an area susceptible to being struck by material charged to the furnace, said plates extending longitudinally in a radial direction inward from said shell and having flanges for

overlying the otherwise exposed face of said brickwork, and anchoring means for holding said plates in position in the furnace, said anchoring means permitting some vertical movement of the plates as well as pivotal movement about a horizontal axis,

the improvement in said apparatus which comprises:



said plates each having a downward depending tongue adjacent the end thereof near said shell, said tongue being of length sufficient to abut said shell when said refractory beneath the plates erodes away and said plates therefore start to pivot downward about said horizontal axis, so as to limit the extent of pivotal movement of said plates and thus protect the furnace shell from overheating.

4,316,604

VEHICLE HEIGHT ADJUSTING DEVICE

Naoki Makita, Yokohama, Japan, assignor to Tokico Ltd., Kanagawa, Japan

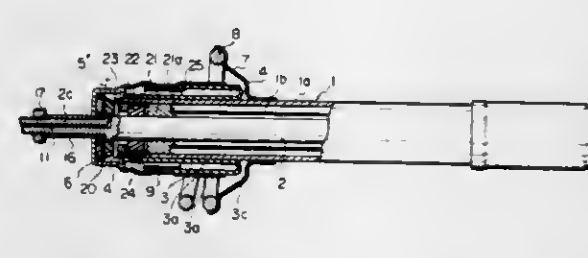
Filed Feb. 22, 1980, Ser. No. 123,884

Claims priority, application Japan, Feb. 22, 1979, 54-21989; Feb. 22, 1979, 54-21990; Apr. 9, 1979, 54-46709

Int. Cl.³ F16F 3/07

U.S. Cl. 267—64.19

5 Claims

**1. A vehicle height adjusting device comprising:**

- a tubular main body;
- a piston rod slidably mounted within said main body and having an end projecting therefrom, said projecting end of said piston rod having an outwardly facing annular shoulder;
- an air spring unit including a resilient flexible tubular wall member having an inner wall portion and an outer wall portion closed at one end by a rolling wall portion formed of said inner and outer wall portions on relative reciprocation therebetween, said inner wall portion being sealingly connected to and surrounding said main body;
- a member abutting said shoulder and having an annular surface;
- a generally cup-shaped member mounted on said projecting end of said piston rod and abutting said member, said outer wall portion being sealingly secured to said cup-shaped member; and
- means for supplying pressurized gas into a space defined between said inner and outer wall portions of said air

spring unit, said means comprising an axial bore formed in said piston rod, an axially extending groove formed in the outer circumference of said piston rod and extending to said shoulder, a radial bore extending from said axial bore and opening into said axial groove, and at least one radially extending groove along said annular surface of said member.

4,316,605

MAGNET MOUNTING TOOL

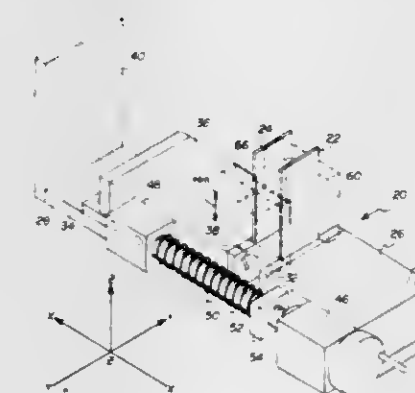
Clyde L. Zachry, Poway, and William C. McCutchen, San Diego, both of Calif., assignors to Burroughs Corporation, Detroit, Mich.

Filed Dec. 26, 1979, Ser. No. 107,168

Int. Cl.³ H01F 41/02

U.S. Cl. 269—43

6 Claims

**1. A tool for mounting bias magnets in a yoke in the manufacture of magnetic bubble memories comprising:**

- a stationary base with a first upright magnet mounting arm thereon,
- a moveable base coupled to said stationary base and having a second magnetic upright mounting arm thereon in parallel relationship with said first arm,
- both of said arms including surfaces facing away from each other and being adapted to have bias magnets mounted thereon,
- a spring means for separating said arms so as to move said bias magnets away from each other and into engagement with said yoke when said yoke is positioned over both said arms and magnets,
- said stationary base and said moveable base also being provided with supporting means for supporting a threaded bolt, and
- means responsive to rotation of said bolt for varying the force with which said spring presses said magnets against said yoke.

4,316,606

APPARATUS FOR SEPARATING AND EXTRACTING STACKED SHEETS ONE BY ONE

Henri Buys, Breux Jouy, and Camille Carisey, Creteil, both of France, assignors to Societe Anonyme dite: Transacompagnie pour le Developpement des Transactions Automatiques, Paris, France

Filed Apr. 8, 1980, Ser. No. 138,302

Claims priority, application France, Apr. 10, 1979, 79 09035

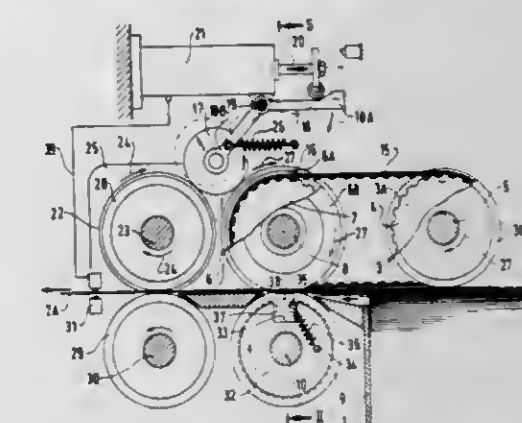
Int. Cl.³ B65H 3/52

U.S. Cl. 271—10

7 Claims

1. Apparatus for feeding sheets one by one in a predetermined direction from a stack of sheets, the apparatus including a magazine for holding a stack of sheets; a first shaft rotatably mounted adjacent to the dispensing side of said magazine; a first roller mounted in free-wheeling relation on said first shaft for frictionally engaging an exposed surface of a first sheet in the magazine; a second shaft rotatably mounted parallel to and downstream in the sheet feeding direction from the first shaft; a second roller mounted in free-wheeling relation on said second shaft for frictionally engaging the same surface of a

sheet fed from the magazine by the first roller; first drive means for rotating said first and second shafts in the free-wheeling direction of the first and second rollers to feed a sheet from the first roller towards the second roller; retard means positioned in closely spaced relation to the second roller such that a fed sheet passes between and in contact with the second roller and the retard means for stripping away any sheet stuck to the first sheet; and second drive means positioned downstream from the second roller further feeding each sheet delivered from the second roller, wherein said retard means comprises:



a third roller mounted for rotation about a third axis parallel to the axis of rotation of the second shaft, said third roller having a peripheral surface for frictionally contacting the surface of a fed sheet opposite from said exposed surface; means for limiting the angular rotation of said third roller in the sheet feeding direction from an initial position when engaged by a sheet being fed by the second roller; and biasing means for rotatably urging said third roller in the reverse direction toward said initial position.

4,316,607

PAPERBOARD FEEDING APPARATUS

Masaharu Hayashi, Omiya, and Kouichi Ueda, Iwatsuki, both of Japan, assignors to Kabushiki Kaisha Tomoku, Otaru, Japan

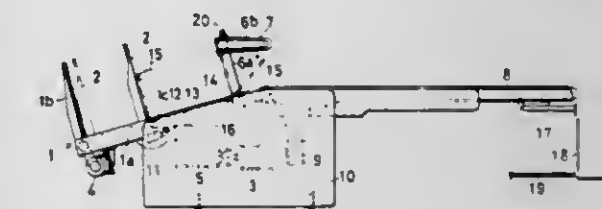
Filed Mar. 7, 1980, Ser. No. 127,965

Claims priority, application Japan, Mar. 12, 1979, 54-30441[U]

Int. Cl.³ B65H 1/14

U.S. Cl. 271—151

1 Claim



1. A cardboard feeding machine of the type having a tiltable lift (1), a lifting yoke (2) provided on the lift (1), driven conveyor belt provided ahead of the tiltable lift (1), said tiltable lift and said lifting yoke being arranged for operation by respective electric motors (3), (4), and there being provided a further belt (7) for forwardly bringing down stacked cardboard (15) over the forward end side of the tiltable lift (1), wherein: each of said motors (3), (4) is defined by a pole change motor and the motor (3) for tilting said tiltable lift (1) being so arranged as to be first rotatable at high speed and then changeable for rotation at a low speed, while being applied with regenerative braking, by changing the number of poles thereof and being stopped, circuit means including limit switches responsive to the tilted position of said tiltable lift for causing said changing of the number of poles of the tiltable lift pole change motor, said motor (4) driving the lift yoke (2) being so arranged as to first rotate at a high speed and then be changed to rotate at a low speed and thereafter being stopped when a forward end of

the stacked cardboards (15) being conveyed at that low speed reaches the further belt (7), while being applied with regenerative braking, by changing the number of the poles, and being arranged to again continuously rotate at said lower speed enabling one or more of the stacked cardboards (15) to be advanced by the belt (7) one after another continuously, being conveyed in a forward direction by the conveyor belt (8) and further circuit means including limit switches responsive to the position of stacked cardboard conveyed by said lifting yoke for causing said changing of the number of poles of the lifting yoke pole change motor.

4,316,608

LEG AND HIP SLED EXERCISER

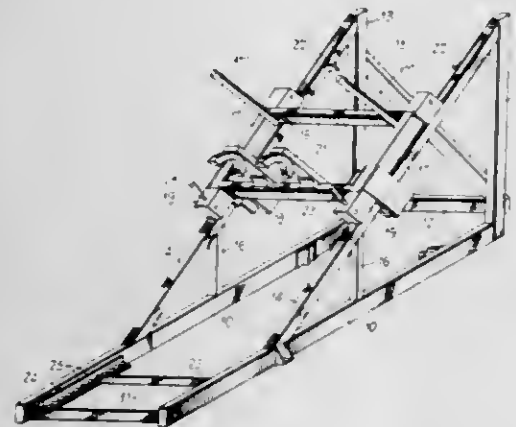
Duane R. Lundberg, Jefferson, Iowa, assignor to AMF Incorporated, White Plains, N.Y.

Filed Dec. 17, 1979, Ser. No. 104,530

Int. Cl.³ A63B 23/04

U.S. Cl. 272—117

1 Claim



1. In an exerciser having a generally rectangular shaped open bottom frame having spaced apart side and end members, spaced upwardly sloped side frames on said bottom frame, and a weighted carriage movable along said side frames, a pair of spaced cradles on said carriage, said cradles being adapted to nest the shoulders of a user of said exerciser standing inside said open bottom frame adjacent one end thereof corresponding to the lower end of said sloped side frames, a foot rest at said one end of said bottom frame, said foot rest being adapted to brace the exercise user's toes when leaning forward to lift said carriage, means for adjustably positioning and locking said foot rest in a plurality of positions lengthwise of said end of said bottom frame, said last mentioned means comprising a pair of angle irons on said opposite sides of said bottom frame, a series of spaced apart horizontal lugs on said angle irons, said foot rest comprising another angle iron transversely spanning said pair of angle irons, said foot rest being freely and selectively insertable into the spaces between said lugs so that the corner thereof overlies one of said lugs and the edges thereof underlies the two lugs immediately adjacent thereto on each of said pair of angle irons.

4,316,609

BENCH MOUNTED WEIGHT LIFTING EXERCISER

Ira J. Silberman, Opelika, Ala., assignor to Diversified Products Corporation, Opelika, Ala.

Filed Feb. 15, 1979, Ser. No. 12,487

Int. Cl.³ A63B 21/06

U.S. Cl. 272—118

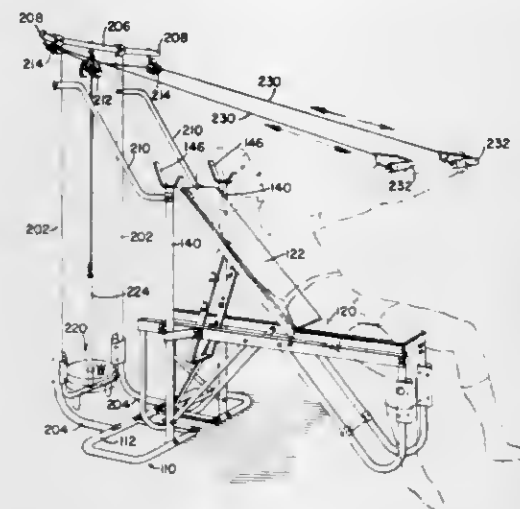
7 Claims

1. An exercising apparatus comprising:

(a) a bench having:

- (1) an elongated bench frame;
- (2) a fixed seat portion supported on said bench frame at the foot end of said bench;
- (3) an adjustable incline seat portion hinged to said bench frame adjacent to said fixed portion and extending to the head end of said bench;

- (4) means for adjustably supporting said incline portion on said bench frame at a desired angle of inclination; and
- (5) a pair of upstanding, spaced barbell supports on opposite sides of said bench attached to said bench frame, each of said tubes having a barbell cradle at its upper end above said incline seat portion; and
- (b) a weight pull device at the head end of said bench attached to and supported by said bench frame having:
 - (1) a pair of upstanding parallel guides attached to said bench frame;



- (2) a top crosspiece interconnecting the upper ends of said guides;
- (3) weight-supporting means slidably guided along said guides;
- (4) weight pulley means connected to said top crosspiece; and
- (5) at least one tension element connected to said weight-supporting means and trained through said pulley means to be pulled by a user lying or sitting on said bench.

4,316,610

SEGMENTED ELASTIC CABLE EXERCISER BAR

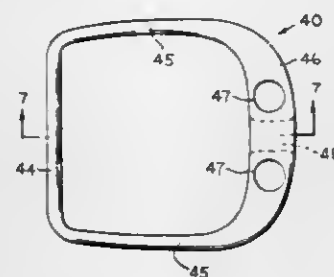
Robert S. Hinds, 1803 Regent St., Madison, Wis. 53705

Continuation-in-part of Ser. No. 755,552, Dec. 30, 1976, Pat. No. 4,195,835. This application Nov. 19, 1979, Ser. No. 95,664

Int. Cl.³ A63B 21/02

U.S. Cl. 272—137

4 Claims



1. In exercise apparatus having an elastic cable for being attached to a laterally extending bar and providing downwardly extending runs of cable at each end, an improvement comprising pieces shorter in length than said bar joined to be separable and end-abutting to provide an assembled bar of lever-like rigidity and elongated configuration for being gripped by both hands of a user and having a longitudinally grooved upper surface for receiving said cable between points of terminal contact of said cable with said bar, and having bifurcated ends formed by finger-like members which extend from the two opposite sides to beyond the ends of said groove, said bifurcated ends being adapted to receive downward runs of cable therein and to receive convolutions of said cable thereon upon rotation of said bar with said cable engaged

thereon, said pieces being coupled by locking pins and a pair of sleeves, each sleeve of said pair of sleeves being anchored in one of the two said pieces disposed to be end abutting, said locking pin embodying a detent which comprises means for being resiliently biased transversely to the axial direction of the locking pin and urged beyond the projected interface of said locking pin and an associated sleeve to maintain said pieces firmly abutting during exercise use of said bar and enabling manual disassembly of said bar to provide said pieces severally for rendering said exercise apparatus compactly transportable.

4,316,611

COMPETITION GAME MACHINE

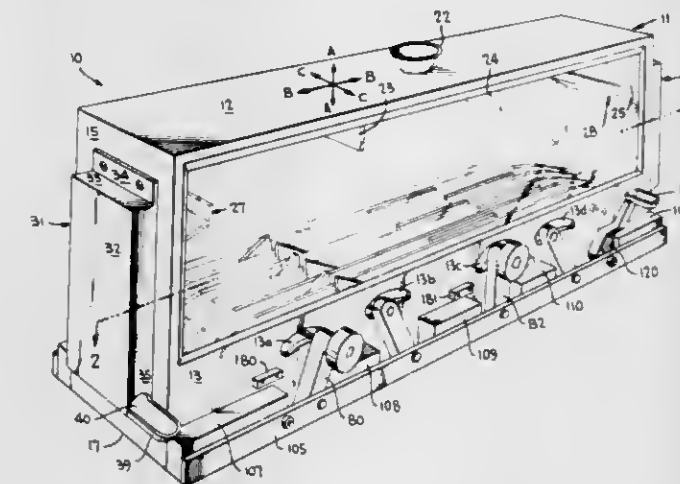
W. Fred Stokes, Rte. 2, Branchville, S.C. 29432; Fahey S. Bradford, 909 4th Ave., Kingstree, S.C. 29556, and Nancy S. Strobel, 901 Wisteria Dr., Florence, S.C. 29501

Filed Jun. 20, 1980, Ser. No. 161,450

Int. Cl.³ A63F 7/06, 7/14

U.S. Cl. 273—85 D

11 Claims



1. A competition game machine which comprises,
 - (a) an elongated housing formed by a cover member, two side members, two end members and a bottom member, said side members including openings therein in which are mounted window elements, each of said side members including at least two crescent-shaped slots therein, the crescent-shaped slots in one side member being aligned with the crescent-shaped slots in the other side member, said side members also including additional openings therein in the lower sides thereof, at least one of which is located below each of said crescent-shaped slots, each of said end members including an opening in the upper portion thereof which is sufficiently sized to allow a game ball to pass therethrough,
 - (b) identical game ball return means mounted on the outer sides of each respective end member and capable of receiving a game ball passing through the opening in the respective end member,
 - (c) a floor means positioned in said housing to form a playing deck above said bottom member, said floor means including multiple spaces therein which each extend from one end member of the housing to the other end and are spaced apart between the side members,
 - (d) separate identical projector elements positioned near the two housing end members, each projector element including a rotatable projector shaft which extends between the housing side members and respectively through aligned holes therein, a handle means fixedly attached to one end of said rotatable projector shaft so as to be located outside said housing and capable of rotating said rotatable projector shaft, and a projector hub fixedly attached to said rotatable projector shaft along a center portion between said housing side members, said projector hub including multiple identically-shaped projector arms with head portions which are capable of retaining and, when said rotatable projector shaft is rotated, projecting a game ball towards the opposite housing end member, the handle

means of each respective projector element being located on the outer side of an opposite side member, and the projector arms with head portions being capable of moving within and above different said spaces in said floor means, and

- (e) at least two separate and identical activator elements, each activator element including a yoke having two arms and a cross bar connecting first ends of said arms, said cross bar being rotatably mounted between the housing side members, the second ends of said arms including aligned bores through which extends a rotatable activator shaft having an enlarged end portion, each said rotatable activator shaft being translatable in aligned crescent-shaped slots in said side members, and each activator element including a fin hub fixedly attached to said rotatable activator shaft along a center portion between said housing side members, said fin hub including multiple identically shaped plate-like fins which are capable of moving within and above different said spaces in said floor means so as to form a striking face for contacting and moving a game ball.

4,316,612

EDUCATIONAL ALGEBRA BOARD GAME

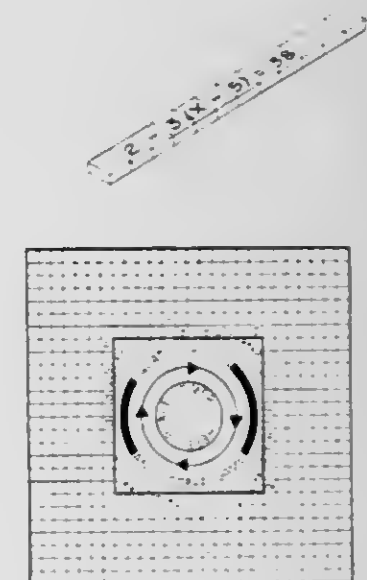
Kenneth J. Harder, 113 Ninth St., Bay St. Louis, Miss. 39520

Filed Mar. 14, 1980, Ser. No. 130,232

Int. Cl.³ A63F 3/00

U.S. Cl. 273—272

5 Claims



1. An educational algebra game article comprising a generally square game board, a plurality of strips each having printed thereon an equation or inequality to be solved, and a plurality of markers having printed thereon portions of equations or inequalities, said portions being so related to respective ones of said strip equations or inequalities that selected ones of said markers can be assembled to form a successive series of equations or inequalities the last of which constitutes a solution for the related strip equation or inequality, said board including demarcated areas adjacent each side thereof for receiving one of said strips and an adjacent assembly of said markers.

4,316,613

SKILL MARBLE GAME

Virgil W. Harris, R.R. 17, Box 245, Brazil, Ind. 47834

Filed Jul. 21, 1980, Ser. No. 170,909

Int. Cl.³ A63B 63/08

U.S. Cl. 273—401

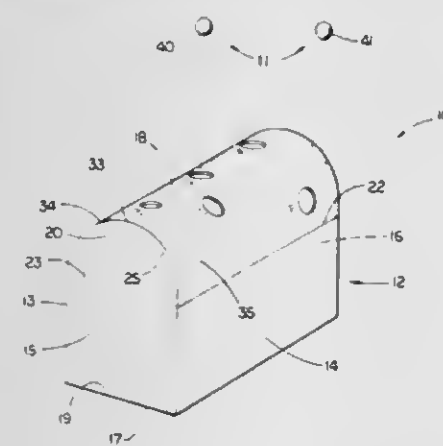
7 Claims

4. A game of skill comprising:

a plurality of spheres of equal diameter; and

a closed container with a bottom wall configured to support said container upon a flat surface, said container including a top wall with an aperture, said aperture has a size larger than said equal diameters of said spheres allowing said spheres to pass through said aperture into said container when dropped one at a time from a position over said aperture, said top wall including an inwardly facing concave surface guiding said spheres when positioned inside said container to roll toward said aperture as said container is inverted; and wherein

said top wall includes an outwardly facing convex surface part forming a peak portion and part forming downwardly sloping portions extending from said peak portion, said top wall includes a plurality of apertures extending there-through all having a diameter greater than said spheres with some of said apertures being located on said peak portion and appearing circular when viewed directly



overhead whereas other of said apertures being located on said downwardly sloping portions appearing elliptical in configuration when viewed directly overhead of said container; and further comprising: indicia means on said container operably indicating a preselected scoring value assigned to each aperture.

5. The game of claim 4 wherein said convex surface has different slopes at different distances from said peak portion, some of said apertures on said peak portion are of different diameters relative to each other, said apertures of one of said downwardly sloping portions are of equal size relative to each other and are located on said convex surface at said different distances to appear of unequal size relative to each other when viewed directly overhead, said apertures on another of said downwardly sloping portions are of unequal size relative to each other and are located on said convex surface at said different distances to appear to be of equal size relative to each other when viewed directly overhead.

4,316,614

HOLDING CHUCK

Robert T. Clopton, Can Mer, Ky., assignor to Eaton Corporation, Cleveland, Ohio

Filed Jan. 7, 1980, Ser. No. 109,953

Int. Cl.³ B23B 31/18; B23F 23/06

U.S. Cl. 279—1 G

5 Claims

1. A holding chuck for releasably positioning and holding a workpiece relative to an established reference line, said chuck comprising:

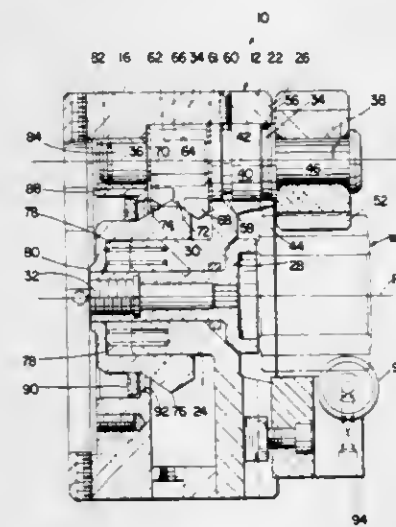
a housing including an end face extending substantially perpendicular to said reference line, a plurality of substantially identical first bores formed in said housing and opening to said end face, the axes of said bores being substantially parallel to said reference line and equally circumferentially and radially spaced relative to said reference line, a plurality of second bores extending radially inwardly from the exterior of said housing to intersect said first bores;

a shaft received in each of said first bores, each of said shafts having a first portion removably retained in said first bore

for rotation about the axis of said first bore relative to said housing, each of said shafts having a second portion extending axially out from said first bores beyond said end face, each of said first portions of said shafts having a groove formed in the exterior surface thereof;

a pin member adjustably positioned in each of said second bores, each of said pin members having a first position wherein an end thereof extends into said first bore for receipt in said groove in one of said shafts to control the axial position of said shafts relative to said housing and a second position wherein said end is retracted from said grooves;

a jaw member defining a workpiece engaging surface fixed to the second portion of each shaft, each of said surfaces rotating about an axis offset the axis of the first bore receiving the shaft to which the jaw member is fixed when



the first portion of said shaft is rotated in said housing about said axis of said first bore whereby such rotation of said first portions will cause said surfaces to move radially inwardly and outwardly with respect to said reference line; and

means located within said housing for selectively rotating said first portions of said shafts simultaneously and in the same direction of rotation, said means including a single driving member and a separate driven member for each shaft, each driven member defining a bore having internal splines concentric with the axis of one of said bores, movement of said driving member resulting in an equal rotational movement of each of said driven members, each of said shafts having an externally splined portion for engagement with the internally splined portion of said driven members.

4,316,615

PICNIC BEACH CART

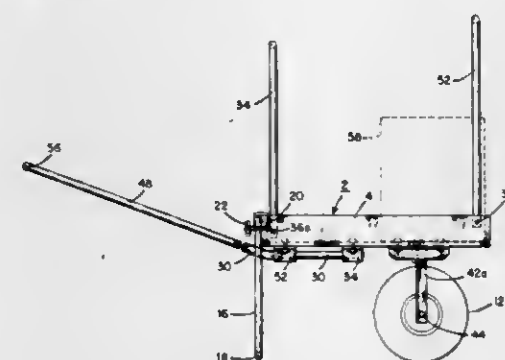
Norval K. Willette, 4 Laurie La., Burlington, Mass. 01803

Filed Jun. 13, 1980, Ser. No. 159,189

Int. Cl.³ B62B 1/12

U.S. Cl. 280—47.26

3 Claims



1. A beach cart including

first and second wheels each having an axle and an annular rim tread surface of substantial width in a circular plane parallel with the longitudinal axis of its axle,

a horizontal flat bed having upwardly-extending peripheral side walls,

means independently mounting said wheels on the underside of said bed near opposite sides thereof and arranged to support said bed at a distance between nine and eighteen inches above the lowest surface of said wheels, said axles being positioned along a line within ten inches from a vertical plane passing through the rear edge of said bed,

a support stanchion,

means rotatably securing said stanchion to the front of said bed,

releasable locking means arranged to secure said stanchion in its vertical position whereby said bed is supported by a tripod formed by said stanchion and said wheels,

a towing bar removably secured to said bed, and a fixed stop member secured to said bed and positioned to abut said stanchion and thereby limit the rotational movement thereof in a first direction,

said locking means including a rotatable member having a first position in which it engages said stanchion and prevents rotational movement thereof in a direction opposite from said first direction,

one of said sidewalls including a slot extending downwardly from its upper edge, and

said rotatable member including an extension that, when said rotatable member is in its first position, extends through said slot and projects forwardly thereof to abut one side of said stanchion.

4,316,616

SELF-PROPELLING AND STEERING ATTACHMENT FOR A WHEEL-CHAIR

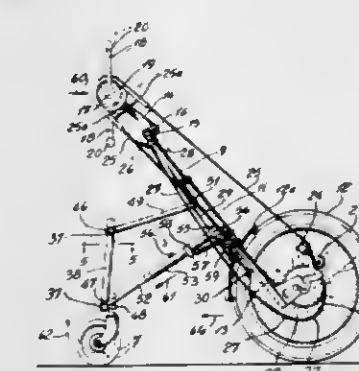
Bernard Boivin, 1689 Sanguinet St., Montreal, Canada H2X 3G5

Filed Feb. 25, 1980, Ser. No. 124,528

Int. Cl.³ B62M 1/14

U.S. Cl. 280—289 WC

9 Claims



1. A self-propelling and steering attachment for a wheel-chair of the type having a frame, rear larger diameter wheels supporting said frame and front smaller diameter swivel wheels supporting said frame at the front frame portion thereof, said attachment comprising a front sleeve, a steering post rotatably supported in said sleeve, a ground-engaging steering and propelling wheel carried by the bottom of said steering post, drive means for said steering and propelling wheel, a rear framework, means on said framework to rigidly connect and disconnect the same to and from the front frame portion of said wheel-chair, and two superposed bars extending longitudinally forwardly from said rear framework and interconnecting the latter and said sleeve, one of said bars being extensible and retractable and pivotally connected to said rear framework and to said sleeve for pivotal movement about horizontal transverse axes relative to said wheel-chair, and the other of said bars being rigidly secured to one of said framework and of said sleeve and pivotally connected to the other of said framework and of said sleeve for pivotal movement about a horizontal transverse axis relative to said wheel-

chair, and means to lock said extensible and retractable bar to an adjusted length, whereby a wheel-chair user, while seated in the wheel-chair, can secure said framework to said wheel-chair front frame portion when said locking means are in released position and while said front swivel wheels of the wheel-chair rest on a support surface, and then the user can lift said swivel wheels off the ground by pushing forwardly of said steering post to cause the same to take more vertical attitude, thereby causing a change of length of said extensible and retractable bar and then locking the latter in its final position with the swivel wheels remaining raised off the supporting surface and the wheel-chair resting on said supporting surface only by the rear large diameter wheels and the steering and propelling wheel.

4,316,617

VEHICLE TOWING APPARATUS

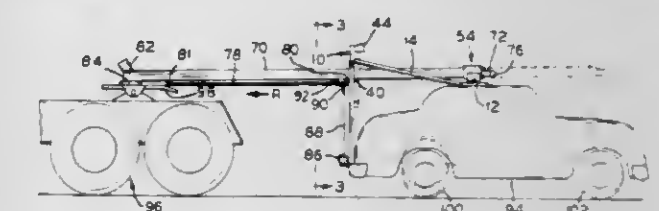
Ronald C. Flaugh, 407 N. Main St., Churubusco, Ind. 46725

Filed Sep. 8, 1980, Ser. No. 184,934

Int. Cl.³ B60D 1/14

U.S. Cl. 280—402

9 Claims



1. Vehicle towing apparatus comprising a supporting frame adapted to be mounted on the rear and top of a motor vehicle, said frame including an upstanding support having a horizontal cross member and an upright boom-receiving slot which opens through said cross member, an elongated boom in registry with said slot and having a first end for selective attachment to a tractor, first means movably engaged with the cross member for supporting said boom for longitudinal movement for only a first portion of its length, said first means being disengaged from said cross member for a second portion of the length of said boom, said frame further including a retaining device spaced from said upstanding support which retains said boom for sliding and for swinging movement about a horizontal axis, and a boom-supporting element on said support which spans said slot and on which said boom may be carried, said boom being movable longitudinally for said first portion of its length until said first means disengages from said cross member whereby said second portion of said boom descends into said slot to rest on said boom-supporting element and to be confined against lateral movement by the sides of said slot, and a winch on said upstanding support beneath said boom and having a cable connectable to said boom intermediate its ends and adjacent said element.

4,316,618

NON-EXPOSED SKI BINDING

Eric A. Sampson, 520 S. Harrison La., Denver, Colo. 80209

Filed Feb. 19, 1980, Ser. No. 121,997

Int. Cl.³ A63C 9/08

U.S. Cl. 280—613

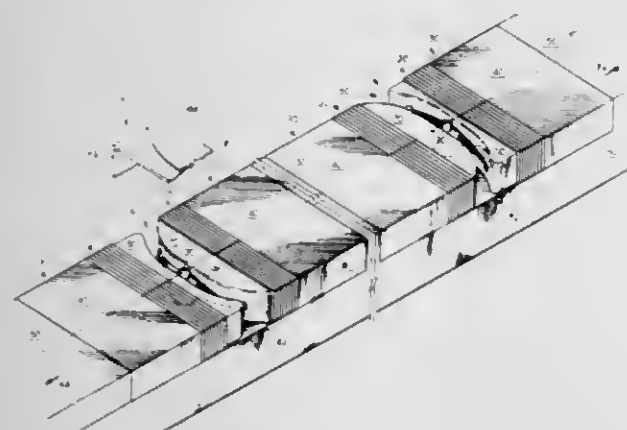
18 Claims

1. A binding for connecting a boot to a ski, said binding being operative to release said boot from said ski when the environmental forces on said ski from skiing exceed a predetermined amount, said binding comprising:

a plate releasably affixed under said boot, said plate comprising:

(a) a first sphere downwardly extending from said plate, said first sphere being oriented on the longitudinal axis of said plate and under the ball area of said boot, and
(b) a second sphere downwardly extending from said plate, said second sphere being oriented on said plate longitudinal axis and under the tibial axis of said boot.

- a first movable and arcuate tract mounted in a first recess formed in the upper surface of said ski, said first tract being capable of releasably engaging said first sphere, said first tract being further curved in an arc toward said second sphere,
- a second movable and arcuate tract mounted in a second formed recess in the upper surface of said ski, said second tract being capable of releasably engaging said second sphere, said second tract being further curved in an arc toward said first sphere, said first and second tracts being identical and symmetrical to each other and each comprising:
- a concave tract member,
 - a centering groove formed on the concave surface of said concave member, said concave centering groove having a partial spherical cavity in the center of the aforesaid groove,
 - means connected to said concave member and to said ski for biasing said concave member,
 - a convex tract member,
 - a centering groove formed on the convex surface of said convex member, said convex centering groove



having a partial spherical cavity in the center of the aforesaid groove,

- means connected to said convex member and to said ski for biasing said convex member toward said concave member, said concave member being spaced from said convex member to form said arcuate tract, said concave and convex centering grooves being capable of engaging said sphere and maintaining it aligned with the longitudinal axis of said ski in said partial spherical cavities under environmental forces less than said predetermined release force, said sphere being capable of traveling in said tract a predetermined distance in said concave and convex grooves when said environmental forces are less than said predetermined release force but greater than a predetermined travel force, said concave and convex centering grooves being capable of immediately returning said sphere to said longitudinal axis of said ski upon removal of said traveling forces, said concave and convex members being capable of releasing said sphere from said tract and in any direction above said ski when said environmental forces exceed said predetermined release force by moving against said concave and convex biasing means.

4,316,619

PASSIVE SEATBELT SYSTEM

Ichiro Suzuki, Nagoya; Masanao Motozumi, and Hisashi Ogawa, both of Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed May 28, 1980, Ser. No. 154,121

Claims priority, application Japan, Jun. 14, 1979, 54-81255[U]

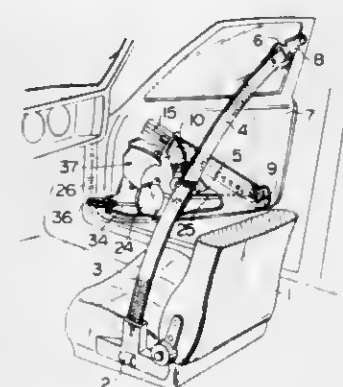
Int. Cl.³ B60R 21/10

U.S. Cl. 280—804

13 Claims

1. A passive seatbelt system for automatically moving a seatbelt webbing to approach or recede from an occupant, comprising:

- a guide rail extending along a vehicle body;
- a webbing guide received in and movable along said guide rail;
- a thick wall tape extending along said guide rail and engaged with said webbing guide;
- a driving means for driving said thick wall tape to cause said webbing guide to move along said guide rail due to movement of said thick wall tape; and



a tape casing adjacent to said driving means, said tape casing receiving a tail end portion of said thick wall tape, so that when maximum length of said tape is received within said tape casing, the tail end portion of said thick wall tape is substantially U-shaped along an inner surface of said tape casing, a tail end of said thick wall tape being fixed on the inner surface of said tape casing.

4,316,620

DEVICES ADAPTED FOR USE ON SKI POLES

Arve Wien, Fabrikkeveien 5, NO-2380 Brumundstad, Norway

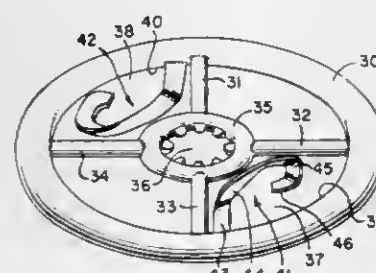
Filed Apr. 16, 1979, Ser. No. 30,707

Claims priority, application Norway, Apr. 13, 1978, 781292

Int. Cl.³ A63C 11/24

U.S. Cl. 280—824

1 Claim



1. A device adapted for use on ski poles having a permanent ski ring to provide an auxiliary support for said ring and which comprises annular plate means for forming a support surface of substantially larger dimension in the radial plane of the ski pole than said ski ring and capable of being arranged on said ring to increase its supporting ability in loose snow, said annular plate means surrounding at its inner side a circular space and comprising a central hub, four radial spokes joining said inner side to said hub and defining therebetween four similar space quadrants, said hub being formed with an opening for receiving said ski pole defined by symmetrically spaced teeth extending radially inwards from the inner circular surface thereof, and a pair of catch claws occupying opposite space quadrants and adapted for ready manual attachment to and release from said ski ring.

4,316,621

PRESSURE-SENSITIVE OR HEAT-SENSITIVE RECORDING MATERIAL

Jean C. Petitpierre, Kaiseraugst, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Sep. 30, 1980, Ser. No. 192,382

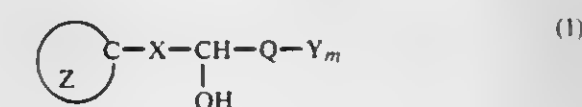
Claims priority, application Switzerland, Oct. 26, 1979, U.S. Cl. 285—8 9629/79; Oct. 26, 1979, 9630/79

Int. Cl.³ B41M 5/18, 5/22

U.S. Cl. 282—27.5

19 Claims

1. A pressure-sensitive or heat-sensitive recording material which comprises in its colour reactant system, as developer for the colour former, at least one compound of the formula



wherein the ring Z is a heterocyclic radical which does not contain a keto group adjacent to the linking carbon atom.

X is the direct bond, —O—, —CHR—, —NR—, —CONR—, —SO₂NR—, —NR₁—CO—NR₂—, —RN₁—, —CS—NR₂— or —NR₁—SO₂—NR₂—, wherein each of

R, R₁ and R₂ independently is hydrogen, alkyl of at most 12 carbon atoms which is unsubstituted or substituted by halogen, cyano or lower alkoxy, or is benzyl, phenyl, or benzyl or phenyl each of which is substituted by halogen, methyl or methoxy.

Q is carbon or an unsubstituted or substituted hydrocarbon radical,

Y is halogen and m is 1 to 3.

4,316,622

ACCUMULATOR FILTER AND CONDUIT CLAMP ASSEMBLY

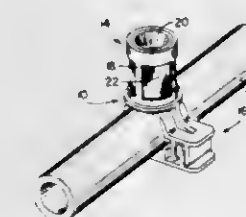
John F. Nelson, New Lenox, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Aug. 26, 1980, Ser. No. 181,499

Int. Cl.³ F16L 41/00

U.S. Cl. 285—119

11 Claims



1. A one piece plastic clamp for establishing a secure connection to a conduit or the like comprising a pair of relatively rigid arms having generally concave inner surfaces contoured to be substantially complimentary to the outer transverse dimension of the conduit, said arms having inner ends and outer free ends; a relatively thin resilient hinge means joining the inner ends of said arms, said hinge means being initially generally arcuate in formation between said inner ends of said arms and projecting inwardly to present a deformable generally convex surface for engaging the outer surface of the conduit during the establishment of the secure connection between the clamp and the conduit; and integral means for locking the free ends of said arms together, said hinge means being arranged to exert a controlled continuous compressive force against the outer surface of the conduit for maintaining said secure connection between said clamp and the conduit.

4,316,623

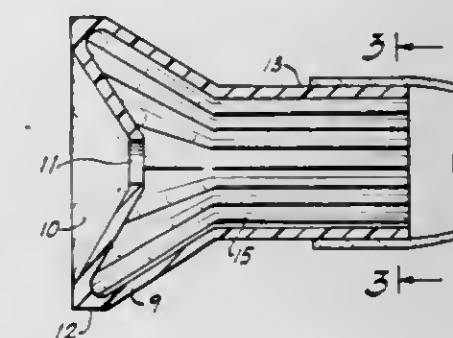
SELF-PRESSURIZABLE PORTABLE VESSEL WITH FAUCET CONNECTOR

Quentin T. Kelly, R.D. #1, Box #4, Hopewell, N.J. 08525

Filed Nov. 19, 1979, Ser. No. 95,594

Int. Cl.³ B65D 37/00

2 Claims



1. A hose faucet-connector comprising in combination: an integrally molded unit having an outer housing of wall structure forming a tubular through-space extending from a first open end to a second open end, being substantially wider in outside diameter at said first open end as compared to outside diameter at said second open end and having substantially uniform thickness of the wall structure throughout a length of said outer housing between said first open end and said second open end, and said molded unit having further a concavely shaped inner housing with at least a faucet-mounting aperture with said inner housing extending across said first end and sealably fused therewith at outer peripheries of said inner housing, the improvement comprising spaced-apart ribs extending, independent of other support, along an inner surface of said outerhousing integral with solely said wall structure, with the ribs extending substantially in an axial direction relative to said tubular through-space ranging up to said outer peripheries of said inner housing, said outer housing and tubular space thereof at said first open end being substantially flared outwardly in shape and said concavely shaped inner housing being inwardly free of support by said spaced-apart ribs, free-space of the tubular space existing between the concavely shaped inner housing and said spaced-apart ribs, and said wall structure at locations between said spaced-apart ribs being sufficiently thin as to be flexible in nature, whereby said spaced-apart ribs render a sturdy structure axially of said tubular through-space when mounting the unit on a faucet and firm against tendencies to balloon or pop-off when elevated water pressure exists during water-flow from a faucet on which the unit is mounted through said faucet-mounting aperture.

4,316,624

ACCESS UNION

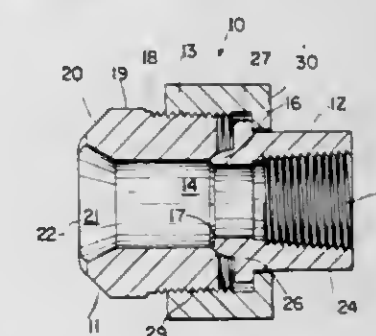
Irwin H. Davlin, 714 S. Court St., Opelousas, La. 70570

Filed Nov. 1, 1979, Ser. No. 90,461

Int. Cl.³ F16L 13/02, 19/00, 41/00

U.S. Cl. 285—158

27 Claims

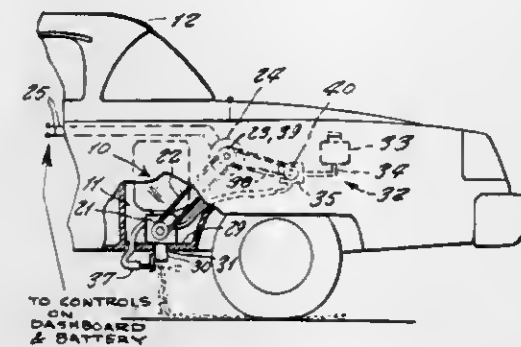


1. An access union comprising a weldable short axially extending access member having inner and outer termini, the access member having a non-internally threaded axially extending opening extending between the said outer terminus

thereof and the said inner terminus thereof to thereby provide a passageway for fluid to flow longitudinally therethrough, a short axially extending conduit receiving member having inner and outer termini, the conduit receiving member having an axially extending opening extending between the said inner terminus thereof and the said outer terminus thereof to thereby provide a passageway for fluid to flow longitudinally therethrough, the said openings in the access member and conduit receiving member having approximately the same internal diameters, the outside diameter of the access member being generally larger than the outside diameter of the conduit receiving member and the access member being relatively uniformly thick walled and the conduit receiving member being relatively thin walled along most of its length, the said inner terminus of the access member including first pressure sealing means around the said opening therein, the said inner terminus of the conduit receiving member including second pressure sealing means around the said opening therein, the said first and second pressure sealing means cooperating to form a fluid tight seal therebetween with the opening in the conduit receiving member being in communication with the opening in the access member when the said detachable force applying means is carried by the access member and the conduit receiving member and the said force is applied thereto, the access member including means adjacent the outer terminus thereof for adapting it to be permanently installed by welding around an opening in the wall of a container for fluids with the said opening in the access member being in communication with the interior of the said container for fluids to thereby provide access thereto, the said adapting means on the access member including an annular welding bevel around the said opening in the outer terminus thereof, the welding bevel being tapered toward the outer terminus of the access member and inward toward the outer terminus of the said opening therein and terminating adjacent the outer terminus of the said opening therein, the outer terminus of the access member having a configuration which substantially conforms with the contour of the said wall of the container for fluids to thereby aid in permanently installing the access member thereon by welding along the said welding bevel, and the conduit receiving member including means adjacent the outer terminus thereof for attaching a conduit for fluid thereto whereby the interior of the said conduit is in communication successively with the said opening in the conduit receiving member and the said opening in the access member.

4,316,625
VEHICULAR SALT DISPENSER
 Harry Goon, c/o George Spector, 3615 Woolworth Bldg., 233 Broadway, and George Spector, 3615 Woolworth Bldg., 233 Broadway, both of New York, N.Y. 10007
 Filed Feb. 1, 1980, Ser. No. 117,660
 Int. Cl.³ B61C 15/10; B05B 7/24
 U.S. Cl. 291—1

1 Claim



1. A traction increasing vehicular salt dispenser, comprising in combination, a salt dispensing unit for each rear wheel; a drive unit for said dispensing units; each said dispensing unit comprising a container containing said salt; said container being mounted in front of the rear wheel; a hopper with a first outlet mounted under said container and a rotatable dispensing regulator mounted under said first outlet of said hopper; said drive unit includes an electric motor controlled from a dashboard of a vehicle; a shaft connecting the dispensing regulators; a first pulley affixed on said shaft, an endless belt secured around said first pulley and around a second pulley, wherein said second pulley is affixed to a motor shaft of the electric motor; said regulator, which opens and closes said first outlet, including means for receiving salt from said first outlet and dispensing it at regular intervals towards a second outlet; wherein said regulator is a wheel and said means is a recess at its periphery which aligns at regular intervals with said first outlet; a hollow base enclosing said regulator and including said second outlet which is mounted downstream of the first outlet; a spout being connected to said second outlet; a water container; a water pump connected to the water container to pump water to both the dispensers; said pump being driven by an endless belt secured around a third pulley connected to the motor shaft and a fourth pulley mounted on the pump; and a spray nozzle mounted below and secured to the spout so that water is sprayed horizontally under the spout toward the rear wheels to moisten the salt as the salt falls from the spout.

4,316,626
FLUSH HASP HAVING DEPENDENT LATCHING PORTION, AND OPTIONALLY USABLE WITH PADLOCK

Charles F. Kafka, Bradenton, and Robert S. Kafka, Maitland, both of Fla., assignors to Meacham Marine Products, Inc., Sarasota, Fla.

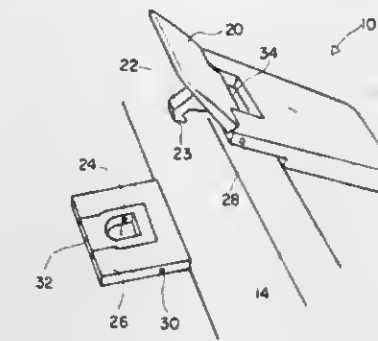
Filed Sep. 14, 1979, Ser. No. 75,654
 Int. Cl.³ E05C 19/08

U.S. Cl. 292—285

6 Claims

1. A hasp having a base portion, and a portion movable toward and away from engagement with said base portion, said base portion having an aperture therein, and said movable portion having a dependent member adapted on occasion to enter said aperture, said dependent member having latching means adapted to be moved between a position in which engagement and disengagement of said portions is readily permitted, and a motion-inhibiting position, and locking means for preventing on occasion, said latching means from being moved away from the motion-inhibiting position, said locking means taking the form of a closed loop hingedly mounted on said base

portion, said closed loop, when moved out of a recessed position on said base portion and into an upstanding position, being



able to be inserted through a slot in said movable portion, and thereafter adapted to receive the shackle member of a padlock.

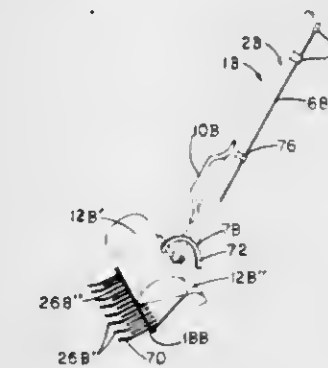
4,316,627
IMPLEMENT FOR COLLECTING PET MANURE
 Joseph Solypa, 11771 Oldfield Ave., Richmond, British Columbia, Canada V6X 1M3

Filed Jul. 15, 1980, Ser. No. 169,149

Int. Cl.³ A01K 29/00

U.S. Cl. 294—1 BA

4 Claims



1. An implement for collecting pet manure and similar refuse comprising:

- an elongate handle with a bottom end;
- a scoop mounted at the bottom end of the handle and having a bottom edge;
- a cover;
- means for moving the cover to cover the scoop; and
- a plurality of adjacent, generally parallel members extending forwardly from the bottom edge of the scoop, the members being wire-like, permitting the members to be inserted under the manure and then lift the manure when the handle is raised, the parallel members being in two sets, the members of the two sets alternating with each other, the members of a first said set extending outwardly beyond the members of a second said set.

4,316,628
SUCTION PADS FOR SUPPORTING LOADS
 Rodney C. Farmer; Hugh A. Goldsmith, both of Bristol, and Michael J. Proudlove, Congleton, all of England, assignors to Nuclear Power Company Limited, London, England

Filed Jul. 21, 1980, Ser. No. 170,629

Claims priority, application United Kingdom, Jul. 25, 1979, 25984/79

Int. Cl.³ B66C 1/02

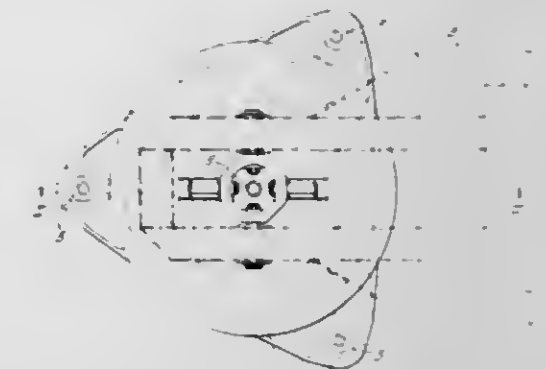
U.S. Cl. 294—64 R

6 Claims

1. A suction pad for supporting a load in a selectively slidable state from a supporting surface, comprising:

- a disc (1);
- an annular deformable face seal (2) spaced from said disc for sealingly engaging a surface;
- an extensible ring (11) between said disc and said face seal

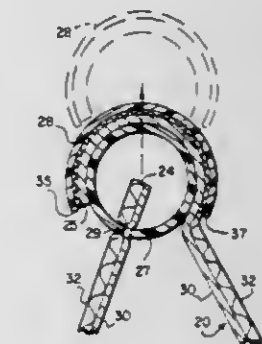
permitting the disc and seal to be moved towards and away from each other and defining an evacuable void (V) when the face seal engages a surface; suction means (6) energisable to evacuate said void; and fluid thrust means (3) on said disc for contacting said surface and selectively independently energisable to exert an



4,316,629
HANDLED TOTE APPARATUS
 Glenn C. Jacoby, 6426 N. 23rd Pl., Scottsdale, Ariz. 85253
 Filed Sep. 19, 1977, Ser. No. 834,172
 Int. Cl.³ B66C 1/12

U.S. Cl. 294—152

2 Claims



1. A handled tote apparatus for storing, lifting and carrying selected items comprising:

- an elongated flexible sheet element having first and second spaced apart longitudinal edges and first and second lateral edges and doubled to bring said first lateral edge toward said second lateral edge for maintaining selected items therebetween;
- a first substantially rigid and non-deformable elongate cylindrical handle member having an external diameter of a given dimension secured to said sheet member and extending along said first lateral edge; and
- a second substantially rigid elongate handle member semicylindrical along its entire length, secured to said sheet member and extending along said second lateral edge, said second handle member including a longitudinal opening having an arcuate width smaller than half its circumference, and smaller than the external diameter of said first cylindrical handle member, said second handle member forming a socket for receiving said first handle member, said second handle member being resiliently yieldable for receiving said first cylindrical handle member through said longitudinal opening in longitudinal juxtaposition with the inner surface of said second handle member so said second handle member overlies and resiliently grips

said first handle member along its entire length forming a common handle structure, said first cylindrical handle member including a longitudinal slit adapted to receive the said first lateral edge of said sheet member, said sheet member further including means attached thereto and sized larger than said longitudinal slit in said first handle member to retain said lateral edge of said sheet member secured within said cylindrical handle member, said sheet member including a first cut-out along said first lateral edge adjacent said first handle member and intermediate said first and second longitudinal edges, and a second cut-out in said sheet member along said second lateral edge adjacent said second handle member and intermediate said first and second longitudinal edges, wherein said first and second cut-outs are of a shape and size sufficient to receive a human hand grasping said handle members.

4,316,630

VEHICLE WIND DEFLECTORS

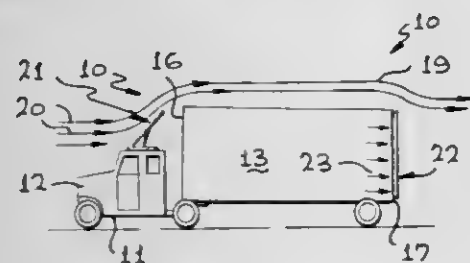
Jack L. Evans, 110 Devonshire Cir., Rough & Ready, Calif. 95945

Filed May 27, 1980, Ser. No. 153,032

Int. Cl.³ B62D 37/02

U.S. Cl. 296—1 S

6 Claims



1. Wind deflector apparatus for a vehicle comprising the combination of:

- a pair of wind deflectors wherein each deflector is of arcuate cross section and vertically arranged with respect to said vehicle so as to be in spaced apart relationship on opposite sides of the vehicle rear immediately adjacent the juncture of the sides with the rear;
 - a plurality of stand-offs securing each deflector to said vehicle so as to define a passageway between the opposing surfaces of each of said deflectors and the associated vehicle side and rear; and
 - air spreader means carried on the vehicle rear having an entrance for receiving oncoming ram air and for discharging said ram air immediately adjacent the vehicle rear so as to destroy the creation of vacuum when the vehicle is moving forwardly;
- said spreader means includes elongated tubes arranged in sets across the rear of the vehicle for conducting air to specific locations;
- each of said tubes includes an entrance and an exit wherein said entrance is immediately adjacent said wind deflector and said exit exhausts substantially at the mid-section at the rear of said vehicle.

4,316,631

BACKREST

Wolfgang Lenz, Johann Albenberger, and Karl Knell, all of Steyr, Austria, assignors to Steyr-Daimler-Puch Aktiengesellschaft, Vienna, Austria

Filed Dec. 6, 1979, Ser. No. 100,726

Claims priority, application Austria, Jan. 24, 1979, 490/79

Int. Cl.³ A47C 7/46

U.S. Cl. 297—284

13 Claims

1. A backrest comprising
- (a) a backrest frame,
 - (b) a housing fixedly mounted on the frame,
 - (c) a curved backing insert held in the backrest frame and adjustable to conform to the spine of a person leaning

against the backrest, the insert comprising an elastic bow having a lower end fixedly supported in the housing, a second end vertically spaced from the lower end and an intermediate vertex portion defining a vertex,

- (d) a first stressing means comprising a first reel rotatably mounted in the housing and a first flexible tension element having respective ends connected to the first reel and to the second end, the tension element defining a chord of the curved backing insert and being adapted to be wound on, and unwound from, the first reel for moving the second end relative to the lower end so as to change the curvature of the backing insert,

- (e) a second stressing means comprising a second reel rotatably mounted in the housing and a second flexible tension element having respective ends connected to the second reel and to the vertex portion, the second tension element



defining a chord of the curved backing insert and being adapted to be wound on, and unwound from, the second reel for moving the vertex portion relative to the lower and second ends,

- (f) a drive shaft rotatably mounted in the housing,
- (g) a clutch means mounted in the housing and operable for selective coupling of the first and second reels to the drive shaft,
- (h) first retaining means adapted to cooperate releasably with the first reel to hold the first stressing means in an adjusted position, and
- (i) second retaining means adapted to cooperate releasably with the second reel to hold the second stressing means in an adjusted position, the adjusted positions of the first and second stressing means maintaining the curved backing insert conformed to the spine of the person leaning thereagainst.

4,316,632

ERGONOMIC CHAIR

Egon Bräuning, Weil am Rhein, Fed. Rep. of Germany, assignor to Protoned BV, Amsterdam, Netherlands

Filed Aug. 22, 1979, Ser. No. 68,850

Claims priority, application Switzerland, Sep. 8, 1978, 9433/78

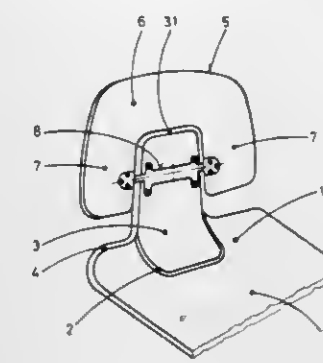
Int. Cl.³ A47C 7/40

U.S. Cl. 297—291

2 Claims

1. An ergonomic chair with a seat and a back rest stably connected to the seat, the upper end of the back rest engaging in a recess of a shoulder pad which is open at the bottom and shaped like an inverted "U", the shoulder pad being pivotally hinged to the back rest in the region of its upper portion by a base plate secured to the upper end of the back rest and having support pins of non-circular cross-section protruding laterally from both sides of the back rest, into corresponding recesses in opposite sides of the shoulder pad, and including sleeves of elastic material surrounding the support pins in said recesses,

and cover plates attached to the shoulder pad with means for pressing said sleeves into the recesses, whereby rotation of the



sleeves in the recesses is prevented and pivotal movement of the shoulder pad is elastically resisted by the sleeves.

4,316,633

CONVERTIBLE AUTOMOBILE SEAT STRUCTURE PROVIDED WITH A SAFETY BELT HOOKING DEVICE

Moïse Zaccariotto, Paris, France, assignor to Automobiles Peugeot and Societe Anonyme Automobiles Citroen, both of Paris, France

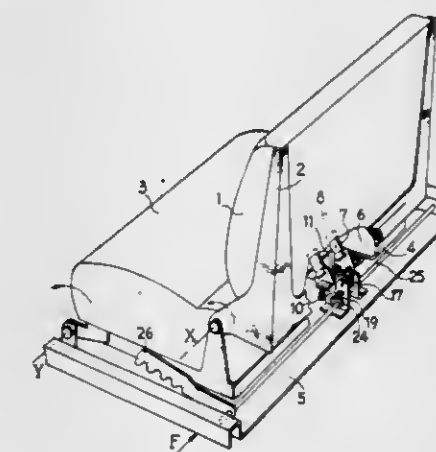
Filed Feb. 15, 1980, Ser. No. 121,884

Claims priority, application France, Feb. 22, 1979, 79 04525

Int. Cl.³ B60N 1/02

U.S. Cl. 297—331

5 Claims



1. A convertible automobile vehicle seat structure in combination with a vehicle having a floor, the seat structure comprising a seat mounted in the vicinity of the front part of the seat to pivot about a transverse axis between a swung-down position for use of the seat and a swung-up withdrawn position, a hooking device for the attachment of a safety belt and connected to the seat to swing with the seat between said two positions of the seat, and connecting means for anchoring the hooking device directly to the floor of the vehicle when the seat is in said swung-down position whereby any tensile force exerted on the seat belt and hook device in said swung-down position of the seat is taken directly by the floor, said connecting means comprising a latch carried by the hooking device, a keeper pivotally mounted relative to the floor, a release spring biasing the keeper, the keeper being cooperative with the latch to be driven by the latch to a position of engagement with the latch under the effect of a substantially vertical load applied on the seat in opposition to the action of the release spring as the seat approaches said swung-down position, a bolt cooperative with the keeper for locking the keeper in its engaged position with the latch, and manual means for disengaging the bolt.

4,316,634

SEAT MOUNTING APPARATUS

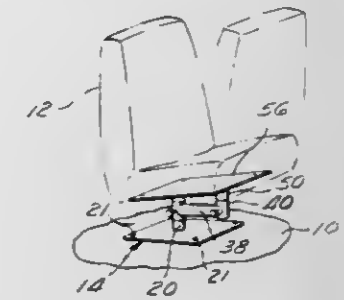
Layton S. Roesler, 3515 Mound St., Ventura, Calif. 93003

Filed Oct. 29, 1979, Ser. No. 89,565

Int. Cl.³ A47C 1/02

U.S. Cl. 297—349

7 Claims



1. A seat mounting apparatus comprising:

- a base adapted to be secured to a supportive surface, said base having an upright post mounted thereon, said upright post defining a first axis;
- a first end of an elongated member being pivotally connected by first pivot means to said upright post, a second end of said elongated member being pivotally connected by second pivot means to a downwardly extending post, said downwardly extending post defining a second pivot axis, said second pivot axis being spaced from said first pivot axis;
- an attaching plate secured to said downwardly extending post, whereby a seat is to be mounted on said attaching plate thereby permitting the seat to swivel about said second pivot axis; and
- said first pivot axis being located perpendicular to said base, said second pivot axis being parallel to said first pivot axis, the plane of said attaching plate being inclined with respect to said second pivot axis.

4,316,635

EXTENSIBLE AND RETRACTABLE ROTOR ARM CUTTING ASSEMBLY

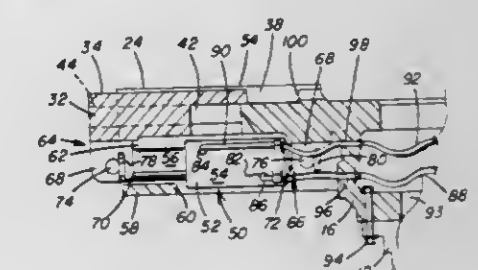
Maurice K. LeBegue, Argillite, Ky., and Earl C. Michael, Hoyleton, Ill., assignors to National Mine Service Company, Pittsburgh, Pa.

Filed May 27, 1980, Ser. No. 153,099

Int. Cl.³ E21C 27/24; E21B 10/62

U.S. Cl. 299—80

8 Claims



1. A rotor arm cutting assembly comprising,

- a rotor having a hub portion with an axis of rotation and a plurality of cutter arm members extending radially outwardly from said hub portion,
- said cutter arm members each having a fixed length and adapted to dislodge solid material along the entire length of said respective cutter arm member about said axis of rotation,
- a cutter arm extension portion positioned for longitudinal movement on each of said cutter arm members to extend and retract the effective cutting length of each cutter arm member,
- each of said cutter arm members having a longitudinally

extending slot for telescopically receiving said cutter arm extension portion.

complimentary guide means associated with each cutter arm member and said cutter arm extension portion for maintaining longitudinal movement of said cutter arm extension portion in said slot of each cutter arm member, actuating means for extending and retracting said cutter arm extension portion,

a recess formed in one side of each of said cutter arm members, said recess being positioned oppositely of said slot and extending longitudinally relative to said slot,

means secured to said respective cutter arm member and extending downwardly through said slot into said recess for mounting said actuating means to said cutter arm member,

said actuating means being connected to said mounting means to support said actuating means within said recess and oppositely of said slot,

an opening extending through said cutter arm member and communicating with said recess to permit access to said actuating means within said cutter arm member, and

said actuating means being secured to and extending between said cutter arm extension portion and said respective cutter arm member so that upon operation of said actuating means said cutter arm extension portion is movable longitudinally in said slot to both extend and retract said cutter arm extension portion relative to said cutter arm member.

4,316,636 EXCAVATION AND ROAD MAINTENANCE BITS AND BLOCKS

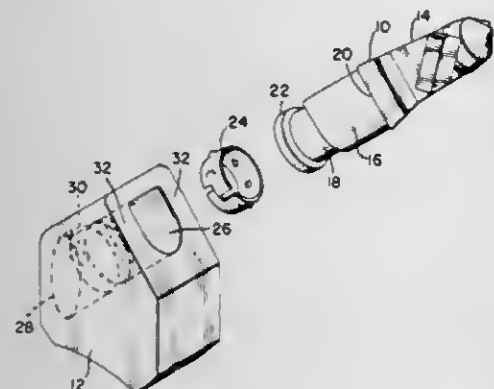
Jack A. Taylor, Ligonier; Wayne H. Beach, Roaring Spring, and Raymond C. Weyant, Jr., New Paris, all of Pa., assignors to Kennametal Inc., Latrobe, Pa.

Continuation of Ser. No. 8,435, Feb. 1, 1979, abandoned. This application Sep. 8, 1980, Ser. No. 185,272

Int. Cl.³ E21C 35/18

U.S. Cl. 299—92

11 Claims



2. A road planing tool which comprises: a forward working portion, a shank portion and attachment means for holding said tool in a mounting block, said forward working portion being flat, bar-like, and having laterally extending shoulders, a rearwardly facing abutment shoulder formed at the juncture of said shank portion and said working portion, said shank portion having a cross section which is rotationally nonsymmetric about a longitudinal axis containing its geometric center and which is in and of itself sufficient to assure that said tool will be held nonrotatably and with a unique orientation when placed in a block having a similarly shaped and sized bore, a flanged portion rearwardly of said shank and resilient clip means around said bit forwardly of said flanged portion for engaging the bore of the block and holding the bit in the block.

4,316,637
MULTI-STYLED ALUMINUM WHEEL

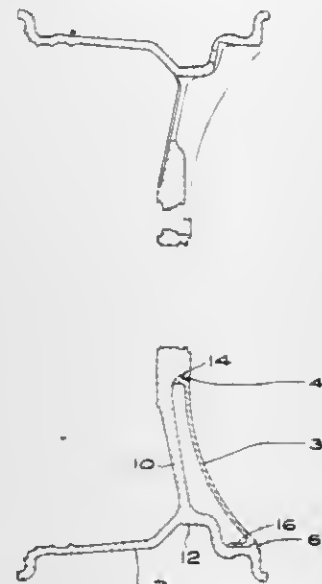
J. Louis Reynolds, and Paul R. O'Brien, both of Richmond, Va., assignors to Reynolds Metals Company, Richmond, Va.

Continuation-in-part of Ser. No. 931,171, Aug. 4, 1978, abandoned. This application Nov. 15, 1979, Ser. No. 94,738

Int. Cl.³ B60B 13/00

U.S. Cl. 301—37 R

9 Claims



1. A composite automotive wheel upon which an inflatable tire may be mounted, comprising a metal worked aluminum base wheel and a cast aluminum structural insert, said metal worked aluminum base wheel comprising a rim having a wheel well and a hub positioned adjacent said wheel well, said cast aluminum structural insert being permanently locked within said metal worked aluminum base wheel to prohibit axial movement of said cast aluminum structural insert by means of a pair of flanges located on said cast aluminum structural insert and locking beads forming a portion of said metal worked aluminum base wheel, said beads being deformed about said flanges to lock said cast aluminum structural insert into said metal worked aluminum base wheel, said cast aluminum structural insert providing additional structural strength to said metal worked aluminum base wheel and said cast aluminum structural insert providing the major portion of the outside decorative face of composite wheel.

4,316,638
WHEEL TRIM

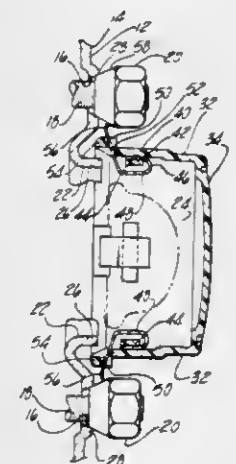
Edward G. Spisak, 35700 Oakwood La., Westland, Mich. 48185

Filed Jul. 21, 1980, Ser. No. 170,580

Int. Cl.³ B60B 7/00

U.S. Cl. 301—37 P

10 Claims



1. A wheel trim assembly for detachable connection to a vehicle wheel having an outer face with a plurality of uni-

formly spaced wheel securing fasteners located on a circle concentric with said wheel, said wheel trim comprising: a cup-shaped ornamental trim member adapted to be supported axially of said vehicle wheel, a plurality of mounting stations formed in uniformly spaced relationship within said trim member, each of said stations forming a pair of openings, a first opening of each pair extending in a radial direction through a wall of said cup-shaped trim member and a second opening of each pair extending in an axial direction within said cup-shaped trim member, a plurality of retaining members, each of said retaining members having a radially extending portion slidably disposed in said first opening to project to the exterior of said trim member to limit axial movement of said retaining member and an axially extending portion disposed in said second opening to limit radial movement of said retaining member, and a blade portion formed at the end of each of said radially extending portions of said retaining members to bitingly engage said wheel fasteners for securing said wheel trim.

4,316,639
BRAKING FORCE CONTROL DEVICE

Ernst D. Schäfer, Bad Nauheim, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

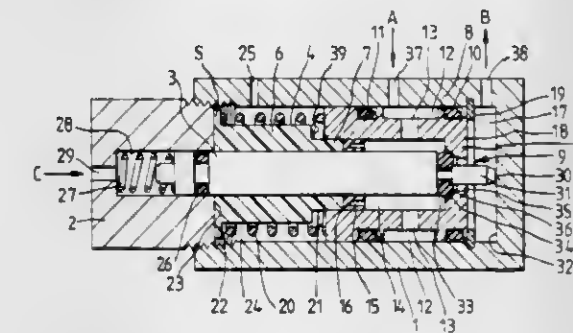
Filed Apr. 21, 1980, Ser. No. 141,828

Claims priority, application Fed. Rep. of Germany, Jul. 11, 1979, 2927929

Int. Cl.³ B60T 8/02

U.S. Cl. 303—6 C

16 Claims



1. A braking force control device for a two-circuit brake system comprising:

- a housing having a longitudinal axis and a constant diameter internal chamber coaxial of said axis;
- a controlling piston disposed in said internal chamber coaxial of said axis;
- a locking piston disposed in said internal chamber coaxial of said axis and surrounded by said controlling piston;
- a third piston disposed in said internal chamber coaxial of said axis and between the inner surface of said controlling piston and the other surface of said locking piston, said locking piston being axially slidable in said third piston on an inner surface thereof and said controlling piston being axially slidable on at least a portion of the outer surface of said third piston; and
- a prestressed control spring acting on said controlling piston to determine together with surfaces of said controlling piston subjected to braking pressure in one circuit of said brake system a switching pressure which when exceeded will cause said braking pressure in said one circuit of said brake system to be controlled;

said locking piston being subjected to braking pressure in the other circuit of said brake system to cancel the control of said braking pressure in said one circuit of said brake system when said other circuit of said brake system fails.

4,316,640
ELECTRO PNEUMATIC BRAKE SYSTEM FOR RAILWAY CAR

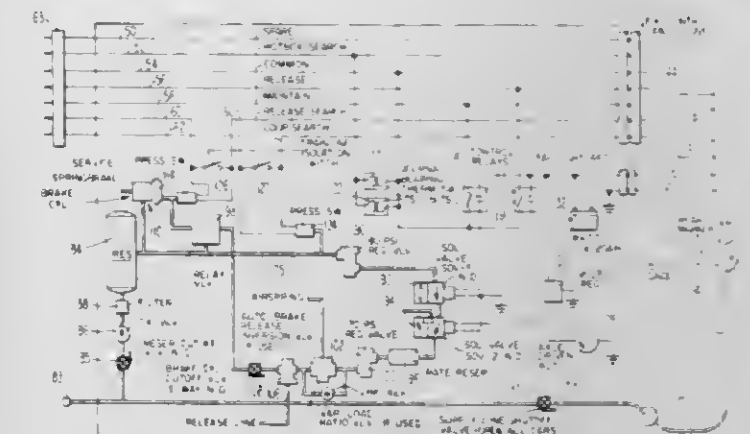
Christopher A. Cripe, Richmond, Va., assignor to Bi-Modal Corporation, Greenwich, Conn.

Filed Jun. 13, 1980, Ser. No. 159,045

Int. Cl.³ B60T 13/68

U.S. Cl. 303—20

33 Claims



1. In combination with a railway car having air cylinder operated brakes to retard the movement of the car,

- a. a source of air pressure;
- b. regulator means connected to said source of air pressure to produce a regulated constant output air pressure therefrom;
- c. a reservoir for receiving air pressure from said regulator means;
- d. electrical means connected between said regulator means and said reservoir for selectively controlling the time durations that air pressure is applied from said regulator means to said air reservoir to thereby control the amount of air pressure in said reservoir;
- e. pressure responsive valve means connected between said source of air pressure and said brake cylinder to supply a variable pressure to said brake cylinder in accordance with the amount of air pressure applied to said valve means; and
- f. means for connecting the air pressure from said reservoir to said pressure responsive valve means to thereby control the air pressure from said source to said brake cylinder in accordance with the amount of air pressure in said reservoir.

4,316,641
CIRCUIT FOR THE SHUTDOWN OF AN ANTI-LOCKUP PROTECTED VEHICLE BRAKE UNIT IN CASE OF DISTURBANCE

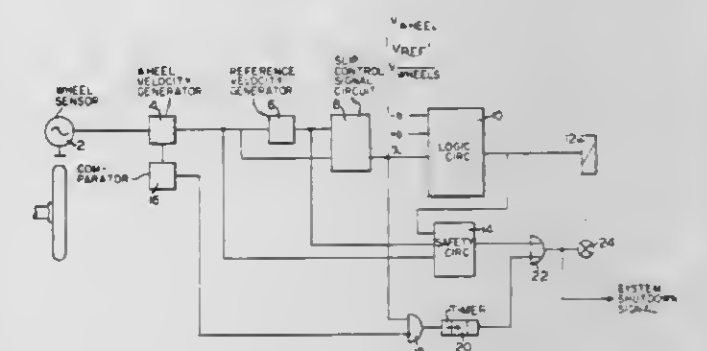
Lutz Weise, Mainz, and Johann Rothen, Nordstemmen, both of Fed. Rep. of Germany, assignors to WABCO Fahrzeugbremsen GmbH, Hanover, Fed. Rep. of Germany

Filed Feb. 9, 1979, Ser. No. 10,653

Int. Cl.³ B60T 8/10

U.S. Cl. 303—92

4 Claims



1. A circuit for detecting a malfunction in a wheel anti-

lockup protected vehicle brake system so as to effect a shutdown of said system including:

- (a) at least one rotation sensor device to monitor the rotational behavior of at least one said wheel of said vehicle;
- (b) wheel velocity generator means to which said sensor device is connected for providing a wheel speed signal corresponding to the rotational velocity of said wheel;
- (c) reference velocity generator means to which said wheel speed signal is connected for providing a reference speed signal representative of the speed of said vehicle;
- (d) means subject to said wheel speed signal and said vehicle velocity signal for providing a wheel slip signal when the wheel rotational speed is less than the vehicle speed;
- (e) a logic circuit to which said wheel slip signal is connected in conjunction with a wheel deceleration signal and a wheel acceleration signal for evaluation in terms of determining the condition of rotation of said wheel, wherein the improvement comprises:
- (f) means for comparing said wheel speed signal with a predetermined threshold value; and
- (g) means for providing a shutdown signal to terminate operation of said wheel anti-lockup brake system in the event of a malfunction thereof, as indicated by said wheel speed signal being less than said threshold value concurrently with the presence of said wheel slip signal for a predetermined period of time.

4,316,642

CONTROL DEVICE FOR HYDRAULIC BRAKE SYSTEMS INCORPORATING ANTISKID CONTROL APPARATUS

Juan Belart, Walldorf, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

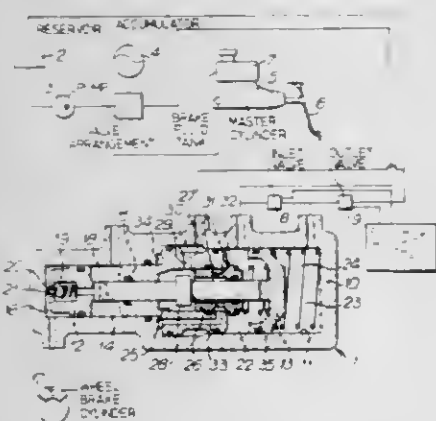
Filed Feb. 19, 1980, Ser. No. 122,094

Claims priority, application Fed. Rep. of Germany, Mar. 5, 1979, 2908482

Int. Cl.³ B60T 8/04

U.S. Cl. 303—116

4 Claims



1. A control device for hydraulic brake systems having wheel locking regulation apparatus comprising: an outlet piston slidably sealed in a housing bore, one end of said outlet piston defining one boundary of an inlet chamber connected to a master cylinder and the other end of said outlet piston defining one boundary of an outlet chamber connected to at least one wheel brake cylinder;

a passage disposed coaxially in said outlet piston closable by a valve member held open by means extending from one closed end of said bore defining the other boundary of said outlet chamber when said outlet chamber has its smallest volume, said passage being connected between said inlet chamber and said outlet chamber;

a control piston disposed in said bore spaced from said one end of said outlet piston, one end of said control piston spaced from said one end of said outlet piston defining in cooperation with the other closed end of said bore a control chamber selectively coupled to one of a pressure accumulator and a reservoir and the other end of said control piston adjacent said one end of said outlet piston defining one boundary of a reaction chamber connected directly to said accumulator; a piston shaft connected between said one end of said outlet

piston and said other end of said control piston to enable movement of said control piston to directly move said outlet piston;

a first spring disposed in said control chamber to prestress said control piston and said outlet piston in the direction of said outlet chamber; and

a reaction piston disposed in a slidably sealed relation on said piston shaft having a first actuating surface transverse of said bore defining the other boundary of said inlet chamber and a second actuating surface having an area different from the area of said first actuating surface transverse of said bore defining the other boundary of said reaction chamber.

4,316,643

VEHICLE SUSPENSION BUSHING

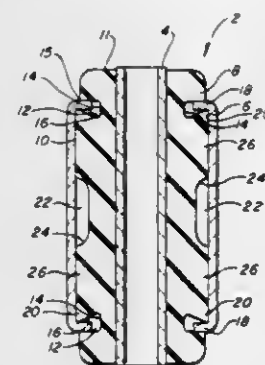
Michael D. Burk, Logansport, Ind.; Gary L. Hipsher, Pompano Beach, Fla., and Gregory M. Nicoles, Logansport, Ind., assignors to The General Tire & Rubber Co., Akron, Ohio

Filed Mar. 25, 1980, Ser. No. 133,729

Int. Cl.³ F16C 27/06

U.S. Cl. 308—26

2 Claims



1. A vehicle suspension bushing including a tubular rigid inner member, a tubular rigid outer member surrounding said tubular inner member, and an annular elastomeric member inserted between said inner and outer rigid members for absorbing loads created by relative movement between said inner and outer rigid members, said bushing characterized by:

(1) said elastomeric member having in its outer surface two axially spaced circumferentially extending slots;

(2) said outer rigid member having a radially inwardly extending flange on each end protruding into each of said slots and retaining the elastomeric material axially adjacent said slots to increase the resistance of said bushing to relative axial movement between said inner and outer rigid members, while offering a relatively low resistance to radial movement between said rigid members; and

(3) the axially inward lateral walls of said slots being canted so as to extend from the base surfaces of said slots axially toward the ends of the elastomeric member and make acute angles with the outer surface of the elastomeric member at the mouths of said slots.

4,316,644

MODULAR CONTAINER

Jerry L. Johnson, Potrero, Calif., assignor to Landes Manufacturing Company, Los Angeles, Calif.

Filed Oct. 22, 1979, Ser. No. 86,699

Int. Cl.³ A47B 87/00

U.S. Cl. 312—108

3 Claims

1. A container comprising, in combination,

(a) a framework including two generally rectangular metallic loops and four elongated parallel members interconnecting said loops to define a cube-like module having multiple side areas, a top area and a bottom area, the loops having inner sides to which outer sides of said members are attached.

- (b) means associated with the framework to cover certain of said areas,
- (c) two of said elongated parallel members defining elongated support slides,
- (d) a drawer having a generally rectangular movable frame defining parallel peripheral guide rails for cooperation with said support slides whereby the drawer may be advanced and retracted relative to said framework, and
- (e) the drawer including a basket having flexible walls supported by and hanging from said movable frame, whereby

vent unauthorized access to said jewelry filings and droppings, said screen being of sufficient strength to support the tools of a jeweler placed thereon.

4,316,646

LATERALLY FLEXIBLE ELECTRICAL CONNECTOR ASSEMBLY

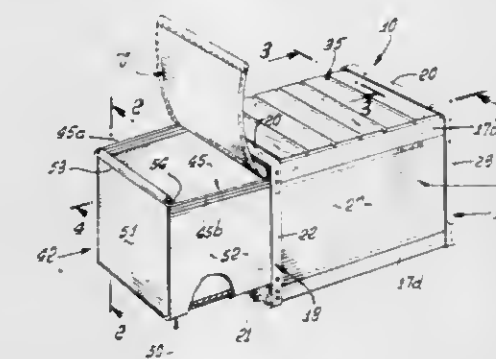
Larry N. Siebens, Great Meadows, N.J., assignor to Amerace Corporation, New York, N.Y.

Filed Feb. 4, 1980, Ser. No. 118,650

Int. Cl.³ H01R 35/00

U.S. Cl. 339—7

19 Claims



the basket may be collapsed upwardly toward a plane defined by the movable frame, said basket and said movable frame having a retracted position substantially entirely confined within an interior zone bounded by said framework defined multiple side areas, top area and bottom area.

- (f) each of said members defining an elongated groove spaced from said slide and including relatively stiff cover means interfitting said grooves and confined by said members.

4,316,645

PILFER-PROOF PRECIOUS METAL FILINGS COLLECTION BOX

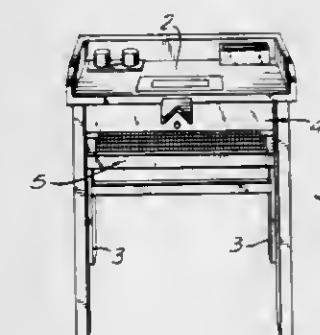
Richard M. Korwin, 404 E. 66th St., New York, N.Y. 10021

Filed May 22, 1980, Ser. No. 152,359

Int. Cl.³ A47B 88/00

U.S. Cl. 312—212

1 Claim



1. A jeweler's bench pan slideable into a drawer space along drawer guides in a jeweler's work bench, said jeweler's bench pan comprising four sides connected together and a screen connected between all four sides, said screen being connected to said four sides to be recessed with respect to the top of said four sides, said screen comprising openings of a size to permit jewelry filings and droppings to pass through but prevent insertion through said screen of the jeweler's fingers and hands, slide means formed along opposite side edges of said jeweler's bench pan allowing said jeweler's bench pan to slide along said drawer guides in said jeweler's work bench, said jeweler's work bench further comprising guide means formed along opposite side edges along the bottom of said jeweler's bench pan, a collection drawer forming the bottom surface of said jeweler's bench pan slideable along said guide means of said jeweler's work bench catching the jewelry droppings and filings, said collection drawer comprising lock means to lock said collection drawer into said jeweler's work bench to pre-

1. An electrical connector assembly for selectively connecting consecutive sections of a power cable to produce an assembled cable of a desired longitudinal length and enabling selective disconnection of the cable sections, the cable sections each having a plurality of conductors including at least one supply conductor and at least one ground conductor, said electrical connector assembly comprising:

a plurality of connector elements corresponding to the plurality of conductors, said connector elements being spaced longitudinally from one another, each of said connector elements having electrically connectable first and second components thereof, each one of said first and second components having a first end and a second end;

securing means at the first end of each first component for electrically connecting and mechanically securing each first component to a conductor of one of said cable sections, and further securing means at the first end of each second component for electrically connecting and mechanically securing each second component to a corresponding conductor of another of said cable sections; and

complementary means at the second end of each first component and at the second end of each second component for enabling selective mechanical and electrical connection and disconnection of the second ends to and from one another, said complementary means including relative motion means for enabling the first and second components to move relative to one another in response to lateral mechanical loads acting upon the connector element through the assembled cable when the first and second components are connected so as to enable lateral flexing of the assembled cable and the electrical connector assembly while maintaining the integrity of the electrical connection between said second ends and the integrity of the mechanical connection between connected consecutive cable sections.

4,316,647

MINIATURE AUDIO CONNECTOR

James R. Bailey, Chicago, and John R. Herron, Park Ridge, both of Ill., assignors to Switchcraft, Inc., Chicago, Ill.

Filed Nov. 30, 1979, Ser. No. 99,046

Int. Cl.³ H01R 13/629

U.S. Cl. 339—91 R

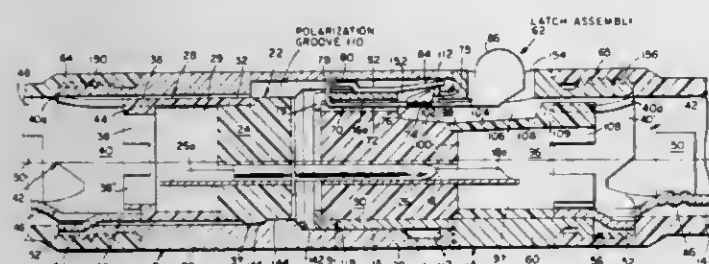
6 Claims

1. An electrical connector comprising:

(a) a first connector member comprising a sleeve-like housing having at least one electrical conductor, the housing having a lip and a polarization groove, the lip being disposed laterally adjacent the groove;

(b) a second connector member comprising a post-like housing having at least one electrical conductor and having a longi-

tudinal portion to interfit in coaxial alignment with the sleeve-like housing of said first connector member; and
(c) a mechanical latching system carried by said longitudinal portion of the post-like housing including a resilient latch member having a wing-like projection extending laterally outward from an edge portion of said latch member.



(d) said latch member being adapted to be slidably disposed within said polarization groove when said second member is mated with said first member, with said wing-like projection engaging the lip of the sleeve-like housing to interlock the first and second connector members.

4,316,648

BY-DIRECTIONAL BRUSHLESS MOTOR SCANNER

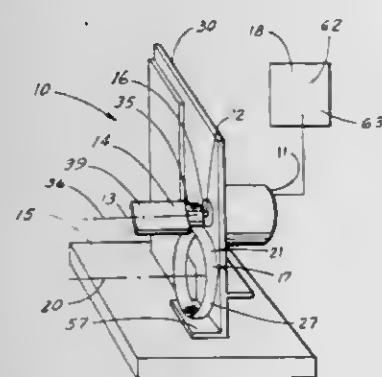
Selwyn L. Lissack, 14505 Greenwood La., Tustin, Calif. 92680

Filed Jun. 27, 1980, Ser. No. 163,722

Int. Cl.³ G02B 27/17

U.S. Cl. 350—6.6

12 Claims

**1. A scanner, comprising:**

- a base;
- a by-directional brushless electric motor coupled to the base;
- a shaft having a rest position and a shaft axis wherein the shaft is coupled to the motor so that the shaft is rotatable about the shaft axis by the motor;
- a reflecting surface coupled to the shaft so that the reflecting surface is rotatable; and
- a spring having a surface shaped like part of a cylindrical surface and orientated with respect to the shaft so that the surface of the spring is substantially parallel to the shaft axis and the spring is coupled to the base at a first point on the surface of the spring and the spring is coupled to the shaft at a second point on the surface of the spring so that the spring will exert a force on the shaft towards the rest position when the shaft is rotated about the shaft axis from the rest position.

4,316,649

STABILIZED ZOOM BINOCULAR

Luis W. Alvarez, Berkeley, and Arnold J. Schwemin, Walnut Creek, both of Calif., assignors to Schwem Instruments, Pleasant Hill, Calif.

Filed Nov. 26, 1979, Ser. No. 97,114

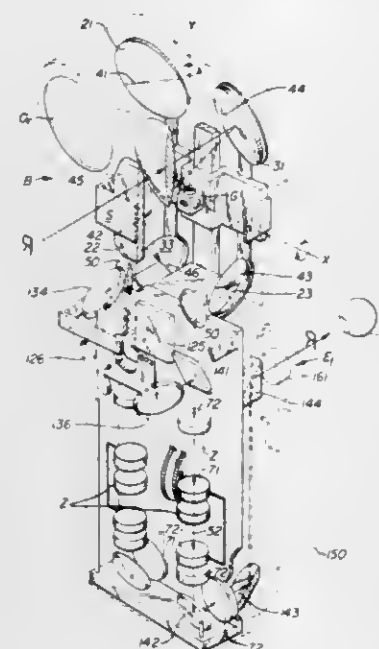
Int. Cl.³ G02B 23/08

U.S. Cl. 350—16

20 Claims

8. In the combination of a stabilized optical train including a case for holding optical elements; at least one optical path for providing a view through said stabilized optical train; fixed optical elements in said optical path mounted to said case to undergo accidental angular motion with said case; and compensating optical elements in said optical path mounted to and movable with respect to said case to undergo at least, in part,

stabilizing motion with respect to said case upon accidental angular motion being imparted to said case, said compensating optical elements providing image stabilization with respect to said case; and biasing means for biasing said compensating optical element to grossly move into alignment with said case, the improvement in said biasing means including:
a light source having a pulsed optical output generating a plurality of sequential signals;
a plurality of detectors for receiving said optical output;
means attached to said stabilizer element and forming a part of said light path between said light source and detector to vary



4,316,650

SEALED PRISM ASSEMBLY

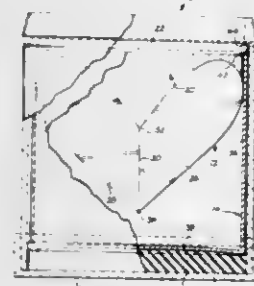
Jim Buckley, Wilsonville, Oreg., assignor to McHenry Systems, Inc., Donald, Oreg.

Filed May 27, 1980, Ser. No. 153,044

Int. Cl.³ G02B 7/18

U.S. Cl. 350—67

3 Claims



1. Apparatus for sealing the rear side of a prism, where the same includes a cylindrical body region which terminates at one of its ends with an annular outwardly projecting flange, said apparatus in operative condition comprising
a cup which encases such body region, said cup having a wall portion which fits closely and circumferentially about such region, terminating with a circular end which contacts such flange.

elastomeric sealing means disposed between said cup wall portion and such body region forming an expandable-contractable air-tight annular seal therebetween,
an elongate canister in which the prism and cup are slidably received,
means located adjacent one end of said canister defining a shoulder for engaging the prism, and
means biasing said end against such flange.

4,316,651

REFLECTOR ASSEMBLY WITH ENHANCED VISIBILITY

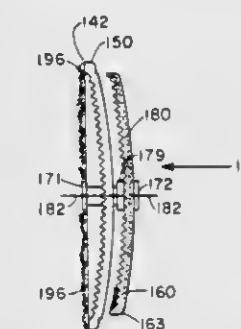
Donald H. Hosken, 20171 Cherry La., Saratoga, Calif. 95070

Filed Mar. 6, 1979, Ser. No. 17,940

Int. Cl.³ G02B 5/12

U.S. Cl. 350—99

8 Claims

**1. Reflective apparatus comprising:**

- first reflector means having a plurality of prismatic structures for reflecting light;
- second reflector means relatively positioned in front of said first reflector means with respect to a predetermined observation point and having a plurality of prismatic structures having surfaces with reflective and transmissive characteristics for reflecting a portion of incident light striking thereon and for transmitting therethrough a portion of said incident light to strike said first reflector means; and
- third means for movably coupling said first and second reflector means and for allowing the relative movement of said first and second reflector means.

4,316,652

PHANTOM ELIMINATOR FOR SIGNAL LIGHTS

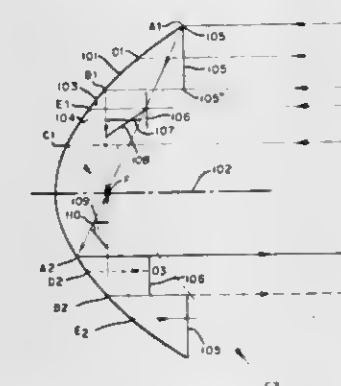
John H. Auer, Jr., Fairport, and David Birnbaum, Pittsford, both of N.Y., assignors to General Signal Corporation, Stamford, Conn.

Filed Nov. 5, 1979, Ser. No. 91,314

Int. Cl.³ G02B 17/00

U.S. Cl. 350—276 R

6 Claims



1. A signal light for reducing phantom signals and comprising in combination;
a. a deep-dish reflector for collecting and focusing light and having an optical axis and a focal point;
b. said reflector configured to cause light rays entering and signal light from an external source and in a direction parallel to said optical axis to impinge on said reflector and be reflected through said focal point;

c. said reflector further configured to cause light rays which are reflected through said focal point, and which thereafter impinge on said reflector, to be reflected so as to emerge from said signal light in a direction substantially parallel to said optical axis; and
d. means comprising at least part of a planar surface whose plane is normal so that of said optical axis and which is positioned within said signal for intercepting at least some of the light rays from said external source which would otherwise impinge on said reflector before and after passing through said focal point and emerge from said signal light in a direction substantially parallel to said optical axis.

4,316,653

CONDENSER OPTICAL SYSTEM FOR A MICROSCOPE

Yoshiyuki Shimizu, Miura, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

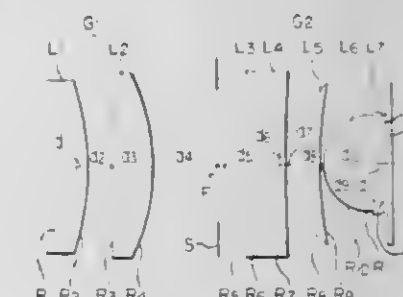
Filed Mar. 12, 1979, Ser. No. 19,600

Claims priority, application Japan, Mar. 20, 1978, 53-31132

Int. Cl.³ G02B 9/34, 9/60, 21/08

U.S. Cl. 350—465

10 Claims



1. A condenser optical system having high magnification and good optical compensation properties for a microscope comprising, in order from the light ray entrance side:

- a forward group including a negative lens component and a positive lens component, said negative lens component being a negative meniscus lens component having its surface of sharper curvature facing the light ray entrance side, and said positive lens component having its surface of sharper curvature facing the light ray exit side; and
- a rearward group having a totally positive refractive power, the rearward group including, in order from the light ray entrance side, a biconvex first positive lens component, a first negative lens component cemented to said biconvex first positive lens component, a meniscus-shaped positive lens component having its convex surface facing the light ray entrance side, a biconvex third positive lens component having its surface of sharper curvature facing the light ray entrance side, and a second negative lens component cemented to said third positive lens component and having a plane surface facing the light ray exit side, the air separation between said forward group and said rearward group being smaller than the total center thickness of said rearward group, and the front focus of said rearward group lying in said air separation.

4,316,654

EYEGLASS FRAME WITH POCKET CLIP

Charles B. Allen, 5 Briarfield La., Huntington, N.Y. 11743

Filed Mar. 3, 1980, Ser. No. 126,770

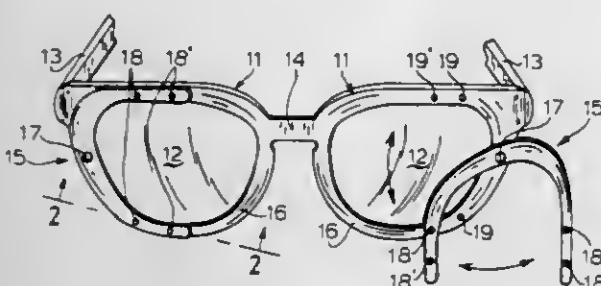
Int. Cl.³ G02C 3/00, 5/14, 1/00

U.S. Cl. 351—155

10 Claims

1. An improved frame for eyeglasses, comprising:
a pair of interconnected rims, each of which is configured to surround and support an eyeglass lens, said rims each having a top, bottom and two side segments which cooperatively define an outer surface; and
at least one clasp superimposed over at least about 1/3 of the outer surface of one of said rims and secured to the side segment thereof which is distal to the other of said rims.

said clasp being configured and dimensioned to correspond to the configuration and width of the portion of the outer surface over which it is superimposed, said clasp having a central section which normally overlies said distal side segment and two arms extending from opposite ends of said central segment which normally overlies at



least a portion of said top and bottom segments of the associated rim, said clasp also being generally spaced above said portion of said outer surface to permit a portion of a user's garment to be inserted between said clasp and said rim and so as to effect releasable securement of said frame to a user's garment so inserted therebetween.

4,316,655

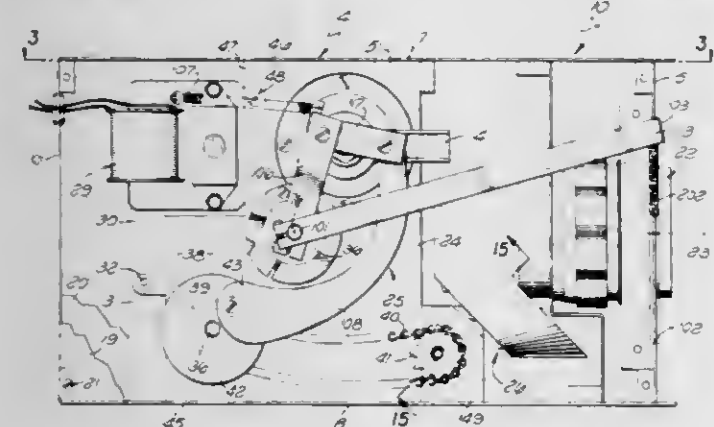
ADJUSTABLE AUTOMATIC SURVEILLANCE CAMERA
Norman R. Gunderson, Pasadena, Calif., assignor to American Electronics, Inc., Fullerton, Calif.

Filed Mar. 18, 1980, Ser. No. 131,099

Int. Cl.³ G03B 1/00

U.S. Cl. 352-166

12 Claims



1. A camera comprising:

- a camera body for containing a strip of film which advances from a first roll of the film to a second roll past an exposure location;
- lens means for focusing an image on the film at said exposure location;
- shutter means;
- an exposed film spool on which said second roll of film is wound;
- mechanism operable to turn said spool intermittently to successively advance different frames of the film to said exposure location, including a rotatively movable element and an adjustable drive structure for acting against said element at variable distances from its axis to vary the angle through which the spool rotates on each operation; and
- sensing means responsive to changes in the diameter of one of said rolls and controlling adjustment of said drive structure in a relation varying the angle of rotation of said spool on an individual operation in accordance with such changes in diameter.

4,316,656 INFORMATION DISPLAY ARRANGEMENT FOR CAMERA

Takao Ishibashi, Higashiyamato, and Kenjiro Osonoi, Tokorozawa, both of Japan, assignors to Osawa Precision Industries, Ltd., Tokyo, Japan

Division of Ser. No. 39,994, May 17, 1979, Pat. No. 4,279,481.

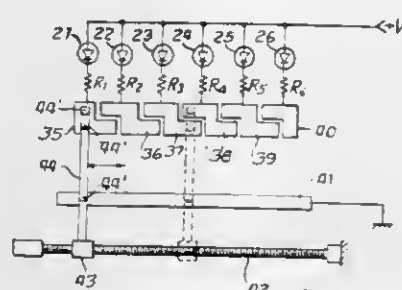
This application Oct. 20, 1980, Ser. No. 198,838

Claims priority, application Japan, May 22, 1978, 53-67845

Int. Cl.³ G03B 1/60

U.S. Cl. 352-172

9 Claims



1. A film supply quantity display for a camera comprising: film transport means;
- a support rod connected to said film transporting means and rotatable upon operation of said film transporting means;
- a movable member carried by said rod and movable by said rod from one end of said rod to the other as the film supply of the camera changes from a full film supply to the end of the film supply in response to operation of said film transporting means;
- a plurality of film supply quantity indicators arranged in a linear array representing film supply quantity;
- a plurality of fixed contacts, each of said fixed contacts being connected to respective ones of said quantity indicators, each of said fixed contacts that is connected to a quantity indicator that is between indicators at the ends of said array having a predetermined shape, means providing selective overlapping electrical contact between adjacent one of said fixed contacts;
- a battery supply means;
- movable contact means affixed to said movable member for actuating said quantity indicators by electrically coupling to said battery supply in accordance with the position of said movable member along said rod by selective contact with said fixed contacts, whereby said movable contact means contacts two adjacent ones of said fixed contacts when said movable member is at position along said rod corresponding to distance proportional to the film supply quantity between the quantity represented by two adjacent quantity indicators.

4,316,657

APPARATUS FOR ELECTRICALLY DETECTING FOCAL POINT OF CAMERAS OR THE LIKE OPTICAL DEVICES
Takeomi Suzuki, Tokyo; Masatoshi Ida, Hachioji, and Hideyuki Kenryo, Koganei, all of Japan, assignors to Olympus Optical Company Limited, Tokyo, Japan

Filed Jun. 26, 1979, Ser. No. 52,225

Claims priority, application Japan, Jul. 3, 1978, 53-79741

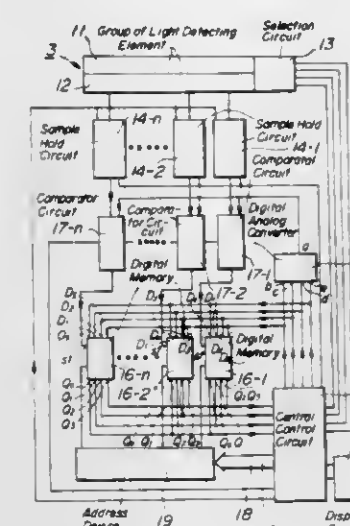
Int. Cl.³ G03B 3/10, 19/12; G01J 1/44

U.S. Cl. 354-23 D

2 Claims

1. In an improved apparatus for electrically detecting a focal point of cameras or the like, there is provided an optical device comprising, a plurality of light receiving elements arranged to receive light from at least one portion of an object image formed by an optical system and delivering a photoelectric signal, an analog-digital converter for converting a photoelectric signal from the light receiving elements into a digital signal and a control circuit for treating the digital signal and detecting an in-focus condition of the optical system, wherein the improvement comprises: a plurality of sample hold circuits

connected to the plurality of light receiving elements and being operative to sample hold in parallel the photoelectric signal from the light receiving elements, a plurality of comparator circuits connected to said sample hold circuits and operative to compare in parallel the photoelectric current delivered from



said sample hold circuits with an analog reference signal obtained from a digital-analog converter and changing in a step-shaped manner, and a plurality of digital memories connected to said comparator circuits and operative to write in parallel a digital signal delivered from the control circuit.

4,316,658

CAMERA FOR CLOSE-UP AND NORMAL RANGE PHOTOGRAPHY

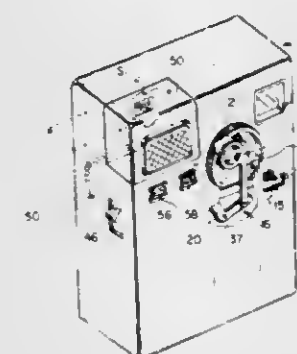
John J. Bundschuh, Penfield, and Gerald J. Kosarko, Pavilion, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 9, 1981, Ser. No. 232,767

Int. Cl.³ G03B 3/00, 7/087

U.S. Cl. 354-27

6 Claims



1. In a camera having means for selecting either a flash exposure mode or an ambient exposure mode, an adjustable mechanism for setting an exposure aperture, energizable means for controlling said adjustable mechanism to set an exposure aperture, a photosensor exposed to ambient light, a movable member, and circuitry, including switch means controlled by said movable member, for operatively coupling said photosensor to said energizable means, said circuitry being effective in response to movement of said member to cause said energizable means to assume (1) a first condition when the ambient light exposing said photosensor is below a predetermined level, to establish a relatively large exposure aperture, and (2) a second condition when the ambient light is above the predetermined level, to establish a restricted exposure aperture, the improvement comprising:

- (a) lens apparatus adjustable for varying the focus setting of said camera;
- (b) actuable means for setting said lens apparatus to (1) a first focus setting condition for focusing on a close subject, and (2) a second focus setting condition for focusing on a remote object; and

- (c) override means, coupled to said actuable means, responsive to the setting of said lens apparatus to its first condition for causing said adjustable mechanism to establish a restricted exposure aperture, independently of whether a flash exposure mode or an ambient exposure mode is selected, thereby enhancing depth of field whenever said lens apparatus is set for close-up photography and the ambient light is below the predetermined level.

4,316,659

INFRARED FILTER EXPOSURE COMPENSATION APPARATUS

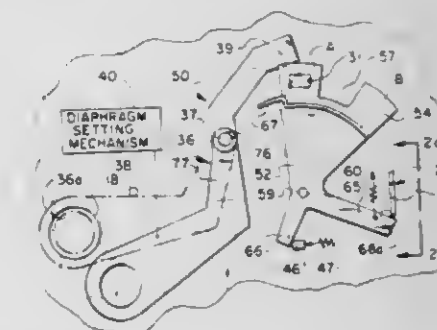
Steven D. Daniels, Byron, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 80,375, Oct. 1, 1979, abandoned. This application Oct. 22, 1980, Ser. No. 199,150

Int. Cl.³ G03B 7/087, 15/03

U.S. Cl. 354-42

5 Claims



5. In a camera having exposure-determining means, including a photoresponsive device, for controlling an exposure as a function of visible light and infrared radiation impinging upon said photoresponsive device, and flash means controllable for making an exposure either by ambient illumination or by flash illumination, the improvement comprising:

- (a) an infrared-attenuating filter for respectively covering and uncovering said photoresponsive device;
- (b) a mechanism having first and second conditions depending upon whether ambient light is bright or dim, respectively;
- (c) means for sensing whether or not said flash means is to be used for making an exposure; and
- (d) means controlled jointly by said sensing means and said mechanism for causing said infrared-attenuating filter to cover said photoresponsive device when flash illumination is to be used in bright ambient light, and for causing said infrared-attenuating filter to uncover said photoresponsive device when flash illumination is to be used in dim ambient light.

4,316,660

ALARM DEVICE IN AN AUTOMATIC EXPOSURE CAMERA

Yoshiaki Ohtsubo, Kawasaki, and Sakuji Watanabe, Warabi, both of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Filed Apr. 14, 1980, Ser. No. 139,769

Claims priority, application Japan, May 1, 1979, 54-52472

Int. Cl.³ G03B 7/083, 17/18

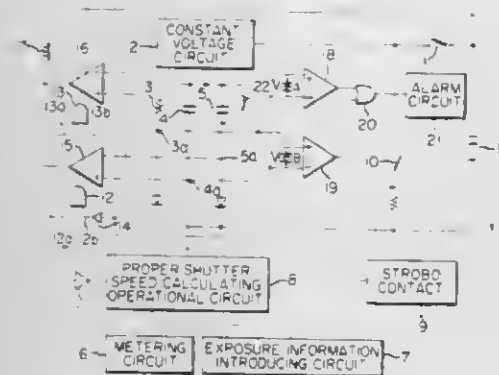
U.S. Cl. 354-50

3 Claims

1. An alarm device provided in a camera including means for selecting exposure time in response to the brightness of an object to be photographed, a device for controlling exposure according to the selected exposure time, and means for setting a reference exposure time suitable for flash photography, the alarm device producing alarm when said selected exposure time is beyond a predetermined range, the improvement comprising:

- (a) first comparing means which produces an output when a value subtracting a reference exposure time from said selected exposure time is greater than a difference between

said reference exposure time and a maximum exposure time within said predetermined range;
 (b) second comparing means which produces an output when a value subtracting said selected exposure time from said reference exposure time is greater than a difference between



said reference exposure time and a minimum exposure time within said predetermined range; and
 (c) alarm means operable on receipt of a least one of the outputs of said first comparing means and the output of said second comparing means.

4,316,661

ELECTROMAGNETICALLY OPERATED SHUTTER
 Syuichiro Saito, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

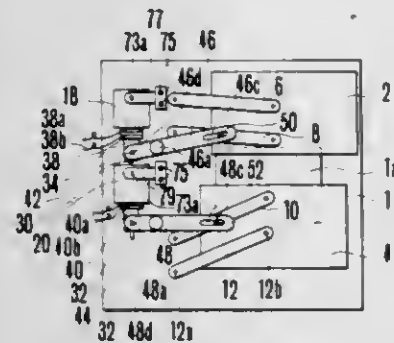
Filed May 6, 1980, Ser. No. 147,299

Claims priority, application Japan, May 10, 1979, 54/57479

Int. Cl.³ G03B 9/08

U.S. Cl. 354—234

4 Claims



1. An electromagnetically operated shutter comprising:
 - (a) leading and trailing shutter blades;
 - (b) electromagnetic drive means for said leading shutter blade;
 - (c) electromagnetic drive means for said trailing shutter blade; and
 - (d) driving force transmitting means arranged between said shutter blades and said electromagnetic drive means to transmit the driving force of said drive means to said shutter blades;

whereby said driving force transmitting means are pivotally mounted with their ends on opposite sides of their respective pivot axes, said transmitting means being operatively connected to said electromagnetic drive means and said shutter blades respectively so that said drive means and said shutter blades are caused to move in opposite directions to each other, said driving force transmitting means being constructed in the form of levers having their ends engaging respective moving parts of said electromagnetic drive means in rotatably fitted relation to each other, said electromagnetic drive means being supported in such a manner that they turn about respective pivot axes as said transmitting means are turned.

4,316,662 BRAKE DEVICE FOR SHUTTER

Yoichi Tosaka, Tokyo; Teiji Hashimoto, Kawasaki, and Nobuo Tezuka, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

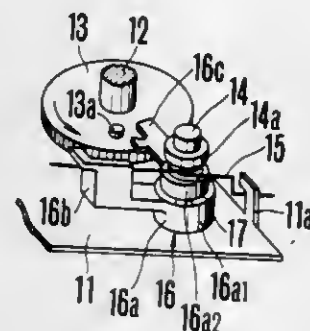
Filed Jan. 16, 1980, Ser. No. 112,699

Claims priority, application Japan, Jan. 31, 1979, 54-10920[U]

Int. Cl.³ G03B 9/28

U.S. Cl. 354—241

9 Claims



1. A brake device for a shutter including:
 - (a) a shutter driving shaft movable in response to a shutter operation;
 - (b) a shutter driving member attached to the shutter driving shaft;
 - (c) a ground plate;
 - (d) a stationary member mounted on said ground plate and positioned in the region of the shutter driving shaft;
 - (e) a brake member fitted on the stationary member for rotation relative to the stationary member, said brake member comprising an elastic material, and having an engagement portion engageable with said shutter driving member so that a friction force developed between the elastic brake member and the stationary member provides a braking force to the shutter driving member when the shutter driving member engages with the engagement portion; and
 - (f) biasing means for applying a biasing force to said brake member, said biasing means exerting the biasing force to provide another braking force to the shutter driving member in addition to the braking force provided by the friction force.

4,316,663

X-RAY FILM PROCESSOR WITH SWITCHING HEATERS

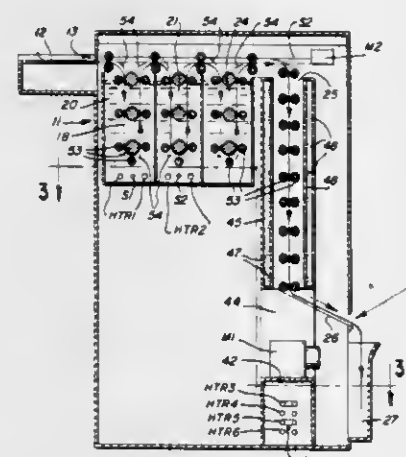
Warren G. Fischer, 4N003 Wildrose Rd., St. Charles, Ill. 60174

Filed Jul. 11, 1980, Ser. No. 168,645

Int. Cl.³ G03D 3/13

U.S. Cl. 354—299

25 Claims



1. In an X-ray film processor having:
 - (A) a first tank for containing a developer solution;
 - (B) a second tank for containing a fixer solution;

4,316,665

PROJECTION DEVICE

Noritaka Mochizuki, Yokohama; Setsuo Minami, Kawasaki; Yoshiya Matsui, Yokohama; Koyo Midorikawa, Tokyo; Atsuo Tsunoda, Fuchu; Hidetoshi Murase; Mikio Suzuta, both of Yokohama, and Masazumi Moriwaki, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 6, 1979, Ser. No. 100,858

Int. Cl.³ G03B 27/00

U.S. Cl. 355—1

11 Claims



- (C) first and third heating means, operable on electrical current, in close proximity to one and to the other of said first and second tanks, respectively, for maintaining a solution in said one tank and said other tank at or above a first and a third predetermined temperature, respectively;
- (D) a drying section with drying means for removing liquids from a processed X-ray film, said drying means including second and fourth heating means, operable on said electrical current, in close proximity to said drying section, for maintaining said drying section at or above a second and fourth predetermined temperature, respectively; and
- (E) motive means, operable on said electrical current, for moving a piece of film through said first tank, said second tank and said drying section, said motive means being able to move at least 125 pieces of film of size 14 inches by 17 inches through said solutions and drying means in an hour, the improvement comprising controlling means, coupled to said first and second and third and fourth heating means, for preventing the simultaneous operation of both said first heating means and said second heating means and for preventing the simultaneous operation of both said third heating means and said fourth heating means.

4,316,664

CONVEYANCE SYSTEM INCORPORATED IN PHOTOGRAPHIC TREATMENT APPARATUS FOR LONG LENGTH PHOTOSENSITIVE MATERIAL

Kanichi Nishimoto, Wakayama, Japan, assignor to Noritsu Koki Co., Ltd., Wakayama, Japan

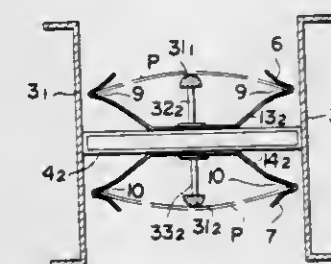
Filed Jan. 28, 1980, Ser. No. 116,242

Claims priority, application Japan, Feb. 2, 1979, 54-10302

Int. Cl.³ G03D 3/13

U.S. Cl. 354—321

6 Claims



1. A conveyance system adapted for conveying a long length strip of photographic printing paper through photographic treatment equipment in which said photographic paper is subjected to a series of developing and associated steps after completion of exposure thereof, said conveyance system comprising:

- (a) means for guiding both edges of said strip through said system, said guiding means including means defining guiding grooves which are adapted to extend along the length of said strip and to receive the edges of said strip;
- (b) means for moving said strip through said system, said moving means including at least a first and second pair of cooperating rollers, the rollers of each pair being adapted to engage the edge of said strip between them and said first pair being adapted to engage one edge of said strip within said guiding grooves and said second pair being adapted to engage the other edge of said strip within said guiding grooves; and
- (c) means for engaging a face of said strip along at least a substantial portion along said length of said strip, said engaging means being adapted to increase the rigidity against warping of said strip by bending said strip into the cross sectional form of an arch extending between said guiding grooves.

$$K_1 \times (n_1' - 1) \times \frac{\beta_1 S_1}{(1 - \beta_1) - \frac{S_2'}{\beta_1 S_1}} \leq r_1 \leq K_2 \times (n_1' - 1) \times \frac{\beta_1 S_1}{(1 - \beta_1) - \frac{S_2'}{\beta_1 S_1}}$$

$$\frac{\beta_1 S_1}{(1 - \beta_1) - \frac{S_2'}{\beta_1 S_1}} K_2 \times (1 - n_2') \times \beta_1 S_1 \leq r_2 \leq K_1 \times \frac{\beta_1 S_1}{(1 - \beta_1) - \frac{S_2'}{\beta_1 S_1}} K_2 \times (1 - n_2') \times \beta_1 S_1 \leq d_1' \leq K_2 \times n_1' \times \frac{\beta_1 S_1}{(1 - \beta_1) - \frac{S_2'}{\beta_1 S_1}} \leq \phi_1 \leq K_2 \times \frac{\beta_1 S_1}{(1 - \beta_1) - \frac{S_2'}{\beta_1 S_1}}$$

$$\frac{-S_1/Fe}{\sqrt{1 - \left(\frac{1}{2Fe}\right)^2}} K_1 \times \phi_1 \times \frac{\left(\frac{S_2'}{\beta_1}\right) - S_1}{\beta_1 S_1} \leq$$

$$\phi_0 \leq K_2 \times \phi_1 \times \frac{\left(\frac{S_2'}{\beta_1}\right) - S_1}{\beta_1 S_1} K_1 = 0.9, K_2 = 1.1$$

where r_1 and r_2 represent the curvature radii of the object side surface and the image side surface of the first bar lens, d_1' represents the thickness of the lens on the optic axis thereof, ϕ_1 represents the effective diameter of the lens, ϕ_0 represents the size of the object, n_1' represents the refractive index for design wavelength, β_1 represents the lateral magnification, S_1 represents the distance from the object side surface to the object surface along the optic axis, S_2' represents the distance from the image side sur-

face to the intermediate image plane along the optic axis, and F_e represents the object side effective F-number; for the second bar lens:

$$K_1 \times (1 - n_2') \times \frac{S_4'}{\beta_2} \leq r_3 \leq K_2 \times (1 - n_2') \times \frac{S_4'}{\beta_2} K_2 \times$$

$$(n_2' - 1) \times \frac{S_4'/\beta_2}{1 - \left(\frac{1}{\beta_2}\right) - \frac{S_3 \times \beta_2}{S_4'}} \leq r_4 \leq K_1 \times$$

$$(n_2' - 1) \times \frac{S_4'/\beta_2}{\left(1 - \frac{1}{\beta_2}\right) - \frac{S_3 \times \beta_2}{S_4'}} K_1 \times (-n_2') \times$$

$$S_4'/\beta_2 \leq d_2' \leq K_2 \times (n_2') \times S_4'/\beta_2 K_1 \times \frac{S_4'/F_e'}{\sqrt{1 - \left(\frac{1}{2F_e'}\right)^2}}$$

$$\leq \phi_3 \leq K_2 \times \frac{S_4'/F_e'}{\sqrt{1 - \left(\frac{1}{2F_e'}\right)^2}} K_1 \times \phi_3 \times$$

$$\frac{S_3\beta_2 - S_4'}{S_4'/\beta_2} \leq \phi_4 \leq K_2 \times \phi_3 \times \frac{S_3\beta_2 - S_4'}{S_4'/\beta_2} K_1 = 0.9, K_2 - 1.1$$

where r_3 and r_4 represent the curvature radii of the object side surface and the image side surface of the second bar lens, d_2' represents the thickness of the lens on the optic axis, ϕ_3 represents the effective diameter of the lens, ϕ_4 represents the size of the projected image, n_2' represents the refractive index for design wavelength, β_2 represents the lateral magnification, S_3 represents the distance from the object side surface to the intermediate image plane along the optic axis, S_4' represents the distance from the image side surface to the projected image plane along the optic axis, and F_e' represents the image side effective F-number.

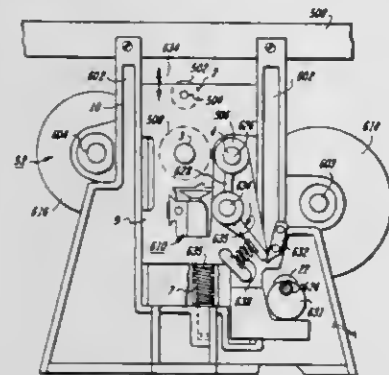
4,316,666

APPARATUS FOR TRANSFERRING A TONER IMAGE
Theodor M. Ceelen, Laverne, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed Jul. 24, 1979, Ser. No. 60,072
Int. Cl. G03G 15/00

U.S. Cl. 355—3 TR

2 Claims



1. In an apparatus for transferring an image from the surface of an insulating member into a lamination, of the type having a first spool for supplying adhesive material, a transfer roll for pressing said adhesive material against said image, the adhesive material being fed between the insulating member and the transfer roll, thereby transferring the image from the insulating member to the adhesive material, a second spool for supplying backing material, and drive and idler rollers to press together the adhesive and backing material which is fed between said drive and idler rollers, to form a lamination over the image, the improvement comprising:

an actuating mechanism mechanically coupled to said transfer roll and either said drive or idler roller for simultaneously (a) moving said transfer roll toward or away from

said insulating member to allow or prevent contact of said image and said adhesive material, and (b) moving said drive and idler rollers together or apart, respectively, to allow the backing material and adhesive material to form a lamination, or to allow the loading of said backing and adhesive material.

4,316,667

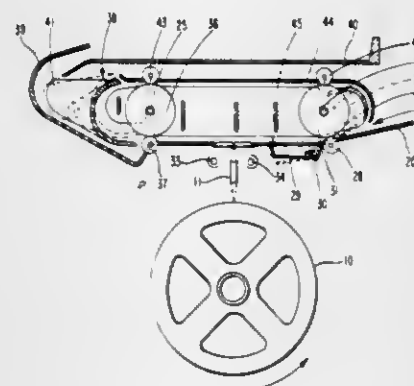
COPIER AND RECIRCULATING DOCUMENT FEEDER
Earl G. Edwards, Boulder; Jerry T. Robinson, Longmont, and Bernard L. Wilzbach, Berthoud, all of Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 19, 1980, Ser. No. 122,164

Int. Cl. G03G 15/00

U.S. Cl. 355—3 SH

11 Claims



1. A copier and moving document feeder, comprising: a document entry station including entry alignment means for aligning a document against a longitudinally extending reference edge and against a laterally extending closed document gate; a stationary imaging station, including an extension of said longitudinally extending reference edge, located on the side of said document gate opposite said entry station, for line-scanning an original document moving therepast; a skewed turn-around guide formed as a partial cylinder whose cylindrical axis is not perpendicular to said reference edge, so as to cause the leading-edge corner of a document which is adjacent said reference edge extension to traverse a shorter distance while passing through said turn-around guide than does the remainder of the leading edge, to thereby skew the leading edge of such a document without introducing a force which may disturb registration of the portion of the document then remaining in said imaging station; a document return path located downstream of said skewed turn-around guide and generally above said imaging station, including a further extension of said longitudinally extending reference edge, and operable to receive such a document having its leading edge now skewed; further alignment means located within said document return path and operable to realign such a document against said further extension of the longitudinally extending reference edge after the trailing edge of the document has passed through said imaging station; and a nonskewed turn-around guide located downstream of said further alignment means and operable to direct the leading edge of a document into the aligning influence of said entry alignment means and into said document gate after the document's trailing edge has passed through said imaging station.

4,316,668

IMAGE REDUCTION SERVO SYSTEM

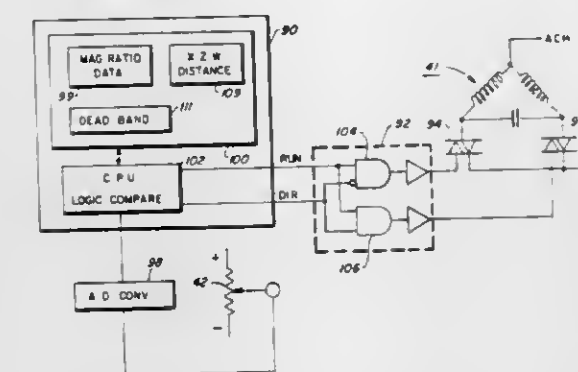
William G. Miller, East Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Nov. 3, 1980, Ser. No. 203,174

Int. Cl. G03B 27/52

U.S. Cl. 355—55

16 Claims



1. A reproduction machine for producing copies of a document selectively at one of a plurality of copy image magnification ratios including a photosensitive surface, a magnification selector, an optical arrangement for projecting images onto the photosensitive surface at a selected magnification, a control with associated memory, the improvement comprising means for reading a word from memory corresponding to the selected magnification ratio, means manifesting the current magnification ratio position of the optical arrangement, means to compare the selected magnification ratio with the current magnification ratio position manifestation, and means responsive to the comparison to change the optical arrangement to the selected magnification ratio.

4,316,669

EXPOSURE APPARATUS

Tatsuo Tachiki, Toyonaka, Japan, assignor to Kabushiki Kaisha Kaneda Kikai Seisakusho, Osaka, Japan

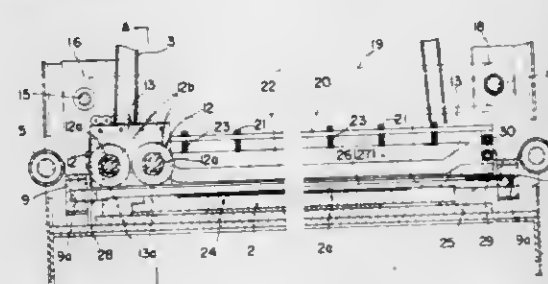
Filed Apr. 10, 1980, Ser. No. 138,780

Claims priority, application Japan, Apr. 17, 1979, 54-51787[U]; Apr. 17, 1979, 54-51788[U]

Int. Cl. G03B 27/20

U.S. Cl. 355—91

5 Claims



1. An exposure apparatus comprising a fixed baseboard (2) having a plate receiving surface (2a) in a horizontal or substantially horizontal position for holding a photosensitive plate (24) in intimate contact therewith by the suction of a vacuum pump, means (33, 5) for feeding the photosensitive plate (24) to the fixed baseboard (2) from one end thereof, means (6, 34) disposed in alignment with the feeding means (33, 5) for delivering the plate (24) from the fixed baseboard (2) toward the other end thereof after exposure, a frame (9) for withdrawably setting a negative film (27) and a flexible but stiff, transparent sheet (26) in place with the sheet superposed on the film, and an exposure light source (4) provided with a reflecting mirror (3) and disposed immediately above the fixed baseboard (2), means mounting said setting frame (9) for upward and downward movement relative to said fixed baseboard, at least one

squeegee roll mounted on said setting frame for rolling movement on the upper surface of said transparent sheet to press out air from between the negative film (27) and the photosensitive plate (24) after the setting frame (9) has moved downward to superpose the film (27) on the plate (24) held in intimate contact with the receiving surface (2a) of the baseboard (2), and

means (10, 11) are provided on opposite sides of the fixed baseboard (2) for moving the setting frame (9) upward and downward while holding the frame (9) positioned in parallel to the baseboard (2), the photosensitive plate (24) being feedable to the fixed baseboard (2) by the feeding means (33, 5) and dischargeable from the baseboard (2) by the delivering means (6, 34) after exposure when the setting frame (9) is moved upward by the moving means (10, 11), the squeegee roll (12) being rollingly movable to press out the air and make the photosensitive plate (24) ready for specified exposure when the setting frame (9) is moved downward by the moving means (10, 11).

4,316,670

APPARATUS AND METHOD FOR DETERMINING THE CONFIGURATION OF A REFLECTIVE SURFACE

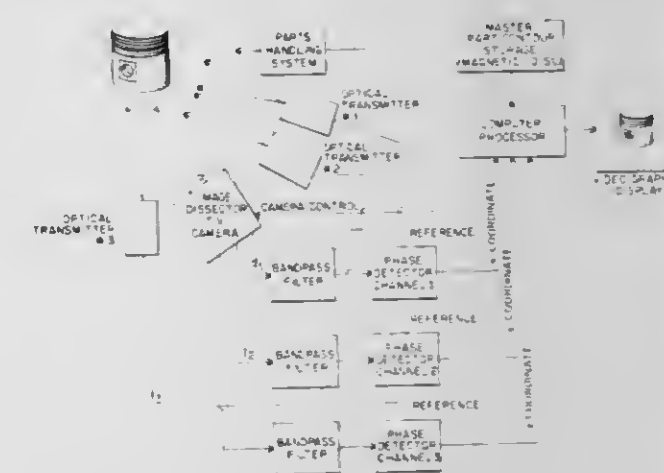
Richard R. Corwin, Xenia, and Stephen L. Moorman, Miami, both of Ohio, assignors to Beta Industries, Inc., Dayton, Ohio

Filed May 29, 1979, Ser. No. 43,442

Int. Cl. G01B 9/02

U.S. Cl. 356—349

31 Claims



1. Apparatus adapted for determining the contour of a light reflecting surface, comprising laser transmitter means for producing a light beam, means for expanding the beam and for projecting at least one fringe pattern onto the surface with the pattern moving in a predetermined direction and at a predetermined frequency, receiver means for observing different selected points on the surface and for producing an oscillatory signal corresponding to a fringe pattern component reflected by each surface point, means for determining the phase of the signal corresponding to each selected point with respect to the phase of a reference point, and means responsive to the phase of the signal for each selected point on the surface for determining a coordinate of the selected point.

4,316,671

APPARATUS FOR CONTINUOUS MIXING OF SOLIDS AND LIQUIDS

Werner Christen, and Helmut Müller, both of Mannheim, Fed. Rep. of Germany, assignors to Draiswerke GmbH, Mannheim, Fed. Rep. of Germany

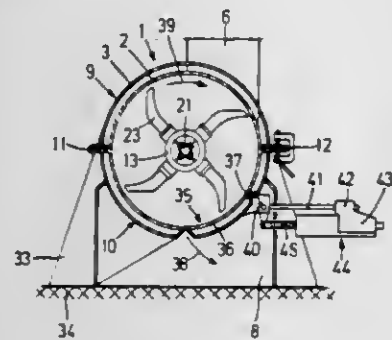
Filed May 28, 1980, Ser. No. 154,098

Claims priority, application Fed. Rep. of Germany, Jun. 9, 1979, 2923502

Int. Cl.³ B01F 7/04, 15/02

U.S. Cl. 366—192

5 Claims



1. An apparatus for the continuous mixing of solids with liquids preferably for the application of glue to chips, fibers or powered materials, comprising:

- a cylindrical mixing container, material feed means at one end of said container and material outlet means at the other end of said mixing container;
- means for admitting glue into said mixing container;
- at least one mixing shaft mounted coaxially within said mixing container, said shaft being provided with mixing tools for axially propelling material through said container in the form of a ring of material;
- a drive motor for driving said shaft;
- a throttle valve in said material outlet means, said valve being provided with a positionable counterweight and operatively associated therewith;
- means for adjusting the position of said counterweight; and
- said means for adjusting the position of said counterweight is a motor means (44) and said counterweight is formed by a housing (43,48) of said motor means (44).

4,316,672

SHAKING MACHINE, ESPECIALLY FOR INDIAN INK WRITING DEVICE

Wolfgang Kersch, Moosweg 8, 8400 Regensburg, Fed. Rep. of Germany

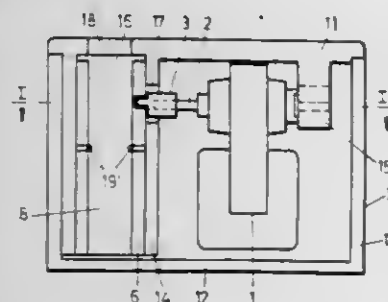
Filed May 24, 1979, Ser. No. 42,047

Claims priority, application Fed. Rep. of Germany, Jun. 7, 1978, 7817065[U]

Int. Cl.³ B01F 11/00

U.S. Cl. 366—212

4 Claims



1. A shaking machine comprising:

- (a) a housing;
- (b) a guide bore inside said housing;
- (c) a holder formed by a sleeve-shaped body;
- (d) said holder being adapted for holding at least one Indian ink writing device;
- (e) said holder being slidably guided in said guide bore for

reciprocating movement therein parallel to the axis of said guide bore;

- (f) means for reciprocating said holder in said guide bore;
- (g) means for clamping said at least one Indian ink writing device in said holder, wherein said means for clamping comprises an elastic ring held in a circumferential groove of said holder, at least a portion of said elastic ring extending into the inner bore of the sleeve-shaped holder through at least one slot along said circumferential groove.

4,316,673

MIXING DEVICE FOR SIMULTANEOUSLY DISPENSING TWO-PART LIQUID COMPOUNDS FROM PACKAGING KIT

Spencer J. Speer, Ontario, Calif., assignor to General Dynamics, Pomona Division, Pomona, Calif.

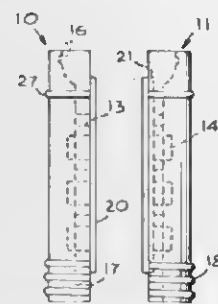
Division of Ser. No. 932,053, Aug. 8, 1978, Pat. No. 4,204,775.

This application Nov. 13, 1979, Ser. No. 93,360

Int. Cl.³ B01F 5/06

U.S. Cl. 366—337

14 Claims



1. A disposable fluid mixing device comprising:

- a first and a second structure, said structures being mirror images of each other;
- each of said structures being of substantially semi-cylindrical form and having means providing a molded, tortuous path therethrough mating with the tortuous path of the other structure;
- at least one semicircular ridge molded on the outside of said structure to provide means for retaining an associated element to be coupled thereto; and
- means for securing said structures to each other.

4,316,674

KEYLEVER PAWL TUBE SPRING AND KEYBOARD UTILIZING A KEYLEVER PAWL TUBE SPRING

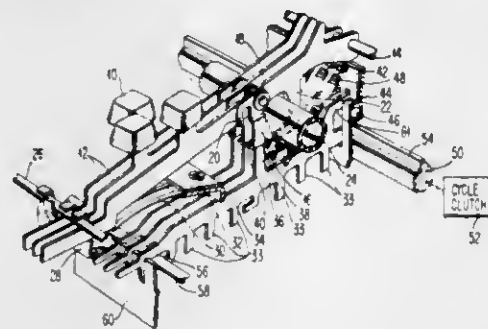
Charles C. Mayborg, and Delbert L. Teel, II, both of Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 31, 1980, Ser. No. 136,001

Int. Cl.³ B41J 5/14

U.S. Cl. 400—478

2 Claims



1. A keyboard comprising:

- a plurality of keylevers, each said keylever having a depending support member on said keylever,
- an interposer associated with each of said keylevers and having at least a normal position,
- a keylever pawl pivotally mounted on each of said keylevers to

transfer motion of said keylevers to said interposers and to, under the influence of said interposers, pivot out of motion transferring relation to allow said interposers to restore to said normal position, and a resilient deformable, open ended, tubular restore member deformable in cross section by said pawl during said pivoting of said pawl, said member being supported by said depending support member, and positioned with the axis thereof transverse to said keylever to provide the only resilient restore force to said pawl.

4,316,675

DEVICE FOR FASTENING STUD BOLTS

Gaston E. E. Melicque, Mennecy, France, assignor to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation, "S.N.E.C.M.A.", Paris, France

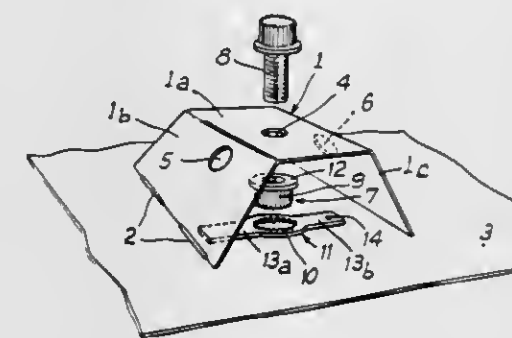
Filed Jul. 7, 1980, Ser. No. 165,987

Claims priority, application France, Jul. 27, 1979, 79 19400

Int. Cl.³ B25G 3/00; E21B 19/16; F16D 1/00

U.S. Cl. 403—22

3 Claims



1. Device for the fastening of captive nuts to a structural element wherein the structural element has secured thereto a bridge plate comprising a median wall and two lateral walls, each being provided with a hole, said hole of the median wall being aligned with a threaded hole of the nut intended to receive the threaded part of a threaded bolt and immobilized with respect to rotation in a plate comprising two oppositely extending wings engaged in the holes in the lateral walls of the bridge plate, said nut having a collar between the median wall and the plate.

4,316,676

MECHANICAL JOINT

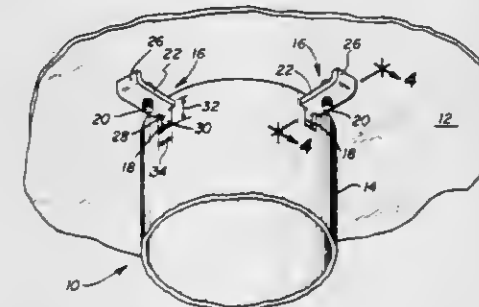
Charles E. Turner, Richardson, Tex., assignor to Hi-Mark Industries, Inc., Richardson, Tex.

Filed Jul. 1, 1980, Ser. No. 165,102

Int. Cl.³ F16B 7/04

U.S. Cl. 403—260

4 Claims



1. A mechanical joint comprising:

- a hollow post having a plurality of apertures spaced at intervals around the circumference of the post adjacent one end of the post, each of said apertures having a dimension across the aperture which is greater than the width of that part of the aperture nearest the closest end of the post;
- a plate having a surface which can be brought into abutment with the end of the post having the apertures therein;
- a plurality of arms, each arm having one end which is

adapted to be positioned radially through the apertures in the post and extend radially therefrom, that end of the arm having a width which is greater than the width of that part of the aperture nearest the closest end of the post and a reduced width waist portion intermediate the ends of the arm which is smaller than the width of that part of the aperture nearest the closest end of the post to permit that end of the arm to be inserted into the aperture and when the waist portion is positioned in the aperture nearest the closest end of the post to prohibit withdrawal of the arm from the aperture, the opposite end of the arm also extending radially from the post; and fastening means engaging the radially extending opposite end of the arms and the plate to join the post and the plate in an abutting relationship.

4,316,677

TUBULAR SHANK DEVICE

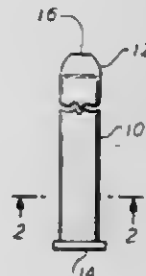
Armand Ciavatta, 703 Birch Hill Dr., Bridgewater, N.J. 08807

Filed Mar. 7, 1980, Ser. No. 127,959

Int. Cl.³ E21D 21/00

U.S. Cl. 405—259

16 Claims



1. A device stably mountable in unconsolidated underground strata comprising:

- a tubular shank having an oblate cross-section, said shank having a length sufficient to stabilize it from loosening in said underground strata, whereby said shank is forwardly drivable into a bore that is sized to transversely compress said shank, said oblate cross-section providing annularly spaced wall engaging peripheral portions for frictionally engaging the wall of a bore in the strata and annularly spaced non-wall engaging peripheral portions which are spaced radially from the wall of the bore, said portions being integrally interconnected in annular force translating relation throughout a substantial portion of the length of the tubular shank such that frictional interengagement with the wall of the bore will result in a radially inward deflection of said wall engaging portions which deflection is accommodated by radially outward deflection of said non-wall engaging portions.

4,316,678

MEANS FOR SECURING TWO ELEMENTS AGAINST RELATIVE AXIAL MOVEMENT

Erwin F'Geppert, Novi, Mich., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Oct. 5, 1979, Ser. No. 82,398

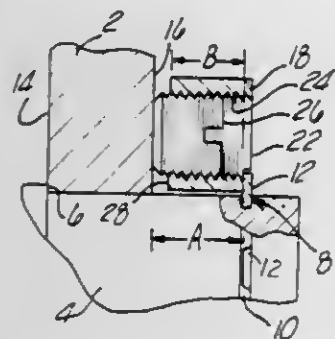
Int. Cl.³ F16B 9/00, 2/00

U.S. Cl. 403—259

1 Claim

1. Means to secure a machine part (2) on a shaft (4), comprising a first peripheral abutment (6 or 306) on the shaft to engage one end face of the machine part; a peripheral groove (10) formed in the shaft remote from said abutment; a resilient snap ring (12 or 308) installable in the groove to form a second abutment; an annular one piece retaining ring (18 or 318) insertable on the shaft into the space between the machine part and the second abutment; said retaining ring having a first end face (28) in opposed relation to the machine part and a second

end face (22 or 322) in opposed relation to the second abutment; said second end face of the retaining ring having an annular undercut (20 or 320) at the inner diameter of the ring to mate with the snap ring; said retaining ring having at least three threaded openings extending axially therethrough at spaced locations around the ring periphery; set screws (26 or 326) engaged with the threads in individual ones of the threaded openings for individual advancement against the machine part to force the machine part into tight pressure engagement with the first abutment and the retaining ring into tight pressure engagement with the second abutment; the set screws having lesser lengths than the axial thickness of the retaining ring whereby each screw can be disposed entirely within the retaining ring; the combined axial thickness of the machine part and retaining ring being slightly less than the



spacing between the first and second abutments to permit installation of the resilient snap ring into the shaft groove after positionment of the retaining ring and machine part on the shaft; the aforementioned undercut on the retaining ring having a slightly larger diameter than the aforementioned snap ring so that when the retaining ring and machine part are in pressure engagement with respective ones of the abutments, the snap ring will be located within the undercut, whereby the snap ring is then prevented from being accidentally radially disengaged from the groove in the shaft; the threaded openings in the retaining ring intersecting the undercut in the second end face of the retaining ring, whereby when the snap ring is located within the undercut the snap ring will cover a portion of each threaded opening to prevent accidental retraction of the set screws out of the threaded openings.

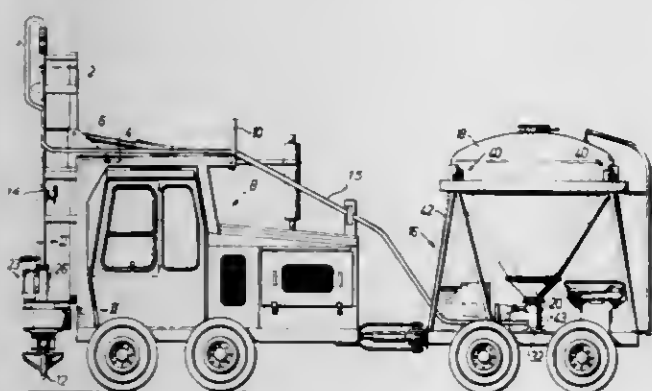
4,316,679

GROUND STABILIZATION EQUIPMENT

Signar Lundmark, and Leif Hällgren, both of Skelleftea, Sweden, assignors to Linden-Alimak AB, Skelleftea, Sweden
Continuation of Ser. No. 845,611, Oct. 26, 1977, abandoned.
This application Apr. 13, 1978, Ser. No. 29,765
Claims priority, application Sweden, Dec. 2, 1976, 7613559
Int. Cl.³ E02D 3/12

U.S. Cl. 405—303

3 Claims



1. A mobile ground stabilization equipment including a traction and operating vehicle, an earth drill apparatus including an earth drill head, for injecting and mixing a pulverulent binding agent into the earth material during operation of the earth drill head, a supply tank for the pulverulent binding

agent, and a device for receiving pressurized air and for feeding out and portioning the pulverulent binding agent blown by the pressurized air into and through a conduit leading from the tank to the earth drill head and through the earth drill head, said equipment including means in the traction and operating vehicle for recording the amount and distribution of pulverulent binding agent injected into the ground, comprising

- (a) a first device sensing and generating first signals in response to the passage of peripherally located indicating position devices on a rotatable element included in the drive for the earth drill head, the speed of said rotatable element depending upon the feeding movement of the earth drill head,
- (b) a weighing device, included in the mobile equipment, on which the tank rests between vertical guide means and by means of which the contents of the tank are weighed and second signals representative of changes in said contents are generated,
- (c) a recorder in which two inputs are driven by the first and second signals, respectively, for providing a graphic representation illustrating the successive weights of fed out binding agent per drilled length unit under ground level for successive holes, so that a picture of the binding agent distribution in vertical direction can be obtained over a large area.

4,316,680

AIR-ASSISTED HYDRAULIC RE-CIRCULATORY BOUANCY PUMP

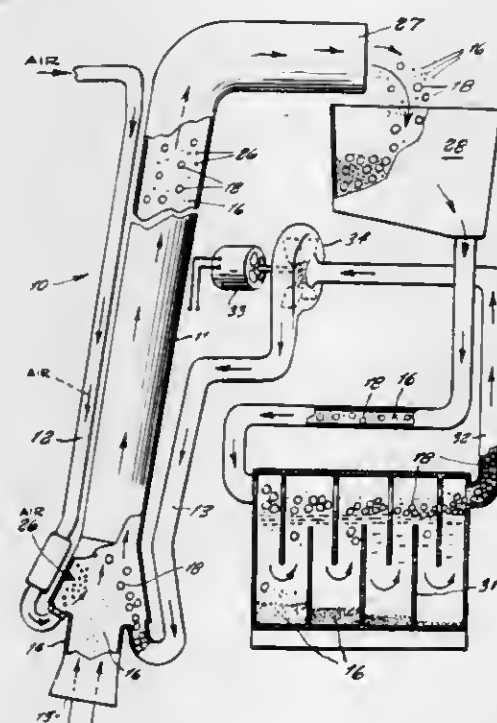
Peter Phipps, c/o George Spector, 3615 Woolworth Bldg., 233 Broadway, and George Spector, 3615 Woolworth Bldg., 233 Broadway, both of New York, N.Y. 10007

Filed Oct. 1, 1979, Ser. No. 80,177

Int. Cl.³ F04F 1/18

U.S. Cl. 406—49

5 Claims



1. An air-assisted hydraulic re-circulatory bouancy pump comprising in combination a set of three pipes alongside each other, a first of said pipes comprising an eduction pipe means for carrying a mined material upward from a sea bottom, a second of said pipes comprising a compressed air pipe means connected to a lower end of said eduction pipe means for supplying compressed air to said eduction pipe means, and a third of said pipes comprising a pipe means connected to said lower end of said eduction pipe means for supplying a plurality of bouancy particles to said eduction pipe means.

4,316,681

BLENDING EQUIPMENT

Sbozo Sida, Aichi, Japan, assignor to Sansho Kabushiki Kaisha, Japan

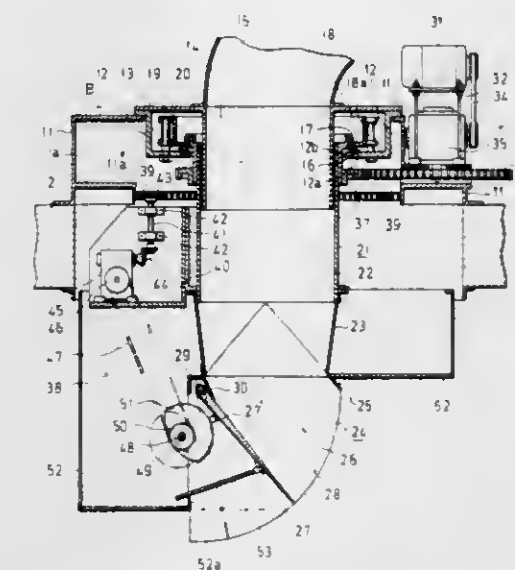
Filed Jul. 30, 1979, Ser. No. 62,274

Claims priority, application Japan, Jul. 31, 1978, 53-93476

Int. Cl.³ B65G 53/40

U.S. Cl. 406—162

1 Claim



1. A blending equipment comprising:

- (i) a support for mounting on a central portion of a ceiling of a blending bin,
- (ii) a vertical conveyor airduct carried by said support for rotation about a vertical axis,
- (iii) motor means, and a transmission means connecting said motor means to said airduct for rotating said airduct relative to said support, said transmission means including meshed elliptic gears coupled respectively to said motor means and to said airduct such that the angular speed of said airduct varies cyclically during each rotation of said airduct,
- (iv) a spreader outlet secured to and rotatable with said airduct, said outlet having a first end opening and a second end opening, said first end opening communicating with said airduct, said second end opening being directed laterally, said outlet including a lower member defining a lower boundary of said second end opening, said lower member being movable for movement up and down of said lower boundary thereby to vary the cross-section, and the direction of discharge relative to the horizontal, of said second end opening,
- (v) shifting means carried by said airduct and serving to move said lower member up and down as said airduct is rotated.

4,316,682

ORE CARRIER

Hugh W. Evans, Denver, Colo., assignor to Atlantic Richfield Company, Los Angeles, Calif., a part interest
Division of Ser. No. 123,876, Feb. 25, 1980, Pat. No. 4,247,229.
This application Sep. 22, 1980, Ser. No. 189,560

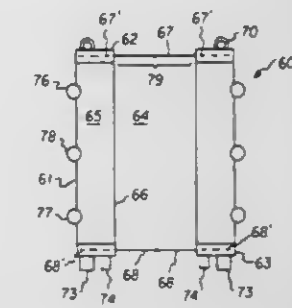
Int. Cl.³ B65G 51/06

U.S. Cl. 406—187

4 Claims

1. An ore carrier comprising a closed, hollow body having side, top, and bottom means, said body being configured to pass through one or more underground shafts, said body containing interiorly thereof at least one ore chamber and at least one buoyancy chamber, said ore chamber extending from said top means to said bottom means, watertight door means in said

top means and said bottom means for top loading of said carrier and bottom unloading of said carrier, said door means retract-



ing into said buoyancy chamber when said door means are open for loading or unloading.

4,316,683

SEMI-CIRCULAR THREAD TAP

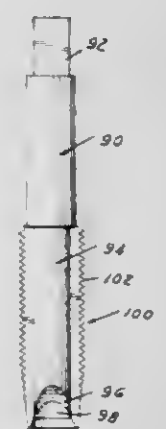
Lawrence A. Schott, Detroit, Mich., assignor to Roger A. Schott, Redford, Mich., a part interest

Continuation-in-part of Ser. No. 69,289, Aug. 24, 1979, abandoned. This application May 26, 1981, Ser. No. 267,429

Int. Cl.³ B23B 51/00; B21K 21/00; B23G 5/06

U.S. Cl. 408—219

3 Claims



1. In a tap for threading holes in metal:

- (a) a cylindrical drive section of steel having an ensmallled mount shank at a working end, the drive section and the mount shank having a radial shoulder therebetween, and
- (b) a half-circle tap segment having a half-circle recess on one side to fit the mount shank and a half-circle threaded surface on the other side to form a tap surface, said tap segment having a length extending substantially the length of the ensmallled mount shank, said tap segment being brazed on said mount shank with one end against said shoulder.

4,316,684

MACHINING UNIT FOR USE IN MACHINE TOOL

Kosei Takeyama, Mishima, Japan, assignor to Toshiba Kikai Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 27, 1980, Ser. No. 134,667

Claims priority, application Japan, Mar. 30, 1979, 54-37830

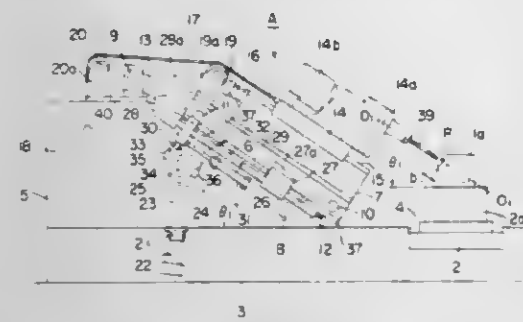
Int. Cl.³ B23B 47/00

U.S. Cl. 408—236

8 Claims

1. A machining unit for use in a machine tool comprising a slide base support mounted on a base of the machine tool, a slide base located above said slide base support, means slidably mounted on said slide base for working a workpiece, link members pivotably attached to said slide base and said slide base support so as to constitute a quadric link mechanism, and means swingably attached to said slide base support for operat-

ing said quadric link mechanism thereby to move said slide base from a first position wherein said slide base is at a first



angle of inclination to a second position wherein said slide base is at a second angle of inclination.

4,316,685 PLUNGE TYPE ROUTER

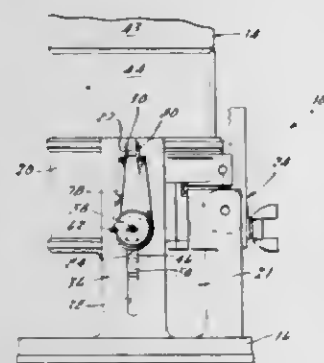
William A. George, Cockeysville, Md., assignor to Black & Decker Inc., Newark, Del.

Filed Feb. 29, 1980, Ser. No. 125,958

Int. Cl.³ B23B 45/02; B23C 1/20

U.S. Cl. 409-182

12 Claims



1. In a plunge type router including a base housing having an upper portion, a bore extending through said upper portion, a lower flange portion including a work engaging lower surface, a driving motor assembly including a motor housing extending into said bore, said driving motor assembly including a driving shaft extending outwardly from the lower end of said motor housing, chuck means secured to said shaft for attaching a cutting tool to said shaft, said motor housing being reciprocally movable with respect to said base housing between a retracted position in which said cutting tool is positioned above said work engaging surface and an extended position in which said cutting tool projects downwardly below said work engaging surface, improved means for biasing said motor housing into a retracted position comprising first attaching means provided on said base housing; said base housing including an elongated slot having a longitudinal axis extending generally parallel to the direction of movement of said motor housing; second attaching means provided on said motor housing; said second attaching means including stop means engageable with a portion of said base housing for limiting movement of said motor assembly with respect thereto; said stop means comprising a bushing member received within said slot and engageable with opposite longitudinal ends thereof; and biasing means extending between said first and second attaching means and operative to bias said motor housing into said retracted position.

4,316,686 AUTOMOBILE TIE DOWN ASSEMBLY FOR VEHICLE CARRIERS

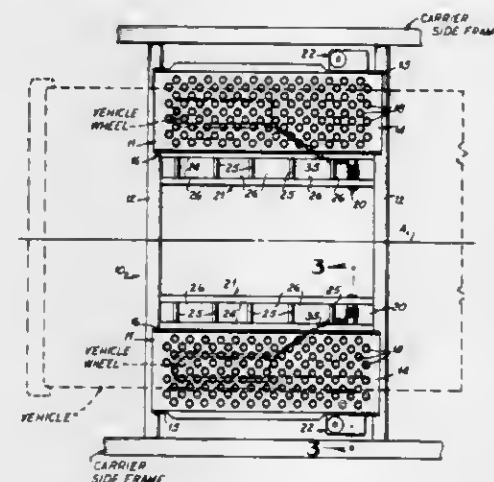
Don J. Cottrell, 2164 Hawthorne La., and Don M. Cottrell, Rte. 7, Duckett Mill Rd., both of Gainesville, Ga. 30501

Continuation-in-part of Ser. No. 920,189, Jun. 29, 1978, Pat. No. 4,227,734. This application Sep. 7, 1979, Ser. No. 73,515

Int. Cl.³ B60P 7/08; B61D 17/00, 45/00

U.S. Cl. 410-12

6 Claims



1. A tie down assembly for selectively securing a wheeled vehicle to a track on a vehicle supporting track assembly in vehicle carriers using an attachment point on the vehicle comprising:

a guide assembly operatively connected to the track on the track assembly, said guide assembly including a pair of spaced apart side members fixedly mounted on the track assembly and extending longitudinally of and adjacent said track and a plurality of guide members attached between said side members at spaced apart positions along the length of said side members to define a series of spaced apart openings along the length of said guide assembly and the track; and

a tie down mechanism operatively connected to the track assembly in operative association with said guide assembly, said tie down mechanism including

a tie down winding shaft rotatably mounted on the vehicle supporting track assembly adjacent the track;

a flexible tie down member having opposed ends, one of said ends connected to said tie down winding shaft so that said tie down member will be wound around said tie down winding shaft as said winding shaft is rotated and the other of said ends adapted to be attached to the attachment point on the vehicle; and

a drive mechanism mounted on the vehicle supporting track assembly and operatively connected to said tie down winding shaft to rotate said tie down winding shaft, said drive mechanism including an input drive member adapted to be engaged and rotated, and gearing means interconnecting said tie down winding shaft and said input drive member so that rotation of said input member rotates said tie down winding shaft, said gearing means constructed and arranged so that said input drive member can be rotated to drive said tie down winding shaft while rotation of said tie down winding shaft to drive said input drive member is substantially precluded

so that that end of said flexible tie down member adapted to be attached to the vehicle can be passed around a selected one of said guide members through the opening associated therewith and attached to the attachment point on the vehicle to establish the angle of the force exerted on the vehicle by the tie down member, and said input drive member manually rotated to rotate said winding shaft and tighten said flexible tie down member to apply said force on the vehicle directed toward the

track whose angle is determined by said guide member selected around which said flexible tie down member extends.

4,316,687 LOAD CARRYING DEVICE

Kjell Lindskog, 27 Floravägen, Skelleftea, Sweden S-931 39

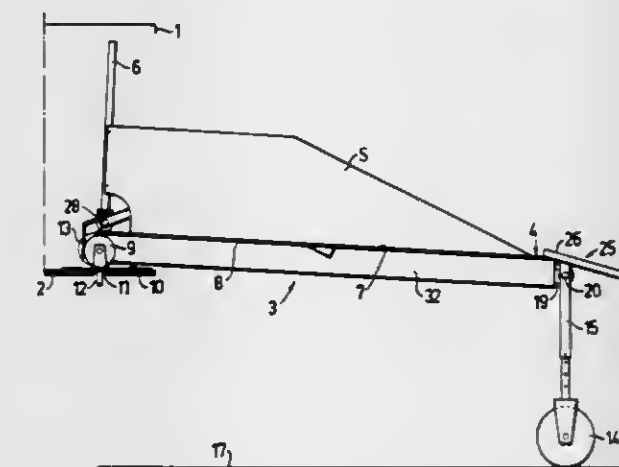
Filed Feb. 25, 1980, Ser. No. 124,547

Claims priority, application Sweden, Mar. 1, 1979, 7901869

Int. Cl.³ B60P 1/64

U.S. Cl. 410-92

8 Claims



1. A manually movable load carrying device for vehicles with cargo space, comprising a load table, rollers rotatably mounted on a forward portion of the load table for aiding movement of the load table into and out of the cargo space of the vehicle, pivotal support legs having wheels provided at a first end and being pivotally mounted at a rear end of the load table for pivoting between a transport position and a position for supporting a rear portion of the load table at least when the load carrying device is being moved into and removed from the cargo space of the vehicle, said support legs being pivotable to the support position when the load table is substantially contained within the cargo space, guide grooves formed on a lower surface portion of the load table, carrying rollers mounted in a rear portion of the cargo space and adapted to engage the guide grooves, the support legs having a length which is less than the distance from the floor of the cargo space to the ground in order to effect overbalancing of the load table in relation to the carrying rollers when the center of gravity of the load table passes said rollers, said carrying rollers being capable together with the wheels of the support legs to movably carry the load table as long as the center of gravity of the load table is located between the wheels and the carrying rollers and together with the rollers provided at the forward portion of the load table to movably carry the load table as long as the center of gravity of the table is located between the load table rollers and the carrying rollers.

4,316,688 REINFORCING REMOVABLE POST POCKET TIE-DOWN

Milton Roskelley, 229 Juanita Way, San Francisco, Calif. 94127

Filed Jan. 2, 1980, Ser. No. 109,048

Int. Cl.³ B60P 7/06, 7/13; B61D 45/00

U.S. Cl. 410-102

12 Claims

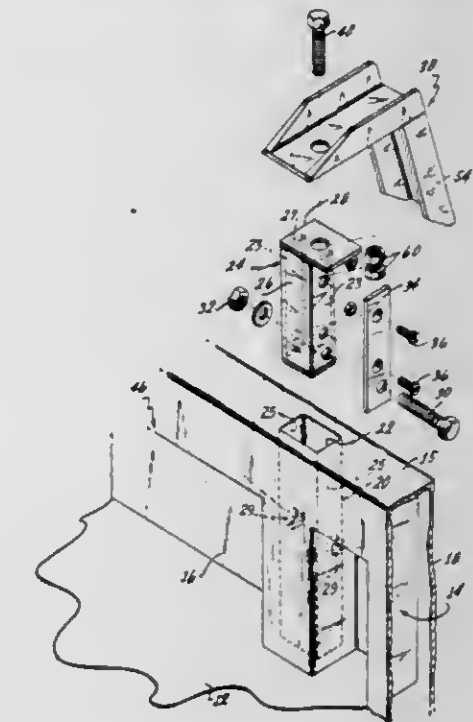
1. A removable post pocket tie-down, removably insertable into a post pocket of a vehicle for securing loads to the vehicle, said post pocket including a pair of opposing sheet metal side-walls comprising in combination:

post means including an elongated member of such size and shape as to be removably insertable into a post pocket and to fit snugly when inserted therein, and including a pair of opposing surfaces adjacent said opposing sidewalls; securing means for retaining said post means within said post pocket; and, means for exerting inward force upon said sheet metal side-walls to thereby draw said opposing sidewalls against said

opposing surfaces of said snugly fitting post means, whereby said sheet metal and said post means are mutually reinforced to strengthen the removable tie-down assembly.

10. A removable post pocket tie-down, removably insertable into a post pocket of a vehicle for securing loads to the vehicle, said post pocket including a pair of opposing sheet metal side-walls comprising in combination:

post means including an elongated member of such size and shape as to be removably insertable into a post pocket and



to fit snugly when inserted therein and including a pair of opposing surfaces adjacent said opposing side walls; tie-down means removably affixed to said post means; securing means for retaining said post means within said post pocket; and, means for exerting inward force upon said sheet metal side-walls to thereby draw said opposing sidewalls against said opposing surfaces of said snugly fitting post means, whereby said sheet metal and said post means are mutually reinforced to strengthen the removable tie-down assembly.

4,316,689 ANCHORAGE SYSTEM OF THE ELEMENTS TO BE SUPPORTED ON THE COMPLETED STRUCTURE

Vicente Sanchez Velasco, Canillas, 93 Madrid-2, Spain

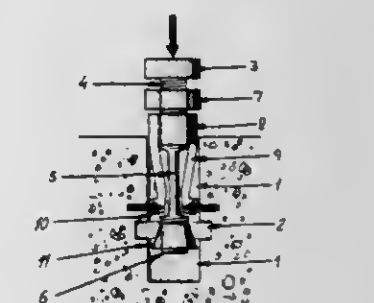
Filed Oct. 9, 1979, Ser. No. 82,754

Claims priority, application Spain, Oct. 6, 1978, 474,022

Int. Cl.³ F16B 13/04

U.S. Cl. 411-57

9 Claims



1. In an anchorage system for construction elements such as a wall adapted for insertion into a hole formed in said wall, the combination comprising an anchoring sleeve, an end piece and means for temporarily connecting said anchoring sleeve to said end piece when said anchoring sleeve and said end piece are inserted into said hole, said hole extending into said wall and

being formed with a first portion projecting from the surface of the wall, an intermediate second portion further extending into the wall and a third portion forming the bottom of the hole, said second portion having a diameter relatively larger than the diameters of said first and third portions; said anchoring sleeve including a clamping portion terminated with radially outwardly extended projections, whereby when said anchoring sleeve and said end piece are inserted into said hole, said clamping portion is retracted to enable said projections to be placed into said second portion of said hole upon radial expansion of said projections and said end piece clamps said projections in said second portion when said temporarily connecting means are removed from said anchoring sleeve, said connecting means including an elongated stud having a head portion, a first threaded portion, a second threaded portion and a narrowing portion located between said first and second threaded portions and adapted to permit said clamping portion of said anchoring sleeve to be retracted as the same is inserted into said first portion of said hole.

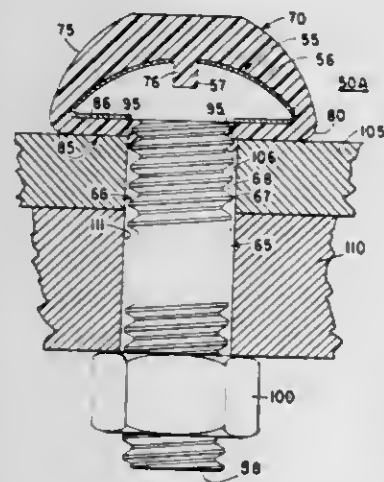
4,316,690 CAPPED BOLT

Ronald L. Voller, Rte. 1 - Box 279 - Bordeaux La., Lake Grove, Ill. 60047

Filed May 14, 1980, Ser. No. 149,848
Int. Cl.³ F16B 23/00

U.S. Cl. 411-377

9 Claims



1. A bolt for a combination bolt and nut fastener for holding a plurality of members in predetermined spaced relation, said bolt comprising a shank having machine threads thereon adapted to receive a nut thereon, a bolt head laterally larger than said shank having a radially extending, planar lead surface, a synthetic organic resin cap capable of cold flow deformation substantially surrounding said bolt head, said synthetic organic resin cap having an annular lip depending axially downwardly therefrom with a portion thereof in contact with said planar lead surface and another portion thereof extending laterally inwardly toward said shank and having an inwardly facing surface, the length of said inwardly facing surface from the free end of said annular lip to the juncture thereof with said planar lead surface being at least as long as the distance between said juncture and the adjacent thread root such that the free end cold flows into the threads of said shank upon deformation of said lip providing a hermetic seal when the nut is tightened.

4,316,691

ROUND BALE HANDLING ATTACHMENT FOR A TRACTOR

Joseph B. Kucera, Traer, Iowa, assignor to Rudolph L. Lowell, Des Moines, Iowa, a part interest

Filed Mar. 24, 1980, Ser. No. 133,472
Int. Cl.³ A01D 87/12; B66F 9/19

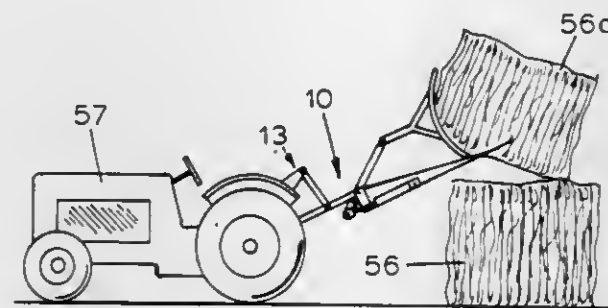
U.S. Cl. 414-24.5

2 Claims

1. A round bale handling attachment for a tractor having a pair of transversely spaced vertically movable pivoted lift arms

projected longitudinally of and outwardly from one end of the tractor, comprising:

- (a) a frame structure mountable on the free ends of said lift arms including a pair of transversely spaced tine members extending longitudinally outwardly from the lift arms,
- (b) a bale unloading member movably supported on said frame structure for movement longitudinally of said tine members in riding engagement on the upper surfaces thereof,
- (c) power means on said frame structure for moving the bale unloading member from a first bale loading position to a second bale unloading position,
- (d) means for pivotally connecting a tine member with the free end of a lift arm for up and down pivotal movement relative thereto, said frame structure including a transverse frame member extended between and connectable to the tine members adjacent the pivoted ends thereof,



- (e) means for limiting the downward pivotal movement of said tine members to positions extended longitudinally of said lift arms, including a bracket unit at the pivoted end of each tine member having a stop member located below and engageable with the bottom side of an adjacent lift arm to define said longitudinally extended positions,
- (f) said tine members, when lowered by said lift arms to positions resting on a ground surface, being pushed upwardly relative to said lift arms for movement along the ground in a following relation therewith, and, when elevated by said lift arms out of ground engagement, are pivotally movable as a unit with the lift arms in said longitudinally extended positions therefor, and
- (g) coacting means on said bracket unit and frame member for releasably securing said frame member with said tine members at a position below said lift arm stop members.

4,316,692

SPREADING DEVICE FOR LAMINATION STACKS

Rolf Schwab, Bischofsheim, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany
Filed Jul. 12, 1979, Ser. No. 57,019

Claims priority, application Fed. Rep. of Germany, Jul. 21, 1978, 2832123

Int. Cl.³ B65H 9/10

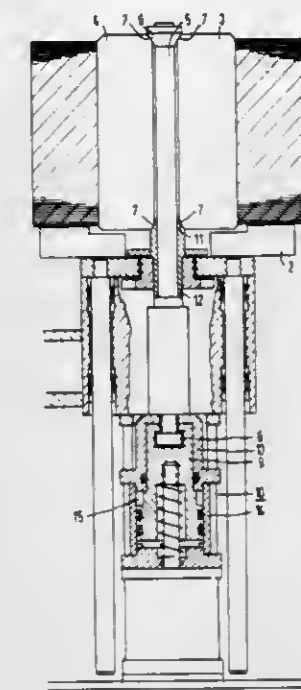
U.S. Cl. 414-27

3 Claims

1. A spreading device for insertion into a hole in a stack of laminations to align the stack for use in an electric machine comprising:

- a ring for supporting said stack of laminations;
- a mandrel passing through the ring and adapted to pass through said hole in the lamination stack supported on the ring, the mandrel adapted to be displaced axially relative to the ring;
- a first conical surface connected to the mandrel;
- a second conical surface facing the first conical surface and adapted to be displaced towards the first conical surface;
- sector pieces, adapted to fit into the hole of the lamination stack and to contact the lamination stack, each sector piece having end faces and each end face carrying a bevel for engaging one of the conical surfaces; and
- a hydraulic drive coupled to the mandrel and to the second

conical surface for axially displacing the conical surfaces towards each other by the same amount, whereby the



sector pieces are forced outward to align the laminations in the stack.

4,316,693

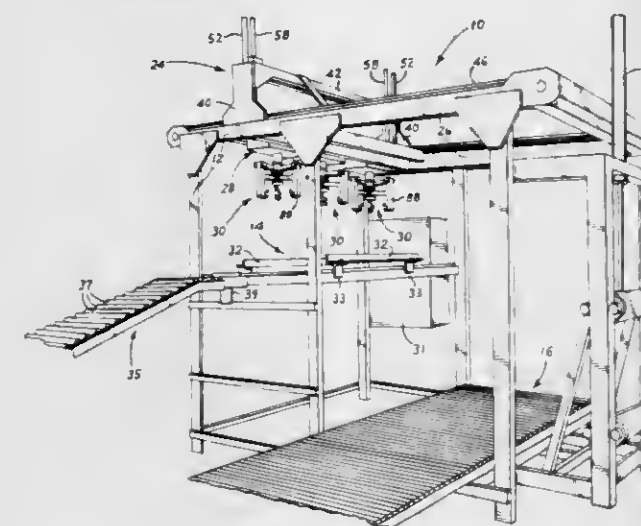
VARIABLE ARRAY CAN PALLETIZER

Donald J. Baxter, and George J. Kolin, both of Vancouver, Wash., assignors to Columbia Machine, Inc., Vancouver, Wash.

Filed Mar. 5, 1979, Ser. No. 17,179
Int. Cl.³ B65G 57/03, 57/32

U.S. Cl. 414-59

3 Claims



- 1. Apparatus for transferring a plurality of articles from a receiving station to a stacking platform to form on the platform a preselected array of articles, comprising
- a transfer carriage shiftable in a substantially horizontal path between positions overlying said station and said platform, subcarriage mounted on said carriage for vertical shifting relative thereto,
- subcarriage shifting means for shifting said subcarriage between raised and lowered positions,
- a pair of carriers, each mounted on said subcarriage for shifting in a substantially horizontal path relative to said subcarriage,
- carrier shifting means for selectively shifting said carriers, including first powered positioning means operatively interconnecting said subcarriage and one of said carriers for producing selected shifting therebetween, and second powered positioning means operatively interconnecting

said one carrier and an adjacent carrier for producing selected shifting therebetween

a pair of article-gripping devices, each device including a powered assembly mounted on an associated carrier for substantially vertical displacement relative thereto to accommodate downward travel of said carrier with respect to said device when the device initially contacts an article to be transferred, and gripping members operatively connected to said assembly for movement, under the control of the associate assembly, between gripping and release positions,

sensing means operatively associated with at least one of said assemblies for sensing such downward travel of said carrier with respect to said device, and

control means operatively connecting said sensing means with said subcarriage shifting means and said powered assemblies, for controlling shifting of said subcarriage toward its lowered position and movement of said gripping members between their gripping and release positions, upon such sensing occurring.

4,316,694

WIDE-MOUTH ARTICLE UNLOADING

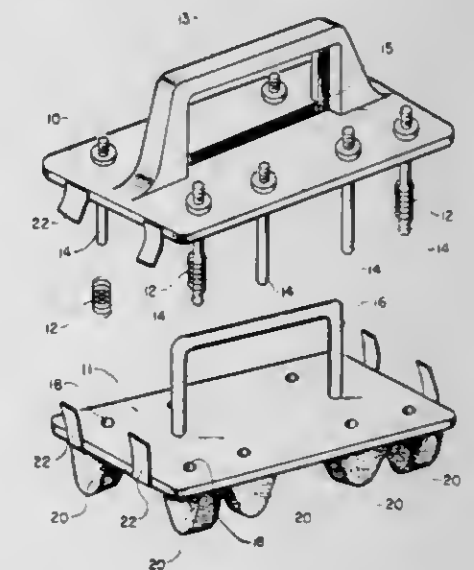
Melvin S. Martin, Martindale, Pa. 17549

Filed May 18, 1979, Ser. No. 40,243

Int. Cl.³ B65G 59/10

U.S. Cl. 414-120

19 Claims



- 1. An unloader for stacked, hollow, open-topped articles, comprising:
- a first means on one portion of the unloader for engaging a portion of the interior of a hollow article, including elastomeric means responsive to engagement with interior wall surfaces of the article as said first means is inserted into the article to hold the article thereon with sufficient retentive force to overcome gravitational forces acting on the article; and
- a second means for disengaging the hollow articles from said first means by engagement with the interior bottom surface of the article.

4,316,695

GARBAGE COMPACTION TRUCK

John W. Knight, Sr., Box 355, Rte. #5, Osage, Iowa 50461

Filed Jan. 7, 1980, Ser. No. 109,819

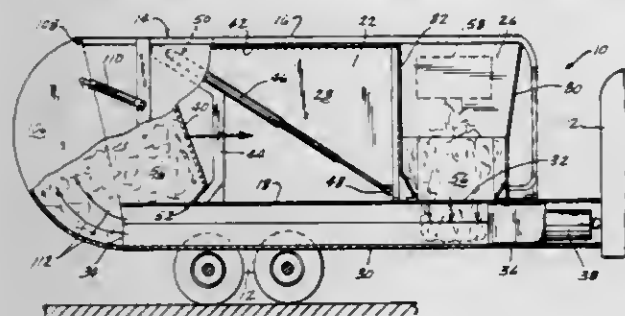
Int. Cl.³ B60D 1/00

U.S. Cl. 414-517

8 Claims

- 1. A garbage compaction apparatus comprising,
- a packer housing including a top wall, bottom wall, opposite side walls and forward and rearward end walls, said housing including a compacted garbage storage bin and a loose garbage receiving bin situated forwardly of said storage bin,

a packing channel having an inlet opening in communication with said receiving bin for receiving garbage therefrom and an outlet opening in communication with said storage bin for delivering garbage thereto,
 said packing channel comprising an elongated tube extended longitudinally of said storage bin adjacent said bottom wall, said outlet opening comprising an open rearward end of said tube and being positioned adjacent a rearward portion of said storage chamber,
 a ram reciprocally movable within said packing channel, means for moving said ram between a retracted position wherein garbage may be received into said channel through said inlet opening and a compacting position wherein said garbage received in said channel is moved toward said outlet opening,
 said outlet opening facing said rearward wall and said rearward wall comprising an arcuate generally semi-cylindrical



cal surface having a lower end in general alignment with said tube whereby garbage extruded rearwardly through said outlet opening by said ram is directed along the periphery of said rearward wall upwardly and forwardly into said storage bin,
 a movable wall within said storage bin, means for biasing said movable wall against retracting movement in a forward direction,
 said ram being operative, in response to reciprocal movement thereof, to accumulate sufficient garbage within said storage bin that rearward movement of additional garbage toward said outlet opening by said ram forces the accumulated garbage within said storage bin upwardly and forwardly to move said movable wall in a retracting forward direction against the urging of said biasing means whereby said accumulated garbage in said storage bin is maintained in a compacted state.

4,316,696

MECHANISM FOR TRANSFERRING CERTIFIED WEIGHTS FROM AND INTO A VEHICLE

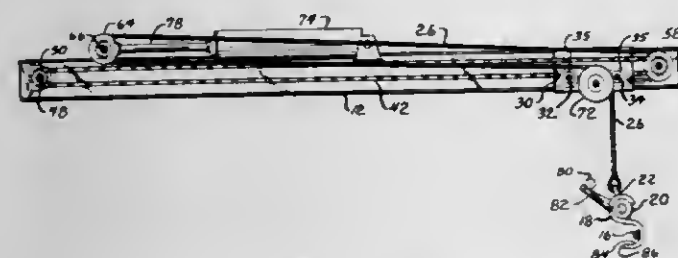
William H. Hoyerman, c/o General Body Co., 5838 N. Pulaski Rd., Chicago, Ill. 60646

Filed Mar. 7, 1980, Ser. No. 128,186

Int. Cl.³ B60P 1/54; B66C 1/38

U.S. Cl. 414—542

8 Claims



1. A device for safely supporting a weight block having a pick-up bar on the end of a cable, which device automatically disengages from the block when deposited upon a support at a desired location, comprising:
 a support cable;
 means for reciprocating said cable both horizontally and vertically;
 a spreader bar pivotally suspended from said cable and having a hook rigidly secured to said bar and outstanding

therefrom with an open ended bight which may engage and lift upon a pick-up bar in the weight block, the free end of said hook being shaped to point upwardly from horizontal when so engaged and lifting; and
 a counterweight on said spreader bar which pivots said spreader bar and said hook together so that the free end of said hook points horizontally or downwardly when the weight is deposited and the hook disengaged from said pick-up bar.

4,316,697

FRONT-LOADING HYDRAULIC EXCAVATOR

Masao Yokoyama, Komatsu, Japan, assignor to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

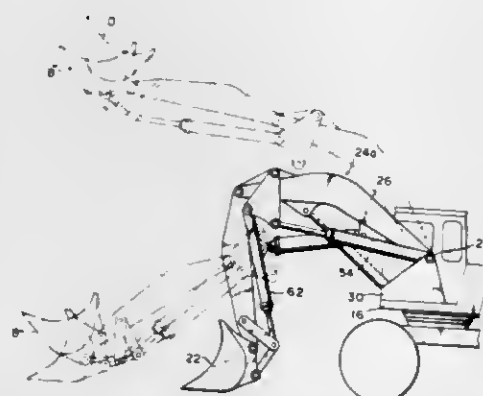
Filed Dec. 11, 1979, Ser. No. 102,366

Claims priority, application Japan, Dec. 13, 1978, 53-153059; Dec. 13, 1978, 53-170362[U]

Int. Cl.³ E02F 3/28

U.S. Cl. 414—694

9 Claims



1. A fluid-actuated excavator comprising:
 (a) a vehicle having an undercarriage and a platform rotatably mounted on the undercarriage;
 (b) a boom pivotally mounted at one end on the platform of the vehicle;
 (c) a stick pivotally connected at one end to the other end of the boom;
 (d) a fluid-actuated cylinder for pivotally operating each of the boom and the stick;
 (e) a bucket pivotally connected to the other end of the stick;
 (f) a bucket attitude control lever pivotally connected at one end of the boom;
 (g) a fluid-actuated bucket control cylinder pivotally connected at one end to the other end of the bucket attitude control lever and at the other end to operate the bucket; and
 (h) means operatively connected between the vehicle platform and the bucket attitude control lever for adjustably varying the angular position of the bucket attitude control lever about said one end thereof;
 (i) whereby a desired attitude of the bucket can be established by adjusting the angular position of the bucket attitude control lever about said one end thereof by the adjustably varying means.

4,316,698

FLUID-DRIVEN TURBINE WITH SPEED REGULATION

Val O. Bertoia, R.D. #1, Barto, Pa. 19504

Filed Aug. 23, 1979, Ser. No. 69,164

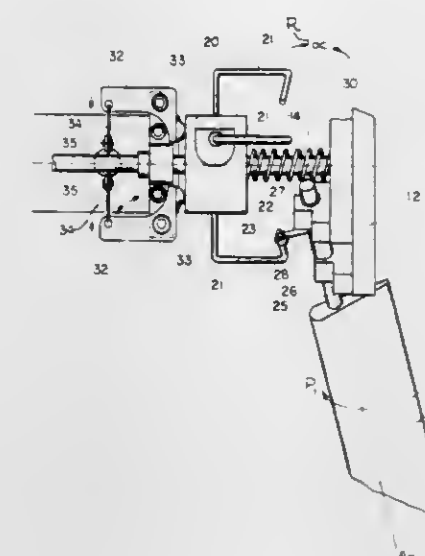
Int. Cl.³ F03D 7/04

U.S. Cl. 416—11

14 Claims

1. A fluid-driven turbine comprising: a rotatable carrier element; a plurality of wings; means mounting the wings in fixed downwind coned relation with respect to the plane of rotation of the carrier element, said mounting means including pivot means for pivoting each wing about the longitudinal axis thereof; means for biasing the wings to a starting pitch orientation in which the wings are angularly oriented relative to the

plane of rotation by an amount which maximizes wind produced rotational forces on the wings, said wings being moveable from the starting pitch orientation towards a neutral pitch orientation, said mounting means further including means for



4,316,699

WINDMILL STRUCTURE AND POWER GENERATOR

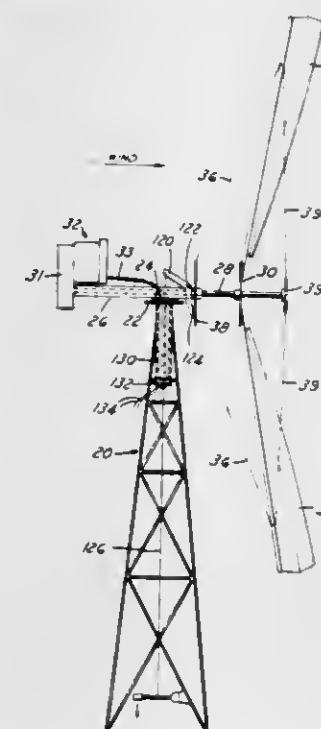
Lawrence A. Schott, 15940 Warwick Rd., Detroit, Mich. 48223, and Roger A. Schott, 15060 Seminole, Redford, Mich. 48239

Filed Aug. 24, 1979, Ser. No. 69,290

Int. Cl.³ F03D 1/06, 7/04

U.S. Cl. 416—139

3 Claims



1. In a windmill for developing power for use in energy devices of the type having vanes movable around a radially disposed mounting mast, that improvement which comprises:
 (a) a windvane comprising two elongate triangular sheets of relatively rigid non-flaccid material each having a straight side edge and a slightly curved convex side edge joined by a base side edge, said sheets being joined at the convex

side edges to form a windvane having in cross-section a concave-convex configuration, and
 (b) mast means positioned in parallel relation to one of said straight side edges to mount said windvane for rotation about said mast on an axis.

4,316,700

UNITARY, BONDED-TOGETHER HELICOPTER ROTORBLADE

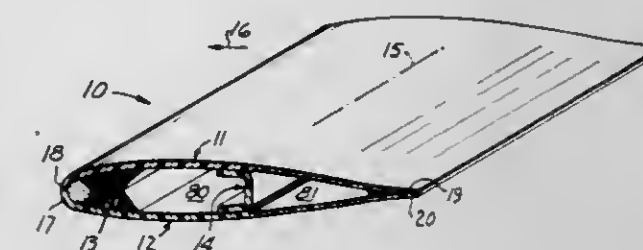
Burford J. Schramm, 1330 East Fremont Dr., Tempe, Ariz. 85204

Filed Apr. 3, 1979, Ser. No. 26,653

Int. Cl.³ B64C 27/46

U.S. Cl. 416—226

8 Claims



1. A unitary, bonded-together helicopter rotor blade having a longitudinal axis, comprising:
 a single individual monolithic spar member comprising a longitudinally extending counterweight member, a root member attached to said counterweight member, a retention means retained by and projecting laterally from said root member and spaced from said counterweight member, a plurality of longitudinally-extending fibers having substantial tensile strength gathered to form a group, and as a group doubled around said retention means, and bonding means bonding said counterweight member, root member, retention means, and fibers into a solid body, said spar member having an exteriorly curved longitudinally-extending forward surface and a pair of external shaper surfaces adjacent to said forward surface;
 an individual longitudinally-extending spacer with a pair of external abutment surfaces, said abutment surfaces facing away from one another;
 an individual top skin section and an individual bottom skin section, each skin section extending laterally and having a leading edge, said leading edges abutting one another, an inside surface bonded to said forward surface, to one of said shaper surfaces, and to one of said abutment surfaces, and a trailing edge, said trailing edges being bonded to one another, said shaper member being rearwardly spaced from said spar member and forwardly spaced from said trailing edges, whereby to leave an empty region between the skin sections to the rear of said spar member on both sides of the spacer member, the said skin surfaces being self-reinforced, and devoid of laterally-extending reinforcement on their surfaces.

4,316,701

COMPOSITE AERODYNAMIC ROTOR BLADE ASSEMBLY

Thomas S. Scarpati, Mt. Laurel, N.J., and Robert J. Ford, Bromall, Pa., assignors to The Boeing Company, Seattle, Wash.

Continuation of Ser. No. 718,543, Aug. 30, 1976, abandoned.

This application May 8, 1978, Ser. No. 903,451

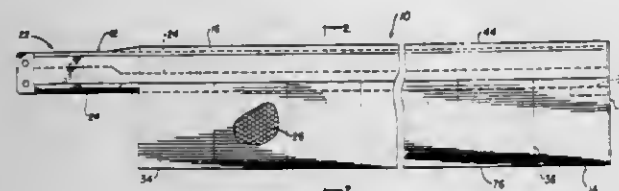
Int. Cl.³ B64C 27/46

U.S. Cl. 416—226

21 Claims

1. An aft fairing structure for a composite aerodynamic rotor blade assembly which includes a partially completed elongated composite load bearing structure spar member, the aft fairing structure comprising:

- (a) a core having top, bottom, front, rear and side surfaces;
 (b) an elongated composite load bearing structural spar heel secured to the front surface of the core and being spanwise coextensive with the partially completed composite load bearing structural spar member, said composite load bearing structural spar heel having a configuration complementary with the partially completed composite load bearing structural spar member for forming in assembly with the partially completed composite load bearing structural spar member a complete composite load bearing rotor



blade spar of unitary structure which serves as the predominant load bearing member of the rotor blade; and
 (c) top and bottom composite skin members secured to the top and bottom surfaces of the core and to the composite load bearing structural spar heel, wherein the composite load bearing structural spar member, the composite load bearing structural spar heel and the composite skin members are fabricated of pre-impregnated fiber material which is structuralized by the application of heat and pressure.

4,316,702

OIL WELL CONTROL CIRCUIT

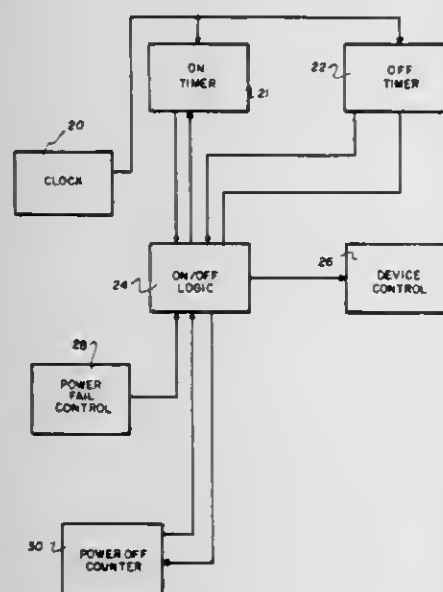
John W. Kiowski, Denton, and John V. Rolando, Dallas, both of Tex., assignors to Electronic Systems Division, Geosource, Inc., Houston, Tex.

Filed Mar. 17, 1980, Ser. No. 130,977

Int. Cl.³ F04B 49/00

U.S. Cl. 417-12

10 Claims



1. In an oil well pump control system of the type having presettable clock means for cycling a pump through a normal pump sequence of on and off intervals, the improvement comprising:

- power outage detection means for generating timing signals in response to the loss of power and restoration of power to the pump;
 power outage timing means responsive to said timing signals for generating a control signal representative of the time period of the power loss to the pump; and
 override means responsive to said control signal for overriding the pump sequence and maintaining the pump on for a period of time having a proportion to the time period of the loss of power to the pump which corresponds to the

proportion between said on time interval and said off time interval.

4,316,703

GAS COMPRESSOR

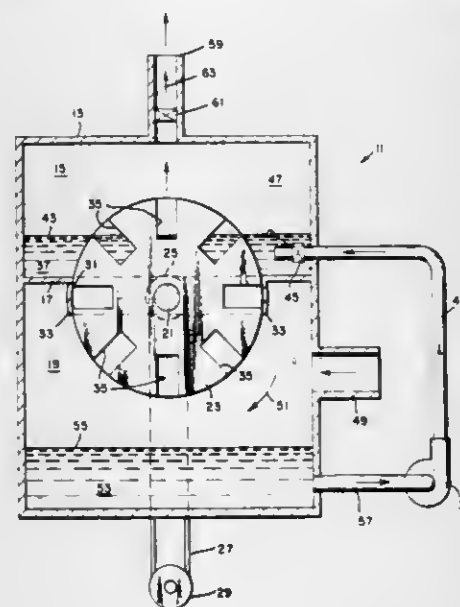
Richard D. Kunzelman, 3627 Garnet #24, Torrance, Calif. 90503

Filed Oct. 29, 1979, Ser. No. 89,529

Int. Cl.³ F04F 11/00

U.S. Cl. 417-66

18 Claims



1. A gas compressor, comprising:
 a housing having first and second chambers separated by a wall structure;
 a wheel rotatably mounted in said housing and extending through an opening in said wall structure and into both said first and second chambers, said wheel including cavities therein;
 seal means disposed in said housing including a liquid disposed in said first chamber and seal structure associated with said opening in said wall structure for restricting the movement of gases and liquids between said chambers through said opening in said wall structure other than by means of said cavities; and
 rotation means operatively coupled to said wheel for rotating said wheel to transfer a gas at a relatively lower gas pressure from said second chamber into said first chamber having a relatively higher gas pressure and to simultaneously transfer a liquid from said first chamber into said second chamber, by means of said cavities.

4,316,704

FLOATING POWER GENERATION ASSEMBLIES AND METHODS

Peter C. Heidt, P.O. Box 163, Masonville, N.J. 08054

Continuation of Ser. No. 36,556, May 7, 1979, abandoned, which is a continuation of Ser. No. 857,279, Dec. 5, 1977, abandoned, which is a continuation of Ser. No. 590,960, Jun. 27, 1975, abandoned. This application May 12, 1980, Ser. No. 148,777

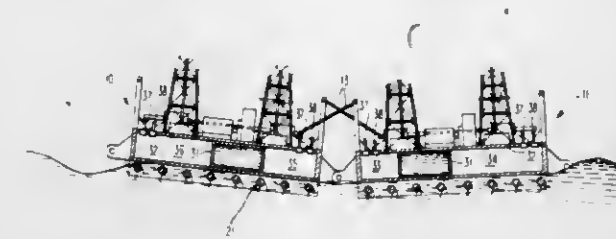
Int. Cl.³ F04F 11/00; F04B 35/00; F03B 13/12

U.S. Cl. 417-100

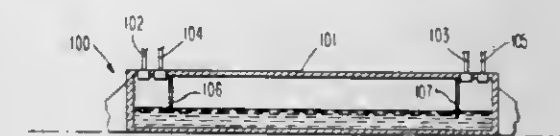
1 Claim

1. A prime mover comprising in combination
 (1) a pair of floats,
 (2) articulating means connecting each float of the pair to the other;
 (3) linkage means fixedly mounted upon each float of the pair and adapted to do useful work upon the relative displacement of either float about said articulating means;
 (4) a central longitudinal hollow chamber formed within each float coextensive therewith, said chamber being

filled partially with a body of liquid having a free surface coextensive with the chamber;



tral chamber, whereby upon displacement of one end of a float the liquid contained in the central hollow chamber

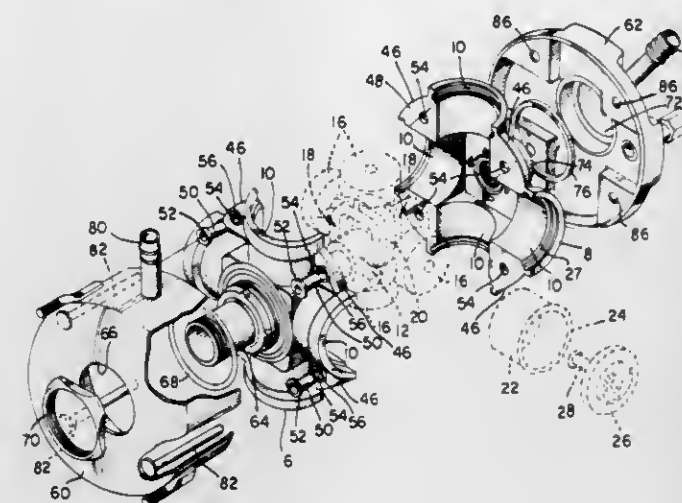


- (5) at least two longitudinal air tanks formed within each float coextensive therewith and spaced apart by said cen-

moves to the opposite end of the float, thereby accumulating energy proportional to the displacement.

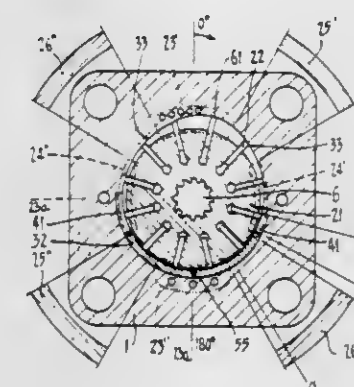
CHEMICAL

4,316,705
**HOUSING ASSEMBLY FOR SPLIT CRANKCASE
 RADIAL COMPRESSOR**
 Herbert G. Siewert, Sylvania, Ohio, assignor to Tecumseh Pro-
 ducts Company, Tecumseh, Mich.
 Filed Nov. 30, 1979, Ser. No. 98,910
 Int. Cl.³ F16J 10/02; F04B 1/04
 U.S. Cl. 417-273



1. In a radial compressor of the type including a crankcase having a plurality of radially oriented cylinders therein, crankshaft means received in said crankcase and positioned centrally of said cylinders, and pistons connected to said crankshaft and received in said cylinders for reciprocating movement, said crankcase being of the split-type comprising two halves joined together at an interface axially intersecting said cylinders, and a housing enclosing said crankcase, said housing comprising two halves mated together along a fluid-tight interface, the improvement comprising a plurality of tie rod means extending within said housing and being connected to said housing halves, said tie rod means clamping said housing halves together.

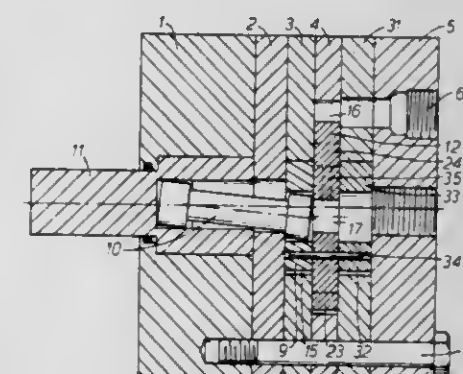
4,316,706
**VARIABLE DISPLACEMENT VANE PUMP WITH
 NON-FLUCTUATING FLOW**
 Michael D. Crooke, 120 Rathdowne St., Carlton, 3053, Victoria,
 Australia
 Filed May 29, 1979, Ser. No. 43,135
 Claims priority, application Australia, Jun. 1, 1978, PD4579
 Int. Cl.³ F04C 2/00, 15/02
 U.S. Cl. 418-16



1. A vane pump comprising vanes, a rotor carrying the vanes and which is rotatable about an axis, a housing, means defining a vane running path along which the vanes move, means defining two or more first regions, and two or more second regions of said vane running path to be of non-constant radius relative to said axis and which two or more first regions and two or more second regions vary the radius swept by the vanes as they pass along said two or more first regions and said two or more second regions, an inlet port communicating with two or more inlet zones, an outlet port communicating with two or more

outlet zones, two or more forward pumping zones between adjacent inlet and outlet zones, two or more return pumping zones between adjacent outlet and inlet zones, means for varying the angular position of both ends of those pumping zones that are in the areas axially subtended by said two or more first regions in and relative to the area axially subtended by the respective first region whereby to vary the displacement of the pump, wherein both ends of those pumping zones that are in the areas axially subtended by said two or more second regions are fixed in and relative to the area axially subtended by the respective second region, wherein the ends of each of the pumping zones subtend an angle with respect to said axis substantially equal to the angle subtended with respect to said axis by two adjacent ones of said vanes, and wherein the non-constancy of the radius of said two or more first regions and said two or more second regions are such that fluctuating displacements from the pumping zones can be combined to produce a non-fluctuating net flow for all angular positions of said both ends of those pumping zones that are in the areas axially subtended by said two or more first regions in and relative to the area axially subtended by the respective first region.

4,316,707
**GEROTOR WITH VALVE PLATE ATTACHED TO
 ROTOR**
 Gunnar L. Hansen, and Christian B. Hansen, both of Nordborg,
 Denmark, assignors to Danfoss A/S, Nordborg, Denmark
 Continuation of Ser. No. 959,746, Nov. 13, 1978, abandoned.
 This application Mar. 10, 1980, Ser. No. 129,176
 Claims priority, application Fed. Rep. of Germany, Nov. 22,
 1977, 2752036
 Int. Cl.³ F03C 2/00; F04C 2/10, 15/02
 U.S. Cl. 418-60



1. A rotary piston machine comprising a casing having interchangeable fluid inlet and outlet ports, an internally toothed stator member and an eccentrically disposed externally toothed rotor member in meshing engagement, said rotor member having rotational movement about its own axis and orbital movement about the axis of said stator member with the teeth of said members intermeshing in sealing engagement to form a group of expanding cells on one side of a rotating line of eccentricity and a group contracting cells on the other side of said line during relative movement between said members, drive shaft means in said casing connected to said rotor member, a valve plate attached to one side of said rotor member and having a sliding and abutting engagement with said stator member in a transversely extending plane, first and second sets of circumferentially and alternately arranged porting means in said plate for sequential fluid engagement with said cells, said first set of porting means being in constant fluid communication with a first one of said ports and a first group of said cells, said second set of porting means being in constant fluid communication with the second one of said ports and a second group of said cells, a generally annularly shaped recess formed between the periphery of said valve plate and the interior of said casing having fluid communication with said first one of said ports and said first set of porting means, said first set of porting means having flow controlling valving edges in said

plane which cyclically intersect said cells and are formed by said periphery of said valve plate.

4,316,708

MACHINE FOR CONTINUOUSLY MOLDING SOLID PELLETS FROM A MUD COMPOSITION

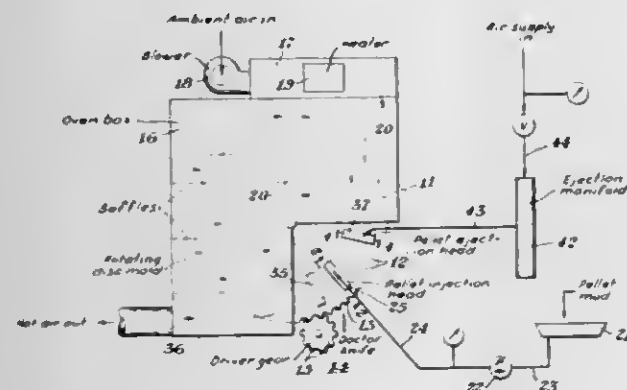
Allen G. Skach; David L. Childress, both of Angleton, and William V. Hayes, Clute, all of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Jun. 30, 1977, Ser. No. 811,739

Int. Cl.³ B28B 13/00

U.S. Cl. 425—73

5 Claims



1. A machine for continuously molding solid pellets from a mud composition, the machine comprising:

a disk which is rotatable about a central axis, which has a front face, a back face, and mold openings which extend completely through the disk and which are spaced apart;

a drive means which engages the disk, for rotating the disk;

a housing member which partially encloses the disk;

an air intake section which communicates with the housing member;

a blower means which connects into the air intake section, for forcing ambient air through the air intake section and into the housing member;

a heater means positioned inside the air intake section, for heating the ambient air to a temperature suitable for drying the mud composition;

at least one pellet injection head having a surface which rides against the front face of the disk during rotation of the disk;

the pellet injection head including a passageway therein which is in direct and intermittent communication with a given number of the mold openings during rotation of the disk, and which is connected into a container for the mud composition, the passageway being adapted for directing the mud composition from the mud container directly into the mold openings during rotation of the disk;

at least one backing plate having a surface which rides against the back face of the disk at a point directly opposite to the pellet injection head, the surface of the backing plate thereby blocking the group of mold openings in communication with the pellet injection head;

at least one scraper blade having an edge which rides against the front face of the disk, ahead of the pellet injection head, during rotation of the disk, the scraper blade thereby removing overflow mud which collects on the front face of the disk;

at least one scraper blade having an edge which rides against the back face of the disk, ahead of the pellet injection head, during rotation of the disk, the scraper blade thereby removing overflow mud which collects on the back face of the disk;

a stack of separated baffle plates which are secured to the inside of the housing member, each baffle plate having a central split therein, the split defining a path in which the disk can rotate;

the baffle plate stack providing a means for circulating the heated air along the front and back faces of the rotating

disk, to dry the mud composition and thereby form a solid pellet in each mold opening;

at least one pellet ejection head having a surface which rides against the front face of the disk during rotation of the disk; the pellet ejection head having separated passageways therein, each passageway being in intermittent communication with one of the mold openings during rotation of the disk, and each passageway being connected into a source of pressurized air, the pellet ejection head being adapted to direct the pressurized air into each mold opening in communication with a passageway, to eject the solid pellet from each mold opening;

a collector means positioned adjacent to the back face of the disk, at a point below the position of the pellet ejection head on the front face of the disk, to collect the ejected pellets; and

an air outlet conduit which connects into the housing member for carrying the heated air away from the disk.

4,316,709

CONTINUOUS BELT PRESS WITH CAPACITIVE HEATING MEANS

Stefan Petersson, Skanör, and Sven O. Alstad, Helsingborg, both of Sweden, assignors to Kockums Industri AB, Söderhamn, Sweden

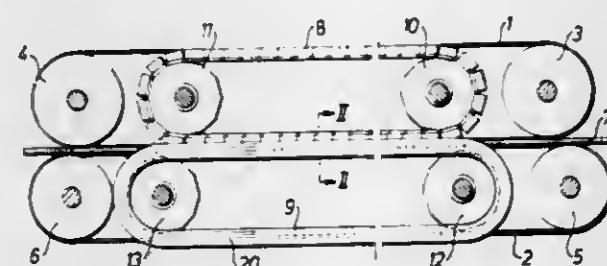
Filed Nov. 21, 1980, Ser. No. 209,099

Claims priority, application Sweden, Dec. 12, 1979, 7910239

Int. Cl.³ B29C 1/00, 3/00

U.S. Cl. 425—174.8 E

7 Claims



1. A continuously operating heat-treatment press with dielectric heating of a continuously advanced layer of material under pressure, including for example glue-coated wood chips, said press being of the kind which includes at least one endless, continuously running press chain formed of mutually linked support elements, for maintaining a vertically acting press force on the material layer, wherein the press surface of the support elements in the press chain comprises mutually electrically insulated metal rods extending in the transverse direction of the chain; and at least one stationery electrode plate connected to a high frequency generator is arranged adjacent said metal rods.

4,316,710

DUPLEX EXTRUDER HEAD

Alan Greenwood, Kent, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Mar. 24, 1980, Ser. No. 133,367

Int. Cl.³ B29F 3/04

U.S. Cl. 425—186

9 Claims

1. A duplex extruder head comprising:

passage means defining flow passages from each of two extruders to an outlet face;

die means including a die assembly having an upper surface for sealably engaging the outlet face;

slide means for clamping said die means to said outlet face including a pair of gibs having longitudinally extending splines arranged at a small angle relative to said outlet face, a pair of ribs extending transversely of and fixed relative to said passage means each rib having a longitudi-

nal groove extending at said small angle and slidably accommodating the respectively associated gib; and drive means connected to the slide means and operable to move said gibs to elevate the die means to engage the outlet face and to lower the die means from said face.

2. A duplex extruder head comprising:

receiver means defining a cavity;

flow passage insert means removably disposed in said cavity and having an outlet face;

die means removably engageable with the outlet face;

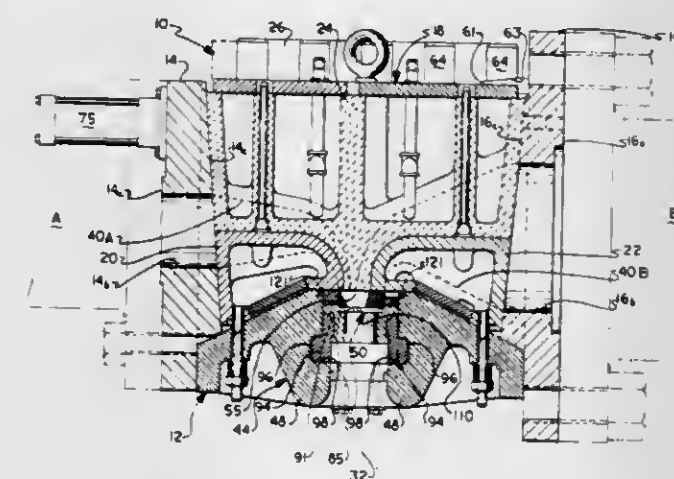
and clamp means for securing the insert means in the cavity and comprising a plurality of lugs spaced longitudinally of the insert means and overlying the receiver means, each lug having an upper surface inclined at a small angle

communicating with a spinneret plate, the improvement comprising

a cartridge fitted in said chamber, said cartridge having an upstanding continuous side wall having an inner surface which forms a continuous passage having an inlet end and an exit end which correspond to the inlet and exit ends of the chamber, respectively,

a flange extending outwardly from the inlet end of the side wall, said flange engaging the upper surface of the holder, a first screen in the inlet end and a second screen in the outlet end of the passage of the side wall, each screen being sealed to the side wall, and

a powdered filter medium being contained in the passage between the inlet and outlet screens.



relative to the outlet face, a pair of ledges extending longitudinally of the receiver means and underlying said lugs, and an opposed pair of clamp yokes each having a flange slidably engageable with the respectively associated ledge and a plurality of lugs each having an inclined lower surface inclined at said small angle and parallel to the respective upper surfaces of the first said lugs, the second said lugs being spaced apart sufficiently to allow the first said lugs to pass upwardly therebetween; and forcing means mounted on the receiver means and operable to move the clamp yokes to engage the associated pairs of first and second lugs to secure the insert means in the cavity and oppositely to align the respective second lugs with the spaces defined by the first lugs to allow removal of the insert means.

4,316,711

CARTRIDGE FILTER FOR SPIN-PACK ASSEMBLIES

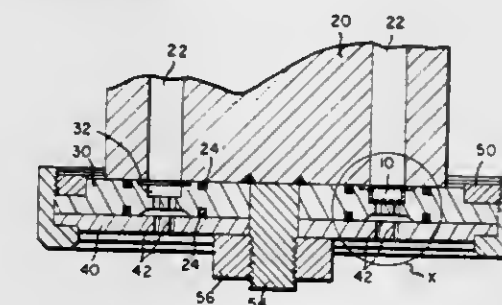
James L. Wellborn, Stuarts Draft, Va., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Aug. 5, 1980, Ser. No. 175,388

Int. Cl.³ D01D 1/10

U.S. Cl. 425—198

5 Claims



1. In a spin-pack assembly for spinning fiber-forming material into filaments, the assembly being of the type that has a spinning block, a filter holder which includes a chamber for containing a filter medium between screens, the chamber having an inlet end in the upper surface of the holder and communicating with a source of fiber-forming material that is supplied through the outlet end of the spinning block and an outlet end

1. A forming press including a main frame, a fixed platen supported on the main frame, a movable platen supported on the main frame for movement towards and away from the fixed platen, and mechanical actuating means for shifting said movable platen from a first, open position to a second, forming position and holding the movable platen in the second, forming position, said mechanical actuating means comprising:

first toggle means mounted on said main frame and operatively connected to said movable platen for moving said movable platen, said first toggle means being movable from a first position at which said movable platen is in its first position to a second position at which said movable platen is in its second position;

shifting means connected to said first toggle means and said main frame for shifting said first toggle means between its first and second positions; and

balance means operatively connected to said movable platen for assisting said shifting means and for assisting in the supporting of said movable platen when said movable platen is in its first position.

4,316,713

DIE FOR PELLETIZING MACHINE

Stanley Trickett, Upton-St-Leonards, England, assignor to Simon-Barron Limited, Gloucester, England

Filed Nov. 7, 1979, Ser. No. 92,034

Claims priority, application United Kingdom, Nov. 11, 1978, 44164/78

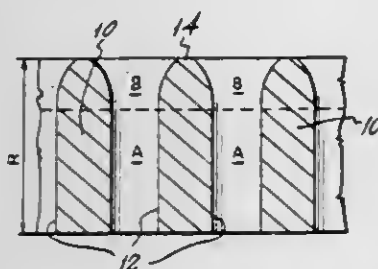
Int. Cl.³ B29C 3/00

U.S. Cl. 425—331

5 Claims

1. An annular die of the kind having a multiplicity of similar radial through bores through which, in one direction or the

other, material is extruded to form pellets, characterized in that the area of cross-section of each radial bore increases gradually along at least a predetermined part of its length to its end to which material to be extruded is supplied whereby to deliberately form an initial bell-mouth inlet at one peripheral surface of the die, the transition between the portion of increasing cross-sectional area and any outlet portion of constant cross-sectional area and any outlet portion of constant cross-sectional area being entirely smooth, the surface of said bore in the bell-mouth being longitudinally curved with the radius of curvature increasing gradually to infinity at said transition whereby to provide a continuously smooth material engaging surface entirely along said bore and said bell-mouth inlets being spaced along said peripheral surface of the die, and the axial length of said bell-mouth inlet being equal to or greater than the minimum diameter of said bore.



tional area being entirely smooth, the surface of said bore in the bell-mouth being longitudinally curved with the radius of curvature increasing gradually to infinity at said transition whereby to provide a continuously smooth material engaging surface entirely along said bore and said bell-mouth inlets being spaced along said peripheral surface of the die, and the axial length of said bell-mouth inlet being equal to or greater than the minimum diameter of said bore.

4,316,714 APPARATUS FOR PREPARING OPEN STRUCTURE FIBERS

Ronald E. Pfeiffer, Pensacola, and Francesco DeMaria, Gulf Breeze, both of Fla., assignors to American Cyanamid Company, Stamford, Conn.

Filed Feb. 21, 1979, Ser. No. 13,344
Int. Cl.³ A01J 21/02

U.S. Cl. 425—382.2

2 Claims



1. A spinnerette assembly for spinning open structure fibers which comprises in combination
 - a. a spinnerette plate containing a plurality of orifices with a counterbore for each orifice and
 - b. removable pins positioned within each orifice-counterbore combination, each pin being of solid construction and having an upper portion positioned within said counterbore and a lower portion positioned within said orifice, said upper portion occupying a fixed position within said counterbore and enabling spinning composition to flow through the counterbore to the orifice at operative back pressure and said lower portion contacting the wall of the orifice at one position while providing clearance at other positions and having suitable shape characteristics to provide an open structure in the extrudate formed.

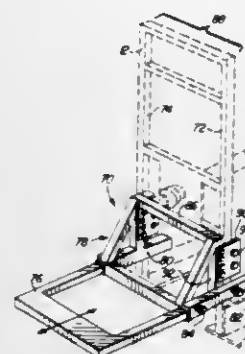
4,316,715 VIBRATORY CONCRETE SCREED HAVING AN ADJUSTABLE EXTENSION BRACKET

J. Dewayne Allen, Paragould, Ark., assignor to Allen Engineering Corporation, Paragould, Ark.

Filed Apr. 26, 1979, Ser. No. 34,171
Int. Cl.³ E01C 19/38

U.S. Cl. 425—456

13 Claims



1. A vibratory concrete screed comprising:
 - a. an open support frame having a generally triangular cross section and including an upper apex formed from a top pipe, the sides and base of said triangular frame being defined by a plurality of truss members, the intersection of the sides and base further defining first and second edges;
 - b. a front screed blade coupled along the first edge of the base of said frame and oriented parallel to said top pipe;
 - c. a rear screed blade coupled along the second edge of the base of said frame and oriented parallel to said top pipe;
 - d. means coupled to said screed for imparting vibratory motion to said front and rear screed blades;
 - e. first and second end brackets coupled to said top pipe and to said front and rear screed blades and having first and second side members defining a plane oriented perpendicular to said front and rear screed blades; and
 - f. an adjustable extension bracket including:
 - i. a channel member having first and second ends and a lower surface;
 - ii. means for coupling the first end of said channel member to said first end bracket at selectable vertical positions while maintaining the lower surface of said channel member in a plane parallel to the plane defined by said front and rear screed blades with the second end of said channel member extending outward from said first end bracket and away from said screed.

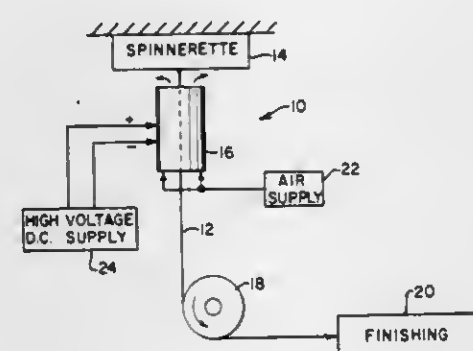
4,316,716 APPARATUS FOR PRODUCING LARGE DIAMETER SPUN FILAMENTS

Leroy C. Lin, Richmond, Va., assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Aug. 16, 1976, Ser. No. 714,866
Int. Cl.³ B29C 23/00

U.S. Cl. 425—72 S

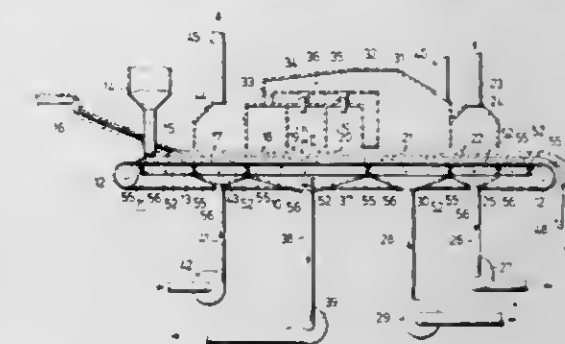
4 Claims



1. In combination with an extruder spinnerette having an

orifice from which a molten polymer filament is ejected, apparatus for cooling the molten filament as it exits the spinnerette orifice comprising:

- (A) a cold air supply;
- (B) a high-voltage, low-amperage D.C. power supply; and
- (C) electrostatic cooling means comprising a non-conductive collar mounted proximate and axially oriented to the orifice such that the molten polymer filament passes axially therethrough, said collar having means connected to the cold air supply for receiving cooling air within the collar and directing said cooling air transversely to the direction of filament passage, said collar having cathode and anode electrode pairs arranged radially symmetrically around the filament with the cathode and anode of each pair of being diametrically opposed, said electrodes connected to the power supply to effect increased air cooling efficiency of the filament by providing a balanced ionic discharge in the presence of the cooling air.



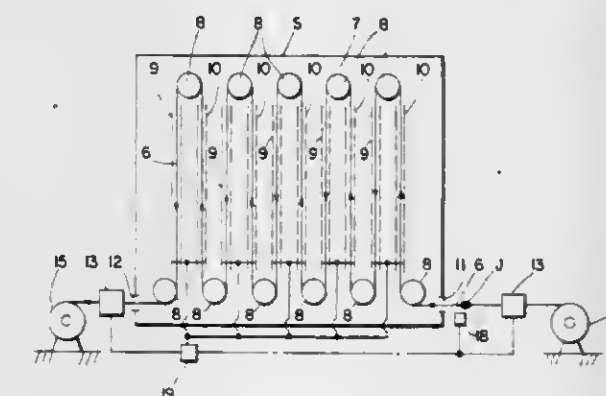
4,316,717 METHOD OF CONTROLLING STRIP TEMPERATURES

William L. Thome, Toledo, Ohio, assignor to Midland-Ross Corporation, Cleveland, Ohio

Filed Oct. 27, 1980, Ser. No. 200,775
Int. Cl.³ F27B 9/28; C21D 9/52

U.S. Cl. 432—8

8 Claims



1. A method of heat treating a pair of joined webs, such as strips or sheets of metal, of dissimilar gauges that require about the same heat treatment temperatures, comprising the steps of:
 - (a) successively passing the joined webs through a chamber which is heated to a normal processing temperature which is higher than the temperature to which the webs are desired to be heated;
 - (b) sensing the approach of the juncture outside the chamber, prior to entry of the juncture into the chamber;
 - (c) reducing the temperature within the chamber from the normal processing temperature to a temperature which is not lower than the temperature to which the webs are desired to be heated, when the juncture is sensed; and
 - (d) simultaneously reducing the line speed at which the juncture of the webs passes through the chamber in correlated relation to the reduction of the temperature within the chamber.

4,316,718 HEATING OR HEAT-TREATMENT PLANT

Roland Drugge, Malmberget, Sweden, assignor to Luossavaara-Kiirunavaara Aktiebolag, Stockholm, Sweden

Filed Jun. 4, 1980, Ser. No. 184,158

Claims priority, application Sweden, Sep. 6, 1979, 7907419

Int. Cl.³ F27B 15/00

U.S. Cl. 432—58

8 Claims

1. An arrangement in a plant comprising endless, perforated belt-type conveyor, means forming heating or heat-treatment zones for a bed of material carried by an upper part of said endless, perforated belt-type conveyor, said upper conveyor part extending through at least one said heating or heat-treatment zone in which heating or heat-treatment gas passes

through said upper conveyor part and the bed of material being conveyed thereon and through an optional further layer of gas-permeable material located between said upper conveyor part and said bed, the conveyor including a plurality of mutually-adjacent endless, imperforate belt parts separated by

perforated regions, bearing means for said conveyor, the upper conveyor part being slidably supported along at least substantially the whole of its material-carrying length in the region of said imperforate belt parts by said bearing means which act on the under surface of respective imperforate belt parts and which are completely covered by said belt parts.

4,316,719 FIXING AND HEATING DEVICE FOR ELECTROSTATIC COPYING APPARATUS

Minoru Motomura, Nara; Kiyoshi Shibata, Osaka, and Toshio Watanabe, Takatsuki, all of Japan, assignors to Mita Industrial Company Limited, Osaka, Japan

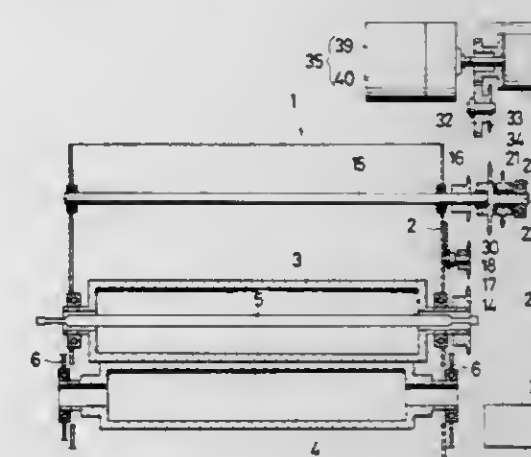
Filed Jun. 11, 1980, Ser. No. 158,381

Claims priority, application Japan, Jun. 15, 1979, 54-75886; Jun. 15, 1979, 54-75887

Int. Cl.³ G03G 15/00; F27B 9/28

U.S. Cl. 432—60

4 Claims



1. A fixing and heating device for fixing a toner image on a copy paper sheet in an electrostatic copying apparatus, said device comprising:
 - a pair of fixing rollers adapted to pass therebetween a copy paper sheet having thereon a toner image;
 - heating means for heating a first said fixing roller such that the surface thereof is at a temperature T3 suitable for fixing;
 - drive means for rotating a least one of said fixing rollers;
 - temperature detecting means for detecting the actual temperature T1 of said surface of said first fixing roller;
 - control means, operable in response to the output of said temperature detecting means and operably connected to said drive means, for causing said drive means to stop rotation of said one fixing roller when T1 < T2, for causing said drive means to rotate said one fixing roller at a first speed less than a speed suitable for conducting a fixing operation when T2 ≤ T1 < T3, and for, when

$T1 = T3$, causing said drive means to rotate said one fixing roller at a second speed suitable for a fixing operation during a fixing operation and at said first speed except during a fixing operation, wherein $T2$ comprises a predetermined temperature less than $T3$ and higher than the temperature at which the toner begins to soften;

said drive means comprising main driving means for rotating said one fixing roller at said second speed suitable for a fixing operation, one-way clutch means operatively connected between said main driving means and said one fixing roller for transmitting a rotational driving force from said main driving means to said one fixing roller, low speed driving means for rotating said one fixing roller at said first speed, and magnetic clutch means operatively connected between said low speed driving means and said one fixing roller and having a first mode for transmitting a rotational driving force from said low speed driving means to said one fixing roller and a second mode interrupting such transmission; and

said control means comprising means for, when $T1 < T2$, rendering said main driving means inoperative and changing said magnetic clutch means to said second mode thereof, for, when $T2 \leq T1 < T3$ and when $T1 = T3$ except during a fixing operation, rendering said main driving means inoperative, rendering said low speed driving means operative, and changing said magnetic clutch means to said first mode thereof, and for, when $T1 = T3$ and during a fixing operation, rendering said main driving means operative and changing said magnetic clutch means to said second mode thereof.

4,316,720

MAINTENANCE TRAINING DEVICE

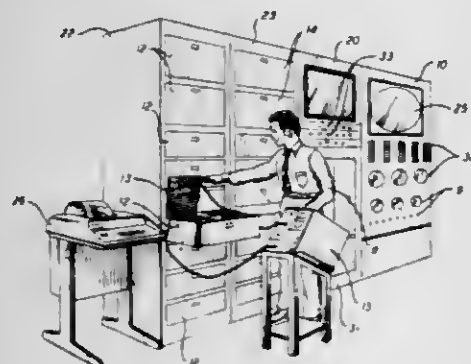
Morris Ackerman, Chevy Chase, Md., assignor to The Singer Company, Binghamton, N.Y.

Filed Mar. 26, 1979, Ser. No. 23,982

Int. Cl.³ G09B 9/00

U.S. Cl. 434—224

12 Claims



1. A maintenance training system for teaching students how to repair and maintain electronic systems that contain electronic components which cause certain sounds, data and information to appear on the output devices of said electronic system, said maintenance training system comprising:

- at least two pluralities of simulated electronic components that are similar to the electronic components contained in said electronic system, the output of the first plurality of said simulated electronic components is coupled to the output devices of said electronic system, and the second plurality of said simulated electronic components is not now coupled to this system;
- means for preventing signals from occurring at selected outputs of said simulated electronic components;
- a computer coupled to said means, said computer contains a maintenance program; and
- an instructor controlled input/output device coupled to said computer, said input/output device permits the instructor to enter malfunctions into the computer which will instruct the maintenance program contained in said computer to cause simulated defects to exist on one or more of said simulated electronic components so that the

output devices of said electronic system will not function properly, whereby a student will have the opportunity to try and find which one or ones of said first plurality of electronic components are not functioning properly, and when the student finds the one or more of said simulated first plurality of defective components, he will replace that said simulated electronic component contained within said first plurality of electronic components with a similar said second plurality electronic component so that the simulated defect or defects that existed in this system will be removed and the output devices of said electronic system will function properly.

4,316,721

METHOD FOR PRODUCING A THRUST IN MANOEUVERING ENGINES FOR A WATERCRAFT AND A MANOEUVERING ENGINE CONSTRUCTED FOR THE SAME

Friedrich Weiss, Ahrensburg, and Fred Petersen, Hamburg, both of Fed. Rep. of Germany, assignors to Jastram-Werke GmbH KG, Hamburg, Fed. Rep. of Germany

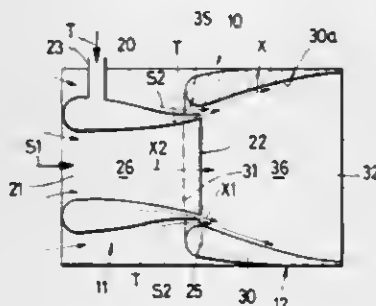
Filed Jul. 14, 1978, Ser. No. 924,666

Claims priority, application Fed. Rep. of Germany, Jul. 16, 1977, 2732223; Jun. 29, 1978, 7819548[U]

Int. Cl.³ B63H 11/02

U.S. Cl. 440—47

13 Claims



1. Manoeuvring engine, for watercraft comprising an axially elongated engine having an axially extending front engine part and an axially extending rear engine part, said front engine part comprising an annular duct with the inner surface thereof forming an axially extending suction pipe having an inlet port at one end thereof and an outlet port at the opposite end thereof, said annular duct having an annular discharge slot located at and encircling the outlet port end of said suction pipe, said annular duct at the annular discharge slot being shaped to direct flow therefrom in a direction angularly outward relative to the axis of said suction pipe, said rear engine part comprises a diffuser nozzle overlapping the outlet port end of said annular duct and having an inlet port located at the outlet port end of said suction pipe and an outlet port spaced outwardly from said suction pipe, said inlet port into said diffuser nozzle having a smaller maximum diameter than the diameter of said outlet port thereof and the minimum diameter of said inlet port of said diffuser nozzle having a larger diameter than the diameter of said outlet port of said suction pipe, said inlet port being annular in shape laterally encircling said outlet port of said suction pipe and also encircling said annular discharge slot from said annular duct, said inlet port of said diffuser nozzle forming a suction water jet directed into said diffuser nozzle for spacing the flow from the said annular discharge slot so that it does not experience frictional contact with the inside wall surface of said diffuser nozzle, means for effecting optimum matching of the velocity of the mixing jet exiting from the engine to the speed of the watercraft comprising a device for regulating the cross section of flow through said engine comprising a filling body positioned within said diffuser nozzle and said filling body being axially symmetrical relative to the axis of said engine and having a conically shaped surface extending in the axial direction of said diffuser nozzle between said inlet and outlet ports thereof for forming an

annular outlet cross section from said diffuser nozzle with said filling body being axially displaceable within said diffuser nozzle for varying the annular outlet cross section from said diffuser nozzle.

4,316,722

PROPULSION SYSTEM FOR SUBMARINE

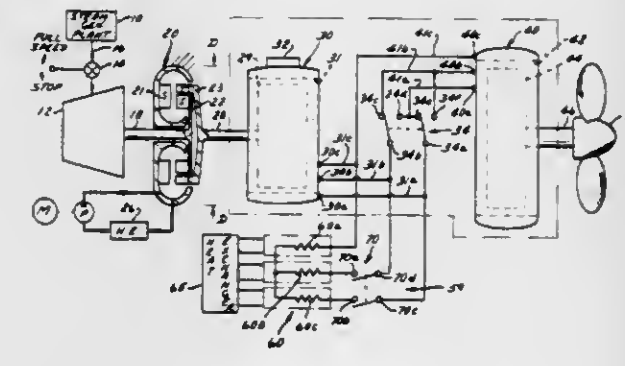
George R. Ascbauer, Racine, Wis., assignor to Twin Disc, Incorporated, Racine, Wis.

Filed Jan. 9, 1980, Ser. No. 110,676

Int. Cl.³ B63B 35/00

U.S. Cl. 440—74

21 Claims



1. In a propulsion system operable to effect a rapid reversal maneuver of a ship:

an adjustable speed prime mover rotatable in at least one direction;

a reversible drive mechanism driven by said prime mover and including a fluid-cooled torque converter and speed reduction means;

a propeller driven by said drive mechanism; and energy-dissipating load means operable during a reversing maneuver after said prime mover speed is slowed, to dissipate kinetic energy from said drive mechanism and said propeller;

said fluid-cooled torque converter being operable during a reversing maneuver after said energy dissipating load means has operated to dissipate kinetic energy and said drive mechanism is placed in reverse, and while said prime mover speed is being increased in said one direction of rotation, to be driven in reverse by said propeller while said ship moves in the original direction of travel, and to dissipate kinetic energy from said propeller until propeller rotation and ship movement cease, whereupon said torque converter drives said ship in reverse.

4,316,723

METHOD AND APPARATUS FOR SEVERING TUBE SECTIONS FROM TUBULAR WEBS AND TRANSPORTING SAME

Werner Decker, Ladbergen, Fed. Rep. of Germany, assignor to Windmüller & Hölscher, Lengerich, Fed. Rep. of Germany

Filed Jul. 9, 1979, Ser. No. 55,955

Claims priority, application Fed. Rep. of Germany, Jul. 28, 1978, 2833233

Int. Cl.³ B65H 45/14

U.S. Cl. 493—419

11 Claims

1. An apparatus for severing tube sections from intermittently fed tubular webs and for conveying severed tube sections in loop form with leading and trailing edges of the tube sections positioned on opposite sides of the loop, said apparatus comprising:

first conveying means for intermittently feeding a tubular web in a feeding direction, said first conveying means defining a web conveying plane and having a downstream end positioned at a first level;

severing means interposed in the conveying plane defined by the first conveying means for severing a tube section from the web;

gripping means comprising a circulating endless chain and a

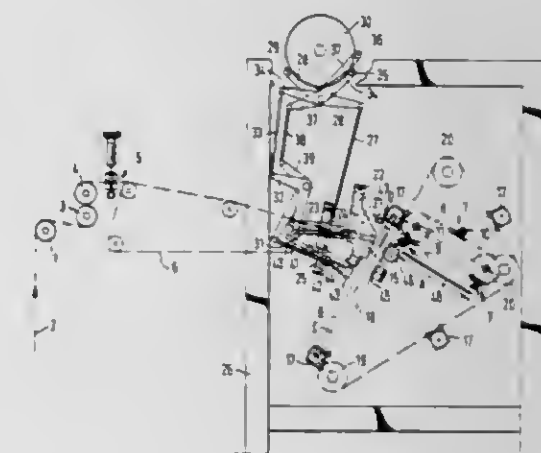
plurality of grippers secured to said chain, said gripping means being positioned after a downstream end of the first conveying means, in the feeding direction, for receiving and gripping a leading edge of the web, there being a gap between said first conveying means and said gripping means;

means for displacing said gripping means in the feeding direction;

loop forming means disposed in said gap for movement between a first position above the conveying plane and a second position below the conveying plane for contacting a portion of the severed tube section intermediate the leading and trailing edges, for pulling the tube section from the first conveying means, and for forming a loop in the intermediate portion of the severed tube section;

second conveying means positioned at a level lower than the level of the downstream end of the first conveying means and running transversely to the web feeding direction for contacting a side of the loop formed by said loop forming means facing said second conveying means; and

movable pressure means for pressing the loop against said second conveying means, said movable pressure means being positioned to contact a side of the loop opposite the side facing the second conveying means and being movable to apply the loop to said second conveying means so that the severed tube section is conveyed transversely to the web feeding direction with leading and trailing edges of the section on opposite sides of the loop.



2. An apparatus for severing tube sections from intermittently fed tubular webs and for conveying severed tube sections in loop form with leading and trailing edges of the tube sections positioned on opposite sides of the loop, said apparatus comprising:

first conveying means for intermittently feeding a tubular web in a feeding direction, said first conveying means defining a web conveying plane and having a downstream end positioned at a first level;

severing means interposed in the conveying plane defined by the first conveying means for severing a tube section from the web;

gripping means positioned after a downstream end of the first conveying means, in the feeding direction, for receiving and gripping a leading edge of the web, there being a gap between said first conveying means and said gripping means;

means for displacing said gripping means in the feeding direction;

loop forming means disposed in said gap for movement between a first position above the conveying plane and a second position below the conveying plane for contacting a portion of the severed tube section intermediate the leading and trailing edges, for pulling the tube section from the first conveying means, and for forming a loop in the intermediate portion of the severed tube section, said loop forming means comprising parallel chains spaced from each other by a distance greater than the width of

the web, and a plurality of spaced apart rods secured to said chains, said chains having runs such that said rods pass through said gap to form said loops;
 second conveying means positioned at a level lower than the level of the downstream end of the first conveying means and running transversely to the web feeding direction for contacting a side of the loop formed by said loop forming means facing said second conveying means; and
 movable pressure means for pressing the loop against said second conveying means, said movable pressure means being positioned to contact a side of the loop opposite the side facing the second conveying means and being movable to apply the loop to said second conveying means so that the severed tube section is conveyed transversely to the web feeding direction with leading and trailing edges of the section on opposite sides of the loop.

3. An apparatus for severing tube sections from intermittently fed tubular webs and for conveying severed tube sections in loop form with leading and trailing edges of the tube sections positioned on opposite sides of the loop, said apparatus comprising:

first conveying means for intermittently feeding a tubular web in a feeding direction, said first conveying means defining a web conveying plane and having a downstream end positioned at a first level, said first conveying means comprising a first driven conveyor, and a clamping roller pair having a driven roller that can be selectively uncoupled from its drive, said clamping roller pair being displaceable to and fro in the feeding direction and being raisable and lowerable as a unit;

severing means interposed in the conveying plane defined by the first conveying means for severing a tube section from the web;

gripping means positioned after a downstream end of the first conveying means, in the feeding direction, for receiving and gripping a leading edge of the web, there being a gap between said first conveying means and said gripping means;

means for displacing said gripping means in the feeding direction;

loop forming means disposed in said gap for movement between a first position above the conveying plane and a second position below the conveying plane for contacting a portion of the severed tube section intermediate the leading and trailing edges, for pulling the tube section from the first conveying means, and for forming a loop in the intermediate portion of the severed tube section;

second conveying means positioned at a level lower than the level of the downstream end of the first conveying means and running transversely to the web feeding direction for contacting a side of the loop formed by said loop forming means facing said second conveying means; and

movable pressure means for pressing the loop against said second conveying means, said movable pressure means being positioned to contact a side of the loop opposite the side facing the second conveying means and being movable to apply the loop to said second conveying means so that the severed tube section is conveyed transversely to the web feeding direction with leading and trailing edges of the section on opposite sides of the loop.

4,316,724

GASOLINE AND ALCOHOL BLENDS

Sheldon Herbstman, Spring Valley, N.Y., assignor to Texaco Inc., White Plains, N.Y.

Filed May 5, 1980, Ser. No. 146,841

Int. Cl.³ C10L 1/18

U.S. Cl. 44-56

9 Claims

1. The method which comprises

(i) mixing gasoline and aqueous ethanol thereby forming a two-phase system including an upper layer containing gasoline and ethanol and a lower layer containing water, ethanol, and gasoline;

(ii) contacting said lower layer with isobutylene or isoamyl-

ene olefin in the presence of etherification-alcoholification catalyst at etherification-alcoholification conditions including temperature of 100° F.-300° F. whereby the ethanol in said lower layer reacts with olefin to form ether and the water in said lower layer reacts with olefin to form tertiary alcohol thereby forming a lower layer containing ether and tertiary alcohol;

(iii) mixing said lower layer containing ether and tertiary alcohol with said upper layer containing gasoline and ethanol thereby forming a product gasoline composition containing gasoline, ethanol, ether, and tertiary alcohol; and

(iv) recovering said product gasoline composition containing gasoline, ethanol, ether, and tertiary alcohol.

4,316,725

METHOD AND APPARATUS FOR DEAERATING LIQUID

Leif Hovind, Oslo, and Tron-Halvard Fladby, Asker, both of Norway, assignors to A/S Akers Mek. Verksted, Oslo, Norway

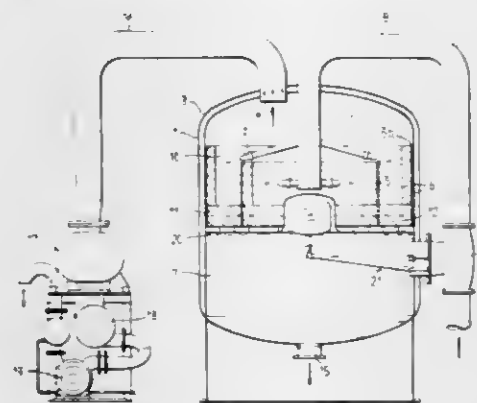
Filed Oct. 15, 1980, Ser. No. 197,162

Claims priority, application Norway, Oct. 16, 1979, 793332

Int. Cl.³ C02B 1/10

U.S. Cl. 55-41

11 Claims



1. A method for deaerating liquids which comprises

(a) directing at least one stream of liquid to be deaerated into a vacuum zone and against the surface of a porous material which is coated on at least one vertically-extending impingement wall, the porous material preventing the foaming of the liquid in the streams,

(b) causing the liquid absorbed in the porous material on each vertically-extending impingement wall to flow downwardly through the porous material and concurrently become deaerated,

(c) causing the deaerated liquid to pass from the bottom of the porous material coated on each vertically-extending impingement wall downwardly into a horizontally-extending porous partition, the partition acting to prevent any liquid from the streams in step (a) from passing directly therebelow,

(d) causing the deaerated liquid to pass downwardly through the horizontally-extending porous partition and flow into a bath of deaerated liquid,

(e) withdrawing deaerated liquid from the bath of deaerated liquid, and

(f) controlling the amount of liquid in the streams of step (a) such that the surface of the bath of deaerated liquid will be located in the horizontally-extending porous partition, thereby preventing the occurrence of foam on the surface of the bath.

4,316,726

METHOD AND APPARATUS FOR PROCESSING FLUIDS

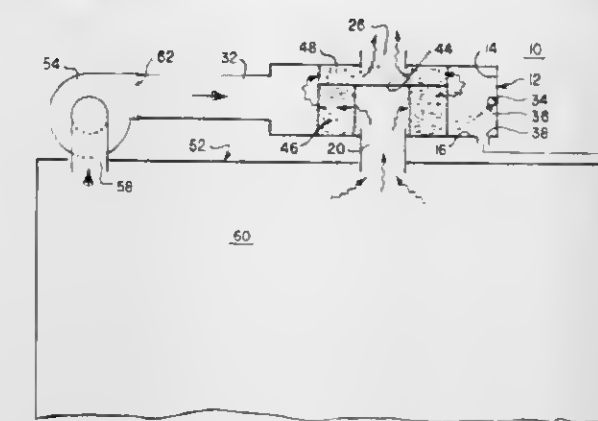
James A. Hopper, Erie, Pa., assignor to American Sterilizer Company, Erie, Pa.

Filed Jul. 7, 1980, Ser. No. 166,755

Int. Cl.³ B01D 53/26

U.S. Cl. 55-89

15 Claims



12. A method for processing liquid-containing fluids present in a work chamber at elevated temperature comprising the steps of:

providing a tortuous path of fluid communication between said work chamber and the outside atmosphere, said tortuous path having disposed therein filter means adapted to permit passage of gases and retard passage of liquids;

permitting said liquid-containing fluids present in said work chamber to flow along said tortuous path in a first direction during periods of a first pressure differential between said work chamber and the atmosphere;

thereafter withdrawing said liquid-containing fluids from said work chamber and forcing them to flow in an annulus surrounding said tortuous path, said annulus being in fluid communication with said tortuous path to permit said withdrawn fluids, after flowing in said annulus, to return to said work chamber;

cooling said withdrawn liquid-containing fluids as they flow in said annulus; and

permitting the flow of atmospheric gas along said tortuous path in a second direction opposite to said first direction when the pressure differential between said work chamber and said atmosphere reverses.

4,316,727

ANNULAR-GAP WASHER INCLUDING ELECTRODE MEANS

Karl-Rudolf Hegemann, Essen-Bergerhausen; Johannes W. Kautz, Heiligenhaus, and Helmut Weissert, Bochum-Hiltrop, all of Fed. Rep. of Germany, assignors to Gottfried Bischoff Bau Kompl. Gasreinigungs- und Wasserrückkühlanlagen GmbH & Co. KG, Essen, Fed. Rep. of Germany

Filed Oct. 17, 1980, Ser. No. 198,042

Claims priority, application Fed. Rep. of Germany, Oct. 18, 1979, 294213

Int. Cl.³ B03C 3/16

U.S. Cl. 55-107

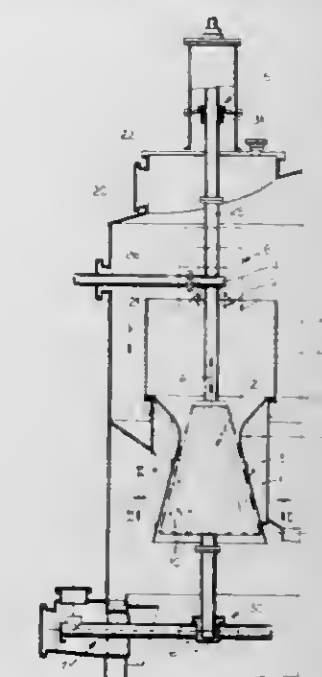
3 Claims

1. In an annular-gap washer for scrubbing a particle-containing waste gas with a scrubbing liquid and comprising a housing forming a gas passage and having a gas inlet and a gas outlet, an elongated central body disposed in said passage and defining an elongated annular gap with said housing, means for adjustably shifting said body for varying the width of said gap, a spray nozzle disposed axially in said housing between said gas inlet and said body for dispensing a spray of scrubbing liquid into a particle-containing waste gas adapted to flow through said gap, the improvement which comprises:

at least one discharge electrode disposed in said passage prior to said nozzle for electrically charging particles contained in said waste gas, said at least one discharge electrode having a non-discharge terminal portion extend-

ing into the region adjacent said nozzle and the region sprayed thereinto;

further electrode means positioned between said housing and said body across said gap and said further electrode means producing an electrostatic field therebetween with



substantially radial field lines for inducing electrodynamic action in a mixture of said gas and droplets of said liquid flowing through said gap; and

a high voltage electric source connected to said at least one discharge electrode and across said further electrode means.

4,316,728

ENTRAINMENT SEPARATOR

Michael B. Caesar, Lake City, Fla., assignor to Occidental Research Corporation, Irvine, Calif.

Continuation-in-part of Ser. No. 909,895, May 26, 1978, abandoned, and Ser. No. 909,898, May 26, 1978, Pat. No. 4,164,398, and a continuation of Ser. No. 44,376, Jun. 1, 1979, abandoned. This application Aug. 8, 1980, Ser. No. 176,377

The portion of the term of this patent subsequent to Aug. 14, 1996, has been disclaimed.

Int. Cl.³ B01D 45/10

U.S. Cl. 55-226

7 Claims

1. A device for separating entrained liquids and solids from a gas comprising:

(a) housing having inlet means for introducing a flow of gas having entrained liquids and solids therein, into said housing, first outlet means for withdrawing liquids and solids, separated from said gas, from said housing, and second outlet means for withdrawing gas, substantially free of entrained liquids and solids, from said housing, said inlet means and said first outlet means being disposed in opposite ends of said housing, said second outlet means being disposed in said housing intermediate said inlet and first outlet means;

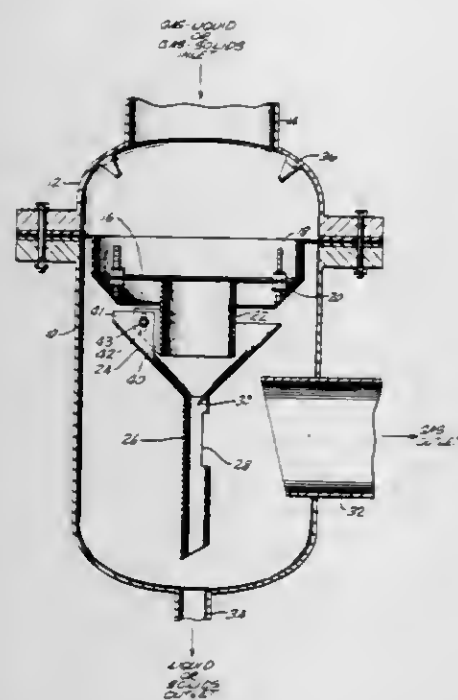
(b) a member having means defining a first surface for intercepting the flow of gas introduced by the inlet means and a second surface opposite said first surface;

(c) a tube disposed within said housing and extending away from the second surface;

(d) annular deflector means disposed adjacent to said member first surface and positioned to provide an opening therebetween, said deflector means being operative for directing the gas flow toward said tube;

(e) means for adjusting the position of the member relative to

the annular deflector means, thereby varying the size of said opening; and



(f) funnel means at least partly surrounding said tube for conducting flow of liquids and solids separated from the gas introduced into the housing into said second outlet means.

4,316,729

HIGHLY EFFICIENT CYCLONE SEPARATOR

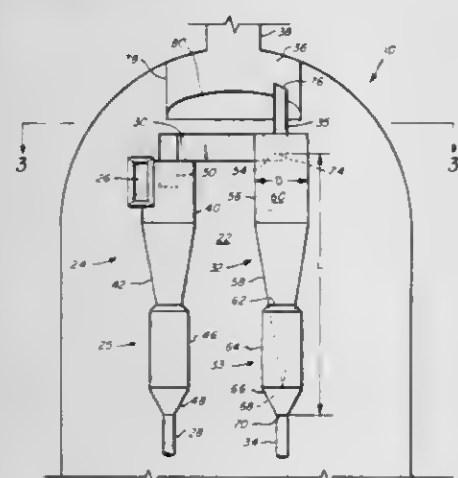
John P. Mac Lean, Stafford; J. Edward Cantwell, Houston; John D. Brown, The Woodlands, and Harold D. Hoy, Bridge City, all of Tex., assignors to Texaco Inc., White Plains, N.Y.

Continuation-in-part of Ser. No. 38,756, May 14, 1979, abandoned, which is a continuation-in-part of Ser. No. 865,051, Dec. 27, 1977, abandoned. This application Jul. 7, 1980, Ser. No. 166,638

Int. Cl.³ B04C 5/04

U.S. Cl. 55—459 R

4 Claims



1. A cyclone separator (32) comprising a barrel portion (56) having an inlet means (54) and an outlet means (74) wherein, (a) said separator inlet means (54) having an inlet area (I) in the upper portion of the separator shaped for receiving gases with entrained solids therein at a velocity in the range of 52 feet per second to 80 feet per second, (b) said solids-free-gas outlet means (74) having an outlet area (O) at the upper portion of the separator shaped for receiving solids-free-gas at a velocity in the range of 52 feet per second to 200 feet per second, (c) the ratio of said solids-free-gas outlet area (O) to said separator inlet area (I) being in the range of substantially $O/I=0.4/1$ to $1.0/1.0$, (d) said cyclone separator having a lower conical portion means (58) and a dust bowl means (33) attached to said

lower conical portion means with a solids outlet means (70) on the bottom of said dust bowl means, wherein the diameter (d62) at the junction of said lower conical portion and said dust bowl means is 0.1 to 0.8 times the diameter (D) of said barrel portion, and

(e) the distance (L) from said gas outlet means (74) to said solids outlet means (70) being proportional to the diameter (D) of the barrel portion of the cyclone separator in an amount so that $L/D=4.49-1.09 (O/I)$ for providing maximum efficiency with minimum erosion of both the cyclone separator internal wall surface and of the separated solids, and minimum attrition of the separated solids.

4,316,730

FILTER FOR THE REMOVAL OF APOLAR ORGANIC SUBSTANCES FROM GASES

Hansjörg Eibl, Bovenden, Fed. Rep. of Germany, assignor to Max Planck-Gesellschaft, Göttingen, Fed. Rep. of Germany Continuation of Ser. No. 926,173, Jul. 19, 1978, abandoned. This application Jul. 31, 1980, Ser. No. 173,947

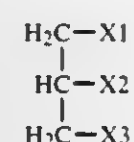
Claims priority, application Fed. Rep. of Germany, Apr. 27, 1978, 2818608

Int. Cl.³ B01D 39/14

U.S. Cl. 55—524

20 Claims

1. Filter for the removal of apolar organic substances from gases comprising a filter support and an absorbent comprising at least one compound of the following formula:



1

wherein one of X1, X2, and X3 is a phosphoric acid, phosphoric acid ester, or phosphatidyl moiety and two of the groups X1, X2, and X3 are independently selected from saturated fatty acid ester moieties and saturated alcohol (8 to 20 carbon atoms) ether moieties.

4,316,731

METHOD AND APPARATUS FOR PRODUCING FIBERS David C. K. Lin, Newark, and Larry J. Huey, Granville, both of Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Sep. 25, 1980, Ser. No. 190,677

Int. Cl.³ C03B 37/06

U.S. Cl. 65—5

16 Claims

1. Apparatus for attenuating streams of molten material into filaments advancing along a path comprising:

a first member having:

- a landing,
- an arcuate surface having a radius "r₂", the sum of the lengths of the landing and the arcuate surface being equal to the converging section length, l₃,
- a front surface opposite said arcuate surface,
- a chamber surface, said arcuate surface being located intermediate and contiguous with said landing and said chamber surface,
- a nozzle edge at the distal end of said landing, and
- a beveled section angled upwardly from said front surface at an angle E; and

a second member having:

- a forward wall,
- a first arcuate section,
- a head section,
- a second arcuate section having a radius "r₁", and
- a chamber section,

said first arcuate surface being located intermediate and contiguous with said forward wall and said head section, said second arcuate surface being located intermediate and contiguous with said head section and said chamber section, said first

member and said second member being oriented such that (i) said landing and said head sections form an acute angle A therebetween, (ii) said edge being located immediately adjacent said head section to form a nozzle gap d₆ therebetween, and (iii) said chamber section and said head section are oriented at an angle G therebetween where

$$5^\circ \leq A \leq 60^\circ$$

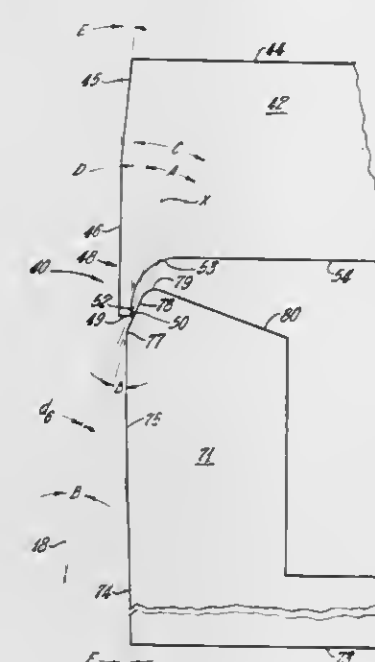
$$0^\circ \leq E \leq 20^\circ$$

$$65^\circ \leq G \leq 145^\circ$$

wherein the ratio

$$R_1 = r_1/d_6$$

and



$$R_1 \geq 3$$

wherein the ratio

$$R_2 = r_2/d_6$$

and

$$R_2 > R_1$$

wherein the ratio

$$R_3 = l_3 d_6$$

and

$$10 \leq R_3 \leq 2,000.$$

4,316,732

BYPASS WEDGE FOR DRYING AND PREHEATING GLASS BATCH AGGLOMERATES

Mark A. Propster, Gahanna, and Charles M. Hohman, Granville, both of Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Jun. 11, 1980, Ser. No. 158,558

Int. Cl.³ C03B 1/00

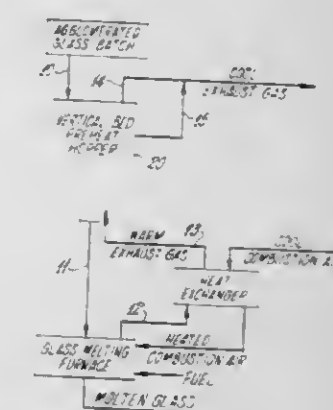
U.S. Cl. 65—27

11 Claims

1. A process for producing glass by charging to a melting furnace and melting therein a batch including the steps of compacting the batch into agglomerates, forming a vertical bed with the agglomerates, moving the agglomerates in direct contact with and countercurrently to, hot furnace exhaust

gases, removing exhaust gases that pass through the top part of the vertical bed and removing a portion of the exhaust gases below the top of the vertical agglomerate bed, wherein a sufficient amount of exhaust gases are removed below the top of the bed so that the exhaust gases passing through the top of the bed have a lowered temperature and a reduced velocity sufficient to reduce particulate emissions in the exhaust gases leaving the top of the bed.

4. An apparatus for producing molten glass comprising: means for forming glass batch into agglomerates; a free flowing, shaft-type vertical bed preheat hopper; means for supplying the agglomerates to the upper portion of the hopper;



a glass melting furnace; means for supplying the agglomerates from the lower portion of the hopper to the glass melting furnace; means for supplying exhaust gases to the lower portion of the preheat hopper; means for removing the exhaust gases that pass through the top part of the hopper; and bypass means for removing a portion of the exhaust gases below the top of the hopper, wherein the bypass means is located above the means for supplying exhaust gases to the hopper so as to heat the agglomerates in the lower portion of the hopper.

4,316,733

APPARATUS AND METHOD FOR ATTENUATING GLASS RIBBON

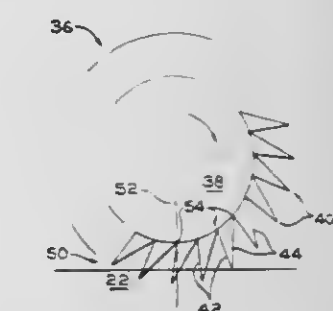
Robert A. Lawhon, Carlisle, and Jeffrey S. Yigdall, Conneaut Lake, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Sep. 25, 1980, Ser. No. 191,041

Int. Cl.³ C03B 18/06

U.S. Cl. 65—99 A

10 Claims



1. In an edge roll for rotatably engaging a ribbon of glass to exert attenuating forces to the marginal edge portions thereof, including a body portion supporting a plurality of glass engaging members about its circumferential surface, each of said glass engaging members having glass penetrating end portions, a leading edge and a first intersection point defined by the intersection of the leading edge and the body portion, the improvement comprising:

first selected ones of said glass engaging members fixed and shaped relative to said body portion at least during en-

gagement between each of said glass engaging members and said ribbon of glass such that an axial line which passes through the first intersection point is parallel to the leading edge or passes through the glass engaging member.

6. In a method of attenuating a ribbon of glass comprising the steps of mounting a plurality of glass engaging members having glass penetrating end portions on the circumferential surface of a body portion of an edge roll, rotating the body portion about an axis of rotation, and engaging a marginal edge portion of the ribbon of glass with said edge roll such that each of said glass engaging members engages said ribbon during a portion of its movement path defined as an engagement path; the improvement comprising:

engaging the ribbon of glass with first selected ones of said glass engaging members such that the leading edge of each of said first selected ones of said glass engaging members forms an angle equal to or greater than 90° with the surface of said ribbon during at least one half of its engagement path.

4,316,734

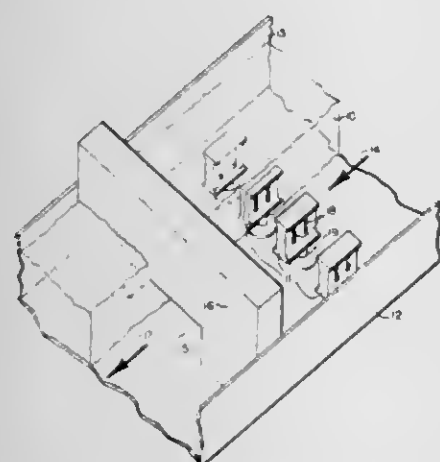
REMOVING INCLUSIONS

Emilio D. Spinosa, Upper Arlington, and Dale Ensminger, Columbus, both of Ohio, assignors to Battelle Memorial Institute, Columbus, Ohio

Filed Mar. 3, 1980, Ser. No. 126,797
Int. Cl.³ C03B 5/16

U.S. Cl. 65—135

9 Claims



1. A method of removing gaseous inclusions from a highly viscous liquid containing both inclusions and dissolved gases comprising

applying sonic energy in the liquid at an energy intensity sufficient to induce migration and coalescence of the inclusions in the liquid, and less than that required to produce substantial cavitation therein, so as to avoid substantial liberation of dissolved gases, until the volume density of the inclusions has been reduced to a desired level.

4,316,735

POSITION ADJUSTMENT MECHANISM FOR FLAT GLASS FORMING TWEEL

Stephen J. Schultz; Ronald R. Zito, both of Pittsburgh; George O. Wehner, Bethel Park, and George C. Newcamp, Pittsburgh, all of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

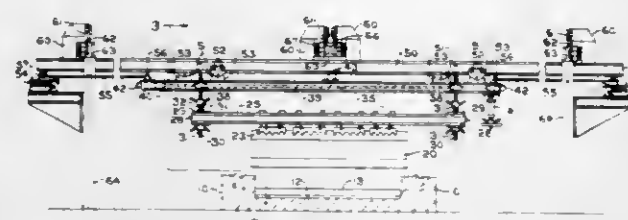
Filed Nov. 28, 1980, Ser. No. 211,167
Int. Cl.³ C03B 18/06

U.S. Cl. 65—164

12 Claims

1. An apparatus for producing flat glass including a longitudinally spaced melting furnace and forming chamber and a delivery section therebetween providing a path for a flow of molten glass in the longitudinal direction from the melting furnace into the forming chamber, tweel flow control gate means in the delivery section for controlling the flow of molten

glass therethrough, elevator means for vertically raising and lowering the tweel, support means above the delivery section



for supporting the elevator means, and means associated with the support means for adjusting the position of the tweel in the longitudinal direction.

4,316,736

PROCESS FOR PREPARING STABILIZED, AMMONIUM NITRATE CONTAINING GRANULES

Willy H. P. Van Hijfte, Assenede, and Rafaël A. J. Goethals, Ertvelde, both of Belgium, assignors to Compagnie Neerlandaise de l'Azote, Brussels, Belgium

Filed Feb. 28, 1980, Ser. No. 125,497

Claims priority, application Netherlands, Mar. 15, 1979, 7902086

Int. Cl.³ E05B 73/02

U.S. Cl. 71—59

7 Claims

1. A process for preparing stabilized, ammonium nitrate containing granules, which comprises dissolving in an aqueous ammonium nitrate solution having an ammonium nitrate concentration of at least 80% by weight $Mg(NO_3)_2$ in a proportion of 0.5–3.0% by weight, calculated on the ammonium nitrate in the solution, and suspending finely-divided mineral filler in a proportion of 0–45% by weight, calculated on the total of ammonium nitrate and filler in the suspension, spraying the resulting solution of suspension over solid nuclei while these are maintained in essentially spaced interrelationship in an agitated particle bed or mass and contacted with a hot stream of gas, while maintaining the temperature of the sprayed nuclei between 120° and 135° C., to deposit droplets of the sprayed solution or suspension on the nuclei and drying these in situ while evaporated water is removed by the stream of gas, until a desired grain size is reached, whereafter the resulting granules are cooled by means of a cooling medium to a temperature below 50° C. in such a manner that, in the cooling range of from 70° C. to 50° C., the granules remain substantially homogeneous in temperature.

4,316,737

2-PHENYL-5,6-DIHYDRO-4-PYRONE DERIVATIVES AND HERBICIDAL COMPOSITIONS IN WHICH THEY ARE PRESENT

Francois Guigues, Rillieux; Gilles Peris Y Saborit, La Duchere, and Guy Borrod, Villeurbanne, all of France, assignors to Philagro, Lyons, France

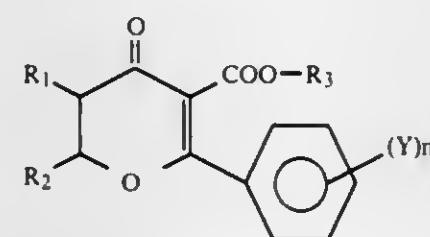
Filed Feb. 27, 1979, Ser. No. 15,626

Claims priority, application France, Mar. 15, 1978, 78 08228
Int. Cl.³ A01N 43/16; C07D 309/28, 311/74, 311/94

U.S. Cl. 71—88

16 Claims

1. A 2-phenyl-5,6-dihydro-4-pyrone derivative of the formula:



in which: R_1 and R_2 , which are identical or different, each represent hydrogen or alkyl of 1 to 4 carbons, or together form

an alkylene chain of 2 to 6 carbons, R_3 is alkyl of 1 to 4 carbons, alkenyl of 2 to 4 carbons, alkynyl of 2 to 4 carbons, halogenoalkyl of 1 to 4 carbons or alkoxyalkyl of 3 to 5 carbons, n is 1, 2 or 3, and Y is halogen, alkyl of 1 to 4 carbons or alkoxy or 1 to 4 carbons, at least one Y being alkoxy or halogen with the proviso that when n is different from 1 the substituents Y can be identical or different.

4,316,738

ECONOMICAL PROCESS FOR PRODUCING METAL PARTICLES FOR MAGNETIC RECORDING

Irving W. Wolf, Los Altos; Michael K. Stafford, Santa Clara; Hillard M. Kahan, San Francisco; William F. Acebo, Hayward; Lawrence M. Scott, and Yu C. Lee, both of Newark, all of Calif., assignors to Ampex Corporation, Redwood City, Calif.

Continuation-in-part of Ser. No. 89,783, Oct. 31, 1979, which is a continuation of Ser. No. 8,948, Feb. 2, 1979, abandoned. This application May 23, 1980, Ser. No. 152,899

Int. Cl.³ B22F 9/00

U.S. Cl. 75—0.5 BA

8 Claims

1. In the process of reducing an acicular iron oxide to produce acicular metal particles suitable for magnetic recording, the improvement comprising treating the oxide particles with an aqueous solution of sodium tripolyphosphate, drying the thus coated oxide to produce a matrix and reducing the oxide by subjecting the matrix to contact with hydrogen at an elevated temperature in the presence of a dehydrating agent selected from calcium metal, calcium metal with calcium hydride and calcium metal with calcium carbide.

4,316,739

METHOD FOR PRODUCING MOLTEN IRON

Donald Beggs, Charlotte, N.C., and John C. Scarlett, Toledo, Ohio, assignors to Midrex Corporation, Charlotte, N.C.

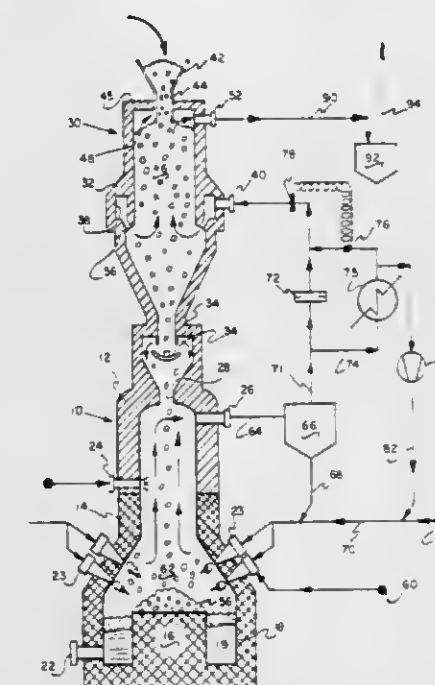
Division of Ser. No. 57,932, Jul. 16, 1979, Pat. No. 4,235,425.

This application Aug. 25, 1980, Ser. No. 181,024

Int. Cl.³ C21B 13/14

U.S. Cl. 75—40

5 Claims



1. A method for reducing particulate iron oxide and producing molten iron comprising:

- reducing particulate iron oxide to solid particulate metallized iron product in a shaft type reduction furnace;
- discharging said reduced metallized particulate product into a gasifier-melter vessel to form a generally central upstanding impact bed hearth of product surrounded by a molten metal pool;
- directing sufficient heat onto said impact bed hearth to melt any metallized product thereon and to form a hot gas,

whereby molten iron and slag flow from said hearth to said molten metal pool;

- humidifying the hot gas within said gasifier-melter by introducing water to said vessel above the elevation of said impact bed hearth;
- removing said hot gas from the gasifier-melter, removing particulate matter from said gas;
- introducing at least part of the hot gas into the gasifier-melter as hot blast gas directed toward said impact bed hearth to melt said product; and
- drawing off the molten iron product.

4,316,740

COAL REACTOR CONSERVATION OF BLAST FURNACE COKE

Louis Gold, 2745 29th St., NW., Washington, D.C. 20008

Filed Jun. 6, 1979, Ser. No. 44,554

Int. Cl.³ C21B 5/00

U.S. Cl. 75—42

1 Claim

1. A method of conserving substantial amounts of coke consumed in blast furnace practice by the injection of carbon monoxide from a coal reactor using cheaper grades of coal while lowering the sulfur content of the pig iron comprising the following steps:

- burning a sulfur bearing coal in a coal reactor in the presence of limestone in a substantially closed system consisting essentially of said coal and said limestone and having a reducing atmosphere, thereby preventing the formation of sulfurous oxides and producing a hot fuel gas comprised substantially of nitrogen and carbon monoxide and a slag for removal of sulfur bearing compounds resulting from said burning
- injecting said hot fuel gas into a blast furnace wherein air is replaced by oxygen, said overall operation yielding a lower sulfur content pig iron as well as conserving coke.

4,316,741

BLAST FURNACE PROCESS EMPLOYING EXCHANGE FUEL GAS

Rolf Wetzel, Heiligenhaus, Fed. Rep. of Germany, assignor to Krupp-Koppers GmbH, Essen, Fed. Rep. of Germany

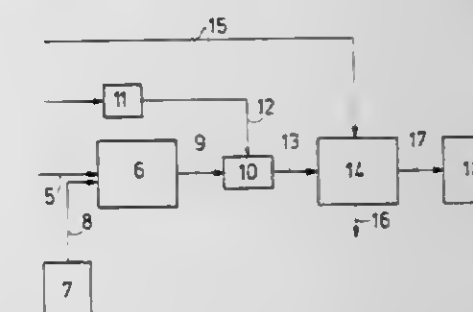
Filed Apr. 18, 1980, Ser. No. 141,297

Claims priority, application Fed. Rep. of Germany, Apr. 26, 1979, 2916908

Int. Cl.³ C21B 5/00

U.S. Cl. 75—42

10 Claims



1. A process for producing pig iron in a blast furnace comprising: gasifying fine grained to dusty fuels with oxygen and/or air to provide a high temperature raw fuel gas comprising carbon monoxide and hydrogen; chilling the raw fuel gas with cooler purified coke oven gas to a temperature of from about 750° C. to 1000° C. to provide a gas mixture; hot purifying the gas mixture; and feeding the gas mixture to the blast furnace proper in the area of the blast pipe level or above the blast pipe level at a temperature from about 750° C. to 1000° C.

4,316,742

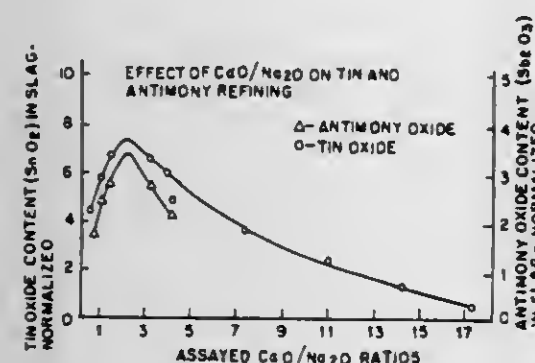
COPPER REFINING

Everett J. Canning, Jr., Plainsboro, N.J., assignor to Western Electric Co., Incorporated, New York, N.Y.

Filed Oct. 20, 1980, Ser. No. 198,515

Int. Cl.³ C22B 15/00

U.S. Cl. 75—76



1. A method of refining copper comprising the step of treating an oxygenated molten copper bath with a flux which will produce a slag having a slag content comprising calcium oxide and sodium oxide in a weight ratio of CaO/Na₂O of from 1:1 to 4:1 while bubbling oxygen into the copper bath.

4,316,743

HIGH DAMPING FE-CR-AL ALLOY

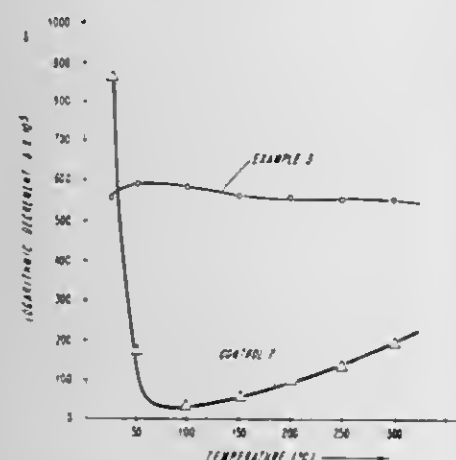
Mituo Kawai, Yokohama; Takashi Fujita, Ebina; Hideo Shirai; Masatoshi Nakagawa, both of Yokohama, and Hiroshi Abe, Kawasaki, all of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Japan

Division of Ser. No. 834,305, Sep. 19, 1977, abandoned, which is a continuation of Ser. No. 697,991, Jun. 21, 1976, abandoned, which is a continuation of Ser. No. 518,174, Oct. 25, 1974, abandoned. This application Oct. 30, 1979, Ser. No. 89,312

Claims priority, application Japan, Oct. 29, 1973, 48-12017

Int. Cl.³ C22C 37/10

U.S. Cl. 75—124



1. A metal alloy consisting essentially of from 1 to 8% aluminum, 2 to 30% chromium, and including up to 0.02% carbon, the balance being essentially iron, said alloy having been heat treated at a temperature in the range of from 700° to 1200° C. to provide said alloy with enhanced damping characteristics.

4,316,744

HIGH RATIO SILICATE FOUNDRY SAND BINDERS

Horacio E. Bergna, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 27,024, Apr. 4, 1979, which is a continuation-in-part of Ser. No. 670,076, Mar. 24, 1976, Pat. No. 4,162,238, which is a continuation-in-part of Ser. No. 448,689, Mar. 6, 1974, abandoned, which is a continuation-in-part of Ser. No. 380,124, Jul. 17, 1973, abandoned. This application Oct. 16, 1980, Ser. No. 197,747

Int. Cl.³ B28B 7/34

U.S. Cl. 106—38.35

9 Claims

1. A stable binder component composition consisting essentially of (a) 95 to 99½% by weight of an aqueous binder comprising an aqueous sodium, potassium or lithium silicate solution or mixtures thereof and amorphous silica, the amorphous silica in the silicate solution determined by the gore test procedure, the binder characterized by (1) a molar ratio of silica to alkali metal oxide of from 3.5:1 to 10:1; (2) a weight fraction of the total silica present as amorphous silica is from 2 to 50%; (3) a weight fraction of the total silica present as silicate ions is from 98 to 50% and the amorphous silica has a particle size of from 2 nanometers to 500 nanometers and (b) ½ to 5% by weight of a suspending agent system comprising (1) carboxymethyl cellulose and (2) carboxyvinyl polymer in a total amount of about 36 to 65% by weight with the relative amount of (1) to (2) ranging from a weight ratio of about 1:4 to 4:1 and (3) magnesium montmorillonite clay in a concentration of about 35 to 64% by weight, said aqueous binder having 15 to 35% by weight silica solids.

4,316,745

PROCESS FOR THE PRODUCTION OF CELLULOSE-SILICATE PRODUCTS

David H. Blount, 5450 Lea St., San Diego, Calif. 92105

Continuation-in-part of Ser. No. 169,973, Jul. 18, 1980, which is a continuation-in-part of Ser. No. 884,135, Mar. 7, 1978, which is a continuation-in-part of Ser. No. 663,924, Mar. 4, 1976, Pat. No. 4,097,424, which is a continuation-in-part of Ser. No. 559,000, Jul. 7, 1975, Pat. No. 4,072,637, which is a

continuation-in-part of Ser. No. 262,485, Jun. 14, 1972, abandoned, which is a continuation-in-part of Ser. No. 71,628, Sep. 11, 1970, abandoned. This application Dec. 30, 1980, Ser. No. 221,432

Int. Cl.³ C07G 1/00

U.S. Cl. 106—287.34

16 Claims

1. The process for the production of lignin-cellulose silicate product containing impregnated hydrated silica by mixing and reacting the following components:

- 1 to 100 parts by weight of an oxidized silicate compound, selected from the group of oxidized alkali metal silicate, oxidized alkaline earth metal silicate, oxidized mono alkali metal silicic acid, oxidized mono alkaline earth metal silicic acid, oxidized silicic acid and mixtures thereof.
- 50 parts by weight of plant cellulose particles, selected from the group consisting of cotton, wood cellulose, regenerated cellulose, sulfate cellulose produced by the Craft process, sulfite cellulose, mechanical pulp cellulose, vegetable cellulose, cellulose esters and semichemical cellulose.
- A salt-forming compound selected from the group consisting of hydrochloric and sulfuric acid and in an amount wherein the mixture of components (a), (b) and (c) has a pH of 1.5 to 5 after the reaction is complete.

4,316,746

MOLYBDENUM OR TUNGSTEN CONTAINING BISMUTH VANADATE YELLOW PIGMENTS AND PROCESS FOR PREPARING SAME

Massimo Rustioni, Calusco D'Adda, and Luigi Balducci, Mortara, both of Italy, assignors to Montedison S.P.A., Milan, Italy

Filed Feb. 23, 1981, Ser. No. 237,477

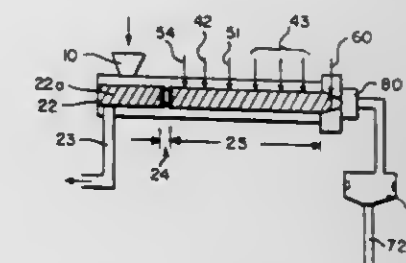
Claims priority, application Italy, Feb. 25, 1980, 20146 A/80

Int. Cl.³ C09C 1/00

U.S. Cl. 106—288 B

9 Claims

1. An inorganic yellow pigment characterized in that it consists essentially of $\text{Bi}_{1-x}(\text{M})_x\text{V}_1-x\text{O}_4$ in which M is Mo or W and in which x varies from 0.075 to 0.317 in the case of Mo and from 0.059 to 0.265 in the case of W, and in that it consists essentially of only a tetragonal crystalline scheelite-type phase when M is Mo while, when M is W, also orthorhombic crystalline phase $\gamma\text{Bi}_2\text{WO}_6$ is present besides the said tetragonal crystalline phase.



4,316,747

PROCESS FOR THE CHEMICAL CONVERSION OF CELLULOSE WASTE TO GLUCOSE

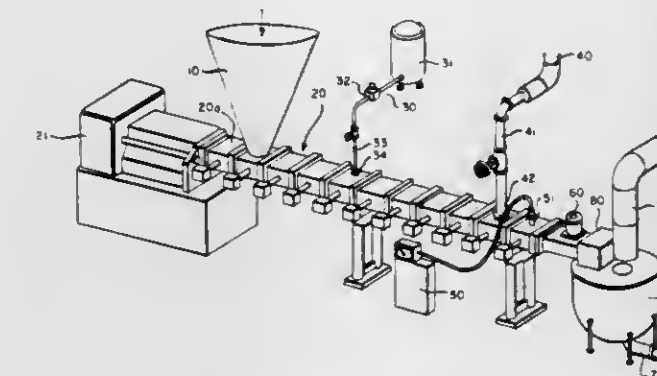
Barry A. Rugg, New York, N.Y., and Walter Brenner, Teaneck, N.J., assignors to New York University, New York, N.Y.

Filed Mar. 18, 1980, Ser. No. 131,340

Int. Cl.³ C13K 1/02; B01J 3/03

U.S. Cl. 127—37

6 Claims



1. In a process for the conversion of waste cellulose to glucose of the type wherein an aqueous slurry of waste cellulose is contacted with a dilute sulfuric acid catalyst at elevated temperature and pressure, the improvement wherein the acid hydrolysis comprises the steps of: continuously feeding an aqueous slurry of waste cellulose into an inlet port of a twin screw extruder; continuously reacting the cellulose with water in the presence of the sulfuric acid catalyst at elevated temperature and pressure in a reaction zone disposed in the extruder between the inlet port and an outlet port while continuously conveying same to the outlet port by continuously injecting a dilute sulfuric acid catalyst and a reactant selected from the group consisting essentially of steam and superheated water at elevated pressure into the reaction zone; and at least quasi-continuously discharging the reacted cellulose from the extruder while maintaining the elevated temperature and pressure in the reaction zone by forming a dynamic seal zone at the upstream end of the reaction zone and valving the discharge downstream of the outlet port.

4,316,748

PROCESS FOR THE ACID HYDROLYSIS OF WASTE CELLULOSE TO GLUCOSE

Barry A. Rugg, New York, and Robert Stanton, New Hyde Park, both of N.Y., assignors to New York University, New York, N.Y.

Filed Mar. 18, 1980, Ser. No. 131,339

Int. Cl.³ C13K 1/06; B01J 3/03

U.S. Cl. 127—37

6 Claims

1. In a process for the acid hydrolysis of waste cellulose to glucose of the type wherein waste cellulose is continuously fed

into an inlet port of a twin screw extruder, the cellulose is continuously reacted in the presence of a dilute sulfuric acid catalyst at elevated temperature and pressure in the reaction zone by the continuous injection of steam or superheated water at elevated pressure downstream of the inlet port while being continuously conveyed to an outlet port of the extruder while

the extruder temperature and pressure in the reaction zone is maintained by forming a dynamic seal zone at the upstream end of the reaction zone and valving at the downstream end, the improvement wherein the step of forming a dynamic seal zone at the upstream end of the reaction zone comprises providing an unthreaded and radially recessed discontinuity in the screws.

4,316,749

PRODUCTION OF USP QUALITY LACTOSE

John W. Evans, Weed, and Gary C. Young, Visalia, both of Calif., assignors to Stauffer Chemical Company, Westport, Conn.

Filed Oct. 7, 1980, Ser. No. 194,723

Int. Cl.³ C13K 5/00

U.S. Cl. 127—55

12 Claims

1. A method of producing USP quality lactose comprising the steps of:

- adding to lactose rich permeate derived from passing whey through a semipermeable membrane an effective amount of a food grade chelating agent;
- filtering the lactose rich permeate through a simple filtration system at from about 71°–88° C.;
- crystallizing the lactose from the permeate at a temperature of from about 10°–24° C.;
- heating the permeate and lactose crystals to from about 32°–44° C.;
- separating, washing and drying the USP quality lactose product.

4,316,750

APPARATUS AND METHOD FOR CLEANING A FLUX STATION OF A SOLDERING SYSTEM

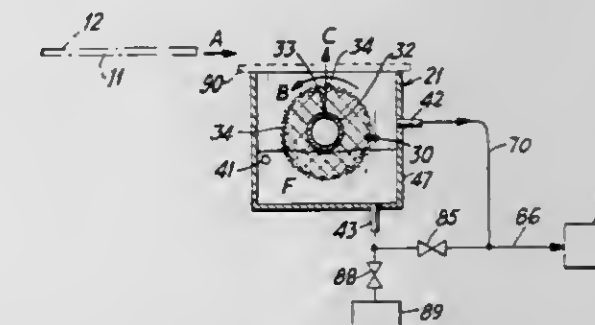
Robert H. Gengler, Aurora, Ill., assignor to Western Electric Company, Inc., New York, N.Y.

Filed Jan. 16, 1981, Ser. No. 225,563

Int. Cl.³ B08B 7/04; B05B 15/02

U.S. Cl. 134—18

10 Claims



7. A method of cleaning a flux spraying station of the type including a tank for holding a bath of flux, a manifold having

a plurality of holes connectable to a supply of compressed air, a squirrel cage screen for rotating a thin film of liquid over the holes, and means for rotating the screen, the method comprising the steps of:

- emptying the bath of flux from the tank;
- delivering a predetermined amount of a solvent into the tank through the plurality of holes in the manifold;
- rotating the squirrel cage screen through the solvent to clean the screen;
- stopping the delivery of the solvent to the tank after a predetermined amount of solvent has been delivered; and then
- delivering compressed air to the tank through the holes in the manifold to aid in cleaning the screen as it passes over the holes.

4,316,751

ELECTRICAL RESISTANCE COATING FOR STEEL

Thomas J. Prescott, Troy, and Raymond L. Wetzel, Southfield, both of Mich., assignors to Hooker Chemicals & Plastics Corp., Warren, Mich.

Filed Apr. 14, 1980, Ser. No. 139,902

Int. Cl.³ C23F 7/10

U.S. Cl. 148—6.15 Z

12 Claims

- The process of providing an insulating coating on a ferrous metal surface comprising:
 - providing a thin film of an acidic aqueous solution comprising nitrate and phosphate anions on said surface, wherein said phosphate and said nitrate respectively comprise at least 30% and 10% of said solution on a dry basis; and
 - curing said film to a peak metal temperature of from about 200°F. to about 400°F.

4,316,752

OXALIC ACID TREATMENT OF CARBON STEEL, GALVANIZED STEEL AND ALUMINUM SURFACES

Max Kronstein, Bronx, N.Y., assignor to International Lead Zinc Research Organization, Inc., New York, N.Y.

Filed Oct. 16, 1980, Ser. No. 197,577

Int. Cl.³ C23C 7/20, 7/22

U.S. Cl. 148—6.16

10 Claims

- A process for modifying the surface of a metal, characterized by treating the metal surface for from about 0.5 minute to about 10 minutes with a dilute aqueous oxalic acid solution having a temperature in the range of from about 65°C. to about 90°C. and consisting essentially of from about 2% to about 5% by weight oxalic acid and the balance water, the metal being at least one metal selected from the group consisting of carbon steel, galvanized steel and aluminum.

4,316,753

METHOD FOR PRODUCING LOW ALLOY HOT ROLLED STEEL STRIP OR SHEET HAVING HIGH TENSILE STRENGTH, LOW YIELD RATIO AND EXCELLENT TOTAL ELONGATION

Kunishige Kaneko, Tokai; Mamoru Tashiro, Chita; Nagayasu Takemoto, Toyoake; Itaru Imabayashi, Nagoya, and Takashi Furukawa, Machida, all of Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed Mar. 21, 1979, Ser. No. 22,500

Claims priority, application Japan, Apr. 5, 1978, 53-39163

Int. Cl.³ C21D 7/14

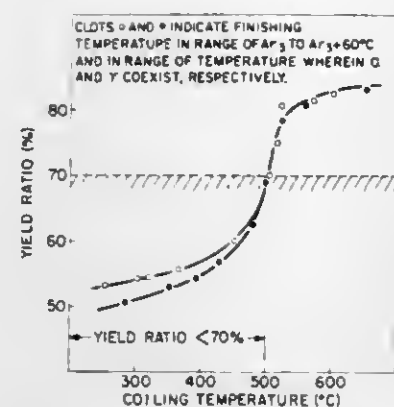
U.S. Cl. 148—12 F

11 Claims

- A method for producing a low alloy hot rolled steel strip or sheet comprising:

hot rolling a steel slab consisting essentially of not more than 0.20% carbon, 0.50 to 2.50% manganese and 0.05 to 1.0% chromium with the balance being iron and unavoidable impurities at a finishing temperature not higher than the A_{r3} transformation temperature plus 60°C., cooling the hot rolled steel strip or sheet, and

coiling the hot rolled steel strip or sheet at a temperature not higher than 500°C.,



wherein said sheet or strip in the as hot rolled condition has high tensile strength of not less than 40 kg/mm², low yield ratio of less than about 60%, and excellent total elongation of not less than 25%.

4,316,754

HANDLING ROD-LIKE ARTICLES

Dennis Hinchcliffe, Frank Heybourn, both of London, and Eric A. Luddington, Ringwood, all of England, assignors to Molins Limited, London, England

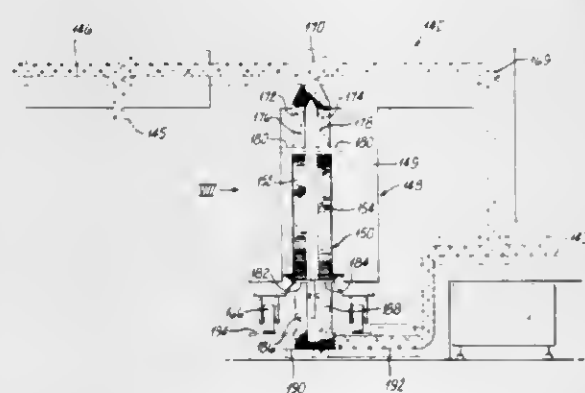
Filed Nov. 1, 1979, Ser. No. 90,433

Claims priority, application United Kingdom, Nov. 1, 1978, 42711/78

Int. Cl.³ B65G 1/00

U.S. Cl. 198—347

23 Claims



- A conveyor system for rod-like articles including a delivery station, a receiving station, first conveyor means for moving said articles in continuous stack formation and defining a first path extending from the delivery station to an outlet and a second path extending from an inlet to the receiving station, said outlet and said inlet being horizontally spaced apart, second conveyor means defining an intermediate path for articles between said outlet and said inlet, said second conveyor means comprising movable reservoir means having a plurality of compartments, each compartment having an entrance and an exit for articles, means defining a reservoir path for said reservoir means whereby the reservoir means may be positioned at one end of said reservoir path with an entrance of a compartment in position for transfer of articles from said outlet to said compartment through said entrance and movable to the other end of said reservoir path with an exit of a compartment in position for transfer of articles from said compartment to said inlet through said exit, and means for operating said first and second conveyor means to maintain substantially-continuous streams of articles in stack formation in said first and second paths extending respectively from said delivery station to said outlet and from said inlet to said receiving station and to maintain a relatively-slow moving substantial store of articles in stack formation in said intermediate path.

4,316,755

ADHESIVE METERING DEVICE FOR CORRUGATING PROCESSES

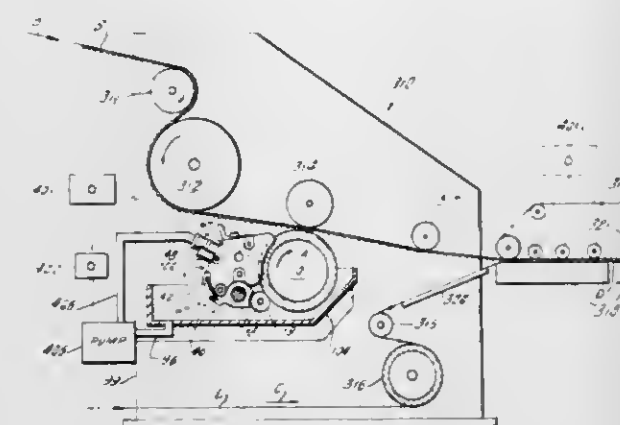
Stephen S. Flaum, Brooklyn, and Martin J. Leff, New York, both of N.Y., assignors to S&S Corrugated Paper Machinery Co., Inc., Brooklyn, N.Y.

Division of Ser. No. 22,141, Mar. 20, 1979, abandoned. This application Nov. 10, 1980, Ser. No. 205,315

Int. Cl.³ B31F 1/22

U.S. Cl. 156—205

3 Claims



- A method for manufacturing corrugated board comprising the steps of pumping adhesive into a cavity partially bounded by a rotating adhesive roll, said cavity having a transverse fluid distribution slot along its downstream edge, said cavity being formed in a floating shoe that extends parallel to the rotational axis of the adhesive roll and is biased toward said shoe with a force less than that force transmitted through adhesive in the cavity and urging the fluid distribution slot to enlarge, said adhesive being delivered to said cavity at a known rate and moving through the fluid distribution slot at a rate equal to the rate at which adhesive is delivered to said cavity to form an adhesive film on the periphery of the adhesive roll, forming transverse corrugations in a longitudinally moving web of paper and applying adhesive to the tips of the corrugations by bringing them into contact with said adhesive film, and thereafter applying a liner web to those tips to which said adhesive has been applied.

4,316,756

METHOD FOR BONDING A POCKET BLANK TO A GARMENT PORTION

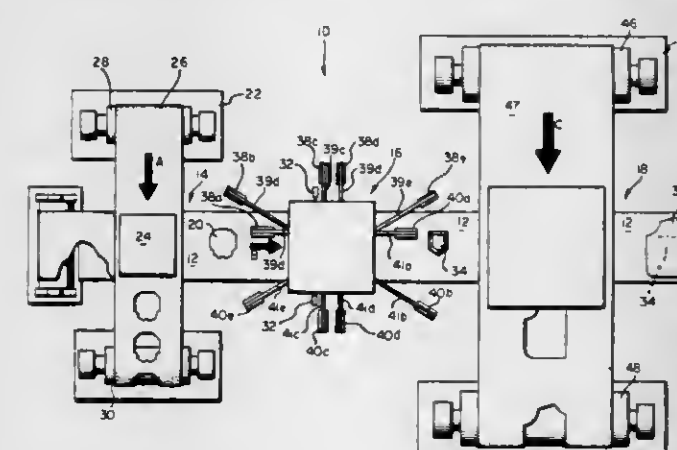
Robert J. Wilson, Norcross, Ga., assignor to GFF, Inc., Cincinnati, Ohio

Filed Aug. 15, 1980, Ser. No. 178,469

Int. Cl.³ A41D 27/20

U.S. Cl. 156—227

14 Claims



- A method of bonding a pocket blank to a garment portion, said method sequentially comprising the steps of:
 - providing a pocket blank having front and rear surfaces and

- comprising a pocket body and laterally extending top, bottom and side margin tabs;
 - conveying the pocket blank along a path of travel having a longitudinal dimension;
 - folding over the bottom and side margin tabs of the pocket blank into general proximity with the rear surface of the pocket body;
 - applying heat and pressure to a strip of heat fusing adhesive to fuse the same to the rear surface of the top margin tab of the pocket blank;
 - applying heat and pressure to the folded over side and bottom margin tabs of the pocket blank to crease the rear surface thereof into intimate contact with the adjacent portion of the rear surface of the pocket body;
 - folding over the top margin tab bearing adhesive thereon and applying heat and pressure thereto to bond the rear surface thereof to the rear surface of the adjacent portion of the rear of the pocket body;
 - applying heat and pressure to fuse strips of heat fusing adhesive to the respective front surfaces of the side and bottom margin tabs of the pocket blank;
 - providing a piece of garment cloth larger in size than that selected for the garment portion;
 - overlaying the garment cloth atop the prepared pocket blank to position the prepared pocket blank in the selected disposition thereon;
 - cutting the garment cloth to the shape selected for the garment portion;
 - applying heat and pressure to the garment portion and opposite the upwardly disposed adhesive strips on the front surface of the creased side and bottom pocket margin tabs to fuse the prepared pocket blank to the garment portion at the sides and bottom portions thereof to form a pocket thereon; and
 - conveying the garment portion with pocket fused thereon away for assembly of the garment.

4,316,757

METHOD AND APPARATUS FOR WAX MOUNTING OF THIN WAFERS FOR POLISHING

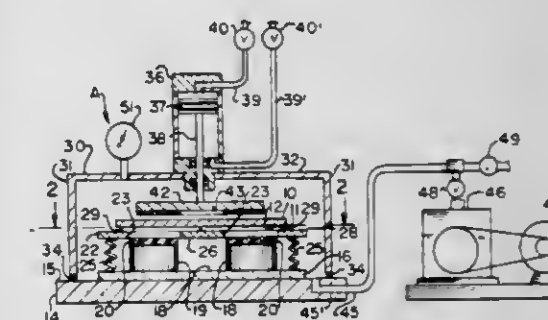
Robert J. Walsh, Ballwin, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed Mar. 3, 1980, Ser. No. 126,807

Int. Cl.³ B32B 31/22

U.S. Cl. 156—286

16 Claims



- A method of wax mounting of thin wafers to a carrier for polishing, inclusive of applying to a flat surface of said carrier a sticky coating of wax followed by heating said carrier, said method characterized by enclosing at least one thin wafer and said wax-coated carrier in a chamber at normal atmospheric pressure while said wax coating is in said sticky condition, evacuating said chamber, bringing said wafer and wax coating into mutual contact, and subsequently returning said chamber to normal atmospheric pressure, whereby said wafer is mounted by said wax coating to said carrier for subsequent polishing substantially without gas bubble entrapment between said wafer and carrier.

4,316,758

APPARATUS OF MANUFACTURING PLYWOOD

Shunichi Suzuki; Yoshinori Koba; Yoshiaki Yamada; Teruaki Aoto; Yoriyoshi Kuno, and Masanobu Yokota, all of Ohbu, Japan, assignors to Meinan Machinery Works, Inc., Aichi, Japan

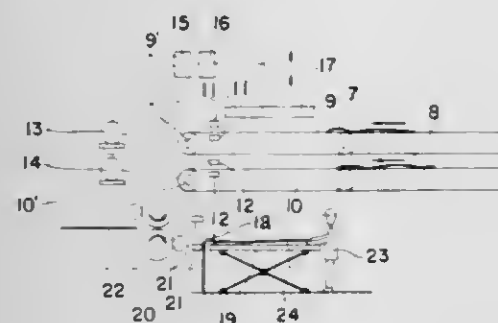
Division of Ser. No. 910,828, May 30, 1978, abandoned. This application Jun. 1, 1979, Ser. No. 44,697

Claims priority, application Japan, Apr. 30, 1976, 51-50359

Int. Cl.³ B32B 31/00; G05G 15/00

U.S. Cl. 156—351

7 Claims



1. An apparatus for manufacturing plywood comprising a horizontal support surface defined at a predetermined position to pile veneer sheets thereon for manufacturing plywood in succession;

means for supplying a veneer sheet coated with adhesive on both surfaces thereof to place on a veneer sheet on said support surface;

first and second conveyor means disposed above said predetermined position in respective upper and lower horizontal planes vertically arranged with each other, and each having a pair of parallel conveyor belts spaced apart from each other in a horizontal plane and conveying a veneer sheet thereon;

pressing means provided above said first conveyor means for pressing the veneer sheet from at least one of said first and second conveyor means vertically between said two pairs of conveyor belts down to the adhesivecoated veneer sheet supplied on said support surface;

first and second detecting means provided in association with said respective first and second conveyor for detecting one end of the veneer sheet on each conveyor belt upon its reaching said predetermined position;

third detecting means provided in the vicinity of said means for supplying said adhesive-coated sheet for detecting a supply of an adhesive-coated sheet on said support surface, said first, second, and third detecting means providing first, second, and third signals for the operation of said pressing means, respectively;

a three input AND circuit provided between said pressing means and said first, second, and third detecting means, said circuit having first, second, and third input terminals for receiving said first, second, and third signals respectively, and adapted to apply an output signal to operate said pressing means;

a false signal circuit branched off from one of said first and second input terminals;

switch means inserted in said false signal circuit; and

actuating means provided in association with said pressing means for bringing said switch means into ON or OFF state.

4,316,759

HAND APPLIANCE FOR ISSUING OR APPLYING SELF-ADHERING LABELS

Werner Becker, Hirschhorn, and Richard Schwobel, Rothenberg, both of Fed. Rep. of Germany, assignors to Esselte Pendaflex Corporation, Garden City, N.Y.

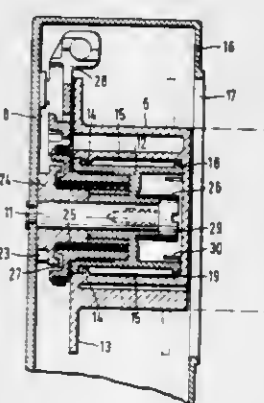
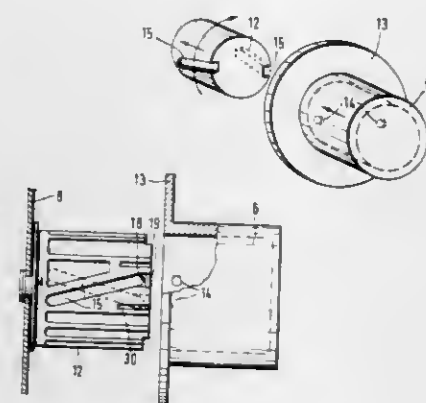
Filed Feb. 22, 1980, Ser. No. 123,579

Claims priority, application Fed. Rep. of Germany, Feb. 22, 1979, 2906856

Int. Cl.³ B44C 7/00, 7/04; B65H 49/26, 17/02

U.S. Cl. 156—387

19 Claims



1. A hand appliance for issuing or applying self-adhering labels which are stuck on a carrier strip, the appliance is equipped with a feeding mechanism which withdraws said carrier strip stepwise for feeding at least one label at a time, said feeding mechanism having a winding core on to which said carrier strip is to be wound and which is rotatable about a journal fixed at one end to a housing wall, the improvement wherein said winding core is held for axial displacement on a boss which drives said winding core and, said winding core through a driver projection which engages in a groove extending obliquely of a surface line of said boss, is so coupled to said boss that said boss shifts said winding core, under the tension of said carrier strip, in the direction of said wall of said housing on which said journal is fixed wherein said groove extends at an angle of from 10° to 30° obliquely of said surface line of said boss.

4,316,760

BINDING MACHINE

Hitoshi Satomi, Sayama, Japan, assignor to Nichiban Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 56,074, Jul. 9, 1979, abandoned. This application Dec. 11, 1980, Ser. No. 215,276

Claims priority, application Japan, Jul. 12, 1978, 53-84835

Int. Cl.³ B65C 1/00

U.S. Cl. 156—468

12 Claims

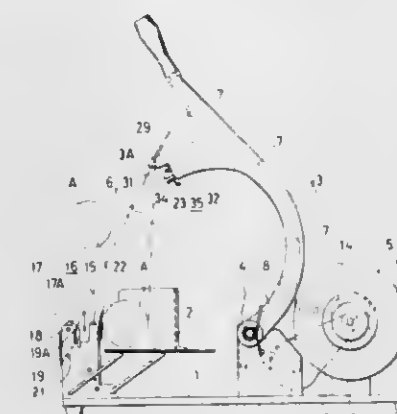
1. A binding machine comprising:

a base provided at its one end with a tape reel for an adhesive tape and at its other end with a tape cramping means for cramping the other end of said adhesive tape, said base

being further provided at its central portion with a table for receiving articles to be bound;

a binding arm pivoted to a point on said base between said cramping means and said tape reel, said binding arm having guide means adapted to guide and introduce said adhesive tape extracted from said tape reel to a tip portion of said binding arm;

a pair of pressing bodies one of which being provided at the inside of said tape cramp means on said base, while the other on the tip portion of said binding arm, said pressing bodies being adapted to abut each other so as to pressbond said adhesive tape wound round articles;



a cutting edge disposed at the outside of said pressing body on said binding arm and adapted for cutting said adhesive tape at the outside of said pressing bodies;

cramp controlling means adapted for releasing said cramping means at the time of cutting of said adhesive tape;

a tape pushing lever disposed at the outside of said cutting edge on said binding arm and adapted for pushing a new tape end into said cramping means; and

a tape rewinding means disposed between a pivot portion of said binding arm and a support shaft of said tape reel and adapted for imparting a rewinding torque to said tape reel when the binding arm is swung down to the side of the base.

4,316,761

SINGLE FACER

Tadashi Hirakawa; Hiroaki Sasashige, both of Mihara; Hiroyuki Takenaka, and Keiichi Katayama, both of Hiroshima, all of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Japan

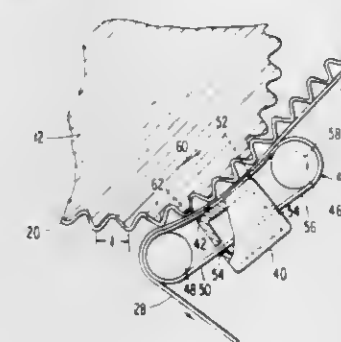
Filed Aug. 15, 1980, Ser. No. 178,459

Claims priority, application Japan, Aug. 17, 1979, 54/113107[U]

Int. Cl.³ B31F 1/00

U.S. Cl. 156—472

3 Claims



1. In a single facer including a corrugating roll having flutes extending along its peripheral surface for forming a corrugating web,

(a) a pressure member opposed to said corrugating roll for pressing a liner web against the corrugated web to form a single-faced board;

(b) said pressure member having an arcuate surface substantially conforming to the contour of an arc extending through the tips of said flutes and having a length in the circumferential direction of said roll which is greater than the distance between two adjacent flutes thereof; and

(c) a movable conveyor interposed between said arcuate surface of said pressure member and the liner web;

(d) said conveyor being movable in the same direction as the periphery of said lower corrugating roll and being movable at a speed equal to the peripheral speed of said lower corrugating roll.

4,316,762

LABEL APPLICATOR

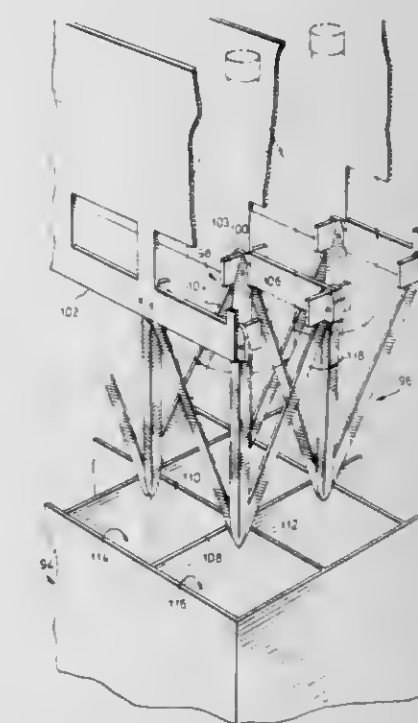
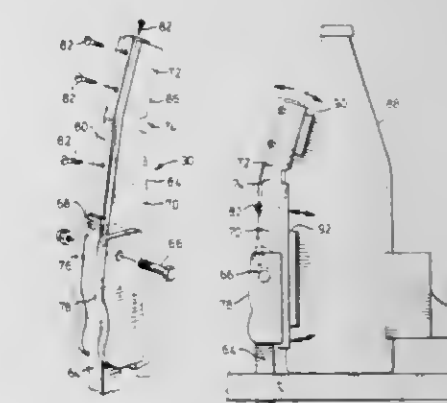
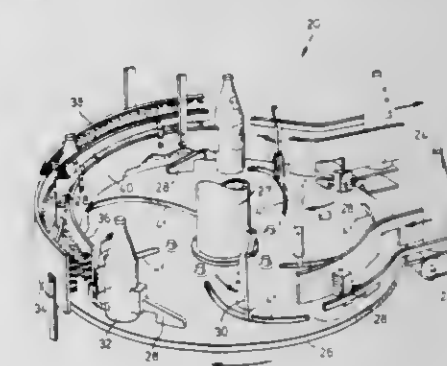
C. Edward Martin, R.R. #2, Shanty Bay, Ontario, Canada

Filed Jul. 19, 1979, Ser. No. 58,897

Int. Cl.³ B65C 3/00; E06B 17/04; B65B 1/04

U.S. Cl. 156—488

4 Claims



4. Apparatus for handling containers such as bottles, the apparatus including a labelling station having a plurality of

locating arms for use in attaching labels to the containers, a first of the labels being located below a second when placed on respective first and second surfaces of the container, and the arm comprising: a lower portion for use in placing the first of the labels and an upper portion for use in placing the second of the labels, the lower and upper portions have respective leading faces shaped for face-to-face engagement with respective first and second surfaces of the container, the first face normally being displaced slightly from said first surface when the second face and second surface are in face-to-face engagement to thereby ensure engagement of the second face with the container before engagement by the first face, the arm also including an integral neck portion between the upper and lower portions for flexing to permit engagement of the first face after the said engagement of the second face upon application of force to bring the container and arm towards one another, and being of synthetic plastic material exhibiting sufficient resilience to permit said flexing and to return substantially to its original shape upon removing the force; and the apparatus further including a bottle release mechanism for permitting a plurality of the containers to fall into a crate and for guiding the containers as they fall into respective pockets in the crate, the bottle release mechanism including a plurality of resilient limbs of synthetic plastic material rigidly coupled to one another and arranged in groups so that each group consists of four limbs meeting at their lower extremities and diverging upwardly, there being as many groups as pockets in the crate and the locations of the groups corresponding to the pockets whereby as bottles fall towards respective pockets in the crate some of the energy is absorbed in deflecting the limbs outwardly so that the bottles are guided into the pockets.

4,316,763

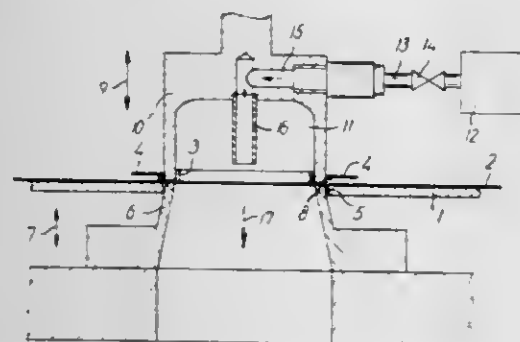
APPARATUS FOR FORMING A MARGINALLY REINFORCED HOLE IN A THERMOPLASTIC SHEET MATERIAL

Ole R. Jensen, No. 61 Dorteavej, Copenhagen, Denmark 2400
Filed Mar. 25, 1980, Ser. No. 133,860

Claims priority, application Denmark, Apr. 6, 1979, 1414/79
Int. Cl.³ B26D 5/08; B32B 31/18

U.S. Cl. 156—513

1 Claim



1. Apparatus for forming a marginally reinforced hole in a thermoplastic sheet material comprising a table with a sheet supporting surface and having an aperture with a configuration that is substantially similar to but slightly greater than the radially inner configuration of a reinforcing ring to be used, a tubular electrode with an exposed end face having an inner configuration corresponding to the inner configuration of the reinforcing ring and being movable between an operative position in which it is substantially flush with the sheet supporting surface of the table, and an inoperative position spaced therefrom, and a cup-shaped pressure shoe to properly locate the reinforcing ring opposite to the end face of the tubular electrode, the cavity of said pressure shoe being connectable with a pressurized gaseous fluid source through conduit means

including a control member allowing said fluid to enter said cavity when the annular electrode has been brought into its operative position and has caused the temperature of the sheet material to exceed its melting point.

4,316,764

METHOD FOR HORIZONTAL RIBBON CRYSTAL GROWTH

Bosshi Kudo, Nagareyama, and Masamichi Yoshioka, Yoshikawa, both of Japan, assignors to The Agency of Industrial Science and Technology, Tokyo, Japan

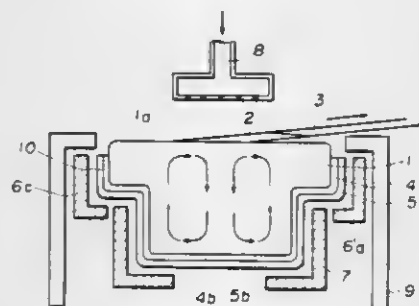
Filed Dec. 5, 1979, Ser. No. 100,541

Claims priority, application Japan, Dec. 9, 1978, 53-153005

Int. Cl.³ C30B 15/06, 15/14

U.S. Cl. 156—617 H

4 Claims



1. In a method for growing a thin, flat, ribbon-like crystal from a melt of crystalline material, which comprises: providing a crucible having an open top end defined by a peripheral edge, a closed bottom end, a peripheral wall joining the top and bottom ends and heating means for maintaining a crystalline material charge in a melt form, circulating by convection so as to ascend along the peripheral wall, flow toward the center of the crucible at the top of the melt, descends to the bottom of the crucible beneath the solid-liquid interface described hereinafter and then flows toward the peripheral wall along the bottom of the crucible; charging the crucible with a melt of the crystalline material, to a level above the peripheral edge; contacting the upper surface of the melt with a seed crystal, whereby there is formed a solid-liquid interface between the melt and the seed crystal; cooling the solid-liquid interface beneath the melting point of the crystalline material, whereby crystal grows at the interface; drawing the growing crystal from the interface continuously, in a substantially horizontal direction; the improvement, which comprises: in providing the crucible, said crucible also having an expanded upper portion of the peripheral wall including the peripheral edge, projecting outwardly beyond a lower portion of the peripheral wall, said expanded upper portion defining a peripheral zone of the crucible; and additionally providing means for maintaining the charge melt within the peripheral zone of the crucible in a state of melt whereby no recrystallization occurs in said zone.

4,316,765

DETECTION OF DEFECTS IN SEMICONDUCTOR MATERIALS

Ferdinand A. Thiel, South Plainfield, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 8, 1980, Ser. No. 213,997

Int. Cl.³ H01L 21/306

U.S. Cl. 156—626

9 Claims

1. A process for fabricating a semiconductor device comprising the steps of treating a body comprising a semiconductor material that is made during a fabrication procedure with an etchant to form etch pits in said body corresponding to defects in said semiconductor material, and if said defects are

less than an established level fabricating a device by the steps comprising forming an interface between a body comprising a semiconductor material made during said fabricating procedure and an interfacing material characterized in that said etchant is a mixture of water, sulfuric acid and hydrogen peroxide and that said semiconductor material is chosen from the group consisting of indium phosphide and indium arsenide phosphide.

4,316,766

ARTICLE IDENTIFICATION METHOD

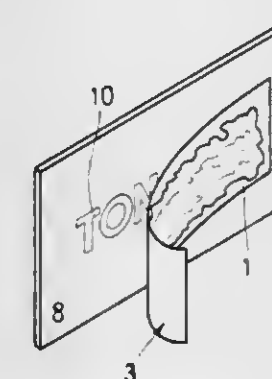
Julian Levin, 6 - 5th Ave., Emmarentia Extension, and Arnold Franks, 59 - 6th Ave., Orange Grove, both of Johannesburg, Transvaal Province, South Africa

Filed Mar. 4, 1980, Ser. No. 127,137

Int. Cl.³ B44C 1/22; C03C 15/00, 25/06

U.S. Cl. 156—631

9 Claims



1. A method of defining an identification marking on an article comprising the steps of:

- (1) locating on a surface of the article in a required area a flexible plastics foil or film stencil defining a required identification marking in areas where contact occurs between the surface of the article and an active substance wherein the required areas of contact defined by said stencil have a multitude of small perforations formed by electrostatically passing electrons through the stencil material in the required areas thereof;
- (2) applying to the stencil to contact the surface through the identification marking defined by the stencil, an active substance which is corrosive to, or a solvent of, the material defining said surface of the article;
- (3) allowing such contact between the active substance and surface to persist for a predetermined length of time; and thereafter
- (4) removing the stencil and active substance adhered thereto from the article and cleaning the thus marked surface.

4,316,767

PROCESS FOR CONCENTRATING AQUEOUS UREA SOLUTIONS

Toyoyasu Saida, Fujisawa; Takatatsu Shimokawa, Mobara; Yuzuru Yanagisawa, Mobara; Takashi Nagahama, Mobara, and Koji Ishida, Mobara, all of Japan, assignors to Toyo Engineering Corporation and Mitsui Toatsu Chemicals Incorporated, both of Tokyo, Japan

Filed Sep. 11, 1980, Ser. No. 186,058

Claims priority, application Japan, Sep. 14, 1979, 54/117370

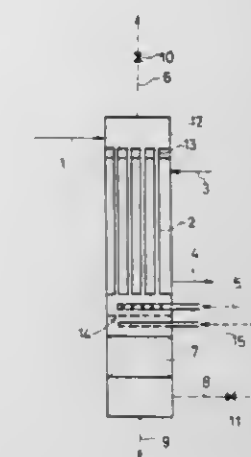
Int. Cl.³ B01D 1/22

U.S. Cl. 159—47 UA

4 Claims

1. In a process for concentrating aqueous urea solutions including a first step of letting an aqueous urea solution flow as a falling film in countercurrent contact with a first stream of hot inert gas to concentrate the aqueous urea solution to a concentration of 95-99% by weight and a second step of passing the aqueous urea solution resulting from the first step through a packed zone in contact with a second stream of hot inert gas to concentrate the aqueous urea solution to a concentration of not less than 99.5% by weight, the first and second

steps being conducted at substantially atmospheric pressure, the improvement which comprises, in said second step, passing said second stream of hot inert gas having a temperature of



4,316,768

PULSE FREE STOCK SCREEN AND COMBINATION PUMP

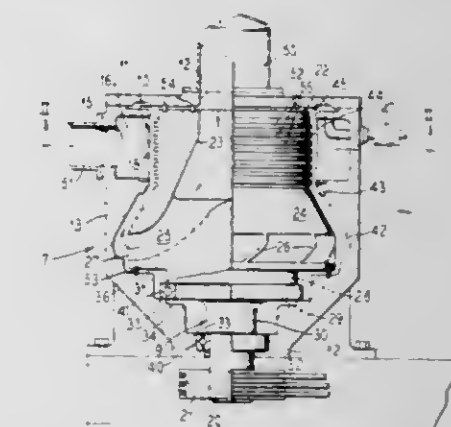
Denis A. Goddard, Beloit, Wis., assignor to Beloit Corporation, Beloit, Wis.

Filed Jul. 18, 1980, Ser. No. 169,950

Int. Cl.³ D21D 5/02; D21F 1/00

U.S. Cl. 162—336

10 Claims



7. Apparatus for pulse-free separation of pulp particles suspended in a stock slurry flow to a headbox of a papermaking machine comprising:

- a hollow housing having an inlet opening connected to a source of stock slurry and an outlet opening leading to said headbox,
- a tubular hub portion mounted for rotation in said housing and formed with a central passage for conducting a flow of stock slurry therethrough from said inlet opening,
- a pump impeller means connected for rotation with said hub portion in said housing and having pump passage means for drawing said flow from said hub portion and passing said flow to said outlet opening,
- a screen extending about said hub portion in fluid communication with said pump passage means on one side and said outlet opening on the other side for screening relatively large pulp particles,
- delivery duct means for directing flow from said pump impeller means to said outlet opening, including a flow space between said screen and said hub portion,
- an end cavity in said housing above said outlet opening for

receiving said pulp particles unable to pass through said screen, and
rib surfaces formed on said hub portion for agitating flow in said flow space.

4,316,769

CENTRIFUGALLY CAST CHILLED IRON ROLL
Carl B. Dahl, Rockton, Ill., assignor to Beloit Corporation, Beloit, Wis.

Filed Oct. 26, 1979, Ser. No. 88,342

Int. Cl.³ D21F 3/02

U.S. Cl. 162—360 R

3 Claims

1. In a press section of a papermaking machine, the combination comprising:

a plurality of press rolls arranged in pressing relationship; means for guiding a wet web into said press rolls for water removal;

and at least one of said rolls having an outer annular layer surrounding and supported by a core consisting of cast iron, said outer layer formed of an iron having a content of chrome in excess of 15% and no greater than 35% for forming a smooth exterior surface of said roll permitting non-picking separation of said web from said roll with no external lubrication of said surface.

4,316,770

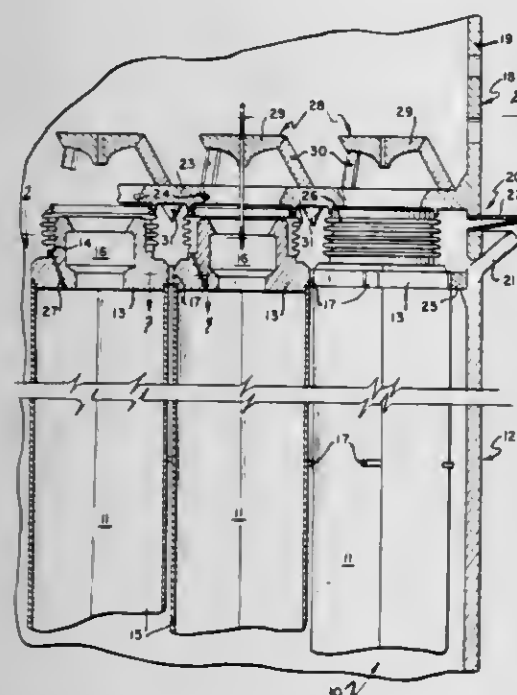
LIQUID-METAL-COOLED REACTOR
Ernest Hutter, Wilmette, Ill., assignor to The United States of America as represented by the Department of Energy, Washington, D.C.

Filed Sep. 21, 1979, Ser. No. 77,821

Int. Cl.³ G21C 1/02

U.S. Cl. 376—175

4 Claims



1. In a liquid-metal-cooled fast-breeder nuclear reactor incorporating a core consisting of a plurality of vertically disposed core assemblies enclosed within a hexagonal coolant duct and including an upper adapter, said core being surmounted by an instrument tree, the improvement comprising a perforated depressor plate extending across the bottom of the instrument tree the entire width of the core, the perforations therein being centered on the centerline of the core assemblies and being of a size slightly less than the top of the upper adapter and a circular cylindrical metal bellows attached to each upper adapter matching each perforation in the depressor plate and bearing on the depressor plate to restrict the flow of coolant upwardly between core assemblies, thereby increasing the interassembly coolant and thus decreasing significantly the

pressure difference between the inside and outside of the core assembly hexagonal ducts.

4,316,771

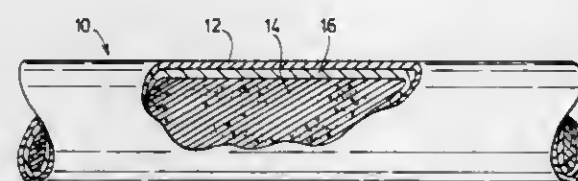
NUCLEAR FUEL STRESS CORROSION PREVENTION
Harvey R. Lee, Omeme, Canada, assignor to Canadian General Electric Company Limited, Toronto, Canada

Continuation of Ser. No. 870,076, Jan. 17, 1978, abandoned. This application Sep. 19, 1979, Ser. No. 77,045

Int. Cl.³ G21C 3/20

U.S. Cl. 376—415

12 Claims



1. A fuel element for water cooled nuclear reactors consisting essentially of a sheath of a zirconium alloy, containing uranium oxide nuclear fuel material therein, and having an intermediate barrier layer between and adjoining both the uranium oxide fuel and the zirconium alloy sheath, said layer including particles of copper in finely divided form of generally less than about 5 microns in size and in amount of at least about 1 milligram of copper per square centimeter whereby in use within a reactor under conditions of irradiation, cadmium released during irradiation from the fuel can combine with the copper to provide a stabilized copper-cadmium compound substantially localized intermediate the fuel and the sheath, thus impeding attack on the sheath by the released cadmium.

4,316,772

COMPOSITE MEMBRANE FOR A MEMBRANE DISTILLATION SYSTEM

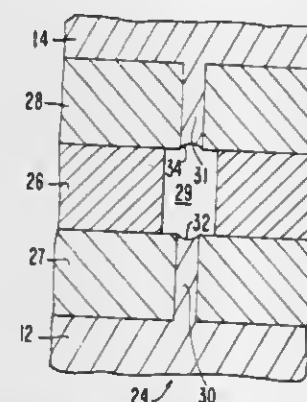
Dab Y. Cheng, 12950 Cortez, Los Altos, Calif. 94022, and Steve J. Wiersma, 658 Princeton Dr., Sunnyvale, Calif. 94087

Continuation-in-part of Ser. No. 12,047, Feb. 14, 1979, Pat. No. 4,265,713. This application Feb. 4, 1980, Ser. No. 118,192

Int. Cl.³ B01D 3/02

U.S. Cl. 202—163

15 Claims



1. Thermal membrane distillation apparatus for separating pure water from an aqueous solution comprising:

a composite membrane separating an aqueous solution to be purified from purified water;

said composite membrane comprising a thin porous hydrophobic layer sandwiched between two thin hydrophilic layers; and,

means for providing a sufficient temperature differential across said composite membrane so that liquid water evaporates on the aqueous solution side of the pores of the hydrophobic layer and condenses as pure water on the pure water side of the pores of the hydrophobic layer.

4,316,773

HOOD CAR FOR THE ABSORPTION OF EMISSIONS LIBERATED UPON PUSHING OF COKE OVENS

Wilhelm Stog, In der Baut 9, 4355 Waltrop, Fed. Rep. of Germany

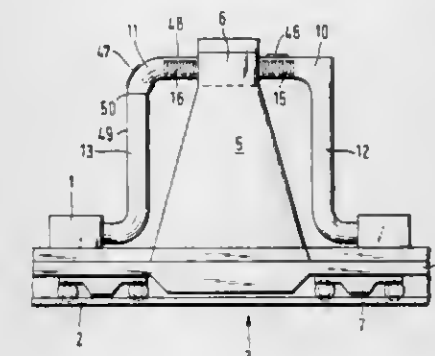
Filed Feb. 8, 1980, Ser. No. 120,104

Claims priority, application Fed. Rep. of Germany, Feb. 10, 1979, 2905109

Int. Cl.³ C10B 33/00, 45/00

U.S. Cl. 202—263

9 Claims



1. A hood car for withdrawing dust-laden gases from coke during pushing of a coke oven, said car comprising:
a chassis shiftable along a path parallel to a coke oven;
a downwardly open hood mounted on said chassis for collecting dust-laden gas upon the discharge of coke from said coke oven, said hood having an upper end;
a duct connected to said upper end of said hood for drawing dust-laden gas from said hood;
at least one dust-treating unit connected to said duct for treating gas drawn from said hood; and
at least one recuperative heat exchanger in said duct between said hood and said unit, said heat exchanger comprising
at least one flat grate extending transverse to a direction of flow of gas through said duct and composed of flat iron bars disposed in an eggcrate configuration with edges turned into said direction of flow, and
means for mounting said grate in said duct whereby said grate is cooled by air passing through said duct prior to the flow of dust-laden gas from the discharge of the coke oven to subsequently cool said dust-laden gas.

4,316,774

THERMOELECTRIC INTEGRATED MEMBRANE EVAPORATION SYSTEM

Raymond B. Trusch, South Windsor, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Jul. 5, 1979, Ser. No. 54,749

Int. Cl.³ B01D 3/10; C02F 1/04

U.S. Cl. 203—11

7 Claims

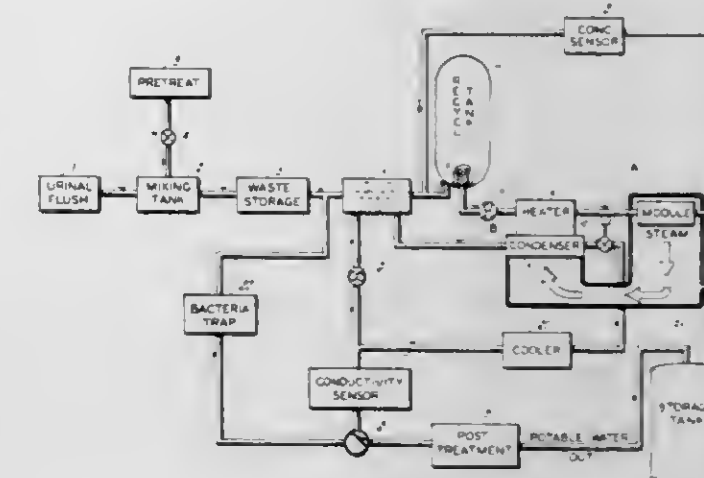
6. A process of recovering potable water from urinal waste comprising:

heating the urinal waste to pasteurization temperature by contact with the hot junction surface of at least one thermoelectric heat pump;

passing said heated waste through the interior of at least one hollow fiber membrane and evaporating steam from the exterior of said membrane by subjecting the exterior of the membranes to a vacuum;

followed by condensing said steam by contact with a condensation surface in heat transfer communication with the cold junction surface of the thermoelectric heat pump; the surface area of the hot and cold junction surfaces of the heat pump matched with the interior surface area of the

hollow fiber membrane to produce potable water at a total system energy use of less than about 1/3 of the latent heat of



evaporation of the water, operation of the system being gravity insensitive.

4,316,775

TREATMENT OF WASTE STREAM FROM ADIPIC ACID PRODUCTION

William D. Nash, Odessa, Tex., assignor to El Paso Products Company, Odessa, Tex.

Filed Nov. 6, 1980, Ser. No. 204,506

Int. Cl.³ B01D 3/12

U.S. Cl. 203—43

3 Claims



2. In a method for producing dimethyl esters of C₄-C₆ carboxylic acid components contained in an aqueous filtrate, which filtrate is a waste byproduct stream derived from a process for producing adipic acid by nitric acid oxidation of cyclohexanone/cyclohexanol, the improvement which comprises the steps of (1) concentrating the volume of the aqueous filtrate medium by the removal of water and the volatile components which co-distill with water to provide a concentrate solution which has a water content between about 5-30 weight percent and a nitric acid content between about 1-6 weight percent, based on total solution weight; (2) admixing the concentrate solution with between about 20-60 weight percent methanol, based on total solution weight, and heating the solution at a temperature between about 60°-90° C. to form methyl esters of the C₄-C₆ carboxylic acid components; (3) extracting the methyl ester components by contacting the esterification medium with a water-immiscible organic solvent at a temperature between about 40°-90° C.; (4) separating the immiscible organic solvent phase and aqueous phase; (5) concentrating the aqueous phase from step (4) by distillation to provide an aqueous concentrate containing nitric acid and metal catalyst values; (6) fractionally distilling the organic solvent phase from step (4) to yield dimethyl esters of succinic acid, glutaric acid and adipic acid, and a distillation bottoms fraction; (7) subjecting the said bottoms fraction to wiped film evaporation to provide a vapor condensate fraction and a residual heavy end fraction; and (8) recycling the said condensate fraction to the esterification step of the process.

4,316,776

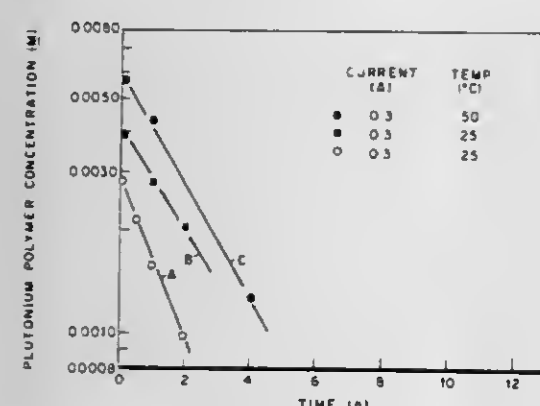
METHOD OF REMOVING PU(IV) POLYMER FROM NUCLEAR FUEL RECLAIMING LIQUID

Othar K. Tallent; James C. Mailen, both of Oak Ridge; Jimmy T. Bell, Kingston, and Phillip C. Arwood, Harriman, all of Tenn., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Dec. 31, 1980, Ser. No. 221,745
Int. Cl.³ C25C 1/22; C01G 56/00, 57/00

U.S. Cl. 204—1.5

2 Claims



1. A method of processing a nuclear fuel reclaiming solution containing water, nitric acid, and Pu(IV) polymer, comprising: passing electric current through said solution to depolymerize said Pu(IV) polymer, the hydrogen ion concentration of the solution being at least 0.3 molar; and separating from the solution plutonium ions obtained by depolymerization of said Pu(IV) polymer.

4,316,777

RECHARGEABLE NONAQUEOUS SILVER ALLOY ANODE CELL

Arabinda N. Dey, Needham, Mass., assignor to Duracell International Inc., Bethel, Conn.

Filed Oct. 1, 1979, Ser. No. 81,250
Int. Cl.³ H01M 10/44

U.S. Cl. 204—2.1

4 Claims

1. A method for improving the rechargeability of a secondary electrochemical cell comprising the steps of forming a solid solution of an alkali or alkaline earth metal with at least ten percent by weight of silver; and forming a solid anode for the cell from the solid solution, said metal being capable of forming a solid solution with said anode on the recharging of said anode.

4,316,778

METHOD FOR THE MANUFACTURE OF RECORDING SUBSTRATES FOR CAPACITANCE ELECTRONIC DISCS

Marshall L. Whitehurst, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Sep. 24, 1980, Ser. No. 190,276

Int. Cl.³ C25D 1/10, 3/38

U.S. Cl. 204—5

4 Claims

1. In the method for the manufacture of a recording substrate for a capacitance electronic disc in which bright acid copper is electrodeposited from a bath which is comprised of copper sulfate, sulfuric acid, and a brightener the improvement which comprises adding an amphoteric fluorocarbon surfactant to the bath in an amount sufficient to reduce or eliminate occluded hydrogen bubbles in the deposited layer of copper.

4,316,779

PROCESS FOR ELECTROPLATING PALLADIUM ON ARTICLES COMPRISING COPPER

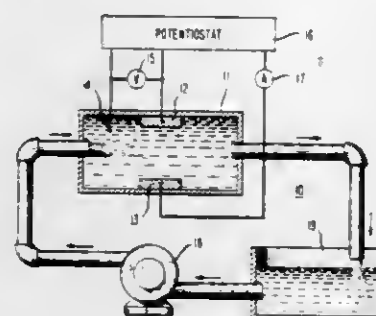
Joseph Yahalom, Summit, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sep. 26, 1980, Ser. No. 191,166

Int. Cl.³ C25D 3/52, 5/34

U.S. Cl. 204—29

14 Claims



1. A process for electroplating palladium onto a surface comprising copper from an aqueous ammonia plating bath comprising a source of palladium for electroplating, said source of palladium comprising $\text{Pd}(\text{NH}_3)_4\text{Cl}_2$, said process comprising the step of passing current through cathode, plating bath and anode characterized in that the surface is exposed to a solution comprising at least one thiourea compound selected from the group consisting of thiourea and substituted thiourea with at least one substituent on at least one of the nitrogen atoms, said substituent selected from the group consisting of hydrocarbons with up to 10 carbon atoms.

4,316,780

METHOD OF PRODUCING COLOR-ANODIZED ALUMINIUM ARTICLES

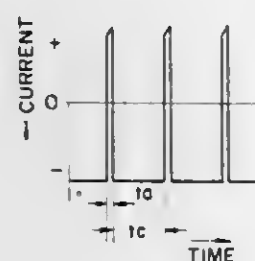
Kohichi Yoshida, Shimizu; Teruo Miyashita, Fuji, and Hiroshi Sano, Shimizu, all of Japan, assignors to Nippon Light Metal Company Limited, Tokyo, Japan

Filed Sep. 17, 1980, Ser. No. 188,260

Claims priority, application Japan, Sep. 20, 1979, 54-120151
Int. Cl.³ C25D 11/12, 11/22

U.S. Cl. 204—35 N

14 Claims



1. In a method of producing colour-anodized aluminium or aluminium alloy articles comprising the steps of: (a) forming an anodic oxide film on the surface of the article by conventional anodizing treatment, (b) subjecting the anodized article to a non-colouring direct current anodic electrolytic treatment to reinforce the barrier layer of the initial anodic oxide film, and (c) subsequently subjecting the resultant article to cathodic electrolytic colouring in an electrolytic bath containing at least one metallic colouring salt, by passing current between the article as cathode and a counter electrode, the improvement wherein said cathodic electrolytic current is a negative voltage direct current having superimposed thereon pulses of a positive voltage, said positive pulses having a duration substantially less than the interval therebetween and being repeated at a frequency sufficient to produce good coloration of said article film.

4,316,781

METHOD FOR ELECTROLYZING ALKALI METAL HALIDE

Toru Seita; Takao Satoh, and Mitsuo Kikuchi, all of Shinnanyo, Japan, assignors to Toyo Soda Manufacturing Co., Ltd., Shinnanyo, Japan

Filed Sep. 30, 1980, Ser. No. 192,543

Claims priority, application Japan, Oct. 6, 1979, 54-128469
Int. Cl.³ C25B 1/34, 13/08

U.S. Cl. 204—98

5 Claims

1. A method for electrolyzing an alkali metal halide wherein the concentration of a cation-exchange group on one side of a fluorocarbon polymer membrane is arranged to be lower than the concentration of the exchange group on the other side of the membrane by 10 to 30% within a depth range from 1 to 100μ; the side having the lower concentration of the exchange group is arranged to face an anode chamber; and electrolysis is carried out with said alkali metal halide supplied to said anode chamber.

4,316,782

ELECTROLYTIC PROCESS FOR THE PRODUCTION OF OZONE

Peter C. Foller, Sunnyvale, and Charles W. Tobias, Orinda, both of Calif., assignors to Regents of the University of California, Berkeley, Calif.

Filed May 29, 1980, Ser. No. 154,584

Int. Cl.³ C25B 1/00, 1/04

U.S. Cl. 204—129

12 Claims

1. A method of improving the yield of ozone in relation to the yield of oxygen from the anodic decomposition of water in aqueous electrolytes comprising admixing hexafluoro-anions with the water.

4,316,783

PROCESS FOR MODIFYING A SHAPED POLYETHYLENE

Fumio Hosoi; Takashi Sasaki, both of Takasaki; Miyuki Hagiwara, Maebashi; Noboru Kasai, Takasaki; Kunio Araki, Mito, and Takayuki Hirano, Yokohama, all of Japan, assignors to Japan Atomic Energy Research Institute, Tokyo, Japan

Filed Jun. 14, 1979, Ser. No. 48,391

Claims priority, application Japan, Jun. 20, 1978, 53-74562;
Jun. 20, 1978, 53-74563

Int. Cl.³ C08J 3/28, 3/24

U.S. Cl. 204—159.18

7 Claims

1. In the process for cross-linking a shaped polyethylene by irradiating the polyethylene with electron beams having a maximum range smaller than the thickness of the polyethylene measured in the direction of transmission of electron beam, the improvement whereby Lichtenberg discharge is prevented comprising adding 0.2 to 2 parts by weight of an amine having a basicity of 9.5 pKb or less to 100 parts by weight of polyethylene prior to its irradiation with electron beams.

4,316,784

PROCESS FOR ELECTRODEPOSITION OF MICHAEL ADDUCTS OF POLYMERIC MATERIALS

Stephen L. Buchwalter, Allison Park; Joseph F. Bosso, Lower Burrell, and Roger M. Christenson, Gibsonia, all of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Continuation of Ser. No. 180,742, Aug. 25, 1980, abandoned, which is a division of Ser. No. 937,386, Aug. 28, 1978, Pat. No. 4,248,753. This application Mar. 26, 1981, Ser. No. 247,582

Int. Cl.³ C25D 13/06

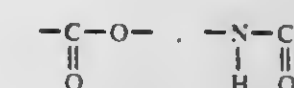
U.S. Cl. 204—181 C

13 Claims

1. A method of electrocoating an electrically conductive surface serving as a cathode which comprises passing electric current between said cathode and an anode immersed in an aqueous dispersion of an electrodepositable, heat-curable resinous coating composition which is dispersible in aqueous me-

dium with the aid of cationic salt groups comprising as a resinous binder:

(A) an active hydrogen-containing polymeric material containing alpha, beta-ethylenically unsaturated moieties in conjugation with carbonyl moieties selected from the class consisting of



and being substantially free of epoxy functionality reacted under conditions sufficient to form a Michael adduct with (B) a primary and/or secondary amine which has a boiling point below 100° C.;

said reaction product of (A) and (B) being at least partially neutralized with an acid to provide said cationic salt groups and being in combination with a curing agent which is reactive with the active hydrogens at elevated temperatures to form a crosslinked product; said coating composition being electrodepositable on a substrate to form a film thereon.

4,316,785

OXIDE SUPERCONDUCTOR JOSEPHSON JUNCTION AND FABRICATION METHOD THEREFOR

Minoru Suzuki; Toshiaki Murakami; Takahiro Inamura; Takashi Inukai, and Youichi Enomoto, all of Mito, Japan, assignors to Nippon Telegraph & Telephone Public Corporation, Tokyo, Japan

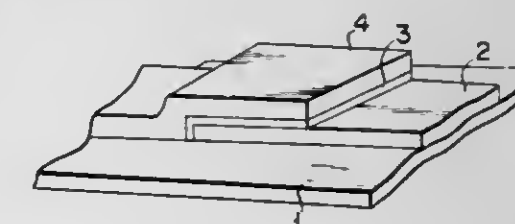
Filed Oct. 31, 1980, Ser. No. 202,640

Claims priority, application Japan, Nov. 5, 1979, 54-143126;
Feb. 5, 1980, 55-12027

Int. Cl.³ H01L 39/22

U.S. Cl. 204—192 S

5 Claims



1. An oxide superconductor Josephson junction comprising a first superconducting electrode layer consisting of $\text{BaPb}_{1-x}\text{Bi}_x\text{O}_3$ (wherein $0.05 \leq x \leq 0.3$) which is an oxide with perovskite structure; a barrier layer formed on said first superconducting electrode layer and consisting of one member selected from the group consisting of BaSnO_3 , $\text{Ba}_{1-y}\text{Sr}_y\text{Pb}_{1-x}\text{Bi}_x\text{O}_3$ (wherein $0 \leq x \leq 0.3$, $y > 0.3$), and $\text{BaPb}_{1-x}(\text{A}_{1-y}\text{Bi}_y)_x\text{O}_3$ (wherein A is at least one member selected from the group consisting of V, Nb, Ta and Sb; $0.1 \leq x \leq 0.3$; and $0 \leq y \leq 0.5$), all being oxides with perovskite structures; and a second superconducting electrode layer formed over said first superconducting electrode layer with said barrier layer between and consisting of $\text{BaPb}_{1-x}\text{Bi}_x\text{O}_3$ (wherein $0.05 \leq x \leq 0.3$) which is an oxide with perovskite structure.

2. A method of fabricating an oxide superconductor Josephson junction comprising: the steps of forming a bonding pad by depositing Cr or Au by evaporation on part of a substrate; the step of forming a first superconducting electrode layer of a thin film of $\text{BaPb}_{1-x}\text{Bi}_x\text{O}_3$ (wherein $0.05 \leq x \leq 0.3$) which is an oxide with perovskite structure including the steps of forming by sputtering a thin film of said $\text{BaPb}_{1-x}\text{Bi}_x\text{O}_3$ on a cooled substrate arranged in opposition to a ceramic target of $\text{BaPb}_{1-x}\text{Bi}_x\text{O}_3$ (wherein $0.05 \leq x \leq 0.3$) which is an oxide with perovskite structure and annealing the thin film of $\text{BaPb}_{1-x}\text{Bi}_x\text{O}_3$ formed in said steps to turn it into a superconducting material; the step of forming a barrier layer on the surface of said first

superconducting electrode layer under the condition that said substrate is cooled, said barrier layer consisting of one member selected from the group consisting of BaSnO_3 , $\text{Ba}_{1-y}\text{Sr}_y\text{Pb}_{1-x}\text{Bi}_x\text{O}_3$ (wherein $0 \leq x \leq 0.3$, $y > 0.3$) and $\text{BaPb}_{1-x}(\text{A}_{1-y}\text{Bi}_y)_x\text{O}_3$ (wherein A is at least one member selected from the group consisting of V, Nb, Ta and Sb; and $0 \leq y \leq 0.5$), all being oxides with perovskite structures;

the step of forming a second superconducting electrode layer of $\text{BaPb}_{1-x}\text{Bi}_x\text{O}_3$ (wherein $0.05 \leq x \leq 0.3$) which is an oxide with perovskite structure including the steps of forming a thin film of said $\text{BaPb}_{1-x}\text{Bi}_x\text{O}_3$ by sputtering on the surface of said barrier layer under the condition that said substrate is cooled and annealing the $\text{BaPb}_{1-x}\text{Bi}_x\text{O}_3$ thin film formed in said steps to turn it into a superconducting material; and

the step of connecting said bonding pad and said second superconducting electrode layer including the step of depositing by lift off evaporation between said bonding pad and said second superconducting electrode layer $\text{BaPb}_{1-x}\text{Bi}_x\text{O}_3$ which is an oxide with perovskite structure and the step of annealing $\text{BaPb}_{1-x}\text{Bi}_x\text{O}_3$ thus deposited for rendering the same superconducting.

4,316,786

APPARATUS FOR ELECTROPLATING PARTICLES OF SMALL DIMENSION

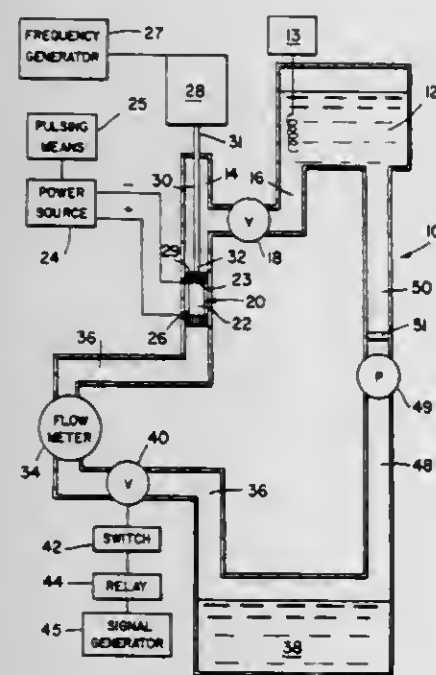
Conrad M. Yu, San Lorenzo, and John D. Illige, Fremont, both of Calif., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Sep. 19, 1980, Ser. No. 188,791

Int. Cl.³ C25D 17/16, 21/10, 21/12

U.S. Cl. 204—223

22 Claims



1. In an apparatus (10) electroplating particles of small dimension where the difference between the density of the particles and the plating solution is large or the mass of the particles is very small, the apparatus (10) including a source (12) of plating solution, and a source (24) of electrical power, the improvement comprising:

a cathode cell (20) having a cell chamber (22) for receiving the particles to be plated and the plating solution;

a cathode (23) connected to the power source (24) and comprising a resilient wire screen having a dome-shaped section;

means (27, 28, 29, 30) for vibrating the cathode (23) to maintain the particles to be plated in random free motion and including means positioned adjacent to and adopted for registration with said dome-shaped section of said cathode; and

an anode (26) connected to the power source (24) and elec-

trically isolated from the cathode (23) establishing a reducing potential therebetween.

4,316,787

HIGH VOLTAGE ELECTROLYTIC CELL

Constantinos D. Themis, 4984 S. 360 West, Murray, Utah 84106

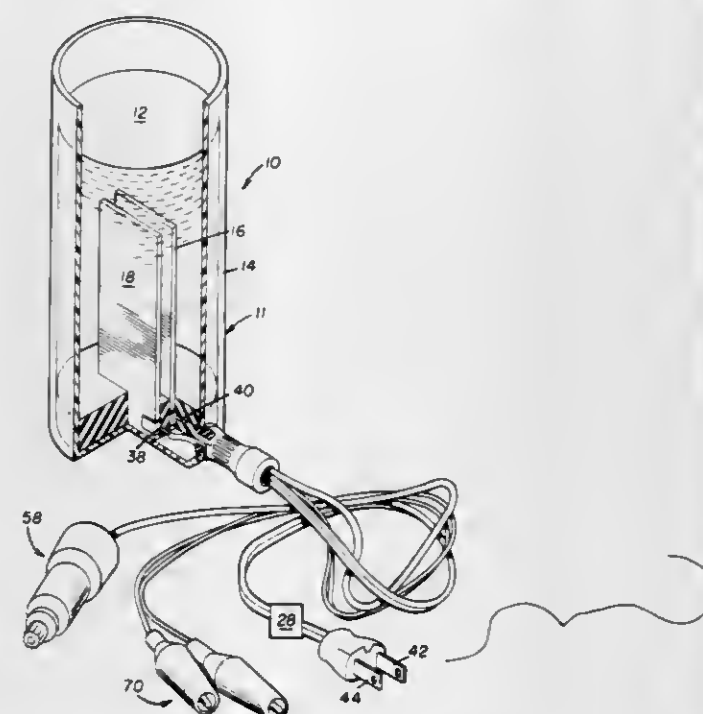
Continuation of Ser. No. 64,073, Aug. 6, 1979, Pat. No.

4,236,992. This application Jun. 13, 1980, Ser. No. 159,174

Int. Cl.³ C25B 9/00, 11/08, 11/10, 9/04

U.S. Cl. 204—242

2 Claims



1. An apparatus for electrolyzing a chloride ion containing, and other halide ion substantially free, aqueous solution to produce chlorine, comprising:

a vessel;

a cathode in said vessel;

an anode in said vessel, said anode including means for rendering said anode operable at a voltage above about 20 volts and at a watt density above about 100 watts per square inch of surface for over about 2 days without significant deterioration;

a rectifier circuit having a pair of AC inputs, a negative output, and a positive output;

a pair of cell conductors, a first of which connects said negative output to said anode and a second of which connects said positive output to said cathode;

an AC power source supplying a voltage of above about 20 volts; and

a pair of AC conductors directly connecting said AC inputs to receive substantially the full AC voltage from said power source.

4,316,788

ARRANGEMENT FOR COMPENSATING DETRIMENTAL MAGNETIC INFLUENCE BETWEEN TWO OR MORE ROWS OF LONGITUDINALLY ORIENTED ELECTROLYTIC REDUCTION CELLS, FOR ALUMINUM

Thorleif Sele, Snarya, Norway, assignor to Ardal og Sunndal Verk a.s., Oslo, Norway

Filed Jul. 23, 1980, Ser. No. 171,539

Claims priority, application Norway, Jul. 24, 1979, 792441

Int. Cl.³ C25C 3/16

U.S. Cl. 204—243 M

7 Claims

1. An arrangement for compensating, in longitudinally oriented pots of one row of pots of a plant for producing metal such as aluminum by electrolytic reduction of a molten bath, a detrimental vertical magnetic field from current in one or more

adjacent rows of longitudinally oriented pots, said arrangement comprising:

first and second substantially symmetrical groups of cathode taps located at opposite sides of the positive end of a pot; and

first and second compensation bus bars, connected to said first and second groups of cathode taps, respectively, said first and second compensation bus bars being located in relation to the pot so as to form a current loop around the cathode of the pot in a clockwise direction or in a counter-clockwise direction, depending on whether the detrimental vertical magnetic field to be compensated is positive or negative.

4,316,789

CATION EXCHANGE MEMBRANES

Tokuza Iijima, Kobe; Yasushi Samejima, Kakogawa; Kazuo Kishimoto, Takasago; Takamichi Komabashiri, Takasago, and Toshiji Kano, Kobe, all of Japan, assignors to Kanegafuchi Chemical Industry Company Limited, Osaka, Japan

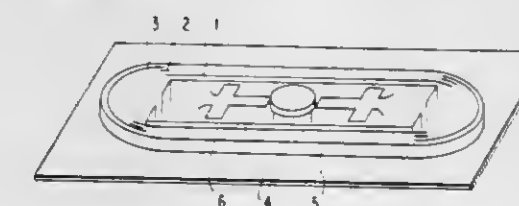
Filed May 16, 1980, Ser. No. 150,497

Claims priority, application Japan, May 16, 1979, 54-60883

Int. Cl.³ C25B 13/02, 13/08

U.S. Cl. 204—296

4 Claims



1. A cylindrical cation exchange membrane, by which a finger type electrolytic cell is separated into an anode compartment providing anodes and a cathode compartment providing cathodes, said membrane comprising:

first portions facing effective electrolytic surface of said cathodes and anodes having an equivalent weight of from 1,000 g/eq to 1,800 g/eq; and

second portions facing ineffective electrolytic surface of said anodes and cathodes having an equivalent weight of 2,000 g/eq or more.

4,316,790

CATION EXCHANGE MEMBRANES

Tokuza Iijima, Kobe; Yasushi Samejima, Kakogawa; Kazuo Kishimoto; Takamichi Komabashiri, both of Takasago, and Toshiji Kano, Kobe, all of Japan, assignors to Kanegafuchi Chemical Industry Company Limited, Osaka, Japan

Filed May 16, 1980, Ser. No. 150,499

Claims priority, application Japan, May 16, 1979, 54-60884

Int. Cl.³ C25B 13/02, 13/08

U.S. Cl. 204—296

11 Claims



1. A cylindrical cation exchange membrane, by which a finger type electrolytic cell is separated into an anode compartment providing anodes and a cathode compartment providing cathodes, said membrane comprising:

first portions facing effective electrolytic surface of said anodes and cathodes and

second portions facing ineffective electrolytic surface of said anodes and cathodes, wherein said second portions have a higher stiffness and a lower anion permeability than the first portions.

4,316,791

DEVICE FOR CHEMICAL DRY ETCHING OF INTEGRATED CIRCUITS

Joseph Taillet, Boulogne, France, assignor to Office Nationale d'Etudes et de Recherches Aeronautiques, Chatillon, France

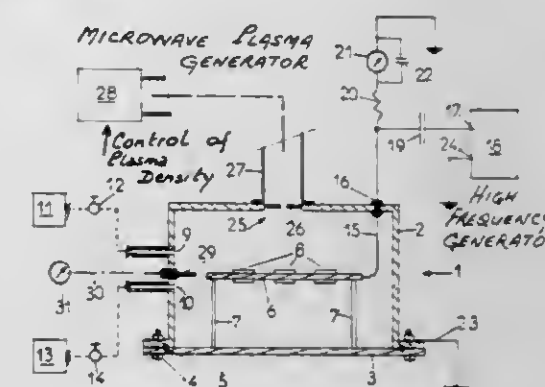
Filed Aug. 20, 1980, Ser. No. 179,788

Claims priority, application France, Aug. 22, 1979, 79 21128

Int. Cl.³ C23C 15/00; C23F 1/00

U.S. Cl. 204—298

4 Claims



1. An apparatus for etching integrated circuits comprising: a generator of a plasma of a gaseous component under low pressure;

means for controlling the electron density of the plasma formed by said plasma generator;

a leak tight chamber having a metallic wall and an inner metallic electrode plate for supporting integrated circuits to be etched, said plate being insulated from said wall;

a high frequency alternating signal generator;

means for applying said high frequency alternating signal between said electrode and said wall;

means for measuring the value of the current of said alternating signal; and

communication means between the plasma generator and the leak tight chamber.

4,316,793

HYDROLIQUEFACTION OF COAL

Morgan C. Sze, Upper Montclair, N.J., assignor to The Lummus Company, Bloomfield, N.J.

Filed Dec. 21, 1979, Ser. No. 106,273

Int. Cl.³ C10G 1/06; B01J 8/18

U.S. Cl. 208—10

16 Claims

1. A process for the catalytic hydroliquefaction of coal, comprising:
catalytically hydroliquefying the coal by passing the coal dispersed in a coal liquefaction solvent and hydrogen upwardly through an expanded hydroliquefaction catalyst bed in a stream having a cross-sectional flow area of no greater than 255 square inches, said stream through the catalyst bed having a length and a liquid and gas superficial velocity to maintain an expanded catalyst bed and provide a Peclet Number of at least 3, said hydroliquefaction being effected with a ratio of hydroliquefaction product recycle to total hydroliquefaction feed of from 0:1 to 2:1.

4,316,794

DIRECT CONVERSION OF RESIDUAL OILS

Hans J. Schoennagel, Lawrenceville, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Mar. 6, 1980, Ser. No. 127,612

Int. Cl.³ C10G 11/18, 47/28

U.S. Cl. 208—111

16 Claims

1. A process for converting residual oils to lower boiling components which comprises:
(a) combining petroleum residual oil and hydrogen containing gas with hot solid catalyst particles at a temperature of between about 1000° F. and 1800° F., the ratio of catalyst to oil being within the range of between about 2 and 15, with hydrogen pressure being maintained within the range of between about 100 psig and 1000 psig, to form a suspension;
(b) passing the suspension through a reactor arrangement providing an oil residence time of between about 1 second and 30 seconds;
(c) separating and recovering said lower boiling components and said solid catalyst particles;
(d) gasifying and regenerating the separated solid catalyst particles with a mixture of oxygen-containing gas and steam in a fluidized bed operating in a partial oxidation mode to produce synthesis gas and regenerated catalyst;
(e) recovering said synthesis gas;
(f) directly returning the regenerated catalyst to combine with the residual oil and hydrogen in said reactor arrangement.

4,316,795

HYDROCARBON CONVERSION PROCESS WITH REDUCED SULFUR OXIDE EMISSIONS

John Mooi, Homewood, Ill., assignor to Atlantic Richfield Company, Philadelphia, Pa.

Division of Ser. No. 889,690, Mar. 24, 1978, Pat. No. 4,252,686, which is a continuation-in-part of Ser. No. 681,657, Apr. 29, 1976, Pat. No. 4,252,632. This application Aug. 29, 1980, Ser. No. 182,270

Int. Cl.³ C10G 11/05

U.S. Cl. 208—120

22 Claims

1. In a hydrocarbon conversion process for converting a sulfur-containing hydrocarbon feedstock which comprises (1) contacting said feedstock with solid particles capable of promoting the conversion of said feedstock at hydrocarbon conversion conditions in at least one reaction zone to produce at least one hydrocarbon product and to cause deactivating sulfur-containing carbonaceous material to be formed on said solid particles thereby forming deposit-containing particles, said solid particles being substantially free of platinum group metal components; (2) contacting said deposit-containing particles with an oxygen-containing vaporous medium at conditions to combust at least a portion of said carbonaceous deposit

material in at least one regeneration zone to thereby regenerate at least a portion of the hydrocarbon conversion catalytic activity of said solid particles and to form a regeneration zone flue gas containing at least one sulfur-containing carbonaceous deposit material combustion product; and (3) repeating steps (1) and (2) periodically, the improvement which comprises: reducing the amount of sulfur in said regeneration zone flue gas using, in intimate admixture with said solid particles, a minor amount of discrete entities each of which comprises a major amount by weight of at least one separate alumina phase capable of associating with sulfur trioxide at the conditions of step (2) and capable of disassociating with sulfur trioxide at the conditions of step (1), a minor, catalytically effective amount of at least one platinum group metal component deposited on said alumina phase, said platinum group metal component being capable of promoting the conversion of sulfur dioxide to sulfur trioxide at the conditions of step (2), and a minor, catalytically effective amount of at least one crystalline aluminosilicate capable of promoting said hydrocarbon conversion, thereby associating at least a portion of said sulfur-containing combustion product with said discrete entities in said regeneration zone and disassociating at least a portion of said sulfur-containing combustion product from said discrete entities in said reaction zone to form H₂S which exits said reaction zone with said hydrocarbon product.

4,316,796

PROCESS FOR THE SEPARATION OF DIENIC AND/OR AROMATIC HYDROCARBONS PRESENT IN HYDROCARBON FRACTIONS

Martial Atlani, Paris; Roben Loutaty, Le Havre; Claude Wakselman, Villebon sur Yvette, and Charles Yacono, Le Havre, all of France, assignors to Compagnie Francaise de Raffinage and Agence Nationale de Valorisation de la Recherche (ANVAR), both of, France

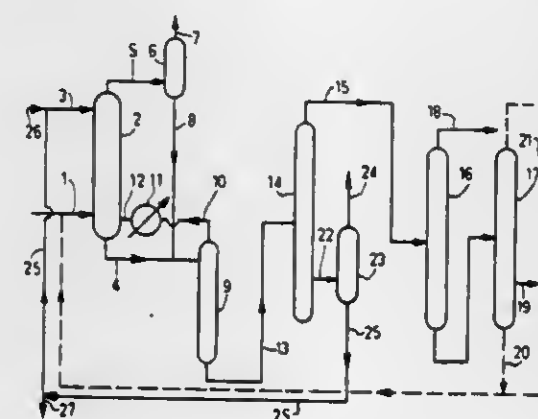
Filed Sep. 12, 1980, Ser. No. 186,483

Claims priority, application France, Sep. 14, 1979, 79 23041

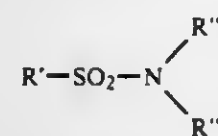
Int. Cl.³ C10G 7/08, 21/20, 21/22

U.S. Cl. 208—313

2 Claims



1. A process for the solvent extraction of dienic and/or aromatic hydrocarbons present in hydrocarbon fractions employing liquid-liquid extraction and/or extractive distillation, said process being characterized in that the solvent comprises at least one sulfonamide of the general formula



wherein R', R'' and R''' can be linear or branched, saturated or unsaturated, aliphatic groups possessing from 1 to 18 carbon atoms, wherein two or three of groups R', R'' and R''' can be identical, wherein one of the groups R'' or R''' can be replaced with a hydrogen atom, and wherein at least one of groups R', R'' and R''' is unsaturated.

4,316,797

FLOTATION AGENT AND PROCESS

Robert M. Parlman, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Sep. 10, 1980, Ser. No. 185,711

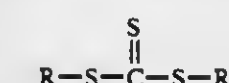
Int. Cl.³ B03D 1/02

U.S. Cl. 209—166

8 Claims

1. In a froth flotation process wherein a pulp of ore and water is aerated to generate a minerals containing froth and wherein said minerals are recovered from said froth, the improvement comprising incorporating into said pulp prior to said aeration a flotation agent comprising

An aromatic oil having a specific gravity in the range of about 0.75 to 1.10 and a boiling point in the range of about 150° C. to 500° C. and an aromatic content of about 50 weight percent or more and
(b) a dihydrocarbyl trithiocarbonate having the formula



wherein R is allyl and R' is n-butyl.

4,316,798

SEPARATING CHAMBER FOR A MAGNETIC SEPARATOR

Walter B. Jepson; Peter W. Riley, and David Hocking, all of St. Austell, England, assignors to English Clays Lovering Pochin & Company Ltd., St. Austell, England

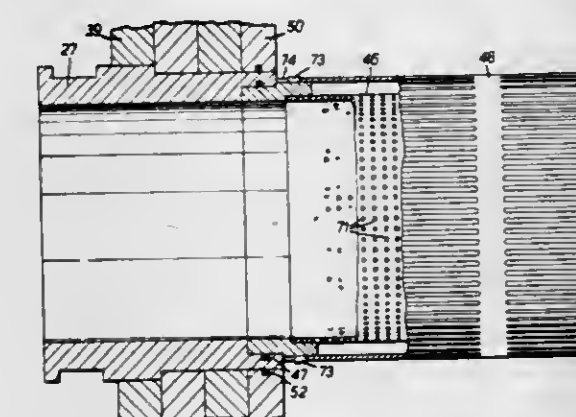
Continuation-in-part of Ser. No. 14,221, Feb. 22, 1979, abandoned. This application Aug. 7, 1980, Ser. No. 176,015

Claims priority, application United Kingdom, Feb. 27, 1978, 7779/78

Int. Cl.³ B03C 1/02; B01D 35/06

U.S. Cl. 209—223 R

16 Claims



1. In a magnetic separator which comprises a separating chamber, magnetic field producing means for establishing a magnetic field in a predetermined zone, and means for moving the separating chamber between the predetermined zone and a zone remote from the predetermined zone, the improvement which comprises:

a separating chamber comprising (i) a canister having at least one inlet and at least one outlet for a fluid suspension including magnetisable particles which are desired to be separated; (ii) a fluid-permeable magnetisable packing material for capturing said magnetisable particles, being disposed within the canister so that said fluid suspension supplied to the inlet(s) passes through the packing material and exits through the outlet(s); (iii) a first, fluid-permeable, double-walled partition through which said fluid suspension from the inlet(s) must pass to reach the packing material, the two walls of the partition being spaced slightly apart and being apertured, with the apertures in one wall being offset from the apertures in the other wall, to cause the fluid suspension to follow a tortuous path as it passes through the double-walled partition and into the packing

material; and (iv) a second, fluid-permeable partition through which fluid suspension from the inlet(s) which has passed through the packing material must pass to reach the outlet(s), the said packing material occupying the volume between said double-walled partition and the second fluid-permeable partition, wherein the distance between the first, fluid-permeable, double-walled partition and the second, fluid-permeable partition is at least six times the distance between the two walls of the first, fluid-permeable, double-walled partition, and the walls of the double-walled partition are spaced apart by a distance in the range of from 2 to 10 millimeters.

4,316,799

AUTOMATIC CONTROL APPARATUS FOR AN OSCILLATING GRAIN SEPARATOR

Toshihiko Satake, Higashihiroshima, Japan, assignor to Satake Engineering Company, Ltd., Tokyo, Japan

PCT No. PCT/JP79/00087, § 371 Date Mar. 28, 1980, § 102(e) Date Feb. 1, 1980, PCT Pub. No. WO80/00316, PCT Pub. Date Mar. 6, 1980.

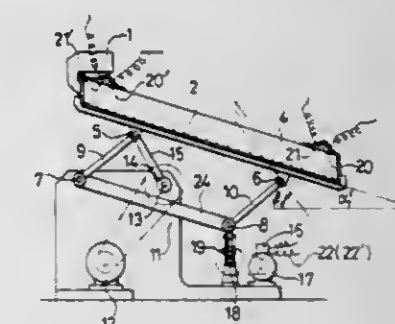
PCT Filed Apr. 5, 1979, Ser. No. 191,214

Claims priority, application Japan, Jul. 28, 1978, 53-92770

Int. Cl.³ B07B 13/18

U.S. Cl. 209—504

5 Claims



5. An automatic control apparatus for an oscillating grain separator of a type comprising a grain separating frame having a sidewall, a separating plate having a roughened upper surface within said frame, means for positioning said plate and frame to provide an inclined surface for downward flow of grain, motor means for vertically reciprocating a lower end of said frame and simultaneously reciprocating an angle of inclination of said frame relative to a horizontal plane, said control apparatus comprising a stationary light source and a stationary light receiving element mounted in a position on said frame to check flow conditions of grain on the separating plate and located near at least one wall of the grain separating plate frame and circuit means responsive to said light receiving element for controlling said motor means to provide substantial grain separation on said separator plate.

4,316,800

RECOVERY OF URANIUM FROM ENRICHED SOLUTION BY A MEMBRANE SEPARATION PROCESS

Regis R. Stana, Lakeland, Fla., and Erich W. Toppel, Littleton, Colo., assignors to Uranerz U.S.A. Inc, Wheat Ridge; Wyoming Mineral Corp., Lakewood, both of, Colo. and Minatome Corp., New York, N.Y.

Filed Feb. 21, 1979, Ser. No. 13,702

Int. Cl.³ B01D 13/00; C01G 56/00; E21B 43/00

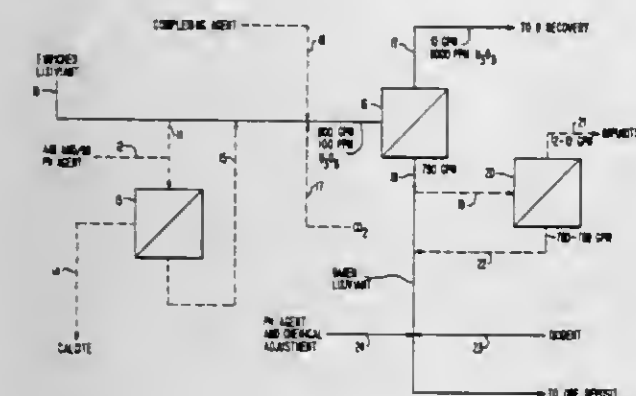
U.S. Cl. 210—651

8 Claims

1. A method for concentrating uranium material from uranium enriched solution mining lixiviant containing uranium and calcium, comprising the steps of:

(A) first, contacting the enriched lixiviant with a substance effective to raise the pH of the lixiviant, resulting in precipitation of calcium, which is then removed from the lixiviant, and then
(B) having the pH adjusted, enriched lixiviant contact a separation system, containing at least one semipermeable,

ultrafiltration membrane having the characteristic of NaCl rejection, at 300 psi. and 2,000 ppm. salt concentration, of about 5% to about 20% and capable of concentrat-



ing uranium, to concentrate uranium and pass a substantial portion of the lixiviant, to provide a uranium concentrate stream and a uranium barren stream containing low molecular weight cations, anions, and impurities.

4,316,801

FILTER ASSEMBLY WITH JACKED FILTER CANNISTER

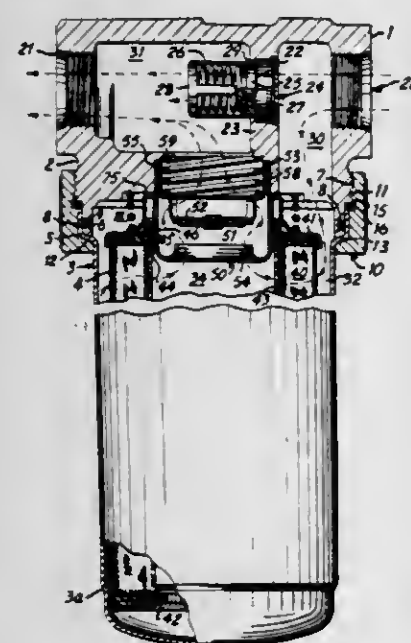
Roydon B. Cooper, Locust Valley, N.Y., assignor to Pall Corporation, Glen Cove, N.Y.

Filed Jul. 22, 1980, Ser. No. 171,070

Int. Cl.³ B01D 27/10

U.S. Cl. 210-90

8 Claims



1. A filter assembly having a filter bowl assembly attached to a filter head in a manner that allows jacking of a filter cannister into and away from sealing engagement with the head, comprising, in combination, a filter head; an inlet for unfiltered fluid and an outlet for filtered fluid in the head; and a filter bowl assembly comprising a filter cannister; a filter element removably disposed in the filter cannister across the line of fluid flow from the inlet to the outlet so that fluid flow from the inlet to the outlet normally proceeds through the filter; a jack ring removably attached to the head; and means attaching the filter cannister to the jack ring in a manner to jack the cannister onto the head into sealing engagement therewith when the jack ring is attached to the head, and off from the head when the jack ring is removed from the head, so that the cannister is jacked onto the head and off from the head by the jack ring for access to and replacement of the filter element in the cannister.

4,316,802
FILTER

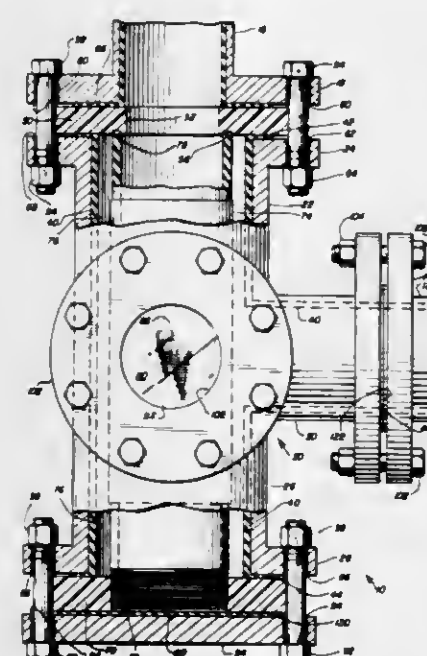
Michael E. Howell, Davis Junction, Ill., assignor to Illinois Water Treatment Company, Rockford, Ill.

Filed Oct. 30, 1980, Ser. No. 202,268

Int. Cl.³ B01D 35/02

U.S. Cl. 210-95

10 Claims



1. To be used with a pipe having a flanged end, a filter comprising:

- a hollow body, which includes first, second, and third tubular branches having coplanar axes, the first and second branches having respective flanged ends, the axes of the first and second branches being coincident, the flanged end of the first branch being adapted to be mounted to the flanged end of the pipe,
- a blind flange, which is mounted on the flanged end of the second branch,
- a first plate, which is adapted to be mounted between the flanged end of the first branch and the flanged end of the pipe, and which has an aperture circumscribed on one face of said other plate by an annular groove,
- a second plate, which is mounted between the blind flange and the flanged end of the second branch, and which has a threaded aperture, and
- a tubular filtering element, which is fitted through the first and second branches so as to leave an annular space around the filtering element, which has a first end received by the annular groove of the first plate and a second end threaded into the threaded aperture of the second plate, and which thus is retained by the blind flange,

where the threaded aperture compensates for dimensional tolerances, so as to enable a particle-tight seal to be effected between the first end of the filtering element and the annular groove, whereby, when the flanged end of the first branch is mounted to the flanged end of the pipe, an effluent entering the filter through the third branch passes into the filtering element from the outside perimeter of the filtering element and from the first end of the filtering element into the pipe, and whereby particles removed from the effluent by the filter accumulate in the annular space around the filtering element, between the plates, and whereby the blind flange, the second plate, and the filtering element can be removed from the filter at the flanged end of the second branch while the flanged end of the pipe and the first plate remain mounted to the flanged end of the first branch.

4,316,803

FILTER SUPPORT OF PLATES FOR FILTER PRESSES

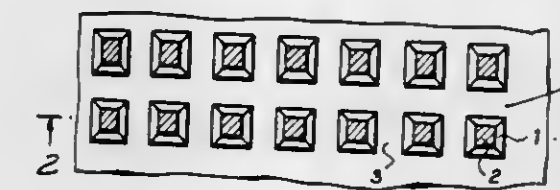
Lubomir Kupf, Prague; Radomil Adamek, Pardubice, and Mirko Mursec, Pardubice, all of Czechoslovakia, assignors to Statni vyzkumny ustav materialu, Prague, Czechoslovakia

Filed Apr. 23, 1980, Ser. No. 143,011

Int. Cl.³ B01D 25/04

U.S. Cl. 210-455

4 Claims



1. A filter support for a plate for filter presses and filters for filtering over a filter wall the plate provided with regularly oriented projections of geometric shape, the upper surfaces of said projections, which are in contact with the filter wall, being provided with grooves.

4,316,804

METHOD AND SYSTEM FOR THE CONTINUOUS CLEANING OF UNDERWATER BEDS

Christian Bocard, Orgeval; Jacques Delacour, Paris, and Philippe Renault, Noisy le Roi, all of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

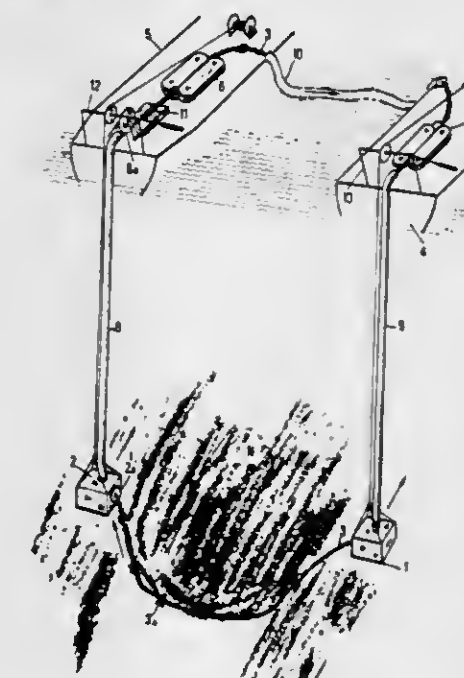
Filed Jun. 27, 1980, Ser. No. 163,894

Claims priority, application France, Jun. 29, 1979, 79 16893

Int. Cl.³ B01D 35/00

U.S. Cl. 210-671

15 Claims



1. A method of continuously hoisting up heavy viscous products from the water bottom to the surface, comprising circulating through the water from the surface a flexible line having collecting means for collecting said products by having the products superficially retained thereon, passing said line through a path having a downward portion bringing said collecting means into contact with the products on the water bottom, and a rising portion of the path for hoisting the products up to the water surface, wherein along said rising portion of the path the collecting means is passed through a tubular casing for protecting the surrounding water above the bottom against pollution by preventing said products from being disengaged from the flexible line, while hoisting the products to the surface.

4,316,805

OIL SEPARATION AND RECOVERY PROCESS AND APPARATUS

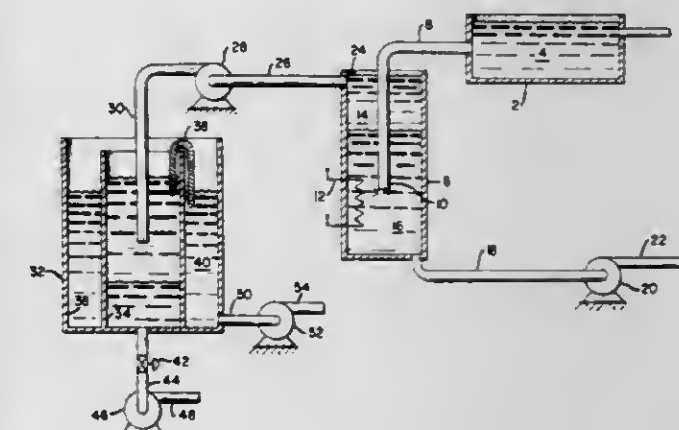
Elbert R. Faust, Litchfield, Conn., and Stuart F. Faunce, Fanwood, N.J., assignors to Faunce and Associates, Inc., Fanwood, N.J.

Filed Nov. 19, 1979, Ser. No. 95,430

Int. Cl.³ B01D 57/00

U.S. Cl. 210-693

8 Claims



1. A process for separating oil from water in a mixture containing oil and water, comprising:

- feeding said mixture to a heated hold-up tank via an inlet located at a lower level of said tank, said tank having a residence time sufficient to permit the separation of oil and water and the formation of a water-in-oil emulsion which rises to float atop of said water, said tank being heated to a temperature within the range of about 160° F. to about 180° F.;
- removing water from the bottom of said heated hold-up tank;
- removing said water-in-oil emulsion from the top of said heated hold-up tank via an outlet located above the top of said water in said heated hold-up tank;
- feeding said water-in-oil emulsion to a hold-up tank having a first compartment and a second compartment, said feeding being to said first compartment;
- permitting water contained in said fed water-in-oil emulsion to settle to the bottom of said first compartment;
- withdrawing water from the bottom of said first compartment;
- removing oil from the top of said first compartment to said second compartment via a hydrophobic wick; and
- removing said oil from said second compartment.

4,316,806

METHOD AND DEMULSIFIER COMPOSITION

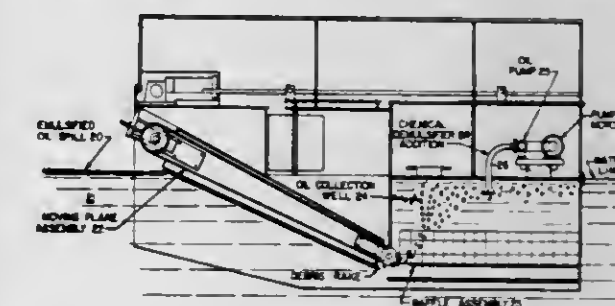
Gerard P. Canevari, Cranford, N.J., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Sep. 22, 1980, Ser. No. 189,713

Int. Cl.³ B01D 17/04

U.S. Cl. 210-708

48 Claims



48. A method of demulsifying a water/crude oil emulsion, comprising the steps of:

- displacing one liquid from a surface of a bi-wetted solid

disposed at a boundary of a water droplet and oil phase continuum with another liquid via reduction of liquid-solid interfacial tension at said boundary, and
(b) displacing an indigenous crude oil surfactant film by another surfactant that permits water droplet coalescence and separation from said oil phase continuum.

4,316,807

VISCOSIFYING AGENT

Carl V. McDaniel, Laurel, and Nelson S. Marans, Silver Spring, both of Md., assignors to W. R. Grace & Co., New York, N.Y.
Filed Apr. 3, 1978, Ser. No. 892,543

Int. Cl.³ C09K 7/00

U.S. Cl. 252—8.5 A

43 Claims

1. A silane-modified inorganic composition consisting essentially of a reaction product of an inorganic oxide hydrogel selected from hydrogels of silicon oxide, aluminum oxide or mixtures thereof and a silane represented by the formula $R_xSiR'_{4-x}$ wherein R is a C₁ to C₂₀ hydrocarbon, R₁ is a halo or a C₁-C₂₀ alkoxy radical and x is an integer of from 1 to 3; said reaction product formed by initiating the formation of the hydrogel by contacting an aqueous solution containing from about 5 to 50 weight percent of a water soluble hydrogel forming precursor agent selected from the group consisting of water-soluble alkali metal or ammonium silicates, water soluble alkali metal or ammonium aluminates, aluminum salts and mixtures thereof with a sufficient amount to cause formation of said hydrogel of a neutralizing agent; contacting prior to complete gelation and under a high degree of agitation, the forming hydrogel with from about 0.01 to 0.3 mole of said silane per mole of oxide; and causing the resultant aqueous hydrogel system to have an alkaline pH of at least about 9.

4,316,808

METHOD FOR BREAKING PETROLEUM EMULSIONS AND THE LIKE USING MICELLAR SOLUTIONS OF THIN FILM SPREADING AGENTS COMPRISING AN ACYLATED POLYETHER POLYOL

Charles M. Blair, Jr., Buena Park, Calif., assignor to Magna Corporation, Santa Fe Springs, Calif.

Filed Oct. 5, 1979, Ser. No. 82,346

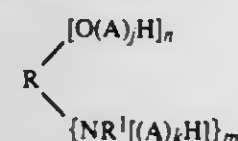
The portion of the term of this patent subsequent to Aug. 12, 1997, has been disclaimed.

Int. Cl.³ B01D 17/04

U.S. Cl. 252—8.55 D

53 Claims

1. A method for breaking petroleum emulsions of the water-in-oil type characterized by subjecting the emulsion to the action of a homogeneous micellar solution of a thin film spreading agent, said micellar solution comprising: (1) from between about 5% and about 75% by weight of an acylated polyether polyol having the formula:



wherein:

A is an alkylene oxide group, $-C_2H_4O-$;

O is oxygen;

i is a positive integer from 2 to about 10;

j is a positive integer no greater than about 100;

k is a positive integer no greater than about 100;

N is nitrogen;

R¹ is one of hydrogen, a monovalent hydrocarbon group containing less than about C₁₁, or $[A_LH]$;

L is a positive integer no greater than about 100;

R is a hydrocarbon moiety of a polyol, a primary or secondary amine, a primary or secondary polyamine, a primary or secondary amino alcohol, or hydrogen; and

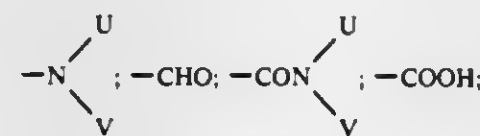
m+n is no greater than about 4 when R is other than hydrogen and one of m and n is zero and the other is unity when R is hydrogen, said acylated polyether polyol being the

reaction product of said polyether polyol and a member selected from the class consisting of mono- and polybasic carboxylic acids, acid anhydrides, and iso-, diiso-, and polyisocyanates, said acylated polyether polyol at about 25° C.: (a) being less than about 1% by volume soluble in water and in isooctane; (b) having a solubility parameter in the range of between about 6.9 and about 8.5; and (c) spreading at the interface between distilled water and refined mineral oil to form a film having a thickness no greater than about 20 Angstroms at a spreading pressure of about 16 dynes per cm; (2) from between about 2% and about 30% by weight of a hydrotropic agent having one of the formulas:

X-Z

(A)

wherein X is an alkyl, alicyclic, aromatic, alkylalicyclic, alkylaryl, arylalkyl, alicyclicalkyl, heterocyclic or substituted heterocyclic radical having 2 to 13 carbon atoms; and wherein Z is one of: —OH;



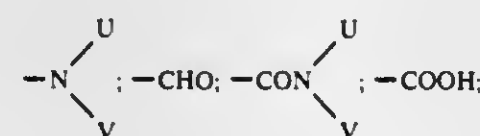
and —OCH₃; and U and V are hydrogen or hydrocarbon substituents;

—X—Y—R—(Z)_n

(B)

wherein:

Z is one of —OH;

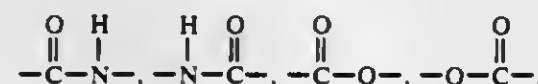
and —OCH₃;

X is an alkyl, alicyclic, aromatic, alkylalicyclic, alkylaryl, arylalkyl, alicyclicalkyl, heterocyclic or substituted heterocyclic radical having 2 to 12 carbon atoms;

R is a member selected from the class consisting of, —CH₂—, —C₂H₄—, —C₃H₅—, —C₃H₆—, and —C₂H₄—O—C₂H₄—;

n is either a one or two integer, the integer dependent upon the selection of R; U and V are hydrogen or hydrocarbon substituents; and

Y is a member selected from the class consisting of:



—O—, and —S—;

(3) from between about 2% and about 30% by weight of an amphipathic agent having at least one radical having from between about 10 and about 64 carbon atoms per molecule; and

(4) from between about 15% and about 90% by weight, water.

4,316,809

MICELLAR FLUID FOR LOW AND HIGH HARDNESS CRUDE OIL DISPLACEMENT

Thomas D. Griffith, Tulsa, and Daniel S. Denham, Jenks, both of Okla., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Filed Nov. 13, 1979, Ser. No. 93,359

Int. Cl.³ E21B 43/22

U.S. Cl. 252—8.55 D

5 Claims

1. In a method of displacing oil through at least a portion of a crude oil containing subterranean reservoir having an injection means in fluid communication through the reservoir with a production means, wherein an aqueous micellar slug is injected into the reservoir at said injection means and is displaced through at least a portion of said reservoir for displacing crude oil toward said production means, wherein the improvement comprises:

injecting into a reservoir containing both low hardness water containing less than about 0.001 normal polyvalent cations and high hardness water containing in excess of about 0.01 normal polyvalent cations an aqueous micellar slug consisting essentially of greater than a critical micelle concentration of a crude oil displacing hydrocarbon sulfonate surfactant, about 0.5 to about 5 weight percent of a water soluble salt of a sulfated, oxyalkylated alcohol having the following general formula:



wherein:

x is a positive integer within the range of 8 to about 20,

y is a positive integer within the range of 2 to 6,

z is a positive integer within the range of 1 to 10,

m is an alkali metal, ammonium, or water soluble quaternary ammonium ion, or a water soluble amine or a mixture thereof,

and about 0.5 to about 5 weight percent of amyl alcohol.

4,316,810

GELLED OIL BASE COMPOSITIONS AND METHODS OF PREPARATION AND USE OF SAME

John W. Burnham, Oklahoma City, Okla., assignor to Halliburton Company, Duncan, Okla.

Continuation-in-part of Ser. No. 898,056, Apr. 20, 1978,

abandoned. This application Jan. 7, 1980, Ser. No. 109,984

Int. Cl.³ E21B 43/26

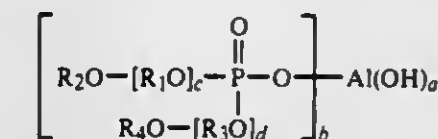
U.S. Cl. 252—8.55 R

15 Claims

1. A fracturing composition consisting essentially of:

an oil base liquid; and

from about 0.25 weight percent to about 6.0 weight percent of at least one compound selected from the group of aluminum salts consisting of aluminum oxaalkyl phosphates, aluminum oxaalkyl oxaalkyl phosphates and aluminum oxaalkyl alkyl phosphates, said salts having the structural formula



where

a=0 to 2,

b=1 to 3,

c=1 to 5,

d=1 to 5,

and the sum of a+b=3;

R₁O and R₃O=an alkyloxy, alkenyloxy or alkynyloxy group containing from 1 to 18 carbon atoms, or $CH_2CH(CH_3)O$, or CH_2CH_2O or OH, andR₂O and R₄O=an alkyloxy, alkenyloxy or alkynyloxy group containing from 1 to 18 carbon atoms,and where R₁O and R₂O may differ from each other but

shall together contain from 1 to 24 carbon atoms, and R₃O and R₄O may differ from each other but shall together contain from 1 to 20 carbon atoms, provided that at least one of R₁O and R₃O shall be either $CH_2CH(CH_3)O$ or CH_2CH_2O , and provided further that where either R₁O or R₃O is neither $CH_2CH(CH_3)O$ nor CH_2CH_2O , then the respective R₂O and R₄O group otherwise bonded thereto shall be deleted and further provided that the number of carbon atoms in at least one of R₁O, R₂O, R₃O and R₄O is at least 6.

4,316,811

DUST SUPPRESSANT

Edward J. Burns, and James R. Hatfield, both of Omaha, Nebr., assignors to InterNorth, Inc., Omaha, Nebr.

Filed Jul. 10, 1980, Ser. No. 167,459

Int. Cl.³ B28D 7/02; C09K 3/22; E21C 7/08; E21F 5/06

U.S. Cl. 252—88

2 Claims

1. A method for suppressing dust formation in coal and for increasing the crushing strength of coal comprising contacting the surface of the coal with an aqueous composition comprising from about 0.01 percent to about 5 percent of polyethylene oxide having a molecular weight of at least about 900,000 and at least about 0.1 grams of polyethylene oxide per 100 square inches of flat surface area of coal is applied to the coal.

2. A method for suppressing dust formation in coal and for increasing the crushing strength of coal comprising contacting the surface of the coal with an aqueous composition comprising from about 0.01 percent to about 2 percent of polyethylene oxide having a molecular weight of at least about 4 million and at least about 0.001 grams of polyethylene oxide per 100 square inches of flat surface area of coal is applied to the coal.

4,316,812

DETERGENT COMPOSITION

Roger I. Hancock, Stockton, and Kathleen M. Morrison, Saltburn, both of England, assignors to Imperial Chemical Industries Limited, London, England

Continuation-in-part of Ser. No. 911,517, Jun. 1, 1978,

abandoned. This application Dec. 4, 1979, Ser. No. 100,041

Claims priority, application United Kingdom, Jun. 9, 1977, 24083/77

Int. Cl.³ C11D 7/54

U.S. Cl. 252—99

8 Claims

1. A liquid detergent composition which comprises a dispersion of solids comprising one or more builders and an oxygen bleach, the solids having an average particle diameter of less than 10 microns in a substantially water free non-ionic liquid surfactant which has a pour point of less than 10° C. and no dispersant for the solids.

4,316,813

LIMESTONE-BASED SORBENT AGGLOMERATES FOR REMOVAL OF SULFUR COMPOUNDS IN HOT GASES AND METHOD OF MAKING

Kenneth E. Voss, Somerville, N.J., assignor to Engelhard Minerals & Chemicals Corp., Edison, N.J.

Filed Aug. 4, 1980, Ser. No. 175,227

Int. Cl.³ B01D 53/12; B01J 8/24

U.S. Cl. 252—189

10 Claims

1. A method for producing highly attrition resistant limestone agglomerates useful for absorption of sulfur compounds from hot gases which comprises (a) providing naturally occurring, uncalcined limestone in the form of fine grains, (b) mixing into said limestone grains a high-temperature stable, cementitious binder and a volatile liquid to form a mass having a paste-like consistency, (c) agglomerating said mass of paste-like consistency in compression-type agglomerating equipment generating shearing, compacting, densifying and squeezing forces to form essentially spheroidal agglomerates, and (e) optionally drying said agglomerates.

4,316,814

SEAL FOR A STORAGE BORE HOLE
ACCOMMODATING RADIOACTIVE WASTE AND
METHOD OF APPLYING THE SEAL

Ernst-Peter Uerpman, Brunswick, Fed. Rep. of Germany, assignor to Gesellschaft für Strahlen- und Umweltforschung mbH, Neuberberg b. München, Fed. Rep. of Germany

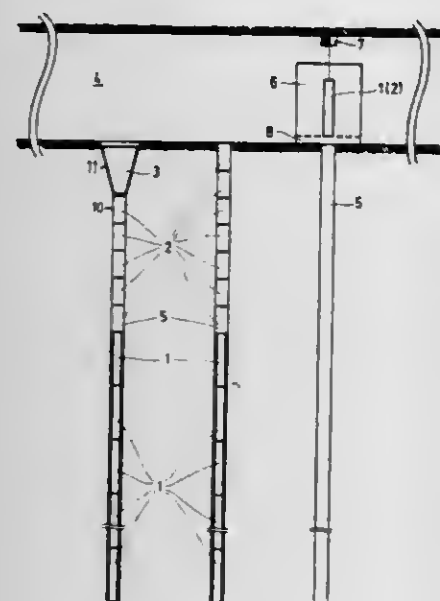
Filed Sep. 5, 1979, Ser. No. 72,581

Claims priority, application Fed. Rep. of Germany, Sep. 13, 1978, 2839759

Int. Cl.³ G21F 7/00, 9/24

U.S. Cl. 252-633

4 Claims



1. In a storage arrangement for radioactive waste, including a storage bore hole defined by walls of a rock formation, vessels containing radioactive waste deposited in a vertical series in the storage bore hole and a sealing closure situated in the storage bore hole above the uppermost vessel, the improvement wherein said sealing closure includes a prefabricated solid body of alkali-resistant charged bitumen closely conforming, along its circumference, to said walls; said charged bitumen having a density of at least 1.40 g/cm³.

4,316,815

BIS-TRIAZOLYL AND BIS-PYRAZOLYL STILBENE
COMPOUNDS

Alec V. Mercer, Bramhope, and Roger Paver, Eldwick, both of England, assignors to Sandoz Ltd., Basel, Switzerland

Filed Nov. 12, 1980, Ser. No. 206,328

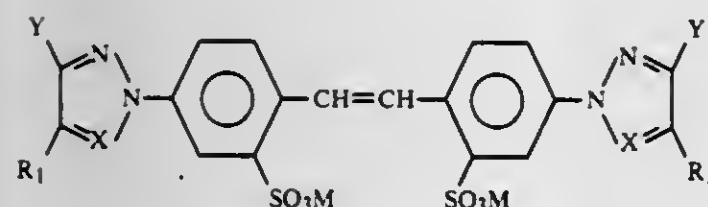
Claims priority, application United Kingdom, Nov. 14, 1979, 39349/79; Jun. 23, 1980, 20472/80

Int. Cl.³ C07D 403/14, 405/14, 413/14

U.S. Cl. 252-301.22

10 Claims

1. A compound of the formula



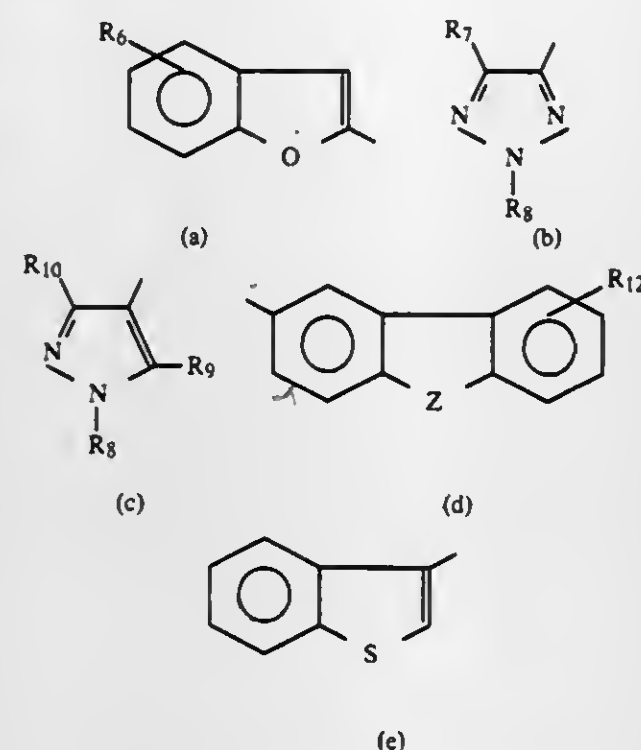
in which

both R₁'s are the same and are hydrogen, C₁₋₄alkyl, bromine, chlorine, —COOM, —CONR₂R₃, —COOR₄, —CN, —SO₃M, —SO₂NR₂R₃ or —SO₂R₄, where R₂ and R₃ independently are hydrogen, C₁₋₄alkyl or phenyl with the proviso that only one may be phenyl or R₂ and R₃, together with the nitrogen to which they are attached,

form piperidine or morpholine ring and R₄ is C₁₋₄alkyl or phenyl;

both X's are the same and are CR₅ or N, where R₅ is hydrogen, C₁₋₄alkyl or phenyl;

both Y's are the same and are each one of the radicals of formulae (a) to (e)



with the proviso that the Y's are not radical (b) when X=N, R₆ is hydrogen, chlorine, C₁₋₄alkoxy, C₁₋₄alkyl, —SO₃M or phenyl, R₇ is hydrogen or C₁₋₄alkyl, R₈ is an aryl radical unsubstituted or substituted by up to two substituents selected from C₁₋₄alkyl, C₁₋₄alkoxy, chlorine, cyano, —COOM, —COOR₄, —CONR₂R₃, —SO₂NR₂R₃, —SO₂R₄ and —SO₃M with the proviso that where the aryl radical is substituted by two substituents at least one of the substituents is C₁₋₄alkyl, C₁₋₄alkoxy or chlorine, R₉ and R₁₀ independently are hydrogen or C₁₋₄alkyl; R₁₂ is H or —SO₃M and Z is O or S; and M is hydrogen or a non-chromophoric cation.

4,316,816

METHOD FOR PREPARING
COPPER-ALUMINUM-GOLD-ACTIVATED
ZINC-SULFIDE PHOSPHORS

Martin R. Royce, Lancaster, and Donnavon D. Shaffer, Lititz, both of Pa., assignors to RCA Corporation, New York, N.Y.

Filed Dec. 6, 1978, Ser. No. 967,094

Int. Cl.³ C09K 11/50

U.S. Cl. 252-301.6 S

6 Claims

1. A method for preparing a cathodoluminescent phosphor consisting essentially of zinc sulfide activated with aluminum, copper and gold comprising heating in a covered container a mixture consisting essentially of zinc sulfide, an activator quantity of copper as a compound thereof, an activator quantity of aluminum as a compound thereof, an activator quantity of gold as a compound thereof, ammonium iodide in an amount that is adequate to accelerate the incorporation of said quantities of copper, aluminum and gold into said zinc sulfide, elemental selenium in an amount such that said quantity of gold is more readily incorporated into said zinc sulfide, elemental sulfur and elemental carbon at temperatures in the range of about 900° to 1050° C. for a period of about 0.25 to 1.0 hour, and then cooling the reaction product.

4,316,817

INDEX-MATCHED PHOSPHOR SCINTILLATOR
STRUCTURES

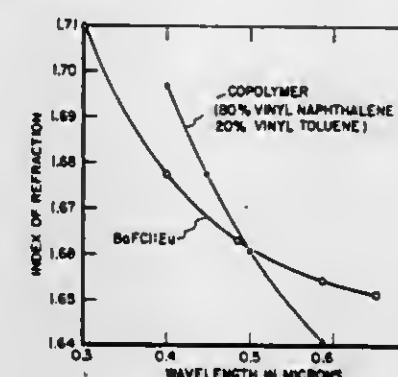
Dominic A. Cusano, Schenectady, N.Y.; Robert K. Swank, Colorado Springs, Colo., and Phillip J. White, Solon, Ohio, assignors to General Electric Company, Schenectady, N.Y.

Continuation-in-part of Ser. No. 863,876, Dec. 23, 1977, abandoned. This application Jul. 15, 1980, Ser. No. 169,023

Int. Cl.³ C09K 11/465, 11/24, 11/12, 11/06

U.S. Cl. 252-301.18

6 Claims



1. A method of producing scintillator bodies for use in computerized tomography with increased detectable optical output from a phosphor which absorbs electromagnetic radiation at supra-optical frequencies and emits electromagnetic radiation at optical frequencies, said method comprising the steps of:

(A) dissolving in a suitable solvent a polyvinyl naphthalene toluene polymer having an index of refraction equal to the index of refraction of BaFCl:Eu phosphor, at approximately the wavelength of the optical emission of the phosphor, said polymer being substantially transparent to the optical wavelength radiation emitted by the phosphor and also being substantially transparent to supra-optical electromagnetic radiation;

(B) adding the phosphor to the solution in step A;

(C) freeze-drying the solution from step B, whereby the solvent is removed;

(D) pulverizing the freeze-dried material from step C, to form a powder with an approximately homogeneous particle size distribution;

(E) heating the powder from step D at a sufficiently high temperature and pressure to cause the polymer to flow forming a solid body, but below a temperature so high as to cause decomposition of any component.

6. The scintillator body produced in accordance with claim 1.

4,316,818

POLYMERIZATION CATALYST AND PROCESS

Melvin B. Welch, and Richard E. Dietz, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Oct. 6, 1980, Ser. No. 194,306

Int. Cl.³ C08F 4/64, 4/02

U.S. Cl. 252-429 B

13 Claims

1. A catalyst for the homopolymerization and copolymerization of alpha-olefins characterized as the product obtained by

(a) reacting finely divided magnesium oxide at an elevated temperature with a halogenating agent,

(b) treating the particulate product obtained in (a) with a monohydric alcohol, and

(c) contacting the particulate product formed in (b) with a tetravalent halogenated titanium compound at a temperature and for a period of time sufficient to form a catalyst component (A).

4,316,819

TECHNIQUE TO REDUCE THE ZEOLITE MOLECULAR
SIEVE SOLUBILITY IN AN AQUEOUS SYSTEM

Hosbeng Tu, Shorewood, and Stephen W. Sobu, Northbrook, both of Ill., assignors to UOP Inc., Des Plaines, Ill.

Filed Aug. 11, 1980, Ser. No. 136,022

Int. Cl.³ B01J 20/18, 20/22

U.S. Cl. 252-430

7 Claims

1. A method for the preparation of a crystalline aluminosilicate adsorbent which comprises the steps of:

(a) mixing together a powdered crystalline aluminosilicate, a powdered binder comprising a water permeable organic polymer and a liquid organic solvent to form a malleable mixture;

(b) forming said malleable mixture into discrete formations;

(c) then spheronizing said formations; and

(d) thereafter removing said solvent from the resultant spheres to produce hard, dry spherical particles.

4,316,820

CATALYST, PREPARATION THEREOF AND USE
THEREOF IN THE PREPARATION OF TELOMERIC
POLYBUTADIENE HOMO- OR CO-POLYMERS

Wolfgang Wieder, Leverkusen, and Josef Witte, Cologne, both of Fed. Rep. of Germany, assignors to Bayer AG, Fed. Rep. of Germany

Filed Feb. 11, 1980, Ser. No. 120,626

Claims priority, application Fed. Rep. of Germany, Feb. 15, 1979, 2905763

Int. Cl.³ B01J 31/12

U.S. Cl. 252-431 N

4 Claims

1. A catalyst comprising the reaction product of

(a) an organometallic compound of the formula RLi wherein R is a saturated aliphatic or aromatic hydrocarbon radical having from 2 to 8 carbon atoms;

(b) a compound of the formula R'OMe' wherein R' is a saturated aliphatic or aromatic hydrocarbon radical having from 2 to 8 carbon atoms and Me' is alkali metal and

(c) pentamethyldiethylenetriamine, the molar ratio of (a) to (b) being from 0.1:1 to 50:1 and the molar ratio of (a) to (c) being from 0.1:1 to 10:1.

4,316,821

METHOD FOR THE PRODUCTION OF CATALYSTS

Katarzyna Brückman, Uxbridge, England, assignor to Tioxide Group Limited, Billingham, England

Filed Oct. 8, 1980, Ser. No. 195,255

Claims priority, application United Kingdom, Sep. 16, 1980, 29800/80

Int. Cl.³ B01J 21/06, 23/22

U.S. Cl. 252-461

22 Claims

1. A method for the production of a monolayer catalyst which comprises mixing a chosen catalyst substrate having bound water residues on its surface and being substantially free of physisorbed water with a catalyst precursor decomposable to a catalytically effective compound with said precursor being dissolved in an organic solvent therefor, allowing said precursor to react with said bound water residues, removing any excessive precursor and solvent, decomposing said precursor reacted with said surface to a catalytically effective compound and recovering the so-treated catalyst substrate.

4,316,822

CATALYST FOR PURIFYING EXHAUST GASES

Yoshiyasu Fujitani; Hideaki Muraki, both of Nagoya; Shiroh Kondoh, Aichi; Makoto Tomita, Obu; Kouji Yokota, Nagoya; Hideo Sobukawa, Nagoya, and Tamotsu Nakamura, Nagoya, all of Japan, assignors to Kabushiki Kaisha Toyota Chuo Kenkyusho, Aichi, Japan

Filed Dec. 8, 1980, Ser. No. 214,279

Claims priority, application Japan, Dec. 19, 1979, 54/166065
Int. Cl.³ B01J 21/06, 23/10, 23/42, 23/44

U.S. Cl. 252-462

16 Claims

1. A catalyst for reducing nitrogen oxides, carbon monoxide and hydrocarbons, the noxious components in exhaust gases comprising:

- a porous carrier of ceramic; and
- a catalyst ingredient supported thereon consisting essentially of zirconium oxide, cerium oxide and a metal selected from the group consisting of platinum, palladium and mixtures thereof.

4,316,823

METHOD OF MANUFACTURING A MONOLITHIC METALLIC MATRIX COATED WITH A CATALYSIS PROMOTING METAL OXIDE

Alfred Bozon, Erlensee; Edgar Koberstein, Alzenau; Hans-Dieter Pletka, Freigericht, and Herbert Voelker, Hanau, all of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Nov. 18, 1980, Ser. No. 208,082

Claims priority, application Fed. Rep. of Germany, Nov. 20, 1979, 2946685

Int. Cl.³ B01J 21/04, 23/26, 35/04

U.S. Cl. 252-465

26 Claims

1. In the method of manufacturing a mechanically stable, monolithic metal matrix having a vertical axis and opposed end faces and which is coated with a catalysis promoting metal oxide, is disposed in a metal jacket and comprises alternately superposed plain and corrugated or folded metal sheets of scale-resistant and high temperature resistant metal and in which the metal sheets are stacked in a pile or wound into a spiral, the improvement which comprises disposing one of the end faces of the matrix on a base electrode plate connected to one pole of a current source, and disposing the other, opposite end face on a second cover electrode plate connected to the other pole of the current supply, passing a welding current through the arrangement of matrix and electrode plates once or a plurality of times to weld the metal plates at said end face disposed on said base electrode plate, then disposing the matrix in a way whereby the initially upper end face which is still unwelded lies on the base electrode plate and repeating the welding process, disposing and then welding the matrix in the metal jacket by means of an electric arc guided over the metal jacket in accordance with a predetermined weld path with the incorporation of at least one outer metal sheet of said matrix, and coating the interior of the composite body thereby obtained with a catalysis promoting metal oxide.

4,316,824

LIQUID DETERGENT COMPOSITION CONTAINING ALKYL SULFATE AND ALKYL ETHOXYLATED SULFATE

Eugene J. Pancheri, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Continuation-in-part of Ser. No. 163,031, Jun. 26, 1980, abandoned. This application Jan. 8, 1981, Ser. No. 223,541

Int. Cl.³ C11D 1/12

U.S. Cl. 252-551

9 Claims

1. A liquid detergent composition consisting essentially of:

- (a) from about 10% to about 50% by weight of an anionic surfactant which has the general formula



wherein R is an alkyl group containing from about 10 to about

16 carbon atoms, M is selected from the group consisting of sodium, potassium, ammonium, monoethanolammonium, diethanolammonium, triethanolammonium, calcium and magnesium cations and mixtures thereof, and the ethoxylate distribution is such that, on a molar basis the compounds wherein x is 0 are from about 54% to about 60%, wherein x is 1 are from about 5% to about 20%, wherein x is 2 are from about 10% to about 13%, and wherein x is 3 are from about 6% to about 7% of the anionic surfactant, and there is sufficient magnesium to at least neutralize 50% of the anionic surfactant wherein x is 0;

(b) from about 1% to about 20% by weight of a suds stabilizing nonionic surfactant selected from the group consisting of the condensation products of aliphatic alcohols containing from about 10 to about 18 carbon atoms with from about 5 moles to about 30 moles of ethylene oxide, the condensation products of alkyl phenols having an alkyl group containing from about 6 to about 15 carbon atoms with from about 5 to about 30 moles of ethylene oxide per mole of alkyl phenol, fatty acid amides containing an acyl moiety of from about 8 to about 18 carbon atoms, amine oxide semi-polar nonionic surface active agents, and mixtures thereof;

(c) from 0% to about 10% of a detergency builder selected from the group consisting of sodium tripolyphosphate, sodium carbonate, potassium carbonate, sodium pyrophosphate, potassium pyrophosphate, potassium tripolyphosphate, sodium hexametaphosphate, sodium citrate, potassium citrate, sodium tartrate, potassium tartrate, sodium ethylenediamine tetraacetate, potassium ethylenediamine tetraacetate, sodium N-(2-hydroxyethyl)-ethylenediamine triacetate, potassium N-(2-hydroxyethyl)-ethylenediamine triacetate, sodium nitrilotriacetate, potassium nitrilotriacetate, sodium N-(2-hydroxyethyl)-nitrilotriacetate, potassium N-(2-hydroxyethyl)-nitrilotriacetate, and mixtures thereof; and

(d) from about 20% to about 88% water.

4,316,825

HIGH GREEN STRENGTH RUBBERS

Kenneth H. Wirth, Baton Rouge, La., assignor to Copolymer Rubber & Chemical Corp., Baton Rouge, La.

Continuation-in-part of Ser. No. 80,509, Oct. 1, 1979, abandoned. This application Nov. 28, 1980, Ser. No. 211,123

Int. Cl.³ C08L 7/00

U.S. Cl. 260-5

14 Claims

7. A rubber compound having good green strength and elongation in the uncured stage comprising a blend of an SBR based rubber is selected from the group consisting of styrene-butadiene rubber and blends of the styrene-butadiene rubber with polybutadiene rubber, polyisoprene rubber or natural rubber polymer with an EPM polymer having a high degree of crystallinity formed by interpolymerization of ethylene and one or more C₃-C₁₆ monoolefins or an EPDM interpolymer formed by interpolymerization of ethylene, one or more C₃-C₁₆ monoolefins and a polyene in the ratio of 50-95 parts by weight of the rubbery polymer per 50-5 parts by weight of the EPM or EPDM, in which the ratio of ethylene to C₃-C₁₆ monoolefin in the EPM and EPDM is within the range of more than 80 mole percent ethylene to less than 20 mole percent C₃-C₁₆ monoolefin.

4,316,826

CLAY AND CEMENT MORTARS, METHODS OF PREPARING THEM

Michel Laquerbe, 20, Avenue des Buttes de Coesmes, Beaulieu-35,000 Rennes, and Francois Tatar, 119, rue de Fougères, 35,000 Rennes, both of France

Continuation-in-part of Ser. No. 813,965, Jul. 8, 1977, abandoned. This application Jul. 19, 1979, Ser. No. 58,922

Claims priority, application France, Jul. 21, 1978, 78 21747
Int. Cl.³ C04B 7/00, 7/02, 7/356, 31/00

U.S. Cl. 260-15

2 Claims

1. Method of preparation of a clay-cement mortar comprising a mixture of clay, cement and an additive selected from the group consisting of urea-formaldehyde resins, melamine-formaldehyde resins and formamide, the proportion by weight of the clay being greater than that of the cement and the percentage by weight of the additive, calculated as weight of dry extract of this additive with respect to the dry extract weight of the clay-cement mixture, being between 1 and 20%, together with a weight of paraffin solid at ordinary temperature comprised between 0.3 and 5% of the weight of the cement, characterized in that said paraffin is melted and dissolved in an organic solvent composed substantially of equal parts of a hydrocarbon and acetone, the resulting paraffin solution being mixed with a substantially equivalent amount of water and with said clay, cement, additive and a cellulosic compound.

4,316,827

RUBBER MODIFIED PHENOLIC FRICTION PARTICLES

Luba A. Pacala, and John R. Blickensderfer, both of Belle Mead, N.J., assignors to Union Carbide Corporation, New York, N.Y.

Filed Apr. 17, 1980, Ser. No. 141,140

Int. Cl.³ C08L 5/12, 9/00, 11/00, 61/06

U.S. Cl. 260-17.2

26 Claims

1. A substantially completely cured particulate resin comprising:

- (I) a mixture of phenols said mixture comprised of from 25 to 100 mole percent of tri- and/or tetrafunctional phenols and from 0 to 75 mole percent of difunctional phenols;
- (II) from 1.1 to 3 moles per mole of phenol moiety of an aldehyde containing from 1 to 11 carbon atoms;
- (III) from 0 to 1 mole per mole of phenol moiety of a reaction promoting compound chosen from the group of the primary, secondary and tertiary amines having up to 10 carbon atoms;
- (IV) from 0.05 to 6 weight percent, based on the weight of components (I), (II), (III) and (V) of a protective colloid; and
- (V) from 1 to 40 weight percent, based on the weight of component (I) of a rubber which is capable of forming a latex wherein the latex is compatible with components (I)-(IV).

17. A friction element comprising about 30 to 70 weight percent of a high friction fibrous material, up to about 40 weight percent of an organic filler material, from about 5 to 30 weight percent of a friction binder, and about 1 to about 25 weight percent of a friction particle comprising:

- (I) a mixture of phenols said mixture comprised of from 25 to 100 mole percent of tri- and/or tetrafunctional phenols and from 0 to 75 mole percent of difunctional phenols;
- (II) from 1.1 to 3 mole percent of phenol moiety of an aldehyde containing from 1 to 11 carbon atoms;
- (III) from 0 to 1 mole per mole of phenol moiety of a reaction promoting compound chosen from the group of the primary, secondary and tertiary amines having up to 10 carbon atoms;
- (IV) from 0.05 to 6 weight percent, based on the weight of components (I), (II), (III) and (V) of a protective colloid; and
- (V) from 1 to 40 weight percent, based on the weight of

component (I) of a rubber which is capable of forming a latex compatible with components (I)-(IV).

4,316,828

BULK NEUTRALIZATION

Henry S. Makowski, Scotch Plains; Robert D. Lundberg, Bridgewater, both of N.J., and Jan Bock, Houston, Tex., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Continuation of Ser. No. 855,723, Nov. 29, 1977, abandoned. This application Jun. 12, 1979, Ser. No. 47,753

Int. Cl.³ C08L 91/00

U.S. Cl. 260-23.5 A

13 Claims

1. A process for forming an elastomeric blend composition of a neutralized sulfonated elastomeric polymer having about 10 to about 60 meq. of sulfonate groups per 100 grams of said neutralized sulfonated elastomeric polymer, which consists of the steps of:

- (a) mixing, in the absence of solvent, at least one additive with an unneutralized form of said sulfonated elastomeric polymer to form a mixture, said additive being selected from the group consisting of fillers and oils and mixtures thereof;
- (b) compounding said mixture at a temperature of less than about 150° F., thereby forming a homogeneous blend;
- (c) adding a neutralizing agent in the absence of solvent to said homogeneous blend and further compounding said homogeneous blend at less than about 150° F. for a sufficient period of time to completely neutralize said unneutralized form of said sulfonated elastomeric polymer, thereby forming said blend composition of at least one said additive and said neutralized sulfonated elastomeric polymer, wherein said sulfonate group of said sulfonated elastomeric polymer are completely neutralized.

4,316,829

MODIFIED ASPHALT COMPOSITIONS

Michael G. Roberts, Heath, Ohio, assignor to Owens-Corning Fiberglass Corporation, Toledo, Ohio

Filed Sep. 25, 1980, Ser. No. 191,053

Int. Cl.³ C08L 95/00

U.S. Cl. 260-28.5 AS

10 Claims

1. A chemically-modified asphalt composition comprising the reaction product of (1) an asphalt which has been pre-reacted with a polymerizable vinyl aromatic monomer in an amount within the range of 0.5 to 35% by weight based on the weight of the asphalt and having the formula: CH₂=CH-R wherein R is an aromatic group containing 6 to 12 carbon atoms and (2) a polyester in an amount within the range of 5 to 75% by weight based on the weight of the asphalt.

4,316,830

SURFACTANT FREE PROCESS FOR PRODUCTION OF PRESSURE SENSITIVE ADHESIVE LATEXES

Charles B. Mallon, Belle Mead, N.J., assignor to Union Carbide Corporation, New York, N.Y.

Filed Feb. 19, 1980, Ser. No. 122,377

Int. Cl.³ C08L 33/02, 33/06

U.S. Cl. 260-29.6 MQ

22 Claims

1. A process for the production of pressure sensitive adhesive latexes having a glass transition temperature of from -70° C. to -20° C., said process characterized by the essential absence of surfactants or other stabilizers during the polymerization reaction, comprising the reaction at from 25° C. to 125° C. of

- (I) a monomer mix comprising
- (A) from 40 weight percent to 100 weight percent of at least one acrylic or methacrylic acid ester;
- (B) from 0 weight percent to 30 weight percent of at least one vinyl ester of an aliphatic acid; and
- (C) from 0 weight percent to 20 weight percent of at least one ethylenically unsaturated carboxylic acid;

wherein the concentrations are based on the total weight of the monomers mix; and
 (II) from 0.05 weight percent to 1 weight percent based on the total weight of the monomers mix of a polymerization initiator capable of producing hydrophilic ionic end groups;
 said reaction occurring in the presence of sufficient water such that the resulting latex has a polymer concentration not exceeding 70 weight percent of the total weight of the latex.

4,316,831

MATERIAL FOR TREATING COKE OVEN DOORS AND JAMBS TO PREVENT THE BUILD UP OF TAR THEREON

Michael D. LaBate, 110 N. Hazen Ave., Ellwood City, Pa. 16117
 Continuation-in-part of Ser. No. 49,349, Jun. 18, 1979, abandoned. This application Aug. 25, 1980, Ser. No. 181,123
 Int. Cl.³ C08L 31/00; B28B 7/36

U.S. Cl. 260—29.6 S

5 Claims

1. A normally liquid suspension material for forming penetrating and lubricating adhesive coatings on coke oven doors and jambs and comprising between about 5% to 25% by weight submicron sized particles of graphite having a particle size less than about 4 μ m as determined by electron microscopy, said submicron sized particles being small enough to penetrate into the grain structure of coke oven doors and jambs, between about 34% to 75% of a solution of water and sodium silicate ($\text{Na}_2\text{Si}_2\text{O}_7$), wherein the sodium silicate is present at about 40% of the solution, between about 2% to 10% concentrated hydrochloric acid of a 90% purity by weight, between about 33% to 75% of a solution water and a water soluble resin of containing carboxyl groups wherein the resin is present in amounts between 1% and 10% of the solution by weight and between about 15% to 20% water by weight.

4,316,832

PLASTICIZER COMPOSITIONS FOR USE WITH SYNTHETIC RESIN POLYMERS

David J. Walkden, Salford, England, assignor to Diamond Shamrock Industrial Chemicals Limited, Manchester, England

Filed Mar. 9, 1978, Ser. No. 884,856

Claims priority, application United Kingdom, Mar. 10, 1977, 10121/77

Int. Cl.³ C08K 5/12

U.S. Cl. 260—31.8 N

15 Claims

1. A solid, essentially homogeneous plasticiser composition which consists essentially of:
 (a) the phthalate ester of an aliphatic alcohol containing from 5 to 12 carbon atoms in the aliphatic moiety; and, intimately mixed therewith,
 (b) an hydroxy terminated polyurethane resin having an NCO index of from 60 to 100 which is the reaction product of a di-isocyanate and a polyester based upon two dicarboxylic acids, one of which is terephthalic acid, and a diol.

4,316,833

WATERPROOFING MATERIAL CONTAINING BENTONITE

Bryan M. McGroarty, 10233 Chicago Cir., Bloomington, Minn. 55420

Continuation-in-part of Ser. No. 897,783, Apr. 19, 1978, abandoned. This application Nov. 5, 1979, Ser. No. 91,599

Int. Cl.³ C08K 5/01

U.S. Cl. 260—33.6 PQ

10 Claims

1. A coating material for waterproofing constructed structures comprising an initial mixture of sodium montmorillonite bentonite saturated with a fluidizing material selected from the group consisting of liquid aliphatic or alicyclic hydrocarbon compounds, and a non-aqueous adhesive agent not displaceable by water ranging between five to ten percent by weight of

the coating material, said non-aqueous adhesive agent causing a bond between the bentonite particles without displacing the liquid fluidizer agent and without penetrating the particles, the coating material comprising between 20 to 25 pounds of fluidizing agent to 100 pounds of bentonite.

4,316,834

WEAR RESISTANT SLIDING ELEMENT HAVING A LOW COEFFICIENT OF FRICTION

Hiroshi Ueda, Kasugai; Masao Shimazaki, and Yasumitsu Kuwazuru, both of Toyota, all of Japan, assignors to Taiho Kogyo Co., Ltd., Aichi, Japan

Continuation-in-part of Ser. No. 107,628, Dec. 27, 1979. This application Apr. 1, 1981, Ser. No. 249,883

Claims priority, application Japan, Mar. 14, 1979, 54-29482

Int. Cl.³ C08L 6/06

U.S. Cl. 260—38

16 Claims

1. A sliding element comprising a hot pressed body, said hot pressed body comprising: from 30 to 80% of a graphite powder including from approximately 15 to 60% of coarse graphite powder having a grain size of from 32 to 80 μ m, and the balance of fine graphite powder having a grain size of less than 32 μ m; from approximately 0.5 to 30% of lead-containing powder; and, from approximately 15 to approximately 45% of an organic resin binder, all percentages being by weight based on the weight of the hot pressed body.

4,316,835

POLYESTER RESIN COMPOSITIONS

Hugh C. Gardner, Somerville, N.J., assignor to Union Carbide Corporation, New York, N.Y.

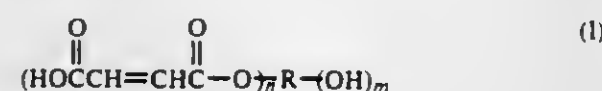
Continuation-in-part of Ser. No. 34,997, May 1, 1979, abandoned. This application Apr. 16, 1980, Ser. No. 136,421

Int. Cl.³ C08L 67/00

U.S. Cl. 260—40 R

9 Claims

1. A curable liquid mixture comprising:
 (a) a polyester of the following formula



wherein n has an average value between 1.5 and about 2, m is 2-n, R is the hydroxyl-free residue of a predominantly hydroxyl terminated polyester obtained by the condensation of a diol selected from the class consisting of 1,2-propylene glycol, 1,3-butanediol, 2,2-dimethyl-1,3-propanediol, dipropylene glycol, diethylene glycol, the ethylene and propylene oxide derivatives of 2,2-bis-(4-hydroxyphenyl)-propane, and mixtures thereof, and mixtures of ethylene glycol and said diols, with a dicarboxylic acid selected from the class consisting of maleic acid, fumaric acid, ortho-phthalic acid, isophthalic acid, terephthalic acid, and carbic acid or anhydride selected from maleic anhydride, ortho-phthalic anhydride and carbic anhydride, and mixtures of said acids and anhydrides,
 (b) maleic anhydride,
 (c) an ethylenically unsaturated monomer which forms a homogeneous mixture with and is copolymerizable with (a) and (b), and wherein the molar ratio of polymerizable double bonds in (c) as compared to those in (a) plus (b) is between about 1 and about 3.6.

6. A composition as in claim 1, which contains a reinforcing fiber.
 7. A composition as in claim 6 wherein the reinforcing fiber is selected from fiberglass, carbon fibers, or polyamide fibers.

4,316,836

STABILIZED FLUOROELASTOMER COMPOSITIONS

Carl A. Aufdermarsh, Jr., Newark, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Apr. 23, 1980, Ser. No. 143,817

Int. Cl.³ C08K 5/08, 5/16

U.S. Cl. 260—42.21

11 Claims

1. A vulcanizable composition comprising a fluoroelastomer which is a terpolymer derived from tetrafluoroethylene, perfluoromethyl perfluorovinyl ether and a cure-site monomer, at least one non-black filler, and a small quantity of at least one quinacridone-type pigment selected from the group consisting of quinacridone, quinacridone quinone, substituted quinacridone, substituted quinacridone quinone, and mixtures and solid solutions of such substituted and unsubstituted quinacridones and quinacridone quinones.

4,316,838

FIRE-RETARDANT POLYCARBONATE COMPOSITION

Toshimasa Tokuda, Iyo, Japan, assignor to Teijin Chemicals Ltd., Tokyo, Japan

Division of Ser. No. 958,487, Nov. 7, 1978, Pat. No. 4,222,910.

This application Mar. 19, 1980, Ser. No. 131,851

Claims priority, application Japan, Nov. 10, 1977, 52-134107; Dec. 21, 1977, 52-152969; Jan. 19, 1978, 53-3749; Aug. 16, 1978, 53-99017; Aug. 16, 1978, 53-99018

Int. Cl.³ C08K 5/42

U.S. Cl. 260—45.95 G

4 Claims

1. A fire retardant resin composition comprising
 (1) an aromatic polycarbonate, and
 (2) as a fire retardant, at least one ether derived from alkyl alcohols having from 1 to 10 carbon atoms and at least one phenol selected from the group consisting of phenol, 4-methoxyphenol, 4-phenoxyphenol, naphthol, hydroquinone, phloroglucinol, bisphenol A, bis-(4-hydroxyphenyl)-oxide, bis-(4-hydroxyphenyl)sulfide, bis-(4-hydroxyphenyl)sulfone, 1,1-bis-(4-hydroxyphenyl)cyclohexane, bis-(4-hydroxyphenyl)sulfoxide, bis-(4-hydroxyphenyl)ketone, 2-(4-methoxyphenyl)-2-(4'-hydroxyphenyl)propane, 4-phenoxyphenyl-4'-hydroxyphenylsulfone, 2,2-bis(2-methoxy-4-hydroxyphenyl)propane and halogen-substitution products of these phenols having 1 to 3 halogen substituents on the benzene nucleus thereof, said ether having at least one alkyl group having directly attached to a carbon atom thereof an alkali metal or alkaline earth metal sulfonate group.

4,316,837

POLYALKYLATED 4-AMINOPIPERIDINE DERIVATIVES AS STABILIZERS FOR SYNTHETIC POLYMERS

Kenneth R. Molt, and Mary J. Zestermann, both of Cincinnati, Ohio, assignors to Carstab Corporation, Reading, Ohio

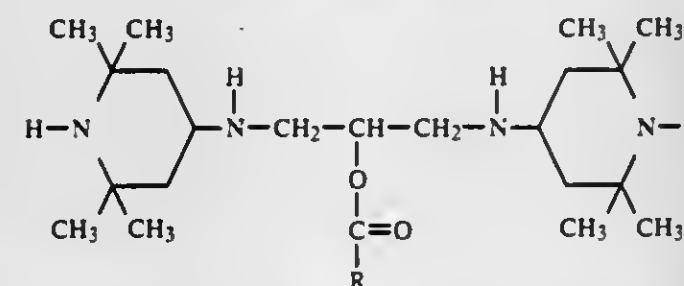
Filed Sep. 10, 1980, Ser. No. 185,822

Int. Cl.³ C07D 401/12; C08K 5/34

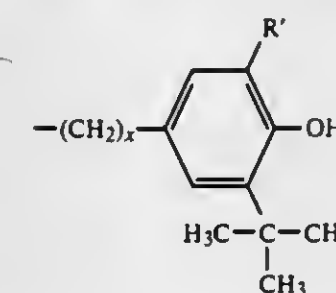
U.S. Cl. 260—45.8 N

12 Claims

1. A polymeric composition stabilized against photodeterioration comprising a synthetic polymer selected from the group consisting of olefin polymers, halogenated vinyl polymers and polyurethanes and an effective amount of a stabilizer selected from the group consisting of compounds of the formula:



wherein R is a C₁-C₁₉ alkyl group, a cycloalkyl group of from 5 to 7 carbon atoms, an unsubstituted aryl group, an aryl group substituted with one or more C₁-C₄ alkyl or C₁-C₄ alkoxy groups, an aralkyl group having 7 or 8 carbon atoms or



where x is an integer from 0 to 4 inclusive and R' is C₁-C₄ alkyl.

4,316,839

IMIDAZODIAZEPINE DERIVATIVES

Max Gerecke; Willy Haefely, both of Reinach; Walter Hunkeler, Magden; Emilio Kyburz, Reinach, all of Switzerland; Hanns Möhler, Inzlingen, Fed. Rep. of Germany; Lorenzo Pieri, Riehen, and Petar Polc, Binningen, both of Switzerland, assignors to Hoffman-La Roche Inc., Nutley, N.J.

Filed Oct. 3, 1980, Ser. No. 193,775

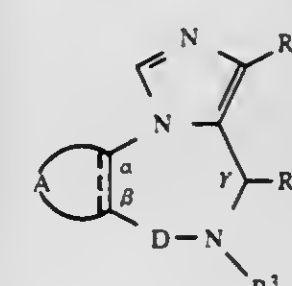
Claims priority, application Switzerland, Oct. 4, 1979, 8971/79; Oct. 4, 1979, 8972/79; Nov. 30, 1979, 10664/79; Nov. 30, 1979, 10665/79; Jul. 25, 1980, 5716/80

Int. Cl.³ C07D 487/04, 513/14, 487/14

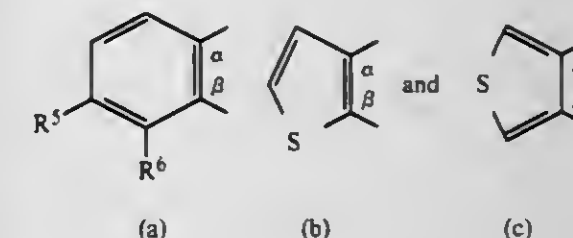
U.S. Cl. 260—239.3 T

17 Claims

1. A compound of the formula



wherein A together with the two carbon atoms denoted as α and β is selected from the group consisting of



the dotted line represents the double bond present in groups (a) and (b), D is $>\text{C}=\text{O}$ or $>\text{C}=\text{S}$, R¹ is selected from the group consisting of cyano, lower alkanoyl and a group of the formula $-\text{COOR}^4$, R⁴ is selected from the group consisting of methyl, ethyl, isopropyl and 2-hydroxyethyl, R² is selected from the

group consisting of hydrogen, trifluoromethyl and halogen and R⁶ is selected from the group consisting of hydrogen, trifluoromethyl, halogen and lower alkyl and either R² is hydrogen and R³ is hydrogen or lower alkyl or R² and R³ together are trimethylene or propenylene and the carbon atom denoted as γ has the S- or R.S.-configuration,

and pharmaceutically acceptable acid addition salts thereof.

17. The compound: Ethyl 8-fluoro-5,6-dihydro-5-methyl-6-oxo-4H-imidazo[1,5-a][1,4]benzodiazepine-3-carboxylate and pharmaceutically acceptable acid addition salts thereof.

4,316,840

REFORMING LINEAR POLYAMINES

Michael E. Ford, Trexlertown, and Thomas A. Johnson, Ore-field, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Nov. 25, 1980, Ser. No. 210,209

Int. Cl.³ C07C 85/00, 85/20; C07D 241/04, 295/12

U.S. Cl. 260—239 BC

9 Claims

1. A method for reforming a feedstock of ethylene diamine or polyalkylene polyamine into a polyalkylene polyamine product different from said feedstock, said method comprising heating said feedstock with water and a catalyst to a temperature of 200°–400° C., in a reaction vessel, said catalyst comprised of a metal salt from the group consisting of ammonium sulfate and a sulfate or nitrate of lithium, sodium, potassium, and other metals of group IA of the periodic table; beryllium, magnesium, calcium, and other metals of group IIA of the periodic table; aluminum, zinc, zirconium, antimony, tin (valence states II and IV) and iron (valence states II and III), said method comprising holding said feedstock with water and catalyst at said temperature for 0.5–4 hours, said proportion of catalyst and water with said feedstock, said feedstock temperature and said time of heating all being selected to cause conversion of said feedstock to a different polyalkylene polyamine product.

4,316,841

REFORMING LINEAR POLYAMINES

Michael E. Ford, Trexlertown, and Thomas A. Johnson, Ore-field, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Dec. 8, 1980, Ser. No. 214,396

Int. Cl.³ C07C 85/00, 85/20; C07D 241/04, 295/12

U.S. Cl. 260—239 BC

9 Claims

1. A method for reforming a feedstock of ethylene diamine or polyalkylene polyamine into a polyalkylene polyamine product different from said feedstock, said method comprising heating said feedstock with water and a catalyst to a temperature of 200°–400° C., in a reaction vessel, said catalyst comprised of a phosphate compound of a metal group consisting of boron and lithium, sodium, potassium, and other metals of group IA of the periodic table; beryllium, magnesium, calcium, and other metals of group IIA of the periodic table; zirconium, antimony, tin (valence states II and IV) and iron in both the ferrous and ferric states, said method comprising holding said feedstock with water and catalyst at said temperature for 0.5–5 hours, said proportion of catalyst and water with said feedstock, said feedstock temperature and said time of heating all being selected to cause conversion of said feedstock to a different polyalkylene polyamine product.

4,316,842

PENICILLIN INTERMEDIATES

Robert R. Chauvette, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

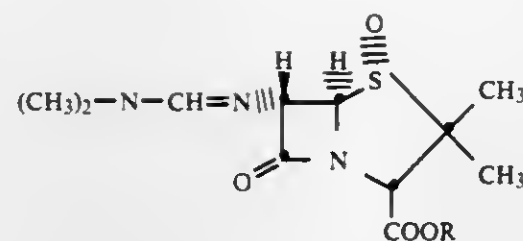
Filed Nov. 24, 1980, Ser. No. 209,439

Int. Cl.³ C07D 499/02

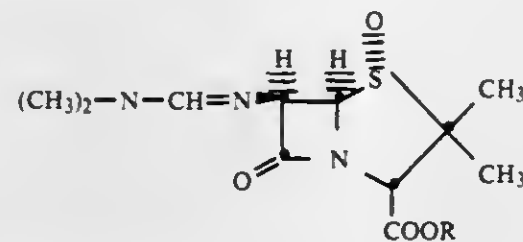
U.S. Cl. 260—245.2 R

5 Claims

1. A process for preparing the 6-epi-amidinopenicillin α-sulfoxide ester of the formula



wherein R is a carboxy-protecting group, which comprises mixing in an aqueous medium at a temperature between about 0° C. and about 45° C. a 6β-[(dimethylaminomethyl)amino]-2,2-dimethylpenam-4-carboxylic acid ester 1α-oxide of the formula



with an alkali metal acetate.

4,316,843

POLYIMIDE DERIVATIVES HAVING TERMINAL UNSATURATED AMIDES

Phillip A. Waitkus, Sheboygan, Wis., and Gaetano F. D'Alelio, South Bend, Ind., assignors to Plastics Engineering Company, Sheboygan, Wis.

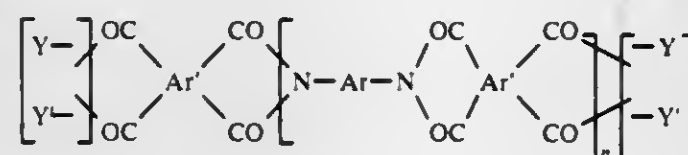
Filed Jan. 25, 1980, Ser. No. 115,481

Int. Cl.³ C07D 403/14, 403/10, 519/00, 403/12

U.S. Cl. 260—326 S

18 Claims

1. A polyimide-amide having terminal unsaturated amide groups and having the formula:



wherein:

Ar' is a tetravalent aromatic benzenoid radical, the four carbonyl groups being attached directly to separate carbon atoms and each pair of carbonyl groups being attached to adjacent carbon atoms in the Ar' radical except that in the case of the Ar' being a naphthalene radical one or both pairs of the carbonyl groups may be attached to peri carbon atoms;

Ar is a divalent aromatic benzenoid radical;

n or an integer of at least one;

Y is NRR'

R is an organic moiety containing 1 to 20 carbon atoms, said organic moiety consisting of a hydrocarbon radical or two or three hydrocarbon radicals joined by a —O—, —SO₂— or —COO— group;

R' is an organic moiety containing 2 to 14 carbon atoms and having a terminal CH₂=CH— structure, said organic moiety consisting of a hydrocarbon radical or two or three hydrocarbon radicals joined by a —O—, —SO₂— or —COO— group; and

Y' is NRR or —OR.

4,316,844

POLYIMIDE DERIVATIVES HAVING UNSATURATED TERMINAL AMIC ACID GROUPS

Phillip A. Waitkus, Sheboygan, Wis., and Gaetano F. D'Alelio, South Bend, Ind., assignors to Plastics Engineering Company, Sheboygan, Wis.

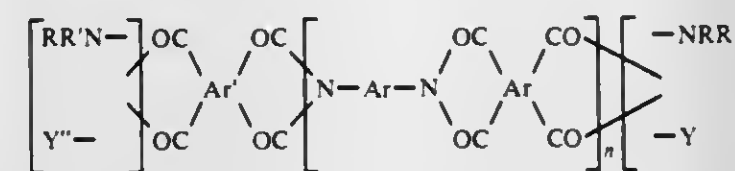
Filed Jan. 25, 1980, Ser. No. 115,482

Int. Cl.³ C07D 403/10, 403/12, 403/14, 519/00

U.S. Cl. 260—326 S

19 Claims

1. A hemi-acid compound of the formula:



wherein:

Ar' is a tetravalent aromatic benzenoid radical, the four carbonyl groups being attached directly to separate carbon atoms and each pair of carbonyl groups being attached to adjacent carbon atoms in the Ar' radical except that in the case of the Ar' being a naphthalene radical one or both pairs of the carbonyl groups may be attached to peri carbon atoms;

Ar is a divalent aromatic benzenoid radical;

n is integer of at least one;

R' is an organic moiety containing 2 to 14 carbon atoms and having a terminal —CH=CH₂ structure; said organic moiety consisting of a hydrocarbon radical or two or three hydrocarbon radicals joined by —O—, —SO₂— or —COO— groups

R is an organic moiety containing one to 20 carbon atoms; said organic moiety consisting of a hydrocarbon radical or two or three hydrocarbon radicals joined by —O—, —SO₂—, or —COO— groups

Y'' is —OH or X; and

X is a halogen.

4,316,845

POLYIMIDE DERIVATIVES HAVING TERMINAL ACETYLENIC GROUPS

Gaetano F. D'Alelio, South Bend, Ind., and Phillip A. Waitkus, Sheboygan, Wis., assignors to Plastics Engineering Company, Sheboygan, Wis.

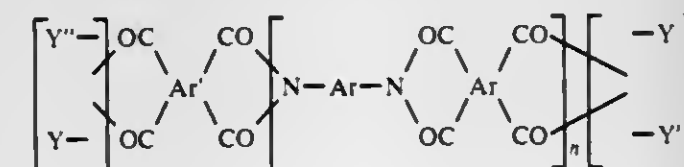
Filed Jan. 25, 1980, Ser. No. 115,484

Int. Cl.³ C07D 403/10, 403/12, 403/14, 519/00

U.S. Cl. 260—326 S

18 Claims

1. A polyimide-amide having terminal acetylenic amide groups and having the formula:



wherein:

Ar' is a tetravalent aromatic benzenoid radical, the four carbonyl groups being attached directly to separate carbon atoms and each pair of carbonyl groups being attached to adjacent carbon atoms in the Ar' radical except that in the case of the Ar' being a naphthalene radical one or both pairs of the carbonyl groups may be attached to peri carbon atoms;

Ar is a divalent aromatic benzenoid radical;

n is an integer of at least one;

Y is NRR'

R is an organic moiety containing 1 to 20 carbon atoms; said organic moiety consisting of a hydrocarbon radical or two

or three hydrocarbon radicals joined by a —O—, —SO₂— or —COO— group

R' is an organic moiety containing 2 to 14 carbon atoms and having a terminal CH=CH— structure, said organic moiety consisting of a hydrocarbon radical or two or three hydrocarbon radicals joined by a —O—, —SO₂— or —COO— group; and

Y' is NRR or —OR.

4,316,846

RECOVERY OF APROTIC AMIDES

Gilbert Gavlin, Lincolnwood, and Romas Cesas, Chicago, both of Ill., assignors to Custom Organics, Inc., Chicago, Ill.

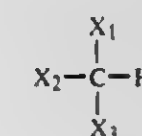
Continuation-in-part of Ser. No. 763,868, Jan. 31, 1977, abandoned. This application May 22, 1978, Ser. No. 908,275

Int. Cl.³ C07C 103/127, 103/34, 103/36; C07D 207/06

U.S. Cl. 260—326.45

6 Claims

1. In a process for extracting substantially 95% of an aprotic amide from the class consisting of N,N-dimethylacetamide, N,N-dimethylformamide and N-methyl-2-pyrrolidone from a dilute aqueous solution containing the aprotic amide and water, said dilute aqueous solution containing water in the initial amount of between about 25–90 percent by weight and a maximum of about 25% by weight based on the weight of water of a soluble salt, which process consists essentially of subjecting the dilute aqueous solution to approximately four to six successive extraction steps with substantially equal volume of an organic solvent compound having the following formula



wherein X₁ and X₂ are from the class consisting of —Cl, —CH₂Cl, —CHCl₂, —CHClF, —CHF₂, —CFCl₂, CF₂Cl, —CF₃, —CHClR, —CCl₂R, —CClFR, —CF₂R; wherein R is from the class consisting of —CH₃, —C₂H₅ and —C₃H₇ and

wherein X₃ is from the class consisting of X₁, X₂, R and H, permitting the mixture of organic solvent and aqueous solution in each extraction step to separate into an aqueous phase and an organic solvent phase containing extracted aprotic amide and separating the organic solvent phase from the aqueous phase.

4,316,847

PYRROLES AND PYRROLIDINES

Andrew D. Batcho, North Caldwell; Urs O. Hengartner, Roseland; Willy Leimgruber; John W. Scott, both of Upper Montclair, and Donald Valentine, Jr., Highland Park, all of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

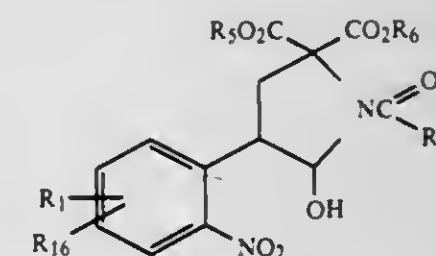
Division of Ser. No. 62,214, Jul. 30, 1979, Pat. No. 4,256,641, which is a division of Ser. No. 965,549, Dec. 1, 1978, abandoned, which is a division of Ser. No. 849,734, Nov. 9, 1977, Pat. No. 4,140,697, which is a division of Ser. No. 698,573, Jun. 22, 1976, Pat. No. 4,073,795. This application Oct. 22, 1980, Ser. No. 199,166

Int. Cl.³ C07D 207/08

U.S. Cl. 260—326.46

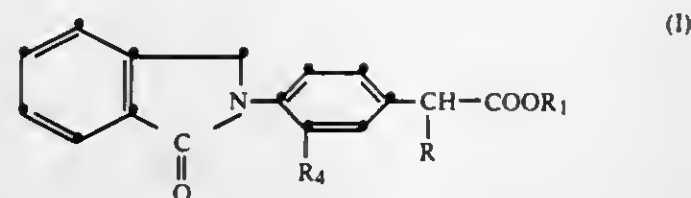
7 Claims

1. A compound of the formula:

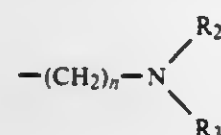


wherein R₁ and R₁₆ each are halogen, lower alkyl, hydroxy,

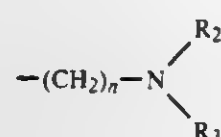
lower alkoxy, phenyl-(lower-alkyl)oxy, amino, trihalo-methyl or hydrogen, R_5 and R_6 each are lower alkyl or hydrogen, and R_7 is lower alkyl, hydrogen, phenyl, halo-lower alkyl or lower alkoxy.



wherein R is a member selected from the group consisting of hydrogen and lower alkyl of 1 to 4 carbon atoms, R_1 is a member selected from the group consisting of hydrogen, lower alkyl of 1 to 4 carbon atoms and a group of the formula



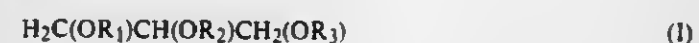
wherein n is 1 or 2 and R_2 and R_3 are independently selected from the group consisting of hydrogen and lower alkyl of 1 to 4 carbon atoms, and R_4 is a member selected from the group consisting of hydrogen and chlorine; and physiologically acceptable basic addition salts of the compounds of formula (I), wherein R_1 is hydrogen, as well as physiologically acceptable acid addition salts of the compounds of formula (I), wherein R_1 is the group



4,316,851
NICKEL COMPOUNDS
Dominique Le Pennec, Trappes; Dominique Commereuc, Meudon, and Yves Chauvin, Le Pecq, all of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France
Filed Sep. 3, 1980, Ser. No. 183,792
Claims priority, application France, Sep. 3, 1979, 79 22153
Int. Cl.³ C07F 15/04; C09F 7/00; C11C 3/00
U.S. Cl. 260—408
1. A new nickel compound of the general formula $(R_1\text{COO})(R_2\text{COO})\text{Ni}$, where R_1 is a hydroxy substituted or unsubstituted hydrocarbyl radical containing 5-20 carbon atoms and R_2 is a haloalkyl group comprising 1 to 3 carbon atoms.

4,316,852
MANUFACTURE OF METALLIC SOAPS
John Blachford, Westmount, Canada, assignor to H. L. Blachford, Limited, Montreal, Canada
Filed Mar. 13, 1980, Ser. No. 130,080
Claims priority, application Canada, Mar. 29, 1979, 324476
Int. Cl.³ C11C 1/00; C07F 7/24
U.S. Cl. 260—414
19 Claims

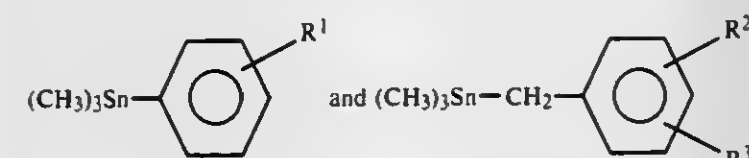
1. A process for producing a metallic soap having a viscosity such that it is a pourable liquid when molten, of a monocarboxylic acid of the formula $R\text{-COOH}$ wherein R is a linear or branched, unsubstituted or substituted by one or more hydroxyl groups, saturated or unsaturated aliphatic hydrocarbon radical of 5 to 21 carbon atoms, which comprises:
(i) forming a reaction mixture initially comprising a metal component comprising a metal oxide selected from the group consisting of oxides of cadmium, lead and zinc or a metal hydroxide selected from the group consisting of hydroxides of cobalt, manganese, and zinc, water and a glyceryl ester of formula (I):



wherein R_1 , R_2 and R_3 , which may be the same or different, are selected from the group consisting of hydrogen and linear or branched, unsubstituted or substituted by one or more hydroxyl groups, saturated or unsaturated aliphatic hydrocarbon acyl radicals of 6 to 22 carbon atoms, provided that at least one of R_1 , R_2 and R_3 is an acyl radical, said ester and said metal oxide or hydroxide being present in at least approximately stoichiometric amounts,

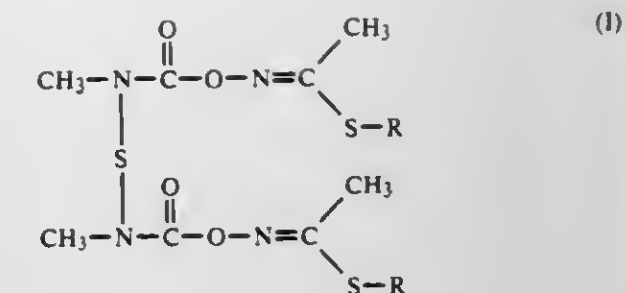
- (ii) agitating said reaction mixture,
- (iii) reacting the reactants in the agitated mixture to produce a metallic soap and glycerine, at a temperature at which the metallic soap is molten, in the presence of an excess of water effective to dissolve the glycerine formed in the reaction mixture such that reaction between by-product glycerine and the product metallic soap is substantially hindered,
- (iv) continuing said reacting in (iii) until substantially no more metallic soap is formed,
- (v) allowing the reaction mixture to separate into an aqueous layer and a molten layer of product metallic soap substantially free of metallic oxide or metallic hydroxide, carboxylic acid and glyceryl ester, under a pressure such that said aqueous layer is essentially quiescent, and
- (vi) dissociating the molten metallic soap layer from the aqueous layer.

4,316,853
INSECTICIDAL TETRAORGANOTIN COMPOUNDS
Melvin H. Gitlitz, Edison; John E. Engelhart, Westfield, and David A. Russo, Edison, all of N.J., assignors to M&T Chemicals Inc., Woodbridge, N.J.
Division of Ser. No. 971,940, Dec. 21, 1978, Pat. No. 4,212,810, which is a division of Ser. No. 845,354, Oct. 25, 1977, abandoned. This application Nov. 5, 1979, Ser. No. 91,537
Int. Cl.³ A01N 9/28; C07D 317/50
U.S. Cl. 260—429.7
3 Claims
1. A tetraorganotin compound exhibiting a formula selected from the group consisting of

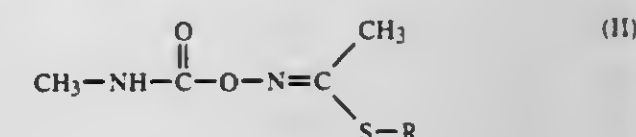


wherein R^1 is selected from the group consisting of $-\text{CO}_2\text{Y}^\oplus$ and $-\text{CO}_2\text{R}^4$, R^2 and R^3 are individually selected from the group consisting of hydrogen, $-\text{CO}_2\text{H}$, $-\text{CO}_2\text{Y}^\oplus$, $-\text{CO}_2\text{R}^4$, with the proviso that R^2 and R^3 cannot both be hydrogen; R^4 is alkyl having from 1 to 12 carbon atoms; and Y^\oplus is a cation selected from the group consisting of alkali metals and ammonium.

4,316,854
PROCESS FOR THE PRODUCTION OF BIS-[0-(1-ALKYLTHIOETHYLIMINO)-N-METHYLCARBAMYL]-N,N'-SULFIDES
Jean-Pierre Ledouble, Rosenau, France, and Klaus Müller, Reinach, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.
Filed Jun. 6, 1980, Ser. No. 156,966
Claims priority, application Switzerland, Jun. 18, 1979, 5669/79
Int. Cl.³ C07C 119/18
U.S. Cl. 260—453.1
9 Claims
1. In a process for the production of bis-[0-(1-alkylthioethylimino)-N-methylcarbamy]-N,N'-sulfides of the formula



wherein R is a straight-chain or branched alkyl group of 1 to 5 carbon atoms, by reacting a 0-(1-alkylthioethylimino)-N-methylcarbamate of the formula



wherein R is as defined above, in the presence of a base, with sulfur dichloride or sulfur monochloride in an inert solvent, the improvement which comprises using a halogenated hydrocarbon as solvent with a dielectric constant of 2.0 to 2.5 and a dipole moment of 0 to 1.

4,316,855
MULTIPLY PROMOTED SN-SB OXIDE CATALYSTS
Robert K. Grasselli, Chagrin Falls; Dev D. Suresh, Macedonia; James F. Brazdil, Lyndhurst, and Frances I. Ratka, Cleveland Heights, all of Ohio, assignors to The Standard Oil Co., Cleveland, Ohio
Filed Dec. 28, 1979, Ser. No. 107,964
Int. Cl.³ C07C 120/14, 120/00
U.S. Cl. 260—465.3
2 Claims
1. In an ammoxidation process in which propylene or isobutylene together with oxygen and ammonia in the vapor phase are contacted with a tin antimonate catalyst at elevated temperature to yield the corresponding unsaturated nitrile, the improvement wherein said tin antimonate catalyst is a tin antimonate oxide complex free of Ti and substantially free of Fe and having the formula



wherein
A is one or more elements selected from the group Cu, V, W and Mo;
D is one or more optional elements selected from the group Bi, Ge, Ce, La, Cr, Mn, Mg, Ca, Co, Ni, Nb, Ta, Ag, Zn, Cd, K, Cs, U, B, P and Eu; and

wherein
a is 0.5 to 5;
b is 0 to 10;
d is 0.1 to 2;
e is 0.1 to 10;
f is 12;
f > a + b + d + e; and
x is a number sufficient to satisfy the valence requirements of the other elements present
and further wherein Sn/Sb is 1/5 to 1/1.1.

4,316,856

**MOLYBDENUM-PROMOTED ANTIMONY
PHOSPHATE OXIDE COMPLEX CATALYSTS ALSO
CONTAINING AT LEAST ONE OF BISMUTH AND
TELLURIUM**

Andrew T. Guttman, Maple Heights, and Robert K. Grasselli,
Chagrin Falls, both of Ohio, assignors to The Standard Oil
Co., Cleveland, Ohio

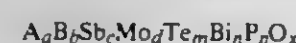
Filed Dec. 28, 1979, Ser. No. 108,327

Int. Cl.³ C07C 120/14, 120/00

U.S. Cl. 260—465.3

5 Claims

1. In an ammoxidation process for producing acrylonitrile or methacrylonitrile in which a reactant selected from the group consisting of propylene and isobutylene together with oxygen and ammonia in the vapor phase are contacted with a catalyst at elevated temperature, the improvement wherein said catalyst is a copper-free antimony phosphate oxide complex, at least 80% of said oxide complex exhibiting the antimony phosphate layer structure, the Sb/P ratio of said oxide complex being between 0.8/1 and 1/0.8, substantially all of the antimony in said oxide complex being in the trivalent state, said oxide complex having the formula:



wherein

A is one or more elements selected from the group of alkali metals, alkaline earth metals and thallium;

B is one or more elements selected from the group of Fe, Co, Ni, Mn, Cr, Zn, Cd and Bi; and

wherein

a is 0-1;

b is 0-1;

c is 8-10;

d is 0.1-2;

p is 7.0-9.9;

m is >0-1;

n is 0-1;

(m+n)>0;

d/m is 1-20;

d+m is 0.2-1.0; and

x is a number which satisfies the valence requirements of the other elements present.

4,316,857

DIMERIZATION PROCESS

Arthur H. Gilbert, Stockton-on-Tees, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Oct. 18, 1979, Ser. No. 86,035

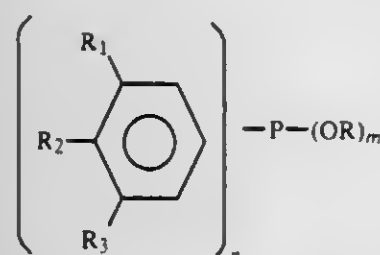
Claims priority, application United Kingdom, Oct. 26, 1978, 41989/78

Int. Cl.³ C07C 120/00, 121/20

U.S. Cl. 260—465.8 D

12 Claims

1. In a process for the dimerisation of acrylonitrile to dicyanobutene which comprises contacting the acrylonitrile at a reaction temperature of 0° to 120° C. in the substantial absence of water and phenolic acrylonitrile stabilisers with a phosphinite or phosphinite of general formula:



where R_2 is an electron-donating substituent, R_1 and R_3 are electron-donating substituents or hydrogen atoms, provided that they are not both hydrogen atoms, or either R_1 or R_3 forms part of a fused alicyclic ring with R_2 , R is either alkyl or cycloalkyl and n and m are integers, each being 1 or 2, provided that $(m+n)$ equals 3, and when n is 2, the substituents on each aromatic ring may be the same or different, the acrylonitrile being present in solution in a mixed solvent comprising an inert organic solvent which is capable of donating protons and an inert hydrocarbon co-solvent, the improvement whereby the inert hydrocarbon co-solvent is a mixture of a first hydrocarbon selected from the group consisting of benzene and alkylbenzenes boiling in the range between about 75° to 150° C. and a second hydrocarbon boiling in the range between about 30° to 150° C. selected from the group consisting of alkanes and cycloalkanes, so that the dicyanobutene product of the process separates from the solvent mixture or is separated therefrom by liquid/liquid extraction, the phosphinite or phosphonite catalyst remaining in the solvent mixture.

vided that $(m+n)$ equals 3, and when n is 2, the substituents on each aromatic ring may be the same or different, the acrylonitrile being present in solution in a mixed solvent comprising an inert organic solvent which is capable of donating protons and an inert hydrocarbon co-solvent, the improvement whereby the inert hydrocarbon co-solvent is a mixture of a first hydrocarbon selected from the group consisting of benzene and alkylbenzenes boiling in the range between about 75° to 150° C. and a second hydrocarbon boiling in the range between about 30° to 150° C. selected from the group consisting of alkanes and cycloalkanes, so that the dicyanobutene product of the process separates from the solvent mixture or is separated therefrom by liquid/liquid extraction, the phosphinite or phosphonite catalyst remaining in the solvent mixture.

4,316,858

PREPARATION OF ARYLPHOSPHINIC ACIDS

Kirk A. Simmons, Scarsdale, N.Y., assignor to Stauffer Chemical Company, Westport, Conn.

Filed Mar. 27, 1981, Ser. No. 248,102

Int. Cl.³ C07F 9/28

U.S. Cl. 260—502.4 R

11 Claims

1. A process for the preparation of an aryl-phosphinic acid comprising reacting an aryl compound susceptible to electrophilic ring substitution with phosphorus trichloride in the presence of aluminum chloride to form a first reaction product, adding said first reaction product to water to precipitate a second reaction product, dissolving said second reaction product in an alkali metal hydroxide solution, treating said alkali metal hydroxide solution with carbon dioxide to precipitate aluminum hydroxide, removing said aluminum hydroxide and acidifying the remaining solution to form said arylphosphinic acid product.

4,316,859

PREPARATION OF ARYLPHOSPHINIC ACIDS

James M. Photis, Ridgefield, Conn., assignor to Stauffer Chemical Company, Westport, Conn.

Filed Mar. 27, 1981, Ser. No. 248,103

Int. Cl.³ C07F 9/28

U.S. Cl. 260—502.4 R

8 Claims

1. A process for the preparation of arylphosphinic acids comprising reacting an aryl compound susceptible to electrophilic ring substitution with phosphorus trichloride in the presence of aluminum chloride to form a first reaction product, adding said first reaction product to water to precipitate a second reaction product, recovering said precipitate and sequentially treating it with a halogenating agent and with water to form an arylphosphinic acid.

4,316,860

**PHOSPHONIUM COMPOUNDS, A PROCESS FOR
THEIR PREPARATION AND A PROCESS FOR THE
PREPARATION OF ASYMMETRICALLY SUBSTITUTED
STILBENE FLUORESCENT BRIGHTENING AGENTS**

Michael Märky, Binningen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Division of Ser. No. 950,902, Oct. 12, 1978, Pat. No. 4,231,957.

This application May 15, 1980, Ser. No. 150,026

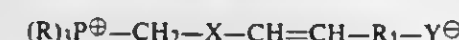
Claims priority, application Luxembourg, Nov. 4, 1977, 78449

Int. Cl.³ C07C 145/00, 143/38, 63/36

U.S. Cl. 260—513.7

4 Claims

1. A phosphonium compound of the formula



in which

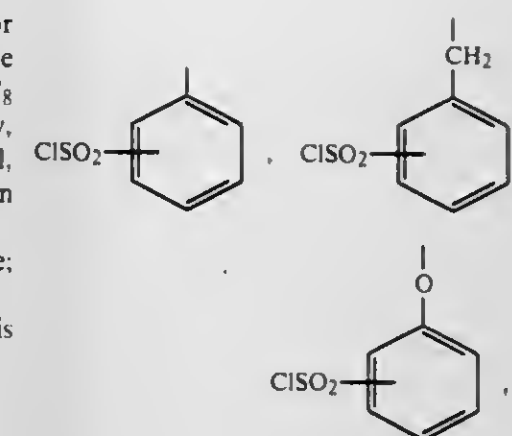
R is alkyl of 1 to 6 C atoms, cycloalkyl of 5 to 7 C atoms or phenyl;

R_1 is a mononuclear or binuclear aromatic carbocyclic or heterocyclic group selected from the group consisting of

phenyl, naphthyl, furan, thiophene, oxazole, isoxazole, pyrazole, imidazole, triazole and oxadiazole, which group, in addition to the substituent Y^- , is unsubstituted or substituted by one or two substituents selected from the group consisting of chlorine, bromine, fluorine, C_1-C_8 alkyl, C_3-C_7 alkenyl, C_5-C_7 cycloalkyl, C_1-C_8 alkoxy, C_2-C_{12} alkoxyalkoxy, phenoxy, phenyl, cyano, carboxyl, C_2-C_5 carbalkoxy and sulfo, and which group can contain a fused benzo or naphtho moiety;

X is phenylene, 4,4'-biphenylene or 1,4 or 2,6-naphthylene; and

Y^- is SO_3^- , SO_2^- or COO^- , with the proviso that Y^- is not SO_3^- when R_1 is phenyl.



4,316,861

N-NITROARYL-N-HALOSULFONYL UREAS

Otto Arndt, and Wolfgang Tronich, both of Hofheim am Taunus, Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Dec. 20, 1979, Ser. No. 105,560

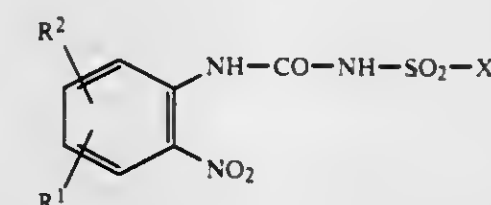
Claims priority, application Fed. Rep. of Germany, Dec. 23, 1978, 2855884

Int. Cl.³ C07C 143/70

U.S. Cl. 260—543 F

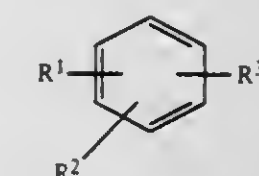
4 Claims

1. A compound of the formula



wherein X is fluorine or chlorine, R^1 is hydrogen or nitro, and R^2 is hydrogen, fluorine, chlorine, bromine, lower alkyl, lower alkoxy, trifluoromethyl, cyano, phenyl or a benzene ring fused to the substituted benzene ring.

or wherein adjacent radicals R^1 and R^2 are linked to form a cycloaliphatic, aromatic or hetero-aromatic ring which is optionally substituted by a sulphonate acid chloride group which consists essentially of contacting an aromatic compound of the formula



wherein R^1 , R^2 and R^3 have the above-described meaning with chlorosulphonic acid and thionyl chloride, the improvement which consists essentially of contacting said aromatic compound with chlorosulphonic acid which is present in an excess up to 20 weight percent, relative to each sulphonate acid chloride group to be introduced on the aromatic ring, the chlorosulphonic acid being introduced initially into a reaction vessel and the aromatic compound being added thereto depending upon the rate of reaction whereby the reaction product contains aromatic sulphonate acid, unreacted chlorosulphonic acid, sulfuric acid, a diphenylsulfone, hydrogen chloride and unreacted aromatic compound and thereafter contacting said reaction product with excess thionyl chloride.

4,316,863

TOWER PACKING ELEMENTS

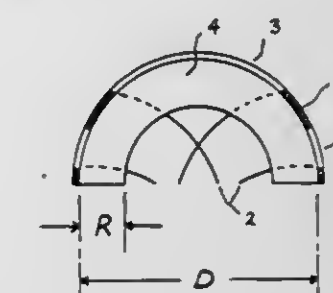
Max Leva, 5600 Munhall Rd., Pittsburgh, Pa. 15217

Filed Nov. 10, 1980, Ser. No. 205,661

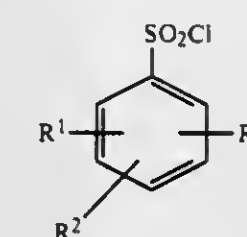
Int. Cl.³ B01F 3/04

U.S. Cl. 261—98

15 Claims



1. In a packing for a vapor or gas-liquid contact tower and the like, a plurality of randomly packed mutually interlocking



wherein R^1 , R^2 and R^3 are identical or different and denote hydrogen, a lower alkyl radical or a cycloalkyl radical, halogen, aryl, aralkyl, aryl ether or a radical $-SO_2Cl$, $-SO_2aryl$,

packing elements providing a bed, each packing element comprising an open ended curved strip exhibiting curvature only in a single direction through an angle of 90° to about 180°, said strip having a plurality of reinforcing ribs extending radially inwardly thereof and having a plurality of slots therebetween, a plurality of tongues extending essentially only inwardly of the curvature of said strip from the ends of said slots of a length comparable to that of said slots, said strip having a plurality of perforations on its outer surface to permit drainage, development of rivulets and interlocking with adjacent packing elements to provide substantial physical stability and a homogeneous packing and to prevent nesting of said packing elements.

4,316,864

METHOD AND APPARATUS FOR SLIP CASTING TOILET BOWLS

John S. Bramwell, Chesbire, United Kingdom, assignor to American Standard Inc., New York, N.Y.

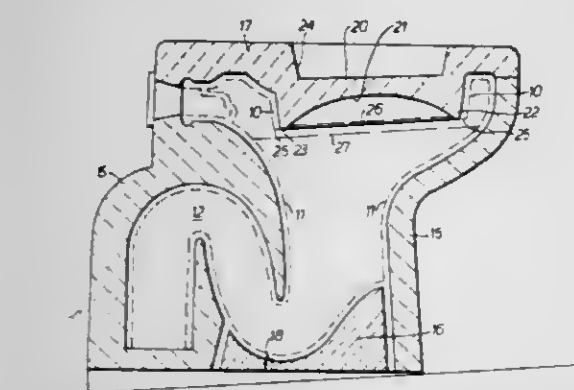
Continuation of Ser. No. 19,544, Mar. 12, 1979, abandoned. This application Aug. 25, 1980, Ser. No. 181,284

Claims priority, application United Kingdom, Mar. 10, 1978, 9687/78

Int. Cl.³ B29C 5/00; B28B 21/08, 1/26

U.S. Cl. 264—86

12 Claims



1. A mould for casting a toilet bowl of ceramic material in slip form, to mould the article in upright position said mould comprising:

- a wall defining a casting energy in which an article to be cast is shaped;
- said mould having an inlet through which slip is introduced into said casting cavity, air vent means through which air disposed in said casting cavity is displaced when the casting cavity is filled with slip and an outlet for draining excess slip from the mould;
- said air vent means being disposed in the uppermost region of said casting cavity;
- an unvented compartment means for housing a volume of air therein;
- said compartment means being defined by a wall which is impermeable to air and which is upwardly closed and downwardly in open communication with the casting cavity in a position such as to correspond to an opening in said bowl;
- said open end of the compartment means being positioned below the air vent means so that said volume of air provides a surface against which slip will not adhere whereby said cast article is formed having an opening in the region of said compartment means.

4,316,865

METHOD FOR HEAT TREATMENT OF FIBROUS MATS

Jean A. Battigelli, and Francois Bouquet, both of Rantigny, France, assignors to Saint-Gobain Industries, Cedex, France

Division of Ser. No. 912,482, Jun. 6, 1978, Pat. No. 4,263,007, This application May 18, 1979, Ser. No. 40,135

Int. Cl.³ B29J 5/00

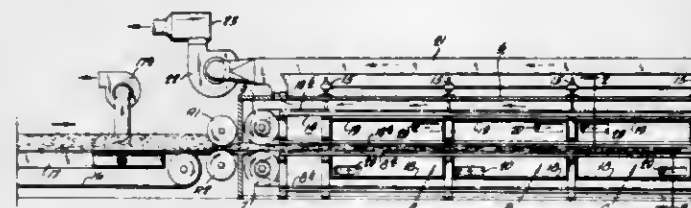
U.S. Cl. 264—109

8 Claims

1. A method for heat treating a moving fibrous mat carrying a heat hardenable fiber binder in order to effect hardening of

the binder and binding of the fibers to produce a mat having substantially uniform binding throughout the thickness thereof, comprising:

- (a) feeding the fibrous mat in a feed path through a heat treating zone of an oven having an entrance and an exit and in which the mat is heated to a temperature having a hardening effect on said binder, and



- (b) passing a heated gas through the mat in a localized area smaller than said zone of the oven and extended across the mat in said zone, said heated gas being at a temperature and pressure providing for heating of the interior portion of the mat in said localized area to a temperature higher than the temperature established by the heating of the mat in said heat treating zone of the oven in a region adjoining and upstream of said localized area, thereby effecting hardening of the binder in the interior portion of the mat.

4,316,866

PROCESS AND APPARATUS INVOLVING A CUTTING WIRE SPOOLING SYSTEM FOR CUTTING BRICK AND TILE

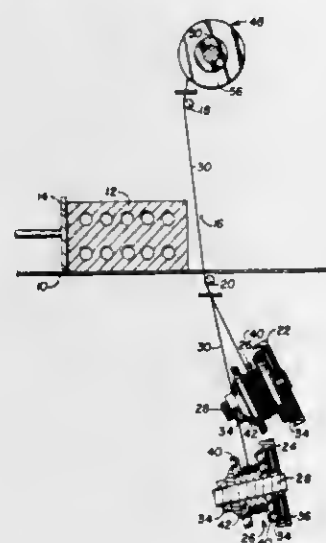
Albert R. Martin, Snyder, Tex., assignor to R. Martin & Associates, Snyder, Tex.

Filed Sep. 26, 1980, Ser. No. 191,247

Int. Cl.³ B28B 11/14

U.S. Cl. 264—157

16 Claims



1. The process of making brick and tile including:

- a. forming clay into slugs, and
 - b. cyclically pushing the slugs through a cutting frame having a plurality of cutting wires across it, thereby
 - c. cutting the slabs into units;
- wherein the improved method comprises:
- d. unrolling cutting wire from a supply roll on one side of the cutting frame across the cutting frame, and
 - e. winding the wire onto a take up roll on the other side of the

cutting frame from the supply roll during a time when a slug is not being pushed.

4,316,867

PROCESS FOR REMOVING IMPURITIES FROM POLYMER SOLUTIONS

James W. Henry, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 10, 1979, Ser. No. 83,485

Int. Cl.³ D01D 1/10

U.S. Cl. 264—169

5 Claims

1. In a continuous process wherein cellulose ester solution is introduced into a spinnerette for producing a filament therefrom, the improvement which comprises

- (a) introducing a volatile viscosity reducing agent into said solution to render the solution suitable for centrifuging,
- (b) passing said solution of reduced viscosity through a centrifuge wherein gels are centrifugally separated from the solution,
- (c) evaporating volatile viscosity reducing agent from said solution to render it suitable for spinning,
- (d) condensing the viscosity reducing agent and capturing the heat of condensation, and
- (e) using the heat from step (d) as at least a part of the heat required for evaporating the viscosity reducing agent.

4,316,868

EXTRUDING COLORED THERMOPLASTIC RESIN SHEETS

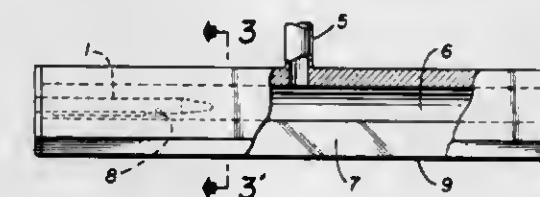
Robert A. Esposito, Granby; Frederick F. Valego, Jr., Monson, and John C. Hoagland, Longmeadow, all of Mass., assignors to Monsanto Company, St. Louis, Mo.

Filed Nov. 17, 1980, Ser. No. 207,323

Int. Cl.³ B29F 3/10

U.S. Cl. 264—171

12 Claims



1. A process for the extrusion of a pellucid sheet of a thermoplastic polymer with a gradient color band incorporated therein which comprises:

- (a) providing a sheet extrusion die having a slit die orifice and a manifold adapted to feed a polymer melt to said orifice by way of an extrusion passage;
 - (b) providing a generally torpedo-shaped probe located eccentrically within the manifold and adjacent the extrusion passage with the axis of the probe parallel to the slit die orifice, said probe having in the surface adjacent the extrusion passage, a wedge-shaped extrusion orifice that extends parallel to the probe axis for less than half of the width of the extrusion passage and being located in such a position that, when a main flow of a thermoplastic polymer is fed into the manifold and extruded through the slit die by way of the extrusion passage, the stream lines of the main flow as it passes by the wedge-shaped orifice are substantially parallel and in the direction of extrusion;
 - (c) feeding a main flow of molten thermoplastic polymer to the manifold and a colored secondary flow of the same polymer, at substantially the same temperature and viscosity, to the probe;
 - (d) extruding both flows simultaneously such that a layer of colored polymer that is constant in width but tapering in thickness at one extremity of its width, is completely encapsulated in the main flow of molten polymer; and
 - (e) extruding the combined flows through the slit die to produce a sheet with an encapsulated gradient color band.
8. An apparatus for the production of a pellucid sheet of a

thermoplastic polymer with a gradient color band encapsulated therein which comprises:

- (a) a sheet extrusion die having a slit die orifice and a manifold adapted to feed a polymer melt to said orifice by way of an extrusion passage; and
- (b) a generally torpedo-shaped probe located eccentrically within the manifold adjacent the extrusion passage, with its long axis parallel to the slit die orifice, said probe having in the surface adjacent the extrusion passage, a wedge-shaped extrusion orifice that extends parallel to the probe axis for less than half the width of the extrusion orifice and being located in such a position that when a thermoplastic polymer is fed into the manifold and extruded through the slit die by way of the extrusion passage, the stream lines of the polymer flow as it passes by the wedge-shaped orifice in the probe are substantially parallel and in the direction of extrusion.

4,316,869

MOLDING OF LAYERED OBJECTS FROM THERMOSETTING RESINS

René L. E. Van Gasse, Oplabbek, Belgium, assignor to Stamicarbon, B.V., Geleen, Netherlands

Filed Apr. 24, 1980, Ser. No. 144,648

Claims priority, application Netherlands, May 2, 1979, 7903428

Int. Cl.³ B29D 9/00

U.S. Cl. 264—255

7 Claims

1. A process for manufacturing objects having a cover layer and an underlying basic layer bonded thereto, each layer being formed from a thermosetting resin, using only a shape-imparting support face to which at least said cover layer of thermosetting resin is applied, wherein said process employs the combination of steps of:

- a. heating said support face to a temperature between 90° C. and 200° C.;
- b. forming a cover layer by applying a first thermosetting resin as liquid or solid fine particles along with a catalyst to said support face, and causing any solid resin to melt and effecting polymerization and curing of said first resin; and
- c. forming a basic layer by applying a second cross-linking thermosetting resin to said formed cover layer and then curing said second resin while maintaining a support face temperature below 90° C. whereby said second resin forms said basic layer bonded to said cover layer.

4,316,870

PLASTIC TUBE, COUPLING, AND METHOD OF FORMING SAME

William W. Rowley, 12117 Bradford, Chardon, Ohio 44024

Division of Ser. No. 912,743, Jun. 5, 1978, abandoned. This

application Jun. 9, 1980, Ser. No. 157,395

Int. Cl.³ B29C 24/00

U.S. Cl. 264—296

12 Claims



1. A method of integrally forming an end cap having a sealing surface on a plastic tube comprising the steps of placing the end of the tube to be formed partially on an elongated male

die projection of a male die with the projection closely conforming to the I.D. of the tube, such male die including a cup-shape recess from which the male die projection projects axially and concentrically, surrounding the O.D. of the tube with a female die which also includes a recess adapted to cooperate with the recess of such male die, holding such dies separated with the tube end to be formed projecting from the female die and placed at least partially on said male die projection, then heating the portion of the tube projecting from the female die sufficiently to make such projecting portion pliable enough to form, and then by moving the dies together, forming the heated portion of the tube into the configuration of the cooperating recesses.

4,316,871

REFUSE DISINFECTION DEVICE

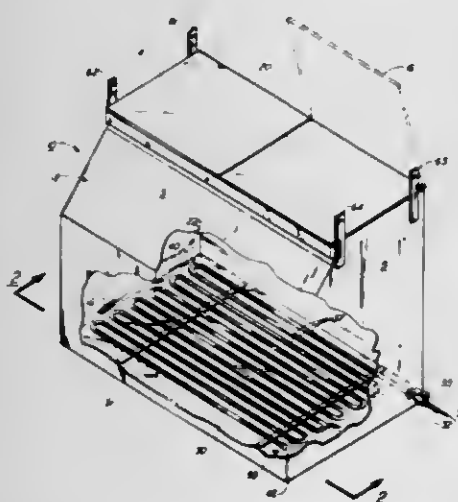
Emanuel G. De Fraites, 535 Iris Ave., New Orleans, La. 70121

Filed Aug. 7, 1980, Ser. No. 175,846

Int. Cl.³ A61L 2/06

U.S. Cl. 422-26

2 Claims



1. A method of disinfecting refuse products comprising:

- placement of refuse products into a container having an inner space and an upper opening for adding said refuse products to the inner space portion of said container, and an elongated steam coil sparger mounted in said container at the bottom portion thereof;
- closing a movable door portion for containing said refuse products in said container in a sealing fashion;
- injecting water into the said container to a level to cover the said elongated steam coil sparger;
- injecting steam into said elongated steam coil sparger;
- allowing said steam to flow out of said sparger through a plurality of equally spaced steam discharging openings provided in said sparger on the lower portion thereof, each of said openings facing downwardly, at least in part, and located alternately left and right of the line of the pipe sections;
- steaming the refuse products for a time sufficient to allow disinfection to occur;
- providing a pair of support members for spacing said sparger above the floor portion of said container.

4,316,872

RING OF CELLS FOR ANALYTICAL DEVICES

Juerg Rahm, Basel, Switzerland, and Peter Schulz, Pfreimd, Fed. Rep. of Germany, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed May 5, 1980, Ser. No. 146,987

Claims priority, application Fed. Rep. of Germany, May 10, 1979, 2913501; May 10, 1979, 2918800

Int. Cl.³ G01N 35/00

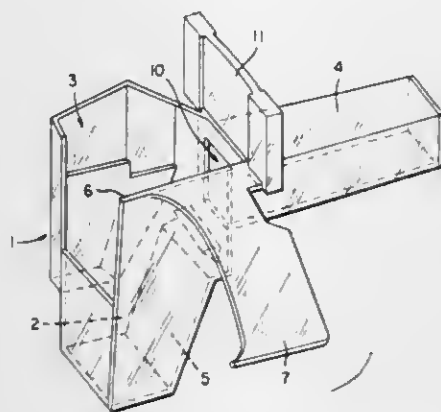
U.S. Cl. 422-102

15 Claims

1. A cell for a ring of cells of an analytical device operating

on the centrifugal principle utilizing a reagent for measuring a sample, said cell comprising:

- (a) a sample chamber configured and disposed to receive and retain the sample until centrifugal force is applied to the cell;
- (b) a reagent chamber configured and disposed to receive and retain the reagent until centrifugal force is applied to the cell;
- (c) a measuring chamber having an opening communicating the sample chamber and reagent chamber therewith, said measuring chamber configured and disposed to receive



and retain the sample and reagent while centrifugal force is applied to the cell;

- (d) tongue means integral with the cell, positioned and configured to project from the cell and at least partially overlap a portion of an adjacent cell, said tongue means being secured to said adjacent cell so as to form a rigid connection between said adjacent cells; and
- (e) an integral web member positioned above the measuring chamber and configured and dimensioned so as to retain the reagent and sample within the cell while centrifugal force is applied to the cell.

4,316,873

APPARATUS FOR CONVERTING COAL TO HYDROCARBONS BY HYDROGENATION

Klaus Koch, Laatzen, Fed. Rep. of Germany, assignor to Hermann Berstorff Maschinenbau GmbH, Hanover, Fed. Rep. of Germany

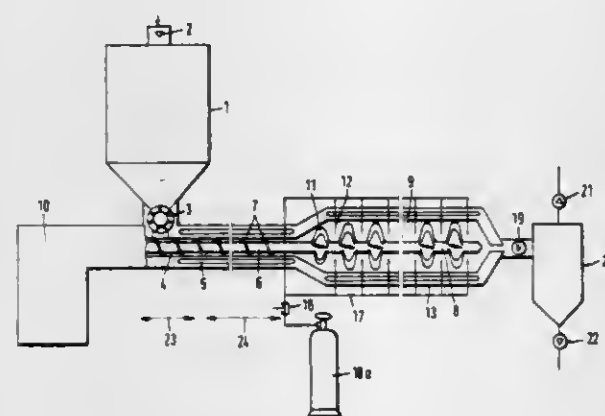
Filed May 21, 1980, Ser. No. 151,827

Claims priority, application Fed. Rep. of Germany, Oct. 27, 1979, 2943537

Int. Cl.³ B01F 7/08

U.S. Cl. 422-112

17 Claims



1. Apparatus for converting coal to hydrocarbons by the use of hydrogen, comprising:

- (a) a pressure-sealed volume-controlled feed hopper for the coal;
- (b) a feed and preparation chamber defined by a cylinder and communicating in a controlled manner with said feed hopper;
- (c) a rotatable friction element mounted in said feed and

preparation chamber and functioning to convey, compress and shear the coal thereby generating frictional heat, pressure and agglomeration of the coal, with the coal in such feed and preparation chamber being transformed into a plastic state prior to leaving said feed and preparation chamber,

- (d) a substantially cylindrical hydrogenation chamber downstream of and in flow communication with said feed and preparation chamber for receiving the plasticized coal,
- (e) rotor means mounted for rotation in said hydrogenation chamber, said plasticized coal being subjected to intensive mixing and shearing action by said rotor means, and
- (f) means for injecting hydrogen under high pressure into said hydrogenation chamber, as a result of which the hydrogen and plasticized coal are intensively distributed and dispersed through the hydrogenation chamber, thereby effecting intensive and rapid hydrogenation.

4,316,874

GAS GENERATOR UTILIZING GRANULAR SILICON CARBIDE AS COOLANT

Tsuneo Kasama; Hikaru Fujiyama, both of Kawagoe; Tadahiko Nagaoka, Sayama, and Masayoshi Katoh, Kawagoe, all of Japan, assignors to Nissan Motor Co., Ltd. and Nippon Oil & Fats Co., Ltd., both of Japan

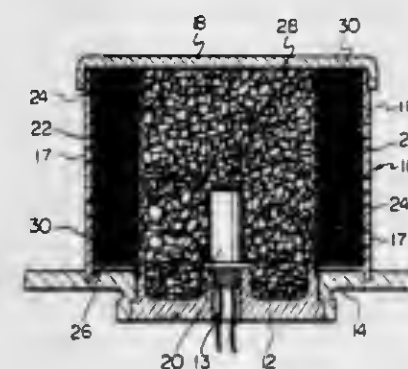
Continuation of Ser. No. 43,118, May 29, 1979, abandoned. This application Sep. 2, 1980, Ser. No. 183,585

Claims priority, application Japan, May 29, 1978, 53-63364

Int. Cl.³ A62B 7/08; B01J 19/00

U.S. Cl. 422-126

4 Claims



1. A gas generator of use for inflating gas bags, comprising:

- a housing having a wall formed with a plurality of gas discharge apertures;
- a first metal partition arranged in said housing at a distance from said wall so as to define a reaction chamber which is spaced from said wall in the interior of said housing;
- a second metal partition arranged in said housing along the inside of said wall such that a cooling chamber is defined between said first and second partitions;
- a plurality of pellets of a solid gas-generating composition which undergoes an exothermic and self-sustaining reaction when ignited with generation of a heated reaction gas confined in said reaction chamber;
- an electrically initiatable ignition device attached to said housing so as to be able to ignite said pellets; and
- granules of α SiC confined in said cooling chamber to absorb heat from said reaction gas during passage of said reaction gas through said cooling chamber, at least a major amount of said granules individually having sharp-edged shapes; each of said first and second metal partitions being a wire screen so that said reaction gas is allowed to pass there-through, the ratio of the particle size of each of said granules of α SiC to the size of each opening of said wire screen being in the range from 4.0 to 3.4, said granules having a size such that they pass through a 12-mesh screen and are retained on a 14-mesh screen.

4,316,875

APPARATUS FOR PRODUCING A CURABLE POLYURETHANE FROTH

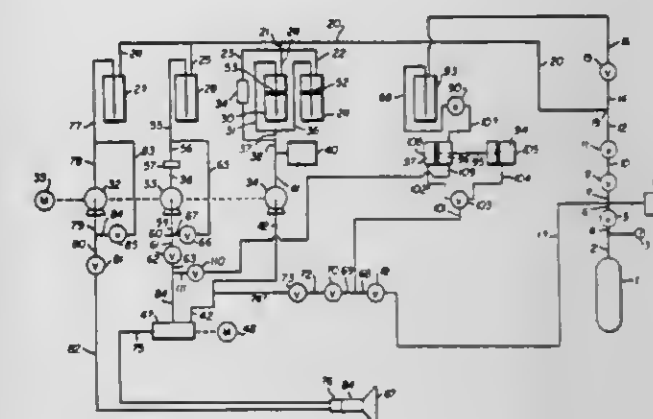
Bruce P. Barth, Bridgewater; Robert N. Johnson, Basking Ridge; Walter P. Mayer, Lebanon, all of N.J., and Bruce H. W. Pinkston, Cleveland, Ohio, assignors to Union Carbide Corporation, New York, N.Y.

Filed Jan. 28, 1980, Ser. No. 115,628

Int. Cl.³ B29D 27/00; C08J 9/00

U.S. Cl. 422-133

3 Claims



1. An apparatus for the continuous production of a curable polyurethane froth which apparatus comprises separate sources of a polyol, an isocyanate, a catalyst and an inert gas, said sources being vessels and/or tanks, means including separate conduits for feeding said polyol, isocyanate and inert gas separately and under pressure at controlled flow rates from said sources to a first mixing device containing inlet openings to receive said polyol, isocyanate and inert gas, means for mixing said polyol, isocyanate, and inert gas to produce a froth and an outlet opening for the resulting froth, means for delivering the froth from said first mixing device to an injector means, a conduit for feeding the catalyst under pressure at a controlled flow rate to the injector means, means for injecting the catalyst into the froth, said injector means containing inlet openings to receive the froth and catalyst and an outlet opening for the resulting catalyzed froth, a conduit for delivering the catalyzed froth from the injector means to a second mixing device, means for mixing the catalyzed froth to a uniform homogeneous state, said mixing device containing an inlet opening to receive the catalyzed froth and an outlet opening for the resulting homogenized froth and means for delivering the catalyzed froth from the second mixing device onto a substrate.

4,316,876

APPARATUS FOR PRODUCING CARBON BLACK

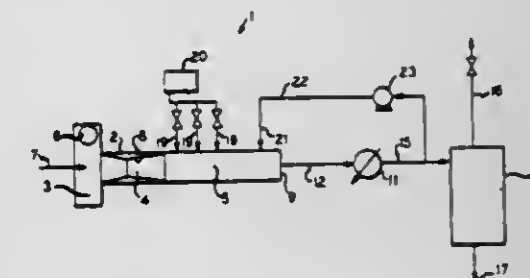
King L. Mills, and Paul H. Johnson, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla. Division of Ser. No. 746,963, Dec. 2, 1976, Pat. No. 4,265,870.

This application Feb. 5, 1981, Ser. No. 231,840

Int. Cl.³ C01B 49/00

U.S. Cl. 422-151

4 Claims



1. An apparatus for producing carbon black including:
 - (a) a reactor forming a precombustion zone, a reaction zone downstream of the precombustion zone and a quench

- zone downstream of the reaction zone, said reactor having an outlet;
- (b) a heat exchange means;
- (c) first conduit means connecting said heat exchange means to said reactor outlet for flow of reactor effluent from said reactor to said heat exchange means;
- (d) a first inlet opening into said quench zone;
- (e) a source of liquid coolant operably connected to said first inlet;
- (f) a second inlet opening into said quench zone downstream of said first inlet;
- (g) second conduit means connecting said second inlet to an outlet of said heat exchange means for conducting cooled reactor effluent to said second inlet.

4,316,877

EXTRACTION OF URANIUM VALUES FROM PHOSPHORIC ACID

Allen A. Tunick, Boonton; Theodore Largman, Morristown, and Stylianos Sifniades, Madison, all of N.J., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Filed Nov. 23, 1979, Ser. No. 96,853

Int. Cl.³ C01G 43/00; C01B 25/238

U.S. Cl. 423—10

27 Claims

1. A process of recovering uranium values from an aqueous phosphoric acid solution by extracting the uranium values from the aqueous phosphoric acid solution with an organic solution containing an organophosphorus extractant and stripping the uranium values from the organic solution wherein the improvement comprises:

- (a) contacting the aqueous phosphoric acid solution with an organic solution of a mixture of organophosphorus compounds containing a 1-hydroxy-1,1-alkanediphosphonic acid of 8-18 carbons in a hydrocarbon solvent and a substantially water-insoluble cosolvent at a temperature between about 50° C. and about 70° C. to extract uranium values into the organic solution;
- (b) contacting the organic solution containing uranium values with an aqueous hydrogen fluoride solution of between about 30 and about 70 weight percent hydrogen fluoride, and
- (c) recovering the uranium values as a precipitate.

4,316,878

METHOD FOR THE COMBUSTIVE TREATMENT OF WASTE FLUIDS CONTAINING NITROGEN COMPOUNDS

Miklo Akune, Yokosuka, and Yoshiaki Kinoshita, Hino, both of Japan, assignors to Nittetu Chemical Engineering Ltd., Tokyo, Japan

Filed Feb. 1, 1980, Ser. No. 117,507

Claims priority, application Japan, Feb. 8, 1979, 54-12787

Int. Cl.³ B01D 53/34

U.S. Cl. 423—235

13 Claims

1. A method for treating a waste fluid containing a nitrogen compound by combustion in an incinerator having cylindrical, coaxially aligned primary and secondary combustion chambers connected in series with each other by a joining member provided with a throat portion which widens toward both combustion chambers, and a burner located in said primary combustion chamber, said method comprising:

- (a) feeding the waste fluid through said burner to said primary combustion chamber to burn combustible materials in the waste fluid at a temperature of at least 1200° C. while injecting air into said primary combustion chamber at a velocity and in a direction tangential to the inner periphery thereof to establish a vortex therewithin, whereby a whirling combustion gas containing nitrogen oxides is formed;
- (b) causing said combustion gas in said primary combustion chamber to pass through said throat portion while injecting thereinto a fluid containing a compound having a

nitrogen-hydrogen bond for mixing with said combustion gas;

- (c) introducing said mixture from said throat into said secondary combustion chamber in a diverging pattern thereby producing a pressure drop in the center of said secondary combustion chamber whereby gases in the vicinity of the outlet of the secondary combustion chamber will reverse flow back toward said throat to minimize local variations in temperature and concentration;
- (d) burning said combustible materials in said mixture in said secondary combustion chamber at a temperature of between 850° and 1150° C.;
- (e) controlling the amount of air injected into said incinerator so that the residual oxygen content in the resulting waste combustion gas discharged from said secondary combustion chamber does not exceed 5% by volume; and
- (f) discharging said waste combustion gas from said secondary combustion chamber.

4,316,879

STABILIZED SODIUM CARBONATE PEROXIDE PREPARATION METHOD

Michael L. Pinsky, Mount Holly; Joseph H. Finley, Metuchen, and Charles W. Lutz, Princeton, all of N.J., assignors to FMC Corporation, Philadelphia, Pa.

Filed Jun. 17, 1977, Ser. No. 807,698

Int. Cl.³ C01B 15/10

U.S. Cl. 423—265

5 Claims

1. A method for the preparation of stabilized sodium carbonate peroxide which comprises incorporating polyethylene glycol having an average molecular weight of about 200 to 50,000 into sodium carbonate peroxide, in an amount equal to 0.01% to 5% by weight based on the weight of sodium carbonate peroxide, and recovering the sodium carbonate peroxide as a dry, free-flowing solid, thereby stabilized against loss of active oxygen.

4,316,880

PROCESS FOR PRODUCING CARBON MONOXIDE AND HYDROGEN FROM METHANOL

Heinz Jockel, Büttelborn; Friedemann Marschner, Oberursel; Friedrich W. Möller, Friedrichsdorf, and Hans-Günter Mörtel, Frankfurt am Main, all of Fed. Rep. of Germany, assignors to Metallgesellschaft, Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Filed May 6, 1980, Ser. No. 147,040

Claims priority, application Fed. Rep. of Germany, May 8, 1979, 2918405

Int. Cl.³ C01B 31/18, 1/13

U.S. Cl. 423—415 A

3 Claims

1. A process for producing carbon monoxide and hydrogen which comprises contacting methanol vapor containing water vapor in an amount of 2 to 10 percent by weight at a temperature of 200° to 300° C. and a pressure in the range of 2 to 50 bars with an indirectly heated catalyst comprising 20 to 50 atomic percent zinc, 40 to 60 atomic percent copper, and 10 to 20 atomic percent vanadium, whereby to obtain an effluent gas rich in carbon monoxide in which the components of carbon monoxide and hydrogen constitute at least 90% by volume of said gas, removing at least a part of the water vapor and carbon dioxide impurities from said effluent gas, and separating said effluent gas into its carbon monoxide and hydrogen components by adsorption by feeding said effluent gas under pressure of 2 to 10 bars to one of several zeolite type molecular sieve containing adsorbers where the zeolite is substantially permeable to hydrogen, said adsorption process comprising feeding said effluent to a first adsorber containing a zeolite type molecular sieve and withdrawing hydrogen from said adsorber, continuing to charge said first adsorber beyond a breakthrough of carbon monoxide, withdrawing carbon monoxide-hydrogen from said first adsorber and feeding it to a second adsorber, thereafter scavenging said first adsorber by introducing virtu-

ally pure carbon monoxide to remove residual hydrogen from said first adsorber, removing virtually pure carbon monoxide from said first adsorber by pressure relieving said first adsorber whereby carbon monoxide is desorbed from the molecular sieve therein, renewing effluent gas supply to said first adsorber and while said first adsorber is being pressure relieved, feeding effluent gas to a second adsorber.

4,316,881

CARBON BLACK PROCESS UTILIZING AN IMPROVED BURNER

David F. Pobst, Jr., Big Spring, and Jesse M. Bailey, Jr., Odessa, both of Tex., assignors to Sld Richardson Carbon & Gasoline Co., Fort Worth, Tex.

Division of Ser. No. 913,833, Jun. 8, 1978, Pat. No. 4,250,145.

This application Aug. 26, 1980, Ser. No. 181,638

Int. Cl.³ C01B 31/02; C09C 1/48

U.S. Cl. 423—456

1 Claim

1. The process for manufacturing carbon black comprising: admixing a fluid fuel and oxidant gas in the burner section of a carbon black reactor; directing said mixture of fluid fuel and oxidant gas through a flame holder having a plurality of elongated parallel orifices; combusting said mixture to form a stream of hot combustion product gases; directing a hydrocarbon feedstock into said hot combustion product gases; flowing said mixture of hydrocarbon feedstock and hot combustion product gases downstream in said reactor to form carbon black; and quenching said flowing hydrocarbon feedstock and combustion product gases with water to terminate the carbon black forming reaction.

4,316,882

COMPOSITIONS FOR TESTING TO PREDICT AND/OR DIAGNOSE ALLERGY TO PENICILLINS

Bernard B. Levine, 210 Riverside Dr., New York, N.Y. 10025

Continuation-in-part of Ser. No. 898,044, Apr. 20, 1978, Pat. No. 4,183,910. This application Aug. 30, 1979, Ser. No. 71,418

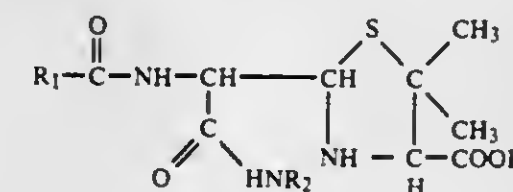
Int. Cl.³ A61K 49/00

U.S. Cl. 424—9

3 Claims

1. A storage-stable composition capable of being reconstituted by mixture with a suitable solvent to form a composition useful in skin testing for penicillin allergy or hypersensitivity to penicillins, including benzyl penicillin and semisynthetic penicillins, comprising an amount effective for detecting penicillin allergy or hypersensitivity of a lyophilized mixture of

(1) a compound represented by the formula:



wherein:

R₁ is a side chain contained in the penicillins from which the penicilloyl amine or amino acid compound is prepared; said penicillins being selected from the group consisting of benzylpenicillin and semi-synthetic penicillins, and

R₂ is a substituent selected from the group consisting of an alkyl group of C₂-C₆ chain length, a carboxy alkyl group of C₂-C₆ chain length, and a residue of an amino acid or amine compound of the type present in the blood, blood plasma or tissue fluids, said compound being selected from the group consisting of cystamine, spermine, spermidine, phosphoethanolamine, arginine,

cystine, glutamine, histidine, lysine, proline, serine, threonine, and asparagine, said compounds being α-diastereoisomers or diastereoisomeric mixtures;

(2) benzylpenicillin; and

(3) sodium benzylpenicilloate.

4,316,883

RADIOACTIVE COMPOSITION

Marc de Schrijver, Rosenau, France, assignor to Solco Basel AG., Basel, Switzerland

Continuation of Ser. No. 797,664, May 17, 1977, abandoned.

This application Feb. 21, 1978, Ser. No. 883,421

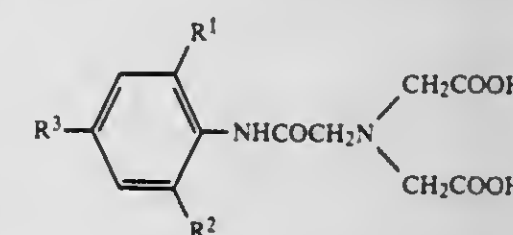
Claims priority, application Switzerland, May 31, 1976, 6793/76

Int. Cl.³ A61K 49/00, 43/00

U.S. Cl. 424—1

9 Claims

1. A radioactive composition for the scintigraphic imaging of the hepatobiliary system, the composition comprising a complex of ^{99m}Tc with a dicarboxylic acid of the formula:



in which R¹ and R² are each an ethyl or an isopropyl group, and R³ is hydrogen, or each of R¹, R² and R³ are a methyl group, or one of its water-soluble salts, in sterile, aqueous solution.

4,316,884

SUSTAINED RELEASE PHARMACEUTICAL FORMULATION

Abu S. Alam, Westerville, and Herman J. Eichel, Columbus, both of Ohio, assignors to Adria Laboratories, Inc., Columbus, Ohio

Continuation-in-part of Ser. No. 6,971, Jan. 25, 1979, abandoned. This application Jun. 19, 1980, Ser. No. 160,887

Int. Cl.³ A61K 9/50

U.S. Cl. 424—19

11 Claims

1. In the method of administering the anti-inflammatory and analgesic drug indoprofen gastro-intestinally not only in order to obtain an analgesic effect at a dose in the order of 100 to 600 mg. per day, within which dosage regimen indoprofen exhibits its maximum analgesic effect and has minimal or negligible side effects, but also to exert an anti-inflammatory activity at a dose in the order of 800 mg. per day, within which it is effective in the treatment of osteoarthritis with minimal gastrointestinal ulceration and other side effects, up to 1200 mg. per day, wherein indoprofen is effective in the treatment of rheumatoid arthritis but with recognized incidence of gastro-intestinal ulceration and other side effects, and wherein clinical studies show that as the indoprofen dose is increased, the plasma peak height and the bioavailability, as measured by total area under the plasma curve increases in a linear fashion, and wherein study in mice shows indoprofen given as the pure drug and in microencapsulated form have equivalent bioavailability, the improvement wherein the action of indoprofen can be prolonged up to about eight-fold if it is microencapsulated and can even be further prolonged by compressing the micro-capsules into tablets, comprising administering a microencapsulate formulation for indoprofen which can be used safely at its effective anti-inflammatory dose for the treatment of both osteoarthritis and rheumatoid arthritis in humans, and wherein the release of indoprofen in the gastro-intestinal tract can be controlled, thereby preventing localized high concentrations, said composition comprising tablets of microencapsulated indo-

profen prepared by (1) heating a dispersion of microparticles below 20 microns of indoprofen in a liquid mixture with a cellulose ether, said liquid mixture comprising a major part by volume of a low-viscosity liquid which is a solvent for the cellulose ether and a minor part by volume of a polymer which is incompatible with the cellulose ether, said cellulose ether being soluble in the low-viscosity liquid part of the liquid mixture when the mixture is heated to form a separate phase, said cellulose ether being present in such amount that the warm solution of it has a viscosity of 4,000 to 10,000 centipoises and may be broken up as tiny liquid droplets by agitation, said microparticles of indoprofen and cellulose ether comprising less than 30% by weight of the dispersion, (2) cooling the heated dispersion with agitation to a temperature at which the cellulose ether forms a solid protective coating of about 50 to 250 microns thickness on each microparticle of indoprofen, (3) recovering the microencapsulated indoprofen and (4) compressing the microencapsulated indoprofen into tablets.

4,316,885

ACYL DERIVATIVES OF RAPAMYCIN

Sumanas Rakhit, Dollard des Ormeaux, Canada, assignor to Ayerst, McKenna and Harrison, Inc., Montreal, Canada

Filed Aug. 25, 1980, Ser. No. 181,252

Int. Cl.³ A61K 35/74; C07D 491/14

U.S. Cl. 424—122

5 Claims

1. A monoacyl or diacyl derivative of rapamycin wherein the monoacyl derivative has mp 101°–102° C.; ir (CHCl₃) 3400, 1730, 1640 and 1620 cm⁻¹; uv max (MeOH) 288 (ε=374), 277 (ε=494) and 267 nm (ε=372); and nmr (CDCl₃) δ 2.05 (s, 3H) and 2.1 (s, 3H) and the diacyl derivative has mp 92°–93° C.; ir (CHCl₃) 3400, 1730, 1640 and 1620 cm⁻¹; uv max (MeOH) 288 (ε=366), 227 (ε=484) and 267 nm (ε=363); and nmr (CDCl₃) δ 2.05 (s, 3H).

4,316,886

PROCESS FOR THE PREPARATION OF SOLID SODIUM AMOXYCILLIN

Charles B. Taskis, Worthing, England, assignor to Beecham Group Limited, England

Filed Sep. 6, 1979, Ser. No. 73,101

Claims priority, application United Kingdom, Dec. 8, 1978, 47744/78

Int. Cl.³ A61K 9/14, 31/43, 31/79

U.S. Cl. 424—80

14 Claims

1. A process for the preparation of a solid sodium amoxycillin which process comprises removing the solvent from an aqueous solution of sodium amoxycillin containing from 2% to 20% w/v of the sodium amoxycillin and polyvinylpyrrolidone of molecular weight from 1000 to 12000.

4,316,887

COMPOSITION FOR TOPICAL APPLICATION AND METHOD FOR PREPARING THE SAME

Takuzo Kamishita, and Kazuhiko Kamishita, both of Takatsuki, Japan, assignors to Toko Yakubin Kogyo Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 956,620, Nov. 2, 1978, abandoned. This application Feb. 29, 1980, Ser. No. 125,894

Claims priority, application Japan, Nov. 7, 1977, 52/133217

Int. Cl.³ A61K 31/11, 31/74, 31/78, 31/045

U.S. Cl. 424—81

2 Claims

1. A composition for topical application comprising a mixture of: (a) an aqueous solution of 20 to 60% by weight of an alcohol selected from the group consisting of ethanol, ethanol denatured with methanol, ethanol denatured with geraniol, said aqueous solution containing a therapeutically effective amount of an ingredient selected from menthol, camphor and a mixture of menthol and camphor; (b) a carboxyvinyl polymer in an amount of 0.1 to 1.5% by weight based on the weight of said composition; (c) a water-soluble basic substance selected from the group consisting of an alkylamine, a dialkylamine, a trialkylamine, an alkanolamine, a dialkanolamine, a trialkanola-

mine, trimethylaminomethane, and ammonia in an amount effective for neutralizing the carboxyvinyl polymer; and (d) 0.002 to 1% by weight of sodium chloride based on the weight of said composition, said composition having a pH of 6.0 to 7.5 and a viscosity of 2,000 to 20,000 centipoises at 20° C.

4,316,888

METHOD AND COMPOSITION OF REDUCING PAIN

Eric L. Nelson, Santa Ana, Calif., assignor to Nelson Research & Development Co., Irvine, Calif.

Filed Apr. 15, 1980, Ser. No. 140,493

Int. Cl.³ A61K 33/00, 33/10, 33/08, 31/485

U.S. Cl. 424—127

10 Claims

1. A method of temporarily reducing pain associated with gastrointestinal dysfunction in humans comprising administering to a human having pain associated with gastrointestinal dysfunction an effective, pain reducing amount of dextromethorphan or a pharmaceutically acceptable salt thereof.

4,316,889

NOVEL PEPTIDYL-ARGININE ALDEHYDE DERIVATIVES AND PROCESS FOR THE PREPARATION THEREOF

Sándor Bajusz; Erzsébet Széll neé Hasenöhrl; Éva Barabás, and Dániel Bagdy, all of Budapest, Hungary, assignors to Richter Gedeon Vegyészeti Gyár Rt., Budapest, Hungary

Filed Dec. 28, 1979, Ser. No. 108,224

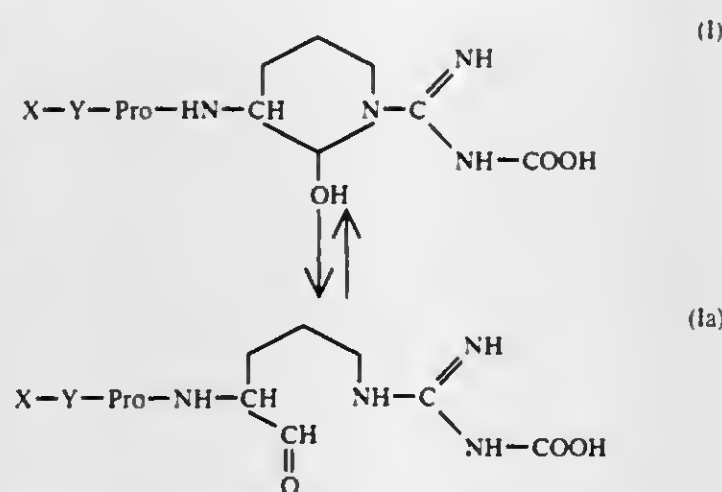
Claims priority, application Hungary, Jan. 4, 1979, GO-1435

Int. Cl.³ A61K 37/00; C07C 103/52

U.S. Cl. 424—177

4 Claims

1. A peptidyl-arginine aldehyde derivative of the formula I or Ia



wherein

X is hydrogen, benzoyl or tert-butyloxycarbonyl, and Y is D-phenylalanine, β-phenyl-D-lactic acid or D-allo-isoleucine residue or a pharmaceutically effective salt thereof.

4,316,890

PEPTIDES AND PROCESSES FOR THE MANUFACTURE THEREOF

Bruno Kamber, Arlesheim; Hans Rink, Riehen, and Peter Sieber, Reinach, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Mar. 10, 1980, Ser. No. 129,066

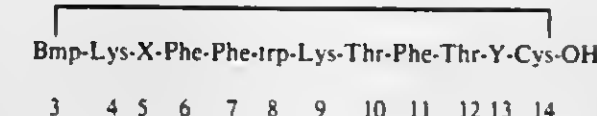
Claims priority, application Switzerland, Mar. 16, 1979, 2506/79

Int. Cl.³ A61K 37/00; C07C 103/52

U.S. Cl. 424—177

10 Claims

1. A somatostatin-analogous peptide of the general formula



in which

Bmp represents the desaminocysteine radical.

X represents Asn or His.

Trp represents D-Trp that may be substituted in the benzene ring by a halogen atom, and

Y represents the radical of an alpha-(lower alkyl)amino-(lower alkyl)carboxylic acid having a minimum of 4 and a maximum of 8 carbon atoms or said radical in which the two lower alkyl radicals are connected to one another with a single C—C bond, an oxygen atom or a sulphur (II) atom, and a corresponding peptide amide, and also acid addition salts of said compounds.

4,316,891

EXTENDED N-TERMINAL SOMATOSTATIN

Roger C. L. Guillemin, La Jolla; Nicholas C. Ling, San Diego; Fred S. Esch, San Diego; Peter Bohlen, Encinitas, and Paul E. Brazeau, Jr., San Diego, all of Calif., assignors to The Salk Institute for Biological Studies, San Diego, Calif.

Filed Jun. 14, 1980, Ser. No. 159,801

Int. Cl.³ A61K 37/00; C07C 103/52

U.S. Cl. 424—177

6 Claims

1. A pharmaceutical composition comprising synthetic somatostatin-28, synthetic somatostatin-25 or the nontoxic addition salts thereof, and a pharmaceutically acceptable liquid or solid carrier therefor.

4,316,892

2,6-C-DIMETHYLTYROSINE¹-D-AMINO ACID²-ε-AMINO CAPROIC AND γ-AMINOBUTYRIC ACID⁵ DERIVATIVES OF METHIONINE ENKEPHALIN

David A. Jones, Evanston, Ill., assignor to G. D. Searle & Co., Skokie, Ill.

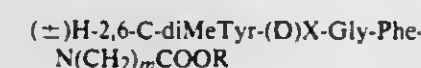
Filed Nov. 3, 1980, Ser. No. 202,920

Int. Cl.³ A61K 37/00; C07C 103/52

U.S. Cl. 424—177

12 Claims

1. An enkephalin derivative represented by the formula



wherein: X is methionine, alanine or nor-leucine; m is 3 or 5; and R is selected from the group consisting of hydrogen, lower alkyl or —NR₂R₃; wherein R₂ and R₃ are the same or different members of the group consisting of hydrogen and lower alkyl; wherein the (±) refers to the compound shown, its mirror image or a mixture of racemates; or the pharmaceutically acceptable salts thereof.

4,316,893

VEHICLE COMPOSITION CONTAINING 1-SUBSTITUTED AZACYCLOALKAN-2-ONES

Vithal J. Rajadhyaksha, Mission Viejo, Calif., assignor to Nelson Research & Development Co., Irvine, Calif.

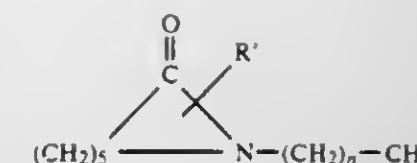
Division of Ser. No. 725,490, Oct. 28, 1978, abandoned, which is a continuation-in-part of Ser. No. 588,247, Jun. 19, 1975, Pat. No. 3,989,816. This application Apr. 4, 1980, Ser. No. 137,248

Int. Cl.³ A61K 31/30, 31/70, 31/71, 31/505

U.S. Cl. 424—180

11 Claims

1. A composition useful for topically administering a physiologically active agent to a human or animal comprising an effective amount of a physiologically active agent and a nontoxic, effective penetrating amount of a compound having the structural formula



wherein n is 0–11 and R' is H or a lower alkyl group having 1–4 carbon atoms.

4,316,894

ANTIBIOTIC SF-1130-X₃ SUBSTANCE AND PRODUCTION AND USE THEREOF

Shoji Omoto, Tokyo; Jiro Itoh, Yokohama; Tomizo Niwa, Yokohama; Takashi Shomura, Yokohama; Tetsutaro Nizato, Kawasaki, and Shigeharu Inouye, Yokohama, all of Japan, assignors to Meiji Seika Kaisha, Ltd., Tokyo, Japan

Filed Sep. 9, 1980, Ser. No. 185,592

Claims priority, application Japan, Sep. 19, 1979, 54-119324

Int. Cl.³ A61K 35/00, 31/70, 31/71

U.S. Cl. 424—116

3 Claims

1. The SF-1130-x₃ substance which is an oligosaccharide of weakly basic nature in the form of a colorless powder, which is soluble in water and dimethylsulfoxide, less soluble in methanol and ethanol but insoluble in acetone, ethyl acetate, chloroform and benzene and which shows positive reaction with silver nitrate-sodium hydroxide, red tetrazolium, anthrone and Greig-Leaback reagents, respectively; the SF-1130-x₃ substance being further characterized by:

- having a melting point of 183° C. (with decomposition) and a specific optical rotation $[\alpha]_D^{23} + 154^\circ$ (c 1, in water);
- exhibiting an elemental analysis: C 43.31%, H 5.88%, N 1.71% and O 49.10% (balance);
- having no characteristic absorption peak in ultraviolet spectrum (in water containing 100 μg/ml of a pure sample of the SF-1130-x₃ substance);
- having an infrared absorption spectrum pelleted in potassium bromide corresponding to that shown in FIG. 1 of the attached drawings;
- having a proton nuclear magnetic resonance absorption spectrum in deuterium oxide corresponding to that shown in FIG. 2 of the attached drawings;
- having a carbon nuclear magnetic resonance absorption spectrum in deuterium oxide corresponding to that shown in FIG. 3 of the attached drawings; and
- giving a single spot at $R_{\text{affinose}} = 0.64$ in a paper chromatography by the descending method developed with ethyl acetate-pyridine-water (10:4:3) as the developing solvent and at $R_{\text{affinose}} = 0.62$ in the same paper chromatography by the descending method developed with n-butanol-pyridine-acetic acid-water (6:4:1:3) as the developing solvent when the R_{affinose} values are calculated as assumed that raffinose gives a single spot at $R_f = 1.00$ in the same paper chromatography.

4,316,895

ENDORPHINS HAVING PLACENTAL OR PANCREATIC ORIGIN

Charles D. Kimball, The Highlands, Seattle, Wash. 98177, and John C. Houch, 420 28th Pl., Seattle, Wash. 98199

Filed Jan. 3, 1980, Ser. No. 109,233

Int. Cl.³ A61K 37/00; C07G 7/00; C07C 103/52; A61K 37/02

U.S. Cl. 424—177

7 Claims

1. An endorphin peptide composition comprising p-endorphin prepared from placental or defatted pancreatic tissue by extracting said tissue with dilute mineral acid, neutralizing the extract, incubating the neutralized extract at a temperature and for a time sufficient to denature proteolytic enzymes, and purifying the extract by treating it to exclude compounds that are too large to pass through a 5000 dalton hollow tube ultrafilter and chromatographing the portion of the extract that passes through the ultrafilter to separate the portion that cross-reacts

with beta endorphin antisera and has opiate receptor activity, thus obtaining the endorphin peptide composition comprising p-endorphin having a molecular weight greater than beta endorphin.

4,316,896

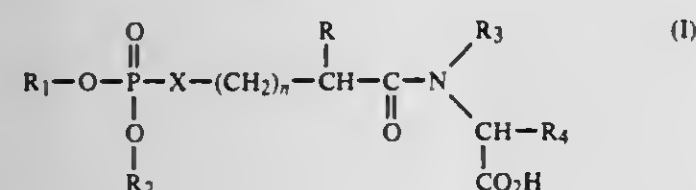
AMINOACID DERIVATIVES AS ANTIHYPERTENSIVES
Eugene D. Thorsett, Fanwood; Arthur A. Patchett; Elbert E. Harris, both of Westfield, and Alan L. Maycock, Fanwood, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Sep. 7, 1978, Ser. No. 940,412
Int. Cl.³ C07D 277/20

U.S. Cl. 424-200

9 Claims

1. A compound of the formula:



wherein

n is 0 or 1

R is lower alkyl, phenyl lower alkyl, hydroxyphenyl lower alkyl, hydroxy lower alkyl, aminoloweralkyl, guanidino lower alkyl, imidazolyl lower alkyl, indolyl lower alkyl, mercapto lower alkyl, lower alkyl mercapto lower alkyl; R₃ and R₄ may be connected together to form an alkylene bridge of from 2 to 4 carbon atoms or an alkylene bridge of from 2 to 3 carbon atoms and one sulfur atom; X is NR⁵, S where R⁵=H or lower alkyl; R₁ is hydrogen, lower alkyl, phenyl lower alkyl or phenyl or substituted phenyl wherein the substituent is halo, lower alkoxy or lower alkyl; R₂ is hydrogen, lower alkyl, phenyl lower alkyl, or phenyl or substituted phenyl wherein the substituent is halo, lower alkoxy or lower alkyl and pharmaceutically acceptable salts thereof.

4,316,897

METHOD OF LOWERING SERUM PROLACTIN
Wolfgang Lotz, Bad Krozingen, Fed. Rep. of Germany, assignor to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Sep. 10, 1980, Ser. No. 185,812

Int. Cl.³ A61K 31/33, 31/47, 31/54, 31/475

U.S. Cl. 424-244

5 Claims

1. A method of treatment for individuals having a high prolactin concentration induced by the administration of a neuroleptic selected from the group consisting of chlorpromazine, methopromazine, reserpine, tetrabenazine, benzindopirine, sulpiride, metoclopramide, haloperidol and thioridazine which comprises the administration of a prolactin lowering amount of a benzodiazepine derivative selected from the group consisting of chlordiazepoxide, diazepam, flunitrazepam, clonazepam, flurazepam, medazepam, bromazepam, lorazepam, oxazepam, prazepam, temazepam, clobazepam, oxazolam and triazolam to such individual.

4,316,898
CEPHALOSPORINS

Bernd Wetzels; Eberhard Waitun; Roland Maier, all of Biberach an der Riss; Wolfgang Rueter, Laupertsbausen; Uwe Lechner, Ummendorf, and Hans Goeth, Biberach an der Riss, all of Fed. Rep. of Germany, assignors to Boehringer Ingelheim KG, Ingelheim am Rhein, Fed. Rep. of Germany

Filed May 20, 1980, Ser. No. 151,694

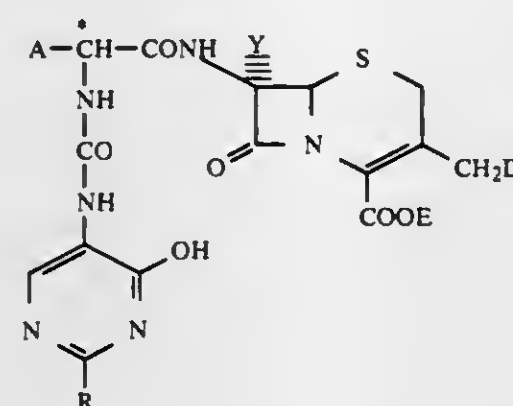
Claims priority, application Fed. Rep. of Germany, Jun. 21, 1979, 2924948

Int. Cl.³ C07D 501/36

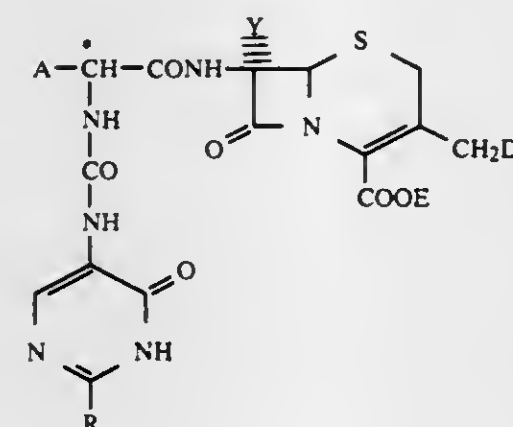
U.S. Cl. 424-246

7 Claims

1. A compound of the tautomeric formulas

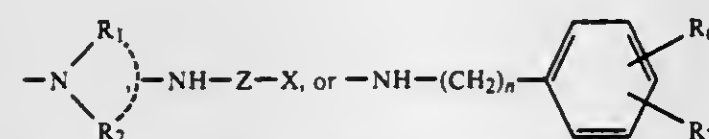


and



wherein

A is phenyl, 4-hydroxyphenyl, 2-thienyl, 3,4-dihydroxyphenyl or 3-chloro-4-hydroxyphenyl;
Y is hydrogen or methoxy;
D is hydrogen, acetoxy, aminocarbonyloxy, pyridinium or aminocarbonyl-pyridinium;
R is cyclopropyl,



R₁ and R₂ are each hydrogen; straight or branched alkyl of 1 to 4 carbon atoms; cyclopropyl; cyclohexyl; or 4-hydroxycyclohexyl;
Z is alkylene of 1 to 4 carbon atoms;

X is hydroxyl, methoxy, aminocarbonyl, aminosulfonyl, aminocarbonylamino, —COOH, —COOCH₃, —NHCOCH₃, —OCOR₅, —SOCH₃ or —SO₂CH₃;

R₅ is hydrogen or alkyl of 1 to 3 carbon atoms;

n is 0 or 1; and

R₆ and R₇ are each hydrogen, chlorine, methyl, acetyl, amino, hydroxyl, aminocarbonylamino, nitro, methylsulfonylamino, acetyl, methylcarbonyloxy, aminocarbonyl, methylaminocarbonyl, cyano, methylsulfinyl, methylsulfonyl, aminosulfonyl, methylaminosulfonyl, ethylaminosulfonyl or dimethylaminosulfonyl; and

E is hydrogen or a protective group which is easily removable in vitro or in vivo;
or, when E is hydrogen, a non-toxic, pharmacologically acceptable salt thereof formed with an inorganic or organic base.

4,316,899

CHROMANONE DERIVATIVES, A PROCESS FOR THEIR PREPARATION AND COMPOSITIONS CONTAINING THEM

Roger E. Markwell, Great Dunmow, England, assignor to Beecham Group Limited, England

Filed Mar. 17, 1980, Ser. No. 131,237

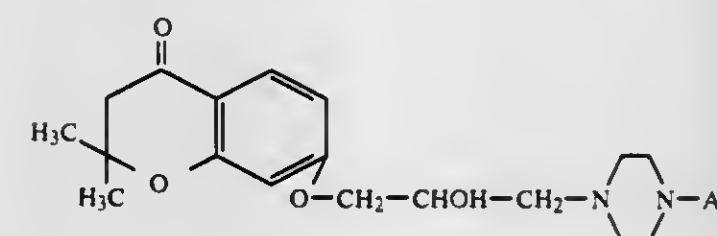
Claims priority, application United Kingdom, Aug. 24, 1979, 29542/79

Int. Cl.³ C07D 405/14; A61K 31/505

U.S. Cl. 424-250

4 Claims

1. A compound of formula (II):



or a pharmaceutically acceptable acid-addition salt thereof wherein Ar is pyrimidyl.

3. A pharmaceutical composition for the treatment of hypertension, comprising an effective amount of a compound according to claim 1, together with a pharmaceutically acceptable carrier.

4,316,900

PIPERAZINOPYRROLOBENZODIAZEPINES

Jan W. F. Wasley, Chatham, N.J., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

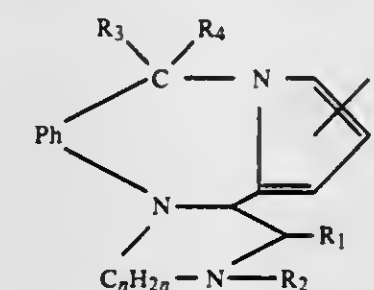
Continuation-in-part of Ser. No. 933,358, Aug. 14, 1978, abandoned, which is a continuation-in-part of Ser. No. 839,696, Oct. 5, 1977, abandoned. This application Aug. 22, 1979, Ser. No. 68,827

Int. Cl.³ A61K 31/55; C07D 487/18

U.S. Cl. 424-250

8 Claims

1. A 1,3,4,14b-tetrahydro-2H,10H-pyrazino[1,2-a]pyrrolo[2,1-c]benzo-diazepine compound of the formula



wherein each of R₁, R₃ and R₄ is hydrogen or methyl; R₂ is hydrogen, lower or higher alkyl, lower alkenyl, lower alkynyl, 3 to 7 ring-membered cycloalkyl, cycloalkenyl or cycloalkyl-lower alkyl, hydroxy-lower alkyl, amino-lower alkyl, mono- or di-lower alkylamino-lower alkyl, carboxy-lower alkyl, lower carbalkoxy-lower alkyl, carbamoyl-lower alkyl, mono- or di-lower alkylcarbamoyl-lower alkyl, phenyl-lower alkyl as defined by HPh-lower alkyl, lower alkanoyl-lower alkyl, or benzoyl-lower alkyl as defined by HPHCO-lower alkyl; Ph is 1,2-phenylene, unsubstituted or substituted by one member selected from lower alkyl, lower alkoxy, lower alkylthio, halogeno and trifluoromethyl; C_nH_{2n} is lower alkylene separating both nitrogen atoms by 2 carbon atoms and R₅ is hydrogen, lower alkyl, carboxy, lower carbalkoxy, hydroxy-lower alkyl, amino-lower alkyl, mono- or di-lower alkylamino-lower alkyl; the lower alkoxy-carbonyl, lower or higher alkanoyl,

adamantoyl, carbamoyl, mono- or di-lower alkylcarbamoyl, 3 to 7-ring membered cycloalkyl-carbonyl or HPhCO-derivatives or those compounds with R₂ and/or R₅ being (hydroxy, amino or lower alkylamino)-lower alkyl, or R₂ being hydrogen; the 2-N-oxide of those compounds with R₂ being different from hydrogen; and salts thereof, derived from pharmaceutically acceptable acids or ammonium or alkali metal bases.

4,316,901

ANIMAL FEED AND PROCESS

Melvin J. DeGeeter, and John M. McCall, both of Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

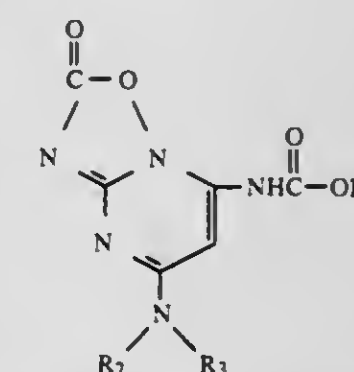
Filed Jun. 23, 1980, Ser. No. 161,943

Int. Cl.³ A61K 31/505, 31/53, 27/00

U.S. Cl. 424-251

6 Claims

1. A process for obtaining increased production in meat-producing, egg-laying, or milk-producing animals comprising feeding to said animals an effective amount of a compound of the formula:



Formula 1

wherein R₁ is a member selected from the group consisting of alkyl of from 1 to 8 carbon atoms, inclusive, including isomeric forms thereof, R₂ and R₃ are the same or different and are a member selected from the group consisting of hydrogen, provided that both R₂ and R₃ are not hydrogen; alkyl of from 1 to 8 carbons, inclusive, including isomeric forms thereof, cycloalkyl of from 3 to 8 carbon atoms, alkyl substituted cycloalkyl of the formula



wherein n is an integer of from 2 to 7, inclusive, and R₇ is a member selected from the group consisting of hydrogen and alkyl of from 1 to 5 carbon atoms, inclusive, including isomeric forms thereof; alkenyl of from 2 to 8 carbon atoms, inclusive, including isomeric forms thereof, aralkyl wherein Ar is a member selected from the group consisting of phenyl, substituted phenyl wherein 1 or 2 hydrogens are replaced with chlorine, fluorine, bromine, iodine, R₆, —OR₆, or —CF₃ and the substituents can be the same or different, and R₆ is alkyl of from 1 to 4 carbon atoms, inclusive, including isomeric forms thereof; and R₂ and R₃ taken together with —N< is a heterocyclic moiety of from 4 to 8, inclusive, ring atoms and 1 or 2 hetero atoms selected from the group consisting of nitrogen, oxygen, or a substituted heterocyclic moiety wherein 1, 2, or 3 of the carbon atoms of the heterocycle are substituted with R₁.

4,316,902

THERAPEUTIC COMPOSITIONS AND VEHICLES FOR TOPICAL PHARMACEUTICALS

Ruey J. Yu, 4 Lindenwood Ave., Ambler, Pa. 19002, and Eugene J. Van Scott, 1138 Sewell La., Rydal, Pa. 19046

Filed Sep. 21, 1979, Ser. No. 77,726

Int. Cl.³ A61K 31/455, 31/05

U.S. Cl. 424-266

11 Claims

1. An anhydrous non-sticky vehicle for topical application to the human body which vehicle is stable when stored for at least

one month at 40° C. and stable when frozen and subsequently thawed at room temperature comprising, in admixture, glyceryl monostearate present in a concentration of from 10-30 percent by weight and a member selected from the group consisting of isopropyl myristate and isopropyl palmitate present in a concentration 30-90 percent by weight of the total composition.

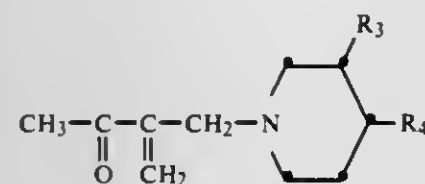
4,316,903

ANTI-MICROBIAL PIPERIDINO BUTEN-2-ONES
Nathaniel Grier, Englewood; Richard A. Dybas, Somerville, and Bruce E. Witzel, Westfield, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.
Division of Ser. No. 816,613, Jul. 18, 1977, Pat. No. 4,145,426.
This application May 5, 1978, Ser. No. 903,363
Int. Cl.³ A01N 43/40, 35/02; C07D 211/44, 211/42, 211/60, 211/62, 227/10

U.S. Cl. 424-267

4 Claims

1. A compound of the formula:



where one of R₃ or R₄ is C₁ to C₃ alkyl, hydroxy, C₁ to C₃ hydroxyalkyl, carboxy, carboxamido, N-loweralkylcarboxamido said alkyl having up to four carbons, loweralkoxycarbonyl said alkoxy having up to four carbons, 1-pyrrolidinyl, and 1-piperidinyl, and the other of R₃ and R₄ is hydrogen.

4,316,904

INDOLOPYRONE TETRAZOLES AND CARBOXAMIDOTETRAZOLES HAVING ANTIALLERGIC ACTIVITY

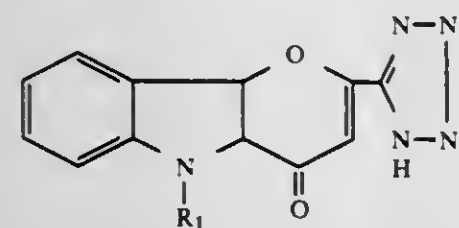
Richard E. Brown, 16 Ridge Dr., East Hanover, N.J. 07936, and Paul C. Unangst, 3659 Middleton Dr., Ann Arbor, Mich. 48105

Continuation-in-part of Ser. No. 912,645, Jun. 5, 1978, abandoned. This application Sep. 25, 1979, Ser. No. 78,632
Int. Cl.³ A61K 31/41; C07D 257/02

U.S. Cl. 424-269

16 Claims

1. A compound having the structural formula



wherein R₁ is alkyl of from 1 to 6 carbon atoms or phenyl, and the pharmaceutically acceptable salts thereof.

4,316,905

MERCAPTOACYL DERIVATIVES OF VARIOUS 4-SUBSTITUTED PROLINES

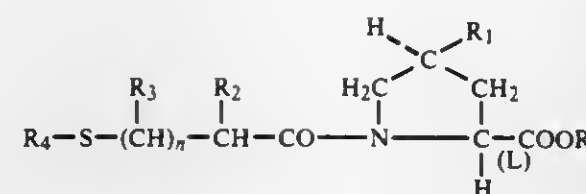
John Krapcho, Somerset, N.J., assignor to E. R. Squibb & Sons, Inc., Princeton, N.J.

Filed Jul. 1, 1980, Ser. No. 164,985
Int. Cl.³ A61K 31/40; C07D 207/12

U.S. Cl. 424-274

37 Claims

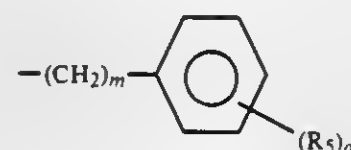
1. A compound of the formula



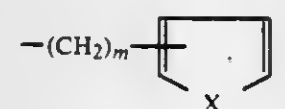
including a salt thereof wherein

R is hydrogen or lower alkyl;

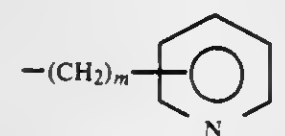
R₁ is -(CH₂)_m-cycloalkyl wherein cycloalkyl is a saturated ring of 3 to 7 carbons, 1-cyclohexenyl, 1,4-cyclohexadienyl,



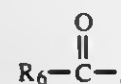
-(CH₂)_m-(α-naphthyl), -(CH₂)_m-(β-naphthyl),



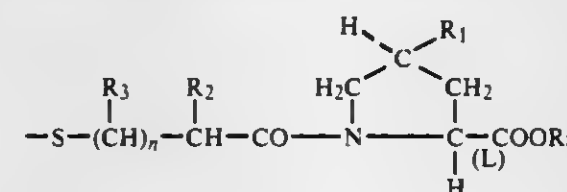
or



R₂ and R₃ are independently selected from the group consisting of hydrogen, lower alkyl, lower alkylthio, and halo substituted lower alkyl;
n is zero, one or two;
R₄ is hydrogen,



p-methoxybenzyloxycarbonyl, t-butoxycarbonyl, or

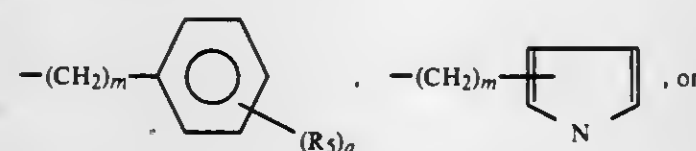


m is zero, one, two or three;

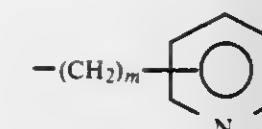
R₅ is hydrogen, lower alkyl of 1 to 4 carbons, lower alkoxy of 1 to 4 carbons, lower alkylthio of 1 to 4 carbons, chloro, bromo, fluoro, trifluoromethyl, hydroxy, phenyl, phenyloxy, phenylthio, or phenylmethyl;

q is one, two or three provided that q is more than one only if R₅ is hydrogen, methyl, methoxy, chloro, or fluoro;

R₆ is lower alkyl, halo substituted lower alkyl, -(CH₂)_m-cycloalkyl wherein cycloalkyl is a saturated ring of 3 to 7 carbons,



-continued



wherein m, q, and R₅ are as defined above; and
X is oxygen or sulfur.

4,316,906

MERCAPTOACYL DERIVATIVES OF SUBSTITUTED PROLINES

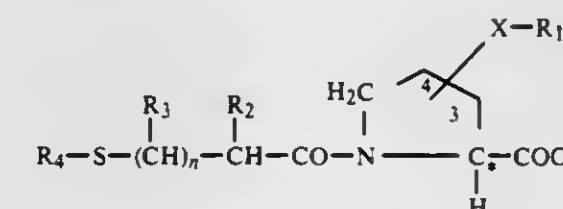
Miguel A. Ondetti, Princeton, and John Krapcho, Somerset, both of N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Continuation-in-part of Ser. No. 126,239, Mar. 3, 1980, abandoned, which is a continuation-in-part of Ser. No. 52,691, Jul. 2, 1979, abandoned, which is a continuation-in-part of Ser. No. 932,883, Aug. 11, 1978, abandoned. This application Oct. 31, 1980, Ser. No. 202,801
Int. Cl.³ A61K 31/40; C07D 207/12

U.S. Cl. 424-274

61 Claims

1. A compound of the formula



or a basic salt thereof wherein

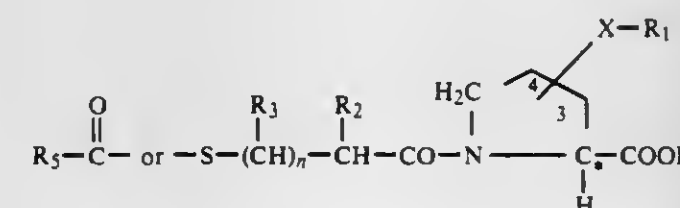
the X-R₁ group is located at the 3- or 4-position of the proline ring;

X is oxygen or sulfur;

R is hydrogen or lower alkyl;

R₁ is lower alkyl, lower alkenyl, lower alkynyl, cycloalkyl, 1- or 2-adamantyl, phenyl, phenyl-lower alkylene, 1- or 2-naphthyl, biphenyl, substituted phenyl, substituted phenyl-lower alkylene, substituted 1- or 2-naphthyl, or substituted biphenyl wherein said substituent is one or two groups on the phenyl ring selected from the group consisting of lower alkyl of 1 to 4 carbons, lower alkoxy of 1 to 4 carbons, lower alkylthio of 1 to 4 carbons, chloro, bromo, fluoro, iodo, trifluoromethyl, acetyloxy, and hydroxy;

R₂ and R₃ are independently selected from hydrogen, lower alkyl and trifluoromethyl;

R₄ is hydrogen,


R₅ is lower alkyl, phenyl, phenyl-lower alkylene, substituted phenyl, or substituted phenyl-lower alkylene wherein said substituent is one or two groups on the phenyl ring selected from the group consisting of lower alkyl of 1 to 4 carbons, lower alkoxy of 1 to 4 carbons, lower alkylthio of 1 to 4 carbons, chloro, bromo, fluoro, iodo, trifluoromethyl, acetyloxy, and hydroxy; and
n is 0, 1 or 2.

4,316,907

HETEROCYCLIC COMPOUNDS, PROCESSES FOR THEIR PREPARATION AND THEIR USE

Alexander W. Oxford, Royston; John Bradshaw, Dane End, near Ware, and Ian H. Coates, Hertford, all of England, assignors to Glaxo Group Limited, London, England
Filed Jun. 27, 1980, Ser. No. 163,568

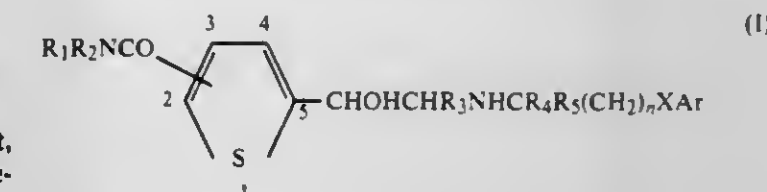
Claims priority, application United Kingdom, Jun. 29, 1979, 22736/79

Int. Cl.³ A61K 31/38; C07D 333/24

U.S. Cl. 424-275

16 Claims

1. A compound of general formula (1):



in which the amide function is in the 2 or 3 position on the thiophene ring, and wherein R₁, R₂, R₃, R₄ and R₅, which may be the same or different, each represents a hydrogen atom or a lower alkyl group;

X represents -CH₂-, -O- or -NR₆- where R₆ represents a hydrogen atom or a lower alkyl group;

n is a number from zero to 3 with the proviso that when n is zero X can not represent -O- or -NR₆-;

Ar represents a phenyl group optionally substituted by one or more substituents selected from halogen atoms, C₁-C₃ alkyl groups, phenyl groups and the groups -OR₇ or amino groups (-NR₈R₉) in which R₇ and R₈ and R₉ independently represent a hydrogen atom or a C₁-C₃ alkyl group or an alkylendioxy group of formula -O(CH₂)_mO- where m is 1 or 2 and physiologically acceptable salts thereof.

4,316,908

PESTICIDAL SULFINYLAMIDES

Odd Kristiansen, Möhlin, and Jozef Drabek, Oberwil, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Oct. 27, 1980, Ser. No. 200,804

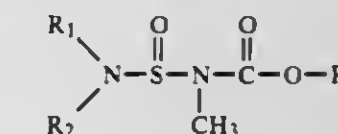
Claims priority, application Switzerland, Nov. 5, 1979, 9909/79; Sep. 9, 1980, 6761/80

Int. Cl.³ A01N 43/28, 43/30, 41/02; C07D 317/12, 339/06; C07C 125/067

U.S. Cl. 424-277

6 Claims

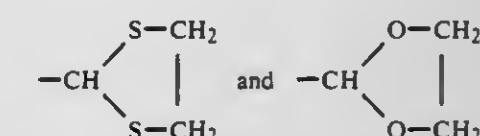
1. A compound of the formula



wherein

R₁ is hydrogen or C₁-C₆-alkyl,R₂ is C₁-C₆-alkyl or C₁-C₆-alkoxy, and

R₃ is phenyl which is unsubstituted or mono- or polysubstituted by identical or different substituents selected from the group consisting of halogen, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkylthio, C₂-C₆-alkenyl, C₂-C₆-alkynyl, nitro,



5. An insecticidal composition which comprises an insecticid-

chewing gum piece including an enclosed cavity therein, and a liquid fill in said cavity, said liquid fill consisting essentially of from about 94 to about 99.5% glycerin as a sweetener, from about 0.5 to about 6% by weight of a thickener to increase viscosity of the glycerin, said thickener being selected from the group consisting of carboxymethyl cellulose, a pectin, an alginate, agar, gum tragacanth, sodium carboxymethyl cellulose, and mixtures thereof, and optionally from about 0.1 to about 0.75% by weight flavor oil, said center fill containing no more than about 2% or less water and no further humectants.

4,316,916

TREATMENT OF A COFFEE EXTRACT

Siegfried Adamer, Lausanne, Switzerland, assignor to Societe d'Assistance Technique pour Produits Nestle S.A., Lausanne, Switzerland

Continuation of Ser. No. 3,348, Jan. 15, 1979, abandoned. This application Apr. 30, 1980, Ser. No. 145,226

Claims priority, application Switzerland, Jan. 20, 1978, 616/78

Int. Cl.³ A23F 5/18

U.S. Cl. 426—329

9 Claims

1. A process for the preparation of a coffee extract suitable for carbonation which does not include the addition of anti-foaming additives, which comprises adjusting the pH of the extract to a value of from 3.0 to 4.5, and then eliminating the subsequently formed flocculate.

4,316,917

STABLE CAROTENOID SOLUTIONS

Thomas Antoskiw, Kearny; Marco A. Cannalunga, Fort Lee, and Frank Guerin, Bloomfield, all of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Apr. 21, 1980, Ser. No. 142,273

Int. Cl.³ A23L 1/27

U.S. Cl. 426—540

8 Claims

1. A stabilized carotenoid composition comprising β -apo-8'-carotenal, a surfactant, a solubilizer component consisting of glycerol monocaprylate and propylene glycol dicaprylate-dicaprate and an antioxidant.

4,316,918

PRODUCTS INCLUDING EDIBLES COLORED WITH POLYMERIC RED COLORS

Leonard A. Bunes, San Carlos, Calif., assignor to Dynapol, Palo Alto, Calif.

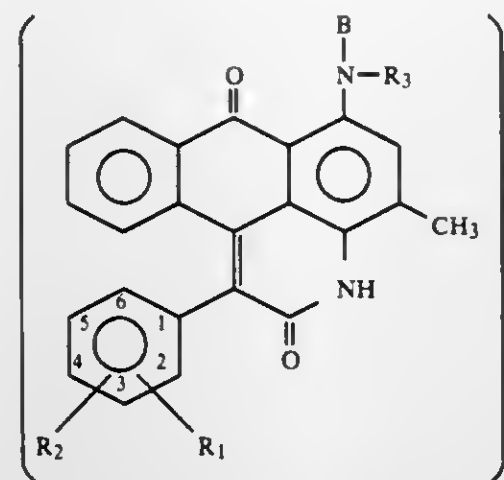
Division of Ser. No. 39,977, May 17, 1979, Pat. No. 4,279,662, which is a continuation-in-part of Ser. No. 35,163, May 2, 1979, Pat. No. 4,249,007, which is a division of Ser. No. 751,857, Dec. 17, 1976, Pat. No. 4,182,885. This application Jun. 24, 1980, Ser. No. 162,456

Int. Cl.³ A23L 1/275

U.S. Cl. 426—540

14 Claims

1. A colored edible comprising an edible substrate in intimate admixture with a color-imparting concentration of from 10 to 1000 ppm by weight basis edible substrate of a water-soluble polymeric red colorant having the formula



wherein R₁ and R₂ are independently selected from the group of hydrogen, halos of atomic number 9 through 53 inclusive, lower alkyls and lower alkoxy of from 1 to 3 carbon atoms, nitro, and sulfonate; R₃ is hydrogen or a lower alkyl of 1 to 3 carbon atoms, B is an organic polymeric backbone attached to N by a covalent bond and characterized as having essentially no crosslinks and as being selected from among linear polyethyleneoxy backbones and linear polyalkylene backbones each having a molecular weight of from about 10,000 to about 150,000 Daltons, and n is a number from 10 to 4000.

4,316,919

SUNFLOWER-OIL-BASED EDIBLE FAT PRODUCT

Turiddu A. Pelloso, Danbury, and Lawrence Kogan, Stamford, both of Conn., assignors to Nabisco Brands, Inc., New York, N.Y.

Filed Sep. 19, 1980, Ser. No. 188,656

Int. Cl.³ A23D 3/02, 5/00

U.S. Cl. 426—603

13 Claims

1. A sunflower-oil-based edible fat product which exhibits an SFI profile within the following ranges

50° F. > 8%

70° F. > 3%

92° F. < 4%

and which comprises a blend of: (a) from 30 to 75% by weight of the fat product of a randomly interesterified first portion comprising from 30 to 100% hydrogenated sunflower oil and from 0 to 70% liquid sunflower oil, both based on the weight of the first portion; and (b) from 25 to 70% by weight of the fat product of a second portion comprising from 60 to 100% liquid sunflower oil containing at least 65% by weight linoleic acid, and up to 40% hydrogenated sunflower oil based on the weight of the portion; wherein the fat product contains, based on its combined weight, less than 21% total of palmitic and stearic acids, and from 32 to 55% linoleic acid.

4,316,920

THICK FILM RESISTOR CIRCUITS

John F. Brown, Emmaus, and Robert M. Stanton, Allentown, both of Pa., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jul. 3, 1980, Ser. No. 165,551

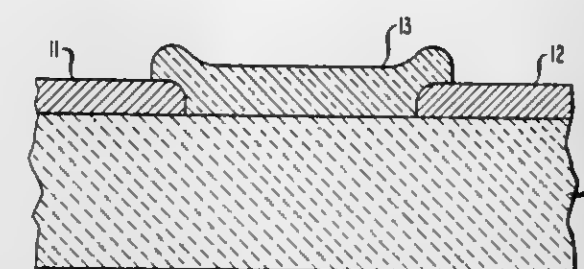
Int. Cl.³ H05K 3/12; H01C 17/06, 17/30

U.S. Cl. 427—96

10 Claims

1. A method for fabricating a thick film resistor circuit including copper conductors (11, 12) on a substrate (10) comprising the steps of depositing a paste including the copper on the substrate, heating the structure at a temperature sufficient to establish adhesion between the metallization and substrate, forming a resistor material (13) on said substrate and portions of the conductors, heating the resulting structure in an oxidizing atmosphere to establish a desired resistivity for the resistor material, and heating the structure in a reducing atmosphere to establish a desired resistivity for the conductor, characterized

in that the conductor paste includes glass frits so that adhesion is achieved by heating in an oxidizing atmosphere at a temperature in the range 600–1100 degrees C. and the metal oxide



resulting from the initial heating is reduced at a temperature in the range 250–400 degrees C. so as not to significantly affect the resistor material.

4,316,921

HIGH TEMPERATURE LUBRICATING PROCESS

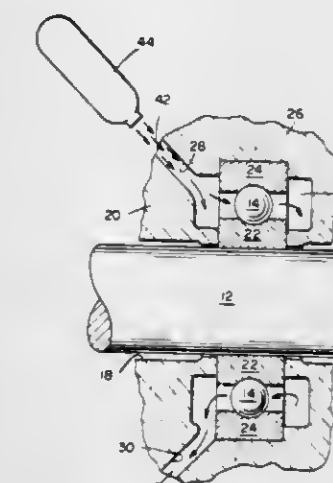
Robert W. Taylor, and Thomas E. Shell, both of Livermore, Calif., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Oct. 4, 1979, Ser. No. 81,987

Int. Cl.³ C23C 11/00

U.S. Cl. 427—249

46 Claims



1. A process for providing substantially without combustion, a solid friction reducing lubricant on a load bearing surface comprising:

contacting a load bearing surface with a gaseous phase including at least one component which reacts in a predetermined temperature range to produce a solid reaction product, said solid reaction product having lubricant properties; and

maintaining said load bearing surface within said predetermined temperature range at such times as said load bearing surface is contacted with said gaseous phase so that said solid reaction product deposits directly on said load bearing surface.

4,316,922

AQUEOUS EPOXY PHOSPHATE DISPERSIONS COMPRISING N-BUTANOL, N-HEXANOL AND ETHYLENE GLYCOL MONOBUTYL ETHER

Donald R. Perine, Missouri City, and Peter A. Lucas, Richwood, both of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Oct. 23, 1980, Ser. No. 200,223

Int. Cl.³ C08L 63/00; C08K 5/05, 5/06; B65D 23/02

U.S. Cl. 428—35

10 Claims

1. An aqueous coating composition, exclusive of catalysts and curing agents, comprising:

(1) a phosphorylated epoxide resins preparable by the reaction of a DGEBA-type polyether, polyol epoxide with

orthophosphoric acid and water and containing phosphomonoester (—O—PO(OH)₂) groups;

(2) at least enough of a tertiary aliphatic amine to render said resin water-dispersible, by salification of said ester groups, (3) water,

and,

(4) n-butanol, n-hexanol and butoxyethanol, in the proportions of from about 10 to about 30 parts of the butanol and from about 40 to about 20 parts of the hexanol per 50 parts by weight of the butoxyethanol.

4,316,923

PRECISION DIELECTRIC FILLED FERRITE TOROID FOR USE IN MICROWAVE DEVICES

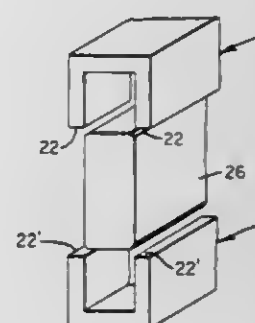
Frank R. Monforte, Los Altos, and Giltan M. Argentina, San Jose, both of Calif., assignors to Ampex Corporation, Redwood City, Calif.

Continuation of Ser. No. 757,705, Jan. 7, 1977, abandoned, which is a division of Ser. No. 567,757, Apr. 14, 1975, Pat. No. 4,007,541. This application Jun. 26, 1980, Ser. No. 162,299

Int. Cl.³ B32B 33/00; H01P 3/00; H01F 17/02

U.S. Cl. 428—68

2 Claims



1. A composite toroid including an outer toroid of a magnetic material of selected length, and having a centrally extending insert of similar length disposed therein, the composite toroid being further defined by:

a pair of physically distinct complementary magnetic material parts formed of fired ferrite, having smooth confronting surfaces and assembled together along the confronting surfaces to define a two-piece outer toroid, the latter further including a precisely machined slot centrally extending its full length therethrough to receive the insert of equally full length, said two-piece outer toroid of fired ferrite including distinct interface corresponding to the smooth confronting surfaces along the lengths thereof; wherein said two-piece outer toroid of fired ferrite exhibits the hysteresis loop characteristics of a single piece of the magnetic material; and

said insert extends within the full lengths of the assembled two-piece toroid with all surfaces of the insert in intimate contact with the respective confronting surfaces of the slot of the magnetic material parts along their entire lengths.

4,316,924

SYNTHETIC FUR AND PROCESS FOR PREPARATION THEREOF

Noribiro Minemura, Takatsuki; Manabu Toyao, Ibaraki; Tsukasa Kobayashi, and Mikio Tashiro, both of Matsuyama, all of Japan, assignors to Teijio Limited, Osaka, Japan

Filed Mar. 12, 1980, Ser. No. 129,667

Claims priority, application Japan, Mar. 26, 1979, 54-34216; Aug. 20, 1979, 54-104936; Sep. 26, 1979, 54-122528; Oct. 15, 1979, 54-131782; Jan. 24, 1980, 55-6291; Jan. 28, 1980, 55-7715; Feb. 4, 1980, 55-11430

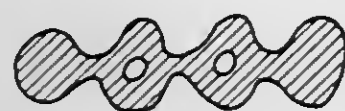
Int. Cl.³ B32B 3/02; D02G 3/00

U.S. Cl. 428—89

11 Claims

1. A synthetic fur comprising relatively long and thick guard

hair-like raised synthetic fibers, each having a transverse cross-section wherein at least one constricted part is formed, the end portions of a majority of said guard hair-like raised synthetic fibers being divided into plural fibers at the constricted part or parts in each of their transverse cross-sections,



and underfur-like raised synthetic fibers, each having a rate of dissolution in a solvent or of hydrolysis with a hydrolyzing agent higher than that of said guard hair-like raised synthetic fibers, and a length and fineness less than those of said guard hair-like raised synthetic fibers.

4,316,925

FIBER REINFORCED CEMENTITIOUS CASTINGS

John Delmonte, 1753 N. Allen Ave., Glendale, Calif. 91201

Filed Oct. 9, 1980, Ser. No. 195,335

Int. Cl.³ B32B 9/00

U.S. Cl. 428—105

17 Claims

1. A hardened structure comprising a coalesced cement-like material having as a discrete internal portion of the cross section of said structure a preformed composite reinforcement comprising a gathered plurality of substantially unidirectionally aligned fibers of carbon and,

a hardened binder material constituting the means for holding said gathered plurality of fibers in said alignment, said composite reinforcement having a coefficient of thermal expansion of predetermined value relative to the coefficient of thermal expansion of said coalesced cement-like material.

4,316,926

NON-SLIP MATERIAL FOR THE HAND

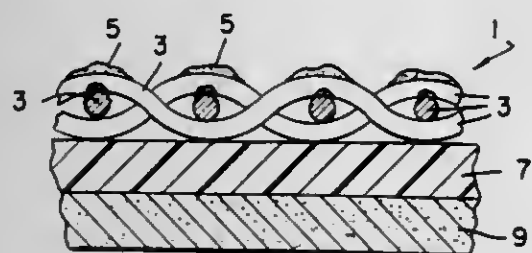
Bernard Kaminstein, 329 Franklin Pl., Paramus, N.J. 07652

Filed Jan. 25, 1979, Ser. No. 6,460

Int. Cl.³ B32B 3/10

U.S. Cl. 428—137

10 Claims



1. A non-slip material for the hand comprising, a web being formed with a plurality of pores, wherein said pores are sufficiently large so that the flesh of the hand will press into said pores when pressed against one surface of said web;

a coating comprising a tackifier being disposed on said one surface of the web but not on opposed web portions forming the inner periphery of said pores, so that when the hand presses onto the one surface, part of the flesh of hand is free to move into the pores while another part on the hand is retained on the one surface by said coating; and a supporting substrate, and means to bond the opposite surface of the web to said substrate; said substrate being formed so as to engage a handle to be gripped and wherein said substrate is compressible, so that the part of the flesh of the hand in moving into the pores compresses the substrate and provides a slip-resistant grip to the handle.

4,316,927

MAGNETIC RECORDING MEDIUM

Shigeo Kimura, and Toshihiko Yamada, both of Tagajo, Japan,

assignors to Sony Corporation, Tokyo, Japan

Filed Feb. 2, 1979, Ser. No. 8,766

Claims priority, application Japan, Feb. 9, 1978, 53-13860

Int. Cl.³ G11B 5/68

U.S. Cl. 428—216

5 Claims

1. In magnetic recording medium of the type in which a magnetic layer composed of magnetic powder dispersed in a resinous binder is carried by a flexible non-magnetic base, wherein the improvement comprises:

said magnetic layer having an unbalanced longitudinal and transverse tensile strength relationship comprising: a layer having a thickness of between 2 to 5 microns; a Young's modulus of from 700 to 1400 kg/mm² in the longitudinal direction; and a Young's modulus of from 400 to 1100 kg/mm² in the direction transverse to the longitudinal direction, wherein the ratio of the longitudinal Young's modulus to the Young's modulus in the direction transverse thereto is from 1.3 to 1.9; and

said non-magnetic base having an unbalanced longitudinal and transverse tensile strength relationship comprising: a layer having a thickness of between 6 to 14 microns; a Young's modulus of not less than 350 kg/mm² in the longitudinal direction; and a Young's modulus of not less than 500 kg/mm² in the direction transverse to the longitudinal direction, wherein the ratio of the longitudinal Young's modulus to the Young's modulus in the direction transverse thereto is from 0.5 to 0.9.

4,316,928

MECHANICALLY SURFACE FINISHED TEXTILE MATERIAL

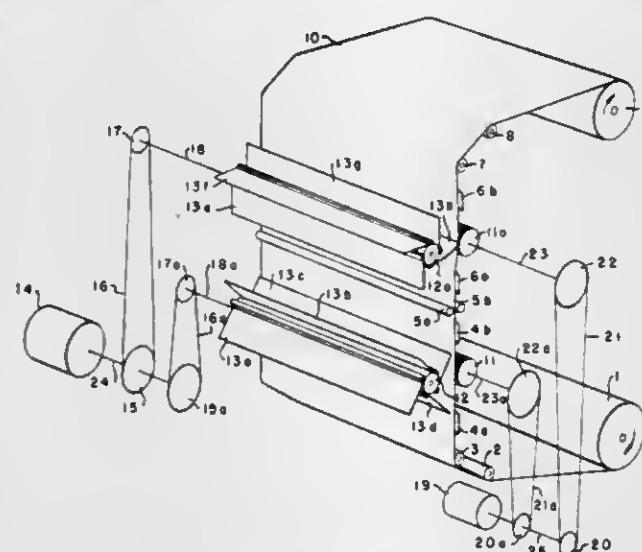
Wolfgang K. F. Otto, Spartanburg, S.C., assignor to Milliken Research Corporation, Spartanburg, S.C.

Filed Nov. 9, 1979, Ser. No. 92,815

Int. Cl.³ D03D 3/00

U.S. Cl. 428—229

5 Claims



1. An interlaced textile material having a body portion containing a plurality of fibers, of which at least about 20 percent by weight are synthetic fibers, in which said fibers have a curvature and are arranged so as to have convex side portions and concave side portions, the convex side portions which are exposed being substantially scarred and containing a multiplicity of generally short, rather thick, lamella shaped protrusions of an average length of less than about 0.05 mm. extending therefrom; said protrusions being of substantially the same chemical composition and molecular weight as the synthetic fibers from which they are formed; and said scarring resulting at least in part from deficiencies formed in the body of said fibers wherefrom said protrusions are formed.

4,316,929

HOT MELT SIZING COMPOSITIONS COMPRISING AN ACRYLIC ACID-ALKYL (METH)ACRYLATE TERPOLYMER

John M. McIntire; James M. Hawkins, and Raymond N. Vachon, all of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 30, 1979, Ser. No. 34,227

Int. Cl.³ B32B 27/04; C08K 5/09; C08F 20/64, 22/04

U.S. Cl. 428—262

8 Claims

1. A hot melt textile sizing composition comprising a terpolymer of

(a) about 50 to about 70% by weight of at least one alkyl acrylate wherein the alkyl group contains from 1 to 4 carbon atoms, (b) about 20 to about 40% by weight of at least one alkyl methacrylate wherein the alkyl group contains from 1 to 4 carbon atoms, and (c) about 10% by weight acrylic acid or salt thereof, said terpolymer being dispersible in dilute sodium carbonate, and having a glass transition temperature of between 22° and about 40° C. and an I.V. of between about 0.1 and about 0.15 measured at 23° C. using 0.5 gram of polymer per 100 ml of a solvent consisting of a 60/40 mixture phenol/tetrachloroethanol.

4,316,930

HEAT-RESISTANT COMPOSITE MATERIAL FOR HOT GLASS HANDLING AND METHOD OF MAKING SAME USING A PHENYL POLYSILOXANE COATING

Edward J. Stengle, Jr., Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Oct. 24, 1980, Ser. No. 200,177

Int. Cl.³ B32B 17/04, 17/10, 27/12, 33/00

U.S. Cl. 428—266

14 Claims

1. A heat-resistant, relatively-rigid, composite material adapted to handling hot glass articles, and the like, comprising a tightly interwoven fabric substrate formed from extremely thin glass fibers, and a continuous heat-cured coating of essentially all phenyl polysiloxane resin having a finely-divided filler of heat-resistant particulate carbonaceous material therein extending over the glass-contacting surface and fully penetrating the said substrate.

9. The method of making a heat-resistant, relatively-rigid composite material adapted to handling hot glass articles, and the like, comprising the steps of cutting to size a lengthy ribbon of tightly interwoven flexible fabric substrate comprised of extremely thin glass fibers, coating both surfaces of said fabric substrate with a continuous layer of essentially all phenyl polysiloxane resin having a finely-divided filler of heat-resistant particulate carbonaceous material therein, and heat-curing the said layer of polysiloxane resin and carbonaceous filler fully penetrating the said fabric substrate into a relatively-rigid structure.

4,316,931

PLANAR TEXTILE STRUCTURE WITH IMPROVED HEAT RETENTION

Kurt Tischer, Hemsbach; Bohuslav Tecl, and Walter Föttinger, both of Weinheim, all of Fed. Rep. of Germany, assignors to Firma Carl Freudenberg, Weinheim, Fed. Rep. of Germany

Filed Feb. 25, 1980, Ser. No. 124,334

Claims priority, application Fed. Rep. of Germany, Apr. 11, 1979, 2914616; Apr. 11, 1979, 7910585[U]

Int. Cl.³ B05D 3/02, 5/00; B32B 27/34; D04H 1/58

U.S. Cl. 428—267

6 Claims

1. A method for improving the heat retention of a planar textile structure comprising:

(a) applying to at least one surface of said structure a dispersion comprised of: (i) a carrier liquid; (ii) a binder material capable of being cross-linked; and (iii) 10 to 50% by weight, based on the solids content of

the dispersion, of a metallic powder having an average grain size between 3 and 90 μm, the solids content of said dispersion being no greater than 50% by weight; (b) immediately thereafter subjecting said applied dispersion to conditions effective to cross-link and solidify said binder prior to the complete removal of the carrier liquid from the dispersion; and (c) thereafter removing any remaining carrier liquid from the structure, whereby said metallic powder is arranged on the fibers of the textile structure in a porous layer of the cross-linked binder and is covered on the surface thereof by a thin skin of the cross-linked binder material.

5. A planar textile structure with improved heat retention made according to the process of claim 1.

4,316,932

COMBATING FUNGI WITH α-AZOLYL-KETO DERIVATIVES

Eckart Kranz; Wolfgang Krämer; Karl H. Büchel, all of Wuppertal; Wilhelm Brandes, Leichlingen, and Paul-Ernst Froberger, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jul. 2, 1979, Ser. No. 54,067

Claims priority, application Fed. Rep. of Germany, Jul. 21, 1978, 2832234

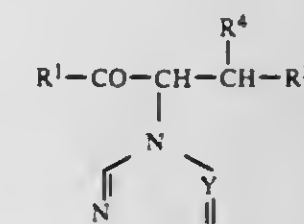
The portion of the term of this patent subsequent to Sep. 22, 1998, has been disclaimed.

Int. Cl.³ A01N 43/50, 43/82; C07D 233/60, 249/08

U.S. Cl. 424—269

7 Claims

1. An α-azolyl-keto derivative of the formula



in which R¹ represents C₁₋₄-alkyl; C₁₋₄-alkyl substituted by at least one substituent selected from the group consisting of halogen, C₁₋₄-alkylcarbonyloxy, optionally substituted phenylcarbonyloxy, C₁₋₄-alkyl- or dialkyl-carbamoyloxy, C₁₋₄-alkylsulphonyloxy, optionally substituted phenylsulphonyloxy, C₁₋₄-dialkylaminosulphonyloxy, C₁₋₄-dialkylaminosulphonyloxy, C₁₋₄-alkoxy and optionally substituted phenoxy wherein aforementioned optional substituents are selected from the group consisting of halogen, cyano, nitro, C₁₋₄-alkyl, C₅₋₇-cycloalkyl, halogenomethyl, halogenoethyl, and phenyl, phenoxy or benzyl, the last three radicals optionally being substituted by halogen, cyano or nitro;

R² represents the grouping —CX¹X²R³ or C₁₋₄-alkoxycarbonyl;

R³ represents halogen or halogeno-C₁₋₄-alkyl;

R⁴ represents the grouping —O—CO—R⁵;

R⁵ represents C₁₋₈-alkyl, C₂₋₄-alkenyl or alkynyl, halogeno-C₁₋₄-alkyl, with 1 to 5 halogen atoms, C₅₋₇-cycloalkyl, phenyl, benzyl, phenylethyl, phenyl, benzyl or phenylethyl substituted in the phenyl part with halogen, cyano, nitro or C₁₋₂-alkyl, C₁₋₄-alkylamino or dialkylamino, phenylamino, phenylamino substituted with halogen, nitro, cyano, C₁₋₄-alkyl, methoxy, ethoxy, methylthio, ethylthiohalogenomethyl or halogenoethyl;

X¹ and X² each independently represents hydrogen, fluorine, chlorine or bromine; and

Y is a nitrogen atom or the CH group; or an addition salt thereof with an acid selected from the group consisting of a hydrogen-halide acid, phosphoric acid, nitric acid, sulphuric acid, a carboxylic acid and a sulphonic acid, or a metal salt complex thereof, the metal of the salt being selected from main groups II to IV and sub-groups, I, II and IV to VIII of the Periodic Table and the anion of the

salt being derived from a hydrogen halide acid, sulphuric acid, nitric acid or phosphoric acid.

6. A method of combating fungi which comprises applying to the fungi, or to a habitat thereof, a fungicidally effective amount of a compound according to claim 1.

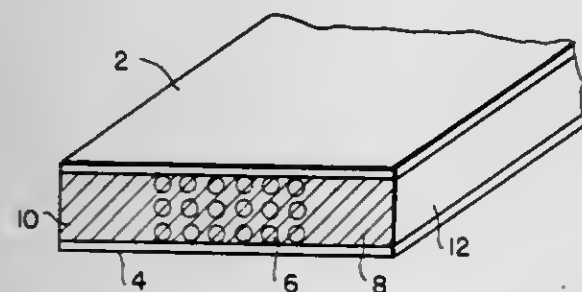
4,316,933

TAPE FOR USE AS THE WARP AND WEFT OF WOVEN FABRICS PARTICULARLY USEFUL FOR PACKAGING
Ian E. B. Fraser, The Coach House, Emberton Nr. Olney, Bucks, England

Continuation-in-part of Ser. No. 35,412, May 2, 1979, abandoned. This application Jul. 24, 1980, Ser. No. 171,953
Int. Cl.³ B32B 5/04, 5/28

U.S. Cl. 428—294

2 Claims



1. A reinforced laminated flat tape suitable for weaving into fabric, comprising two outer layers each formed of a sheet material having a non-tacky outer surface and of prescribed positive friction, and an intermediate layer comprising an elongate thread of continuous filaments formed of high tensile synthetic material which extends longitudinally of the length of the tape and are spread to even thickness across the central part and most of the width of the tape but terminate laterally inward of each lateral edge of the tape, and a bonding material applied between the outer layers and across the full width of the tape securing the spread filaments together and to each sheet layer over the entire tape width and effecting a sheet to sheet only connection laterally outwardly of each lateral edge of the filaments and up to each edge of the tape.

4,316,934

METHOD FOR MAKING LAMINATES COMPRISING A HARD FOAM LAYER AND A FIBER-REINFORCED SYNTHETIC RESIN LAYER

Leonhard Maier, Rodgau, and Wolfgang Pip, Darmstadt, both of Fed. Rep. of Germany, assignors to Röhm GmbH, Darmstadt, Fed. Rep. of Germany

Filed Jun. 30, 1980, Ser. No. 164,564

Claims priority, application Fed. Rep. of Germany, Jul. 5, 1979, 2927122

Int. Cl.³ B32B 5/18, 5/16; B29D 27/00

U.S. Cl. 428—308.4

2 Claims

1. A method for making a laminate comprising a hard foam layer and a fiber-reinforced synthetic resin layer, which method comprises heating and compressing, in two steps, at least one layer of a high-temperature resistant hard foam having a high compressive strength at room temperature and at least one layer of a fiber-containing synthetic resin capable of flowing and of hardening when heated, wherein in a first step, the temperature and pressure employed are sufficient for initiating flow of the synthetic resin and are applied until the synthetic resin has completed flowing, said pressure having a value exceeding the compressive strength of the foam at the temperature employed but not exceeding its compressive strength at room temperature and, wherein in a second step, at a temperature and for a time sufficient to complete hardening of the synthetic resin, pressure is applied which does not exceed the compressive strength of the foam at the temperature used.

2. A laminate, prepared by the method of claim 1.

4,316,935

POLYISOCYANURATE FOAM AND LAMINATES THEREOF AND PROCESS FOR PRODUCING THEM

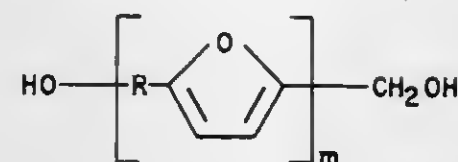
Ernest K. Moss, Clearwater, Fla., assignor to The Celotex Corporation, Tampa, Fla.

Continuation-in-part of Ser. No. 19,374, Mar. 12, 1979, abandoned. This application Nov. 14, 1980, Ser. No. 206,912

Int. Cl.³ C08G 18/62, 18/76; B32B 27/00

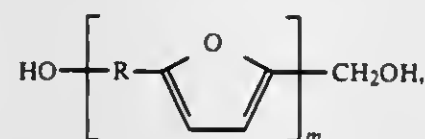
U.S. Cl. 428—304.4

17 Claims



1. A foam characterized by the presence of isocyanurate groups and by a friability of no greater than 21 percent, as measured by the ASTM C-421 friability test, which is the reaction product of:

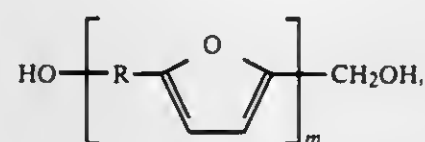
A. polymethylene polyphenyl isocyanate and
B. a furan resin of the formula



wherein R is $-\text{CH}_2-$ or $-\text{CH}_2-\text{O}-\text{CH}_2-$, and the average value of m is such that the furan resin has a viscosity of up to 50,000 centipoises at 25° C.

17. A laminate comprising a foam having facing sheets fixedly attached to its upper and lower surfaces, the foam being characterized by the presence of isocyanurate groups and by a friability of no greater than 21 percent, as measured by the ASTM C-421 friability test, and being the reaction product of:

A. polymethylene polyphenyl isocyanate and
B. a furan resin of the formula



wherein R is $-\text{CH}_2-$ or $-\text{CH}_2-\text{O}-\text{CH}_2-$, and the average value of m is such that the furan resin has a viscosity of up to 50,000 centipoises at 25° C.

4,316,936

SEALING OF CERAMIC AND CERMET PARTS, SEALING MATERIAL THEREFOR AND CERAMIC SEAL OBTAINED

Peter Hing, London, England, assignor to Thorn Electrical Industries Limited, London, England

Filed Sep. 4, 1979, Ser. No. 72,248

Claims priority, application United Kingdom, Sep. 6, 1978, 35720/78

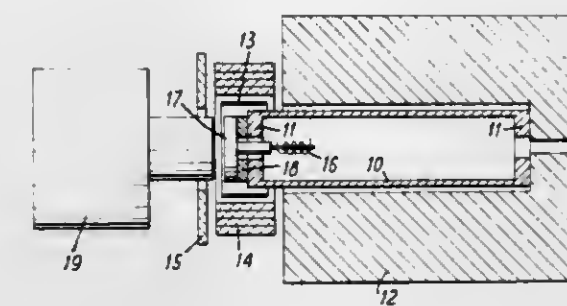
Int. Cl.³ B32B 5/16, 9/00; C04B 35/66

U.S. Cl. 428—325

6 Claims

1. A particulate sealing material for use in preparing hermetic seals between ceramic and cermet members, which material comprises at least 70 wt. % of a refractory oxide selected from alumina, magnesium aluminate spinel, a rare earth oxide, magnesia, thoria and stabilized zirconia and minor

quantities of a non-vitreous additive comprising SiO_2 , MgO and B_2O_3 .



5. A material as claimed in claim 1 comprising refractory oxide granules coated with finer particles of said additive.

4,316,937

WATER ABSORBENT ACRYLIC FIBER

Hiro Yoshi Tanaka, Shigeru Fujii, and Mitsuo Suzuki, all of Ehime, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Continuation of Ser. No. 1,399, Jan. 5, 1979, abandoned. This application Feb. 8, 1980, Ser. No. 119,677

Claims priority, application Japan, Jan. 19, 1978, 53/4473

Int. Cl.³ D02G 3/00

U.S. Cl. 428—376

6 Claims



1. A water absorbent acrylic fiber having a porous core and a skin structure which is denser than said core, comprising a blended polymer which comprises about 90-99.9% by weight of an acrylic polymer co-blended with about 0.01-10% by weight of acrylonitrile-styrene copolymer which is miscible with but substantially incompatible with said acrylic polymer, said acrylonitrile-styrene copolymer (B) being a copolymer consisting of about 20-30% by weight of acrylonitrile and about 70-80% by weight of styrene, and said acrylic polymer being an acrylonitrile polymer comprising about 90-100 mol% of acrylonitrile, 0-10 mol% of an ethylenically unsaturated comonomer and about 0-0.3 mol% of a monoethylenic vinyl monomer containing sulfonic acid group, said fiber containing a mixture of microvoids and macrovoids.

4,316,938

HIGH DENSITY CARBON ADSORBENT COMPOSITE
George M. J. Slusarczuk, Schenectady, and Ronald E. Brooks, Gunderland, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Continuation of Ser. No. 726,963, Sep. 27, 1976, abandoned. This application Aug. 17, 1979, Ser. No. 67,335

The portion of the term of this patent subsequent to May 6, 1997, has been disclaimed.

Int. Cl.³ B22F 1/02

U.S. Cl. 428—403

12 Claims

1. A process for producing an adsorbent composite having a minimum specific gravity of about 2.0 consisting essentially of substrate particle at least substantially encapsulated with activated carbon, said activated carbon having a minimum surface area of about 200 square meters per gram and being adherently bonded to said substrate particle, which consists essentially of

providing a substrate particle having a minimum specific gravity of about 2.0 and a particle size ranging from about 100 Angstroms to about 10 millimeters in diameter, providing an organic material which is a solid at room temperature and which at a temperature ranging from about 50° C. to about 1000° C. at atmospheric pressure decomposes to yield elemental carbon and gaseous product of decomposition, admixing a plurality of said substrate particles with said organic material to form a substantially uniform mixture, heating said mixture in a substantially oxygen-free atmosphere to decompose said organic material yielding elemental carbon and gaseous product of decomposition, and grinding the resulting carbon-substrate particle mass to produce said composite of a predetermined size ranging from about one micron to about 10 millimeters in diameter.

4,316,939

PROCESS FOR THE APPLICATION OF AN ANTI-CORROSIVE COATING UPON METALLIC OBJECTS, ESPECIALLY BOTTLES FOR LIQUEFIED GAS

Daniel Guyomard, Lamorlaye, France, assignor to Helic Van Cauwenberghe, Le Bourget, France

Filed Mar. 28, 1980, Ser. No. 135,130

Claims priority, application France, Mar. 29, 1979, 79 07884
Int. Cl.³ B05D 1/04

U.S. Cl. 428—413

13 Claims

1. A process for applying an anti-corrosive coating upon a metallic object comprising:

shot cleaning the surface of the metallic object to be protected,

painting said surface with a paint containing more than about 90% by weight of pulverulent zinc in relation to the dry extract of said paint,

applying by electrostatic means a powdered resin capable of adhering to zinc when polymerized, followed by polymerizing said powdered resin to complete said anti-corrosive coating

said paint comprises a binding agent which is a partially hydrolyzed organic silicate.

12. Metallic objects having an anti-corrosive coating applied by a process according to one of claims 1 and 11.

13. A metallic object as in claim 12 which is a liquefied gas bottle.

4,316,940

HIGH-SOLIDS POLYESTER AND AMINOPLAST COATING COMPOSITION

Glenn D. Thornley, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 132,501, Mar. 21, 1980,

abandoned. This application Aug. 7, 1980, Ser. No. 175,849
Int. Cl.³ B32B 27/36, 27/38; C08L 63/00

U.S. Cl. 428—413

13 Claims

1. A coating composition of a film-forming blend and a solvent for the blend wherein the blend is at least 50% by weight of the combined weight of the blend and the solvent and consists essentially of

(a) 30-70% by weight, based on the weight of the blend, of a polyester polyol that is the reaction product of

(1) pentaerythritol and at least one branched-chain glycol selected from the group consisting of neopentyl glycol, pinacol, and mixtures of these, wherein the molar ratio of glycol to pentaerythritol is from 2:1 to 6:1,

(2) an aromatic or aliphatic monocarboxylic acid, or mixtures thereof, having no more than 18 carbon atoms, wherein the molar ratio of monocarboxylic acid to pentaerythritol is from 1:1 to 2.5:1, and

(3) a mixture of an aromatic and an aliphatic dicarboxylic acid wherein the molar ratio of aromatic acid to aliphatic acid is from 2:1 to 6:1,

wherein the polyol has a hydroxyl content of 5-9% by weight;

- (b) 4-35% by weight, based on the weight of the blend, of an epichlorohydrin-bisphenol-A epoxy resin, the esterification product of said resin with a monocarboxylic acid, or mixtures of these; and
- (c) 25-35% by weight, based on the weight of the blend, of an aminoplast resin.

4,316,941

RUBBER STOPPER FOR SEALING

Tsukasa Eguchi, Tokyo, and Mitubaru Morozumi, Yokohama, both of Japan, assignors to Asahi Glass Company Ltd., Tokyo and Kashima Kagaku, Co., Ibaraki, both of Japan

Filed Sep. 26, 1980, Ser. No. 190,957

Claims priority, application Japan, Oct. 2, 1979, 54-126389

Int. Cl.³ B32B 27/30; B65D 39/00

U.S. Cl. 428-421

11 Claims

1. A rubber stopper for sealing which comprises a rubber stopper substrate coated with a fluorine-containing elastomer comprising a graft copolymer having rubber-like elasticity comprising a fluorine-containing polymer linked to an organopolysiloxane, wherein said fluorine-containing polymer has a number average degree of polymerization in the range of 50 to 10,000 and said organopolysiloxane has a number average degree of polymerization in the range of 50 to 50,000.

2. The rubber stopper according to claim 1, wherein the fluorine-containing polymer is a terpolymer of tetrafluoroethylene, propylene, and glycidyl vinyl ether, the organopolysiloxane is a copolymer of dimethyl siloxane or methyl trifluorosiloxane and a siloxane having an amino-containing side chain, and wherein said fluorine-containing polymer is linked to said organopolysiloxane by a linking group having the formula



wherein R represents hydrogen or an alkyl group.

4,316,942

THICK FILM COPPER CONDUCTOR CIRCUITS

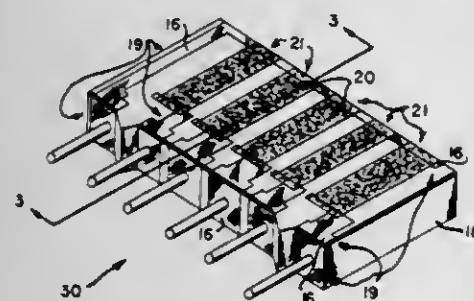
Charles C. Y. Kuo, Elkhart, Ind., assignor to CTS Corporation, Elkhart, Ind.

Filed Oct. 6, 1980, Ser. No. 194,477

Int. Cl.³ B32B 15/20; B05D 5/12; H01C 1/012

U.S. Cl. 428-432

8 Claims



1. A thick film circuit bonded to a nonconductive substrate comprising a copper-and-frit mixture conductor applied to said substrate, said copper-and-frit mixture conductor comprising the reaction product of a mixture of copper and essentially pure, deleterious metal free glass frit fired in air at a temperature of about 850° C. to 950° C. to bond said mixture to the substrate with the glass frit serving as an intermediate bonding agent, and a resistive path disposed upon said copper-and-frit mixture conductor and said substrate, the resistive path being the reaction product of an oxidizable resistive material air-fired at a temperature of 850° C. to 950° C. subsequently to the firing of said mixture of copper and frit, said resistive path and copper-and-frit mixture conductor being the conjoint reaction product of heating the oxidized resistive path and copper-and-

frit mixture conductor in a reducing atmosphere subsequently to the firing of said resistive path.

4,316,943

WATER-INSENSITIVE ELECTROCONDUCTIVE ARTICLE COMPRISING A SUBSTRATE COATED WITH POLYMERS OF DIALLYLDIMETHYL-AMMONIUM CHLORIDE AND N-METHYLOLACRYLAMIDE AND METHOD OF COATING

Gloria D. Sinkovitz, Bridgeville, and Kenneth W. Dixon, Drexel Hill, both of Pa., assignors to Calgon Corporation, Pittsburgh, Pa.

Continuation of Ser. No. 117,725, Feb. 1, 1980, abandoned, which is a continuation-in-part of Ser. No. 59,418, Jul. 20, 1979, abandoned, which is a division of Ser. No. 968,328, Dec. 11, 1978, abandoned, which is a continuation-in-part of Ser. No. 864,347, Dec. 27, 1977, abandoned. This application Dec. 12, 1980, Ser. No. 215,955

Int. Cl.³ B32B 27/06; C08F 34/00

U.S. Cl. 428-475.8

13 Claims

1. An electroconductive article which comprises a substrate and a layer of a coating composition which contains a cross-linked water-insensitive copolymer containing at least 15, but less than 30, percent by weight N-methylolacrylamide and from 70 to 85 percent by weight diallyldimethylammonium chloride.

9. A method of making an electroconductive article which comprises coating a substrate with at least 0.1 pound per 3000 square feet of a copolymer which contains at least 15, but less than 30, percent by weight N-methylolacrylamide and from 70 to 85 percent by weight diallyldimethylammonium chloride.

4,316,944

NOBLE METAL-CHROMIUM ALLOY CATALYSTS AND ELECTROCHEMICAL CELL

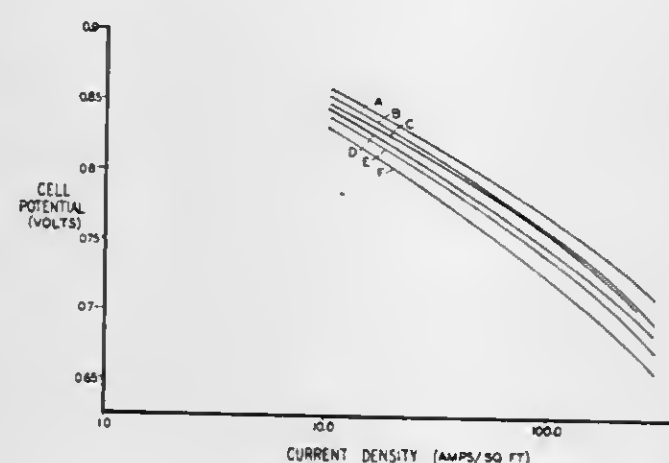
Douglas A. Landsman, West Hartford, and Francis J. Luczak, Glastonbury, both of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Jun. 18, 1980, Ser. No. 160,517

Int. Cl.³ H01M 4/86

U.S. Cl. 429-44

8 Claims



1. An electrochemical cell comprising a cathode electrode including a noble metal-base metal alloy oxygen reducing catalyst, said catalyst comprising a platinum-chromium alloy with a catalytic activity for the reduction of oxygen at least twice that of the platinum in unalloyed form wherein the surface area of the alloy is at least 30 m²/g of platinum in the alloy.

6. A noble metal-base metal alloy catalyst for use in the catalytic reduction of oxygen consisting of a platinum-chromium alloy catalyst containing up to about 30 atomic percent chromium, the surface area of platinum in the alloy being at least 30 m²/g and having catalytic oxygen reduction activity at least twice that of the unalloyed platinum.

4,316,945

BUTTON CELL ELECTRODE AND METHOD OF MANUFACTURE

Douglas H. Marcham, Crewkerne, and Kenneth A. Reichter, Bridport, both of England, assignors to Varta Limited, Crewkerne, England

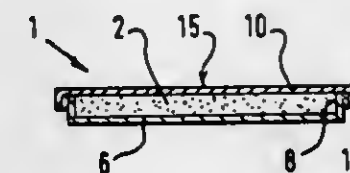
Filed Sep. 2, 1980, Ser. No. 183,421

Claims priority, application United Kingdom, Oct. 4, 1979, 34384/79

Int. Cl.³ H01M 4/76, 4/04

U.S. Cl. 429-222

14 Claims



1. A mass plate electrode for a button cell comprising:

(a) a mass of active material having first and second surfaces and a side surface interconnecting the first and second main surfaces;

(b) a cup of liquid-permeable metal sheet having a base portion adjacent the first main surface of the mass, a side-wall portion adjacent the side surface of the mass and a peripheral closure portion;

(c) a lid having an inner portion adjacent the second main surface of the mass and a peripheral closure portion held by the peripheral closure portion of the cup; and

(d) the peripheral closure portions of the cup and the lid being bent so as to embrace the side wall portion of the cup.

4,316,946

SURFACE SENSITIZED CHALCOGENIDE PRODUCT AND PROCESS FOR MAKING AND USING THE SAME

Joseph I. Masters, Cambridge; Gershon M. Goldberg, Arlington, and Jerome M. Lavine, Lincoln, all of Mass., assignors to Ionomet Company, Inc., Brighton, Mass.

Filed Dec. 3, 1979, Ser. No. 99,581

Int. Cl.³ G03C 1/76, 5/00

U.S. Cl. 430-9

12 Claims

1. A photosensitive product for the formation of microlithographic resists, masks and the like comprising a substrate, a layer of an etchable chalcogenide glass on said substrate, and an extremely thin deposit of silver on the surface of said chalcogenide glass, said silver deposit being thinner than about 100 Å., said silver deposit being formed by depositing binderless silver halide thereon and photographically reducing and fixing said silver halide in the absence of exposure to activating radiation.

4,316,947

CADMIUM SULFIDE FOR ELECTROPHOTOGRAPHY

Kiyoshi Suzuki, Yokohama, and Hirokuni Kawashima, Tokyo, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 8, 1980, Ser. No. 184,752

Claims priority, application Japan, Sep. 13, 1979, 54-117779 The portion of the term of this patent subsequent to Apr. 8, 1997, has been disclaimed.

Int. Cl.³ G03G 5/08, 5/087

U.S. Cl. 430-94

3 Claims

1. Cadmium sulfide for electrophotography which is produced by reacting hydrogen sulfide with a solution containing cadmium sulfate, sulfuric acid and hydrochloric acid of a low concentration, and then firing the resulting cadmium sulfide without adding a donor impurity other than that derived from the hydrochloric acid.

4,316,948

PHOTOCONDUCTIVE CDS POWDER MATERIAL FOR ELECTROPHOTOGRAPHY

Yuji Nishigaki, Yokohama; Masanao Kasai, Tokyo, and Kazumi Okano, Fuchu, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

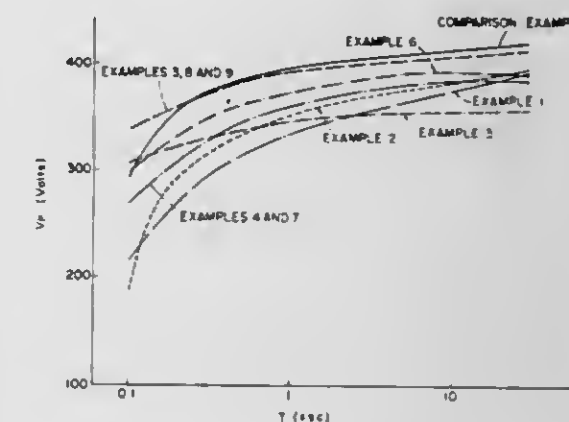
Filed Sep. 12, 1980, Ser. No. 186,582

Claims priority, application Japan, Sep. 19, 1979, 54-121288

Int. Cl.³ G03G 5/087

U.S. Cl. 430-94

12 Claims



1. A photoconductive material for electrophotography which comprises photoconductive cadmium sulfide particles to the surface of which is attached an inorganic compound selected from the group consisting of metallic and semiconductive hydroxides, oxides and sulfides.

3. An electrophotographic photosensitive member which comprises a photoconductive layer comprising photoconductive cadmium sulfide particles, to the surface of which is attached an inorganic compound selected from the group consisting of metallic and semiconductor hydroxides, oxides and sulfides, and a binder resin in which the photoconductive cadmium sulfide particles are dispersed.

4,316,949

PHOTOREACTIVE OLIGOMER COMPOSITION AND PRINTING PLATE

Pano C. Petrellis, Lake Elmo; Larry A. Lien, Forest Lake, and Wesley E. Zarr, Lake Elmo, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Dec. 14, 1979, Ser. No. 103,712

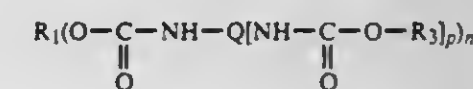
Int. Cl.³ G03C 1/76, 1/52

U.S. Cl. 430-159

13 Claims

1. A negative acting lithographic printing plate comprising an aluminum substrate having at least one surface thereof silicated and coated with an oligomeric diazonium resin and having coated on said diazonium resin a photoreactive composition comprising:

(a) 30-75% by weight of an oligomer of the formula



wherein R₁ is the residue of an organic alcohol or a polyol having n hydroxyl groups removed therefrom, R₃ is an acryloyl or methacryloyl containing group,

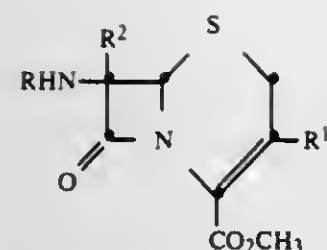
Q is the residue of a polyisocyanate having p+1 isocyanate groups removed therefrom,

p is a positive whole integer,

n is a positive whole integer of at least 2, and

n and p are such that the oligomer has at least 5 acryloyl or methacryloyl groups,

(b) 10-50% by weight of an organic polymeric binder, (c) 0.1 to 10% by weight of an organic solvent soluble photosensitive oligomeric diazonium resin, and



wherein

R is hydrogen or $R^3CH(NH_2)CO-$; R^1 is methyl, chloro, acetoxymethyl, methoxy, methoxymethyl, aminocarbonyloxymethyl, methylthiadiazolylthiomethyl or methyl-tetrazolylthiomethyl;

R^2 is hydrogen or methoxy;

R^3 is phenyl, cyclohexadienyl, cyclohexadienyl monosubstituted with hydroxy, or phenyl mono- or disubstituted with halo, hydroxy, C_1-C_3 alkyl or C_1-C_3 alkoxy; which process comprises contacting the methyl ester with the enzyme produced by culturing *Streptomyces capillispira* under enzyme-producing conditions.

4,316,958 PROCESS FOR PRODUCING OPTICALLY ACTIVE CEPHALOSPORIN ANALOGS

Tadashi Hirata, Yokohama; Yukio Hashimoto, Yamato; Takehiro Ogasa; Shigeru Kobayashi, both of Machida; Ikuro Matsukuma, Yokkaichi, and Kazuo Kimura, Hofu, all of Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

Filed Feb. 7, 1980, Ser. No. 119,451

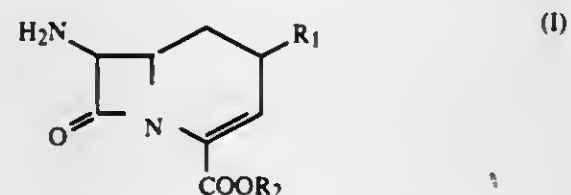
Claims priority, application Japan, Feb. 10, 1979, 54-14553; Aug. 24, 1979, 54-107070

Int. Cl.³ C12P 17/18

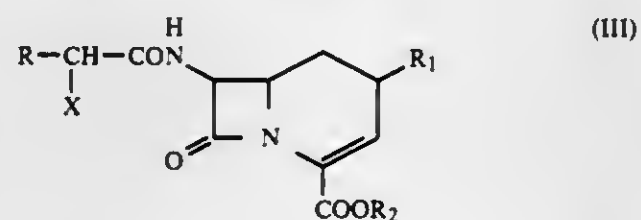
U.S. Cl. 435—119

5 Claims

1. A process for producing an optically active compound represented by the general formula (I)



wherein R_1 represents a hydrogen or a lower alkyl group, R_2 represents a hydrogen or a protective group of carboxylic acid, and the hydrogens at the 6- and 7-positions have a cis configuration, which comprises reacting an optically inactive dl-compound represented by the formula (III)



wherein R represents a substituted or unsubstituted unsaturated six-membered carbocyclic or five- or six-membered heterocyclic group, wherein said substituent is a hydroxy group, halogens, a nitro group or a methanesulfonamide group, X represents a hydrogen atom, an amino group, a hydroxy group or a lower alkyl group, R_1 and R_2 have the same significance as defined above, and the hydrogens at the 6- and 7-positions have a cis configuration, with an enzyme capable of optically selective deacylation and obtainable from a microorganism to optically selectively eliminate the acyl group at the 7-position of the compound represented by the formula III, and thereafter recovering said optically active compound.

4,316,956 FERMENTATION PROCESS Niels W. Lütze, Ballerup, Denmark, assignor to Novo Industri A/S, Denmark

Filed Feb. 6, 1980, Ser. No. 119,034

Int. Cl.³ C12P 19/20

U.S. Cl. 435—96

8 Claims

1. A fermentation process which consists essentially of fermenting a 10%–45% w/w aqueous slurry of granular starch for the production of ethanol with an ethanol producing microorganism in the presence of alpha-amylase and gluco-amylase, the conduct of said fermentation being characterized by low levels of dextrin and fermentable sugars in solution in the fermentation broth throughout the fermentation, and, thereafter recovering enzymes from the fermentation broth for use anew in fermentation of granular starch.

4,316,957 PROCESS FOR THE PRODUCTION OF 7-DEAZAADENOSINE AND 7-DEAZAINOSINE

Takashi Nara, Tokyo; Ryo Okachi, Machida; Isao Kawamoto, Hiratsuka; Tomoyasu Sato, and Tetsuo Oka, both of Machida, all of Japan, assignors to Abbott Laboratories, North Chicago, Ill.

Filed Apr. 4, 1978, Ser. No. 893,433

Claims priority, application Japan, Apr. 4, 1977, 52-38358

Int. Cl.³ C12P 17/18

U.S. Cl. 435—119

6 Claims

1. A process for the production of 7-deazaadenosine and 7-deazainosine which comprises culturing a microorganism belonging to the genus *Micromonospora* and having the identifying characteristics of *Micromonospora chalybeata* subsp. *tuberculosis* NRRL 11107 or a mutant thereof capable of producing at least one of said 7-deazaadenosine and 7-deazainosine in a nutrient medium until substantial antibacterial activity is detected in the culture liquor and thereafter isolating at least one of said 7-deazaadenosine and 7-deazainosine from said liquor.

4,316,959 PROCESS FOR PRODUCTION OF ANTIBIOTIC FROM STREPTOMYCES

Karl H. Michel, and Marvin M. Hoehn, both of Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Filed Apr. 28, 1980, Ser. No. 144,470

Int. Cl.³ C12P 17/12

U.S. Cl. 435—122

2 Claims

1. The method of producing the A-32256 antibiotic, which comprises cultivating *Streptomyces* sp. NRRL 12067, or an A-32256-producing variant or mutant thereof, in a culture medium containing assimilable sources of carbon, nitrogen, and inorganic salts under submerged aerobic fermentation conditions until a substantial amount of antibiotic activity is produced.

4,316,960 PREPARATION OF 2,5-DIKETOGLUCONIC ACID

Donald A. Kita, Essex, and Dennis M. Fenton, Gales Ferry, both of Conn., assignors to Pfizer Inc., New York, N.Y.

Continuation-in-part of Ser. No. 79,665, Sep. 28, 1979, abandoned. This application Apr. 10, 1980, Ser. No. 139,036

Int. Cl.³ C12P 7/58

U.S. Cl. 435—137

9 Claims

1. A process for the production of 2,5-diketogluconic acid which comprises aerobically propagating *Acetobacter cerinus* in a fermentation medium containing D-glucose in an initial concentration of above about 20% and up to about 30% (wt/vol) and choline in an amount of at least about 0.04 wt. % based on the initial amount of D-glucose in said medium.

4,316,961 METHANE PRODUCTION BY ANAEROBIC DIGESTION OF PLANT MATERIAL AND ORGANIC WASTE

Donald L. Klass, Barrington, and Sambhunath Ghosh, Homewood, both of Ill., assignors to United Gas Pipe Line Company, Houston, Tex.

Filed Jun. 9, 1980, Ser. No. 157,474

Int. Cl.³ C12P 5/02

U.S. Cl. 435—167

11 Claims

1. In a process for improved methane production by anaerobic digestion, the improvement comprising: prior to said digestion, mixing organic material of normally low biodegradability, selected from the group consisting of plant material, organic waste and mixtures thereof, with an extract of plant material derived from different plant material than said low biodegradable plant material to be digested, said extract comprising about 10 to about 90 volume percent of the digestion volume; anaerobically digesting said mixture for a detention time greater than about 4 days; and then removing methane containing gas from the digester.

4,316,962 NOVEL CELL LINE

Dimitri Viza, Bourg-la-Reine, France, assignor to The International Institute of Differentiation Limited, Guernsey, Channel Islands

Filed Dec. 14, 1977, Ser. No. 860,439

Claims priority, application United Kingdom, Dec. 16, 1976, 52675/76

Int. Cl.³ C12N 5/02

U.S. Cl. 435—241

8 Claims

1. A cell culture system comprising cells of the cell line identified by the reference LDV/7 in a synthetic nutrient culture medium therefor.

5. A process for the propagation of cells of the cell line identified by the reference LDV/7, which comprises culturing the cells in a synthetic nutrient culture medium therefor.

4,316,963 LEADLESS GLAZE COMPOSITION MADE WITH ALKALINE EARTH MOLYBDENATE

Richard O. Hommel, Pittsburgh, and David Klimas, Bridgeville, both of Pa., assignors to The O. Hommel Company, Carnegie, Pa.

Filed Feb. 6, 1981, Ser. No. 232,162

Int. Cl.³ C03C 3/08, 9/00, 5/06

U.S. Cl. 501—14

5 Claims

1. A method of preparing a leadless glaze composition comprising the steps of:

- batching a raw glaze composition including sources of silica, boric acid, alumina, alkaline earth oxides, alkali metal oxides, and alkaline earth molybdenate as the source of MoO_3 in the batch,
- fritting the batch, and
- milling the fritted batch.

4,316,964 Al_2O_3/ZrO_2 CERAMIC

Frederick F. Lange, Thousand Oaks, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Jul. 14, 1980, Ser. No. 167,902

Int. Cl.³ C04B 35/48

U.S. Cl. 501—105

9 Claims

1. A ceramic comprising:
5 to 95 v/o ZrO_2 in the form of crystalline grains having a diameter less than about 2 μm and a substantially tetragonal structure;
a rare earth oxide selected from the group consisting of Y_2O_3 , CeO_2 , Er_2O_3 , and La_2O_3 , there being at least enough of said rare earth oxide to increase the amount of ZrO_2 having a tetragonal crystal structure, but not enough of said rare earth oxide to form substantial amounts of said ZrO_2 having a cubic crystal structure; and
the remainder of said ceramic being substantially Al_2O_3 .

4,316,965 LOW-EXPANSION CERAMICS AND METHOD OF PRODUCING THE SAME

Isao Oda, and Tadaaki Matsuhisa, both of Nagoya, Japan, assignors to NGK Insulators Ltd., Nagoya, Japan

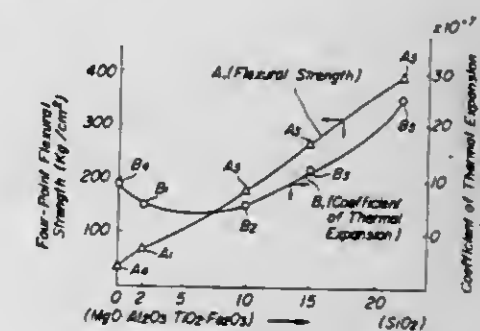
Filed May 22, 1980, Ser. No. 152,314

Claims priority, application Japan, Apr. 2, 1980, 55/41984

Int. Cl.³ C04B 35/04, 35/18, 35/44, 35/46

U.S. Cl. 501—112

12 Claims



1. Low-expansion ceramics having the chemical composition of the ceramics essentially consisting of 1.2 to 20% by weight of magnesia (MgO), 6.5 to 68% by weight of alumina (Al_2O_3), 19 to 80% by weight of titanium in terms of titanium oxide (TiO_2), 1 to 20% by weight of silica (SiO_2), and 0.5 to 20% by weight of iron in terms of ferric oxide (Fe_2O_3); wherein the major component of crystalline phase thereof is a solid solution of magnesium oxide-aluminum oxide-titanium dioxide-silicon oxide-iron oxide; and the ceramics has a coefficient of thermal expansion of not more than 20×10^{-7} ($1/^\circ C.$) in a temperature range of 25° C. to 800° C., a four-point flexural strength of not smaller than 50 kg/cm² at room temperature, and a melting point of not lower than 1,500° C.

4,316,966 PROCESS FOR PRODUCING CHEMICALLY BLENDED PROPYLENE RESIN COMPOSITION

Hideo Mineshima, Ohtake; Nobuo Sato, and Susumu Masaki, both of Ichibara, all of Japan, assignors to Mitsui Petrochemical Industries Ltd., Tokyo, Japan

Filed Oct. 16, 1980, Ser. No. 197,530

Claims priority, application Japan, Oct. 16, 1979, 54-132436

Int. Cl.³ C08F 297/08

U.S. Cl. 525—53

7 Claims

1. In a process for producing a chemically blended propylene resin composition having an ethylene content of about 1 to about 40 mole% based on the entire monomer units of the resin composition which comprises (i) a pre-polymerization step wherein a small amount of ethylene or an alpha-olefin is polymerized in the presence of a catalyst composed of (a) a titanium

catalyst component containing magnesium, titanium, halogen and an electron donor and (b) an organometallic compound of a metal of Groups I to III of the Mendeleev's periodic table, and (ii) a multiplicity of subsequent polymerization steps wherein propylene and ethylene are polymerized in the presence of the reaction product containing the catalyst of the prepolymerization step (i), the amount of the titanium catalyst component (a) used, calculated as titanium atom, being about 0.01 to about 100 millimoles/liter of solvent when the polymerization is carried out in the presence of a solvent and about 0.01 to about 100 millimoles/liter of the volume of the polymerization zone when the polymerization is carried out in the gaseous phase; the improvement wherein

(I) the pre-polymerization step (i) is:

- (I-A) a step wherein about 1 to about 1500 g. per millimole of titanium atom, of ethylene is polymerized;
- (I-B) a step wherein about 1 to about 1500 g. per millimole of titanium atom, of propylene is polymerized; or
- (I-C) a step wherein about 1 to about 1000 g. per millimole of titanium atom, of an alpha-olefin having 4 to 10 carbon atoms is polymerized; and
- (II) said multiplicity of polymerization steps (ii) are the following steps (II-1), (II-2) and (II-3) which are carried out in separate reaction zones different from the reaction zone of the pre-polymerization step (i) in the above order or in the order of (II-1), (II-3), and (II-2).
- (II-1) a step of polymerizing propylene to form not less than about 5000 g. per millimole of titanium atom, of crystalline polypropylene having an isotactic index of at least 90 which accounts for about 55 to about 95% by weight of the final resin composition, provided that when step (I-B) is employed as the pre-polymerization step (i), the amount of the product includes that of polypropylene formed in step (I-B).
- (II-2) a step of polymerizing propylene and ethylene to form an amorphous or a low-crystalline propylene/ethylene copolymer containing about 20 to about 80 mole% of propylene units; and
- (II-3) a step of polymerizing ethylene, or both ethylene and propylene, to form crystalline polyethylene or a crystalline ethylene/propylene copolymer containing up to about 20 mole% of propylene units.

4,316,967

AMINE TERMINATED POLYMERS AND THE FORMATION OF BLOCK COPOLYMERS

William L. Hergenrother; Richard A. Schwarz; Richard J. Ambrose, all of Akron, and Robert A. Hayes, Cuyahoga Falls, all of Ohio, assignors to The Firestone Tire & Rubber Company, Akron, Ohio

Division of Ser. No. 848,962, Nov. 7, 1977, Pat. No. 4,151,222, which is a continuation-in-part of Ser. No. 574,676, May 5, 1975, Pat. No. 4,070,344. This application Mar. 5, 1979, Ser. No. 17,790

Int. Cl.³ C08L 63/00; C08F 18/24; C08L 9/06

U.S. Cl. 525—111 16 Claims

1. An epoxy copolymer composition, comprising: an amine terminated polymer connected to an epoxy polymer constituent to form the epoxy copolymer; said amine terminated polymer being an end capped polymer formed by the reaction of an anionically prepared polymer and a single polyisocyanate or polyisothiocyanate compound so that at least one unreacted isocyanate or isothiocyanate end portion exists wherein said unreacted isocyanate or isothiocyanate end portion has been converted to an amine group; said polymer being a homopolymer or a copolymer, said homopolymer made from monomers selected from the class consisting of conjugated diene, vinyl substituted aromatic, vinyl substituted pyridine, vinyl substituted quinoline, and a compound selected from the class consisting of

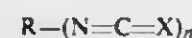
1. $\text{CH}_2=\text{C}(\text{A})\text{CN}$ wherein A is CN, CF_3 , CH_3 or H;

2. $\text{CH}_2=\text{C}(\text{A})\text{CO}_2\text{R}$ wherein A is CO_2R , SO_2R , CH_3 or H;
3. $\text{CH}_2=\text{C}(\text{A})\text{NO}_2$ wherein A is Cl, CH_3 or H;
4. $\text{CH}_2=\text{C}(\text{A})\text{CON}(\text{R})_2$ wherein A is CH_3 or H;

wherein R is a 1 to 15 carbon atom alkyl, a 4 to 15 carbon atom cycloalkyl, an aromatic, a 1 to 15 carbon atom alkyl substituted aromatic, a 4 to 15 carbon atom cycloalkyl substituted aromatic, or hydrogen.

said copolymer made from monomers of conjugated dienes and vinyl substituted aromatics;

said polyisocyanate and said polyisothiocyanate having the formula



wherein R is an aliphatic containing from 2 to about 20 carbon atoms, a cycloaliphatic containing from 4 to about 20 carbon atoms, an aromatic containing from 6 to about 20 carbon atoms, and combinations thereof, n is an integer of 2 or 3 and X is selected from the class consisting of oxygen and sulfur; and

said epoxy polymer constituent is selected from the class consisting of epoxidized soy bean oil, butadiene diepoxide, dicyclopentadiene diepoxide, cyclohexane oxide, epoxidized castor oil and compounds made by reacting epoxy monomers or epoxy prepolymers with hydroxyl terminated polymers.

4,316,968

MODIFIED PHENOLIC ALDEHYDE RESIN TO PRODUCE AN IMPROVED ADHESIVE COATING AND METHOD OF MAKING SAME

Mikhail M. Girgis, Pittsburgh, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

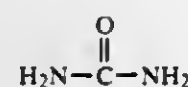
Division of Ser. No. 956,455, Oct. 31, 1978, Pat. No. 4,246,144. This application Jun. 8, 1979, Ser. No. 46,895

Int. Cl.³ C08L 61/12, 61/14, 9/08, 61/06

U.S. Cl. 525—135 3 Claims

1. In a process for producing a coating composition containing a resorcinolic or resorcinolic and phenolic aldehyde resin and an elastomeric latex or elastomeric latices, the improvement comprising:

a. reacting the phenolic compound selected from the group consisting of resorcinol, or a mixture of resorcinol and phenol with aldehyde and urea, wherein urea has the formula



or thiourea, or thionamide having one to six carbon atoms, or mixture thereof in amounts to give a mole ratio of resorcinolic or resorcinolic and phenolic compound to aldehyde in the range of about 0.2 to about 2.0 and a mole ratio of resorcinolic or resorcinolic and phenolic compound to urea, thiourea, thionamide or mixture thereof in the range of about 0.2 to about 2.0 and a mole ratio of urea, thiourea, thionamide or mixture thereof to the aldehyde in the range of about 0.5 to about 5.0 at an acidic pH and at a temperature in the range of about 0° C. to about 100° C. for a period of time in the range of about 1 hour to about 20 hours, and

b. adjusting the pH of the reaction mixture within the range of about 7 to about 7.5 to produce a randomly modified thermoplastic resorcinolic or resorcinol and phenolic aldehyde resin with slight crosslinking.

4,316,969

CURED NOVOLAK FIBER-REINFORCED, CHLORINATED RUBBER MOLDED ARTICLES HAVING EXCELLENT FLAME-PROOFNESS, AND PROCESS FOR THE PREPARATION THEREOF

Hiroaki Koyama; Shigeo Shimizu, both of Osaka, and Mituru Sekiya, Tokyo, all of Japan, assignors to Nippon Kynol Incorporated, Osaka, Japan

Filed Jul. 2, 1979, Ser. No. 55,191

Int. Cl.³ C08L 11/00, 15/02, 23/28, 61/04

U.S. Cl. 525—145 15 Claims

1. A cured novolak fiber-reinforced, chlorine-containing rubber-molded article, the main components of which are (A) fibers or a fibrous structure containing at least 50 weight % of cured novolak fibers and

(B) a rubber composition consisting essentially of chlorine-containing rubber containing 15 to 50 weight % of chlorine as a rubber component, which is vulcanized with a non-sulfur vulcanizing agent,

the content of said fibers or fibrous structure being 2-80% by weight of the molded article.

11. A process for preparing a cured novolak fiber-reinforced, chlorine-containing rubber article comprising contacting a rubber composition consisting essentially of a chlorine-containing rubber which contains 15-50 weight % of chlorine as a rubber component with fibers or a fibrous structure containing at least 50 weight % of cured novolak fibers, and pressing or molding the resultant composition before, during or after vulcanizing said chlorine-containing rubber composition with a non-sulfur vulcanizing agent at a temperature of 100°-200° C.

4,316,970

BLENDS OF BUTENE-1-ETHYLENE COPOLYMER AND POLYPROPYLENE

Patrick M. Hughes, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Aug. 1, 1980, Ser. No. 174,482

Int. Cl.³ C08L 23/20, 23/12

U.S. Cl. 525—240 4 Claims

1. A film or sheets consisting essentially of a blend of about 92-94% by weight of an isotactic butene-1-ethylene copolymer containing 0.5 to 10 mole percent of ethylene and about 6-8% by weight of isotactic polypropylene.

4,316,971

MODIFIED MONOOLEFIN COPOLYMER ELASTOMER WITH IMPROVED HEAT AND OIL RESISTANCE

Yong S. Rim, Woodbridge; John A. Davison, Southington, and Walter Nudenberg, Newtown, all of Conn., assignors to Uniroyal, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 17,298, Mar. 5, 1979,

abandoned. This application May 21, 1979, Ser. No. 40,784

Int. Cl.³ C08F 255/04, 255/06

U.S. Cl. 525—310 2 Claims

1. A mixed copolymerizable vulcanizable to an elastomeric state characterized by heat and oil resistance, comprising:

(A) a rubbery spine which is an elastomeric copolymer of ethylene with a higher alpha-monoolefin having the formula $\text{CH}_2=\text{CHR}$ wherein R is an alkyl radical having one to four carbon atoms, with or without a copolymerizable non-conjugated diene, said rubbery spine having an iodine number not greater than 20 and a Mooney viscosity ML-4 of less than 100 at 100° C.;

(B) acrylic ester type monomeric material in an amount sufficient to provide an ester group ($-\text{COO}-$) content in the mixed copolymerizable of from 25 to 40% by weight comprising:

(a) alkyl acrylate monomeric material made up of lower alkyl acrylate monomers in which the alkyl group has from 1 to 4 carbon atoms;

(b) 0 to 20 parts, per 100 parts by weight of lower alkyl

acrylate (a), of a higher alkyl acrylate or methacrylate monomer in which the alkyl group has from 5 to 12 carbon atoms; and

(C) 2 to 15 parts, per 100 parts by weight of the rubber spine (A), of at least one additional different ethylenically unsaturated monomer which serves to enhance the vulcanizability of the copolymerizable, the said (B) and (C) being graft copolymerized in the presence of the rubber spine (A), in which (a) is a mixture of methyl acrylate with another lower alkyl acrylate whose homopolymer has a Tg of less than 0° C.,

the "B" gel content of the unvulcanized copolymerizable being less than 40% by weight, measured in xylene at 135° C.,

and (C) being selected from the group consisting of methoxyethyl acrylate, ethoxyethyl acrylate, n-butoxyethyl acrylate, butoxyethoxyethyl acrylate, glycidyl acrylate, furfuryl acrylate, tetrahydrofurfuryl acrylate, phenoxyethyl acrylate, N,N-dimethylaminoethyl acrylate, N,N-diethylaminoethyl acrylate, 2-chloroethyl acrylate, 3-chloroethyl acrylate, 2-cyanoethyl acrylate, allyl acrylate, methallyl acrylate, the methacrylate analogs of the aforementioned acrylates, allyl glycidyl ether, allyl maleate, allyl fumarate, allyl phthalate, butadiene, isoprene, 4-vinylcyclohexene, dicyclopentadiene, ethylidene norbornene, 1,4-hexadiene, 1,5-hexadiene, vinyl acetate, 2-chloroethyl vinyl ether, vinyl benzyl chloride, vinyl alpha-chloroacetate, and acrylic acid.

4,316,972

POLYMERS FROM NITROGEN HETEROCYCLIC COMPOUNDS

Karel L. Petrak, North Harrow, England, assignor to Eastman Kodak Company, Rochester, N.Y.

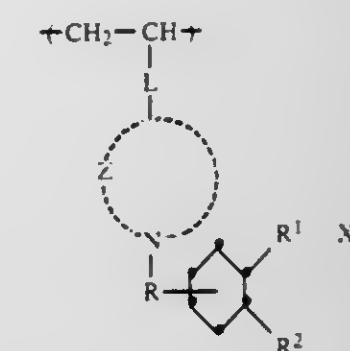
Division of Ser. No. 960,213, Nov. 13, 1978, Pat. No. 4,229,515.

This application May 15, 1980, Ser. No. 150,038

Int. Cl.³ C08F 8/34, 8/32; G03C 5/54; C08F 8/42

U.S. Cl. 525—336 1 Claim

1. A water-soluble polymer comprising a recurring unit of the formula:



wherein:

L is selected from the group consisting of a single bond and a bivalent linking group;

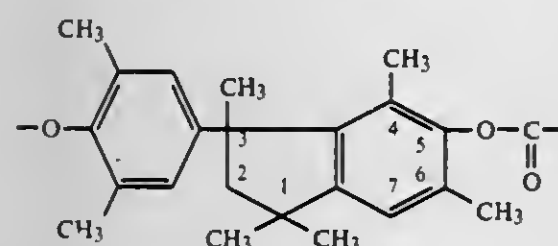
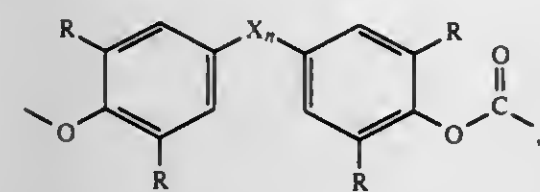
Z represents the atoms necessary to complete a heterocyclic nucleus;

R is selected from the group consisting of a single bond and alkylene;

R¹ is selected from the group consisting of OH, COOH, NHR⁴, NHCOR³, NHO₂R⁵, C(R⁴)=O, C(R⁴)=NR⁵ and SO₂NHR⁴; and R² is selected from the group consisting of COOH, C(R⁴)=O, C(R⁴)=NR⁵ and SO₂NHR⁴; wherein R³ is al vl, R⁴ is H or alkyl, R⁵ is OH, NHR⁶, alkyl, aryl or substituted aryl, and R⁶ is aryl or CONH₂; and

X⁻ is an anion.

comprising recurring structural units selected from the group consisting of



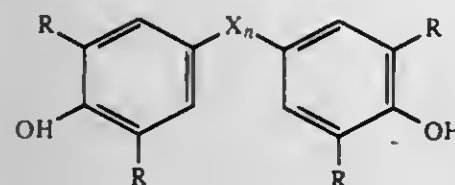
and mixtures thereof wherein

R denotes C₁ alkyl,

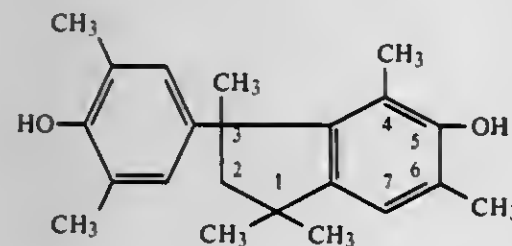
X denotes C₁-C₅ alkylene, C₂-C₅ alkylidene, cyclohexylene, cyclohexylidene, -O-, or -S-, and

n is either 0 or 1,

comprising reacting at least 80 mol percent, relative to the total molar amount of diphenols, of a diphenol of the formula



or



or mixtures thereof

wherein R, X and n have the meanings indicated above, by the phase boundary process in a mixture of an aqueous alkaline phase and an inert organic phase in the presence of a catalyst consisting of 0.2 to 2.5 mol percent relative to said total amount of diphenols employed of at least one quaternary ammonium salt, at a reaction time of 0.1 to 2 hours, and a reaction temperature between 10° and 40° C.

4,316,981

POLYCARBONATE TRANSESTERIFICATION

Daniel J. Brunelle, Scotia, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Jun. 13, 1980, Ser. No. 159,051

Int. Cl.³ C08G 63/62

U.S. Cl. 528-199

8 Claims

1. An improved transesterification process wherein a bis(ortho-nitroaryl)carbonate and a dihydric phenol are reacted to form a high molecular weight polycarbonate under transesterification reaction conditions, the improvement comprising the use of a hypernucleophilic base which comprises a nitrogen ring containing heterocyclic aromatic compound having at least one electron releasing group directly bonded to a carbon atom in the aromatic ring structure of the aromatic compound, wherein the mole ratio of said base to said dihydric phenol is within the range of from 1×10^{-8} :1 to 1:1.

PROCESS FOR REDUCING THE VISCOSITY OF CELLULOSE ETHERS BY MEANS OF OZONE AND APPLICATION THEREOF

Arno Holst, Wiesbaden, and Eberhard Perplies, Walluf, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Apr. 23, 1980, Ser. No. 142,883

Claims priority, application Fed. Rep. of Germany, Apr. 27, 1979, 2917104

Int. Cl.³ C08B 11/20

U.S. Cl. 536-88

4 Claims

1. A process for reducing the viscosity of cellulose ethers by reacting a water-soluble cellulose ether with ozone in the presence of water, wherein said cellulose ether which is moist with water and has a dry content of from 40 to 75% by weight is reacted with an ozone/oxygen mixture or with an ozone/air mixture at a temperature of about 0° to 60° C.

4,316,983

NEOPLASMIC COMPOUNDS: SUGAR ESTERS AND GLYCOSIDES

Werner Bollag, Basel, and Pierre-Charles Wyss, Muttentz, both of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Jun. 12, 1980, Ser. No. 158,678

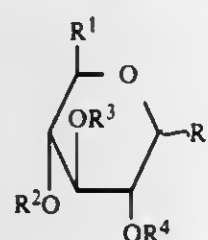
Claims priority, application Switzerland, Jun. 21, 1979, 5808/79

Int. Cl.³ C07H 15/20, 13/08

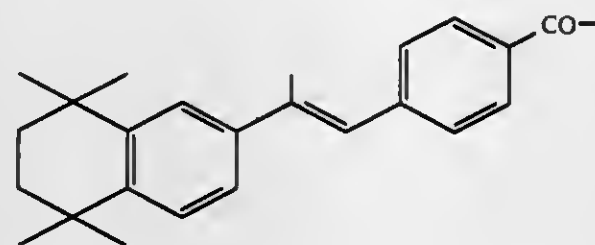
U.S. Cl. 536-4

9 Claims

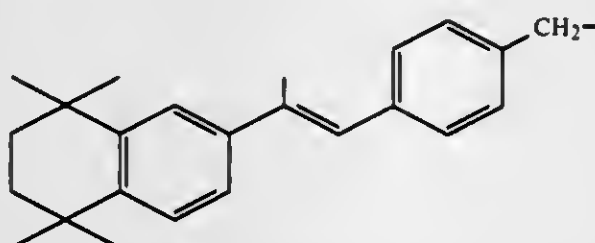
1. Compounds of the general formula:



where R¹ represents a group of the formula -CH₂OH, -CH₂OR⁶, -COR⁷ or -CONH₂; R² represents hydrogen or lower alkanoyl; R³ and R⁴ represent hydrogen or lower alkanoyl or a group R⁶; R⁵ represents lower alkoxy or a group of the formula OR⁶ or OR⁸; R⁶ represents a group of the formula:

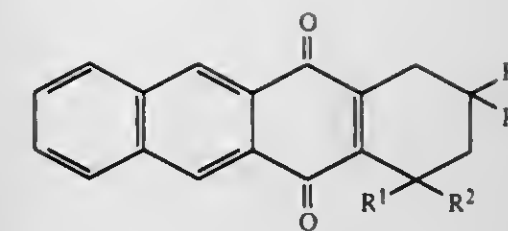


R⁷ represents hydroxy, lower alkoxy or OM in which M represents a cation; and R⁸ represents a group of the formula:

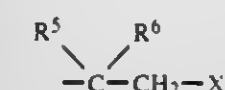


providing that: (i) R¹ represents a group of the formula -CH₂OR⁶, R² represents hydrogen and one of R³ and R⁴ hydrogen and the other represents a group R⁶ when R⁵ represents lower alkoxy; (ii) R¹ represents a group of the formula -COR⁷ and

R², R³ and R⁴ represent lower alkanoyl when R⁵ represents a group of the formula OR⁶; or (iii) R¹ represents a group of the formula -CH₂OH, -COR⁷ or -CONH₂ and R², R³ and R⁴ represent hydrogen of lower alkanoyl when R⁵ represents a group of the formula OR⁸; and the pharmaceutically acceptable acid addition salts thereof.



wherein one of R¹ and R² represents a hydrogen atom and the other represents a hydroxy group or R¹ and R² together represent an ethylene ketal or ethylene thio ketal group. R³ represents a hydrogen atom or a hydroxy or lower alkanoyloxy group and R⁴ represents a lower alkyl or lower alkoxy carbonyl or benzyloxycarbonyl group or a group of the formula



in which R⁵ and R⁶ together form an oxo group or an ethylene ketal or ethylene thio ketal group and X represents a hydrogen atom or a hydroxy or lower alkanoyloxy group, or



in which n stands for 1 or 2 and Y represents a hydrogen atom or lower alkyl or lower alkanoyl group, with the proviso that R¹ and R² together represent an ethylene ketal or ethylene thio ketal group when R³ represents an acetoxy group and R⁴ represents an acetyl group.

4,316,984

THERMOLABILE ACUTANCE DYES

Harvey A. Brown, Lake Elmo, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 964,480, Nov. 29, 1978, Pat. No. 4,260,676.

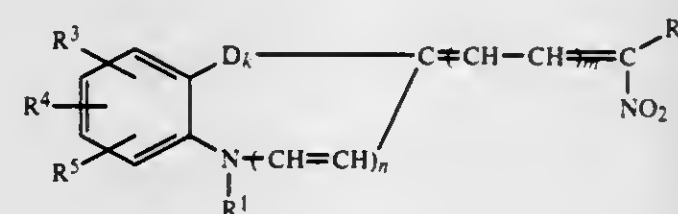
This application Jun. 27, 1980, Ser. No. 163,528

Int. Cl.³ C07D 215/12

U.S. Cl. 546-165

6 Claims

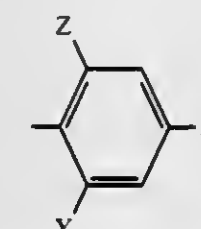
1. A dye of the formula



wherein

R¹ is an alkyl group of from 1 to 12 carbon atoms,

R² is the group



wherein X, Y, and Z are independently selected from the class consisting of H, NO₂, CN, perfluoroalkyl of 1 to 4 carbon atoms and halogen, with the proviso that at least one of X and Y is NO₂.

R³, R⁴, and R⁵ are independently selected from the group consisting of H, halogen, alkyl or alkoxy of 1 to 4 carbon atoms, alkenyl of 2 to 4 carbon atoms, -CH₂-p-COOH wherein p is 0, 1, 2, or 3, -NO₂, -NH₂, or -NH-COCH₃, or any two of the adjacent groups are the atoms necessary to form a fused or benzene ring.

D represents -HC=CH-, O, >C(CH₃)₂, -S-, -Se-, or >NR¹.

R⁷ represents an alkyl group of 1 to 4 carbon atoms or CH₃CO-

n is 1 when k is 0 and k is 1 when n is 0,

and m is 0, 1, 2, or 3.

4,316,985

CYCLIC COMPOUNDS

Michael J. Broadhurst, Baldock; Cedric H. Hassall, Welwyn, and Gareth J. Thomas, Luton, all of Great Britain, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Jan. 11, 1980, Ser. No. 111,348

Claims priority, application United Kingdom, Jan. 16, 1979, 1537/79; Jul. 26, 1979, 26151/79

Int. Cl.³ C07C 50/22; C07D 317/72, 339/06

U.S. Cl. 549-39

5 Claims

1. The compound of the formula

4,316,986

PREPARATION OF DIFLUOROMALONYL FLUORIDE

David C. England, Wilmington; Robert L. Kraft, Newark, and Carl G. Krespan, Wilmington, all of Del., assignors to E. I. DuPont de Nemours & Company, Wilmington, Del.

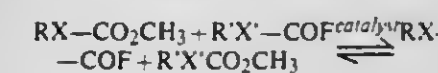
Filed Sep. 23, 1980, Ser. No. 189,827

Int. Cl.³ C07C 67/14

U.S. Cl. 560-184

10 Claims

1. A carboxylic ester/acetyl fluoride interchange reaction process comprising the sequence:



wherein

X is methylene or substituted methylene selected from the group consisting of -CF₂-, -CFH-, -CFCl-, -CFBr-, -CFI-, and -C(CF₃)F-;

X' is substituted methylene selected from the group consisting of -CF₂-, -CFH-, -CFCl-, -CFBr-, -CFI-, and -C(CF₃)F-;

R and R' are the same or different and are selected from the group consisting of hydrogen, halogen, and halogen-substituted and unsubstituted alkyl, alkoxy, alkaryl, aralkyl, aryloxy and polyether alkyl of up to 18 carbon atoms;

R and X taken together can be R_FCOF;

R' and X' taken together can be R_FCO₂CH₃; and

R_F is a single bond or a linear or branched perfluoroalkylene group of up to 18 carbon atoms;

and wherein the catalyst is one or more metal fluorides selected from the group consisting of SbF₅, TaF₅, NbF₅, AsF₅, BiF₅, TiF₄, ZrF₄ and mixtures of SbF₅ and HF wherein HSbF₆ is present, and combinations of one or more of said metal fluorides with one or more strong sulfonic acids.

4,316,987

PARTIAL (2,2,4-TRIMETHYLPENTANE-1,3-DIOL MONOISOBUTYRATE) ESTERS OF POLYCARBOXYLIC ACIDS AND WATER-SOLUBLE SALTS OF SAID PARTIAL ESTERS

Mario Q. Ceprini, Cedarhurst, N.Y., and Marvin Warren, Koral, N.J., assignors to TenoecoChemicals, Inc., Piscataway, N.J.

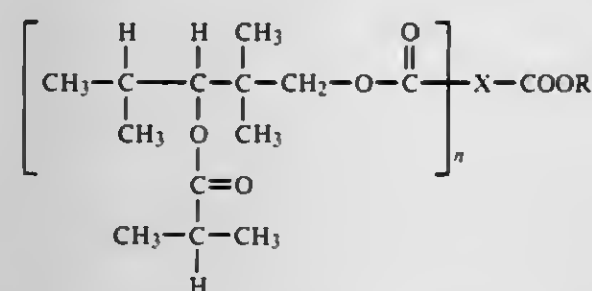
Filed Jan. 9, 1981, Ser. No. 223,875

Int. Cl.³ C07C 69/40, 69/44, 69/593, 69/60

U.S. Cl. 560—199

10 Claims

1. A compound having the structural formula



wherein X represents the residue of an aliphatic polycarboxylic acid having 2 to 4 carboxyl groups and 4 to 20 carbon atoms, n is a number in the range of 1 to 3, and R represents hydrogen, ammonium, amine, or alkali metal.

4,316,988

N-ALKYLDIPHENYLAMINES

Albert J. Clinton, deceased, late of Marion, Ind. by Thomas L. Plimpton, administrator, and George O. P. O'Doherty, Greenfield, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

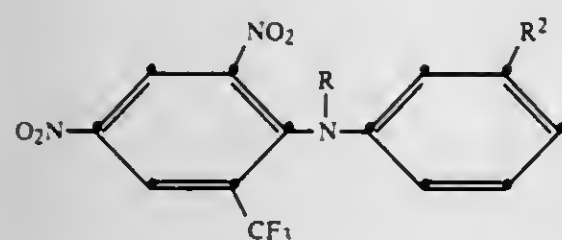
Continuation-in-part of Ser. No. 706,023, Jul. 21, 1976, abandoned. This application Dec. 24, 1980, Ser. No. 219,791

Int. Cl.³ C07C 87/54, 87/60, 87/62

U.S. Cl. 564—433

3 Claims

1. A compound of the formula



wherein R represents methyl, ethyl, or propyl; and R² represents trifluoromethyl.

4,316,989

PROCESS FOR PREPARING DIFLUOROMETHOXY DERIVATIVES OF AROMATIC ALDEHYDES

Jury A. Fialkov, ulitsa Oktyabrskoi Revolutsii, 13/4, kv. 3, and Svetlana V. Shelyazhenko, ulitsa Borschagovskaya, 10-a, kv. 141, both of Kiev, U.S.S.R.

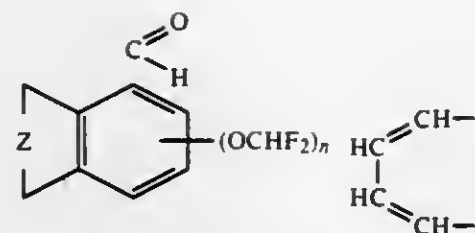
Filed May 29, 1980, Ser. No. 154,596

Int. Cl.³ C07C 45/61

U.S. Cl. 568—433

6 Claims

1. A process for preparing difluoromethoxy derivatives of aromatic aldehydes having a common formula:



where Z is H, H; or n is 1 or 2,

said process comprising reacting a hydroxy derivative of an aromatic aldehyde selected from the group consisting of mono-hydroxy derivatives of aromatic aldehydes and dihydroxy derivatives of aromatic aldehydes, with difluorochloromethane in an aqueous-dioxane medium at a temperature of 60° to 70° C., in the presence of 6 to 10 moles of caustic alkali per 1 mole of a starting hydroxyaldehyde.

4,316,990

PREPARATION OF α,β -ALDEHYDES BY ALDOL CONDENSATION

Don L. Morris, Longview, Tex., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 29, 1980, Ser. No. 201,954

Int. Cl.³ C07C 45/72, 47/20

U.S. Cl. 568—461

15 Claims

1. An aldol condensation process for preparing α,β -unsaturated aliphatic aldehydes comprising passing an aliphatic saturated aldehyde containing 2 to 8 carbon atoms at a temperature of about 100° C. to about 300° C. over an anatase form titanium dioxide catalyst.

4,316,991

MODIFICATION OF POLYOLS WITH EPOXY RESINS

George P. Speranza; Michael Cuscurida, and Robert L. Zimmerman, all of Austin, Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed Sep. 2, 1980, Ser. No. 183,543

Int. Cl.³ C08G 18/32, 65/28, 18/14, 18/48

U.S. Cl. 568—609

16 Claims

1. A modified polyol for use in preparing flexible polyurethane foams, the modified polyol being produced by the reaction of an initiator having an active hydrogen functionality of 3 to 4, one or more alkylene oxides and an epoxy resin in such a manner that the epoxy resin is added internally along the length of the polyol chain.

4,316,992

PROCESS FOR POLYOL RECOVERY FROM POLYURETHANE FOAM COMPRISING ALCOHOL AND STEAM HYDROLYSIS

John L. Gerlock, Dearborn; Jacob Braslaw, Southfield, both of Mich., and Jane Albright, Bremerton, Wash., assignors to Ford Motor Company, Dearborn, Mich.

Filed Feb. 23, 1981, Ser. No. 237,027

Int. Cl.³ C07C 43/11

U.S. Cl. 568—621

22 Claims

1. A process for recovery from polyether polyurethane foam of substantially pure polyether polyol which can be used to make new foam, comprising the steps of:

- forming a solution by dissolving a polyether polyurethane foam in a saturated alcohol having a boiling point between about 225° C. and about 280° C. at a temperature between about 185° C. and about 220° C. under a non-oxidizing atmosphere;
- introducing superheated steam through said solution for a time necessary to substantially hydrolyze dissolution products subject to hydrolysis into amines and alcohol while maintaining said solution temperature between about 185° C. and 220° C. while maintaining reaction

volume through the addition of said saturated alcohol to said solution; and

- subjecting at least a portion of said solution to vacuum purification at temperatures below about 230° C. so as to allow recovery therefrom of a substantially pure polyether polyol.

4,316,993

PROCESS FOR THE PREPARATION OF 4-PHENOXY-PHENOLS

Emmerich Paszthory, Hofheim am Taunus; Karl G. Seifert, Frankfurt am Main; Vincenz Zimmermann, Nauheim, and Hans J. Nestler, Kelkheim, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Continuation of Ser. No. 845,431, Oct. 25, 1977, abandoned.

This application Feb. 28, 1980, Ser. No. 125,443

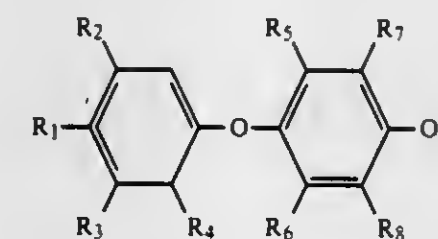
Claims priority, application Fed. Rep. of Germany, Oct. 27, 1976, 2648644

Int. Cl.³ C07C 41/26

U.S. Cl. 568—637

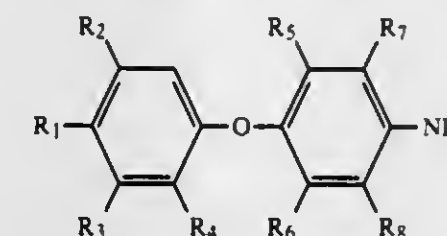
16 Claims

1. In a process for the preparation of a phenol of the formula



in which

- R₁ is hydrogen, halogen, methylthio, cyclopentyl, cyclohexyl, methylcyclohexyl, ethylcyclohexyl or phenyl, R₂ and R₃, which are the same or different, each is hydrogen, halogen or alkyl of from 1 to 4 carbon atoms, R₄ is hydrogen, halogen, alkyl of from 1 to 4 carbon atoms, cyclopentyl or cyclohexyl or R₃ and R₄ together are —CH=CH—CH=CH—, and R₅, R₆, R₇ and R₈, which are the same or not all the same, each is hydrogen or alkyl of from 1 to 4 carbon atoms, by diazotizing an aniline of the formula



and decomposing the diazonium compound, the improvement which comprises diazotizing by introducing said aniline into aqueous sulfuric acid of a concentration of from 60 to 75% by weight and then adding sodium nitrite thereto; and decomposing diazonium compound which is a product of the diazotization by combining said compound with a preheated mixture, the temperature of which is maintained in the range of from 115° to 130° C., of aqueous sulfuric acid of substantially the same concentration as above and a water-immiscible solvent capable of dissolving said phenol.

4,316,994

PREPARATION OF 4-FLUORO-3-PHENOXY-TOLUENE

Rainer Fuchs; Fritz Maurer, both of Wuppertal; Uwe Priesnitz, Unna-Massen, and Hans-Jochem Riebel, Wuppertal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jul. 18, 1980, Ser. No. 170,194

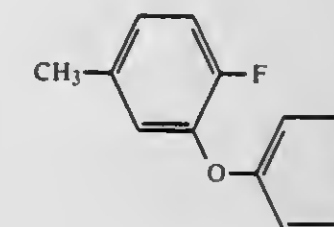
Claims priority, application Fed. Rep. of Germany, Aug. 8, 1979, 2932093

Int. Cl.³ C07C 41/01

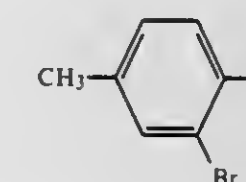
U.S. Cl. 568—639

8 Claims

1. In the preparation of 4-fluoro-3-phenoxy-toluene of the formula



by reacting a 3-bromo-4-fluoro-toluene of the formula



with an alkali metal or alkaline earth metal phenolate in the presence of copper as catalyst and in the presence of a diluent at a temperature between about 100° and 200° C., the improvement which comprises employing isoquinoline as the diluent and effecting the reaction in the presence of an alkali metal or alkaline earth metal carbonate.

4,316,995

PROCESS FOR PREPARING VINYL PHENOL

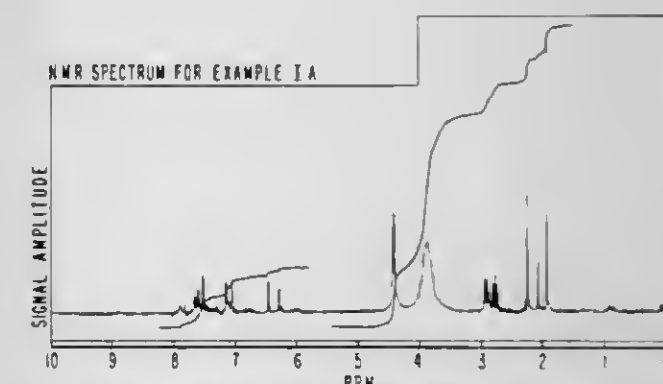
Alan O. Pittet, Atlantic Highlands, and Ranya Muralidhara, Fair Haven, both of N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Filed Feb. 5, 1981, Ser. No. 231,776

Int. Cl.³ C07C 39/06, 39/18

U.S. Cl. 568—780

9 Claims

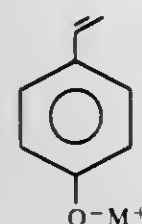


1. In the process for preparing paravinyl phenol in food grade form of food grade quality comprising the steps, in sequential order, of:

- intimately admixing malonic acid and parahydroxybenzaldehyde in the presence of ethylenediamine, dimethyl formamide and an inert solvent while heating the reaction mixture at reflux thereby forming a first reaction product located within a first reaction mass;
- removing water of reaction from the first reaction mass while simultaneously heating the said first reaction mass at a refluxing temperature;

(iii) removing the solvent from the first reaction mass;
 (iv) decarboxylating the resulting first reaction product by heating the reaction product to a temperature in the range of 115°-120° C. thereby forming a second reaction product;
 (v) dissolving in water and extracting with a lower alkyl ester the reaction product; and
 (vi) stripping the solvent from the reaction product to yield a second reaction mass which comprises paravinyl phenol; the improvement of which consists essentially of the additional steps of:

(vii) admixing acetic anhydride and dilute aqueous base with the resulting second reaction products to form paraacetoxy styrene from the paravinyl phenol contained in said second reaction mass;
 (viii) fractionally distilling the paraacetoxy styrene from the second reaction mass;
 (ix) hydrolyzing the paraacetoxy styrene by mixing therewith a strong base to produce the alkali metal salt of paravinyl phenol having the structure:



wherein M represents an alkali metal selected from the group consisting of sodium and potassium thereby forming a third reaction mass;

(x) adding dilute aqueous acid to the resulting third reaction mass whereby crystalline paravinyl phenol precipitates; and
 (xi) separating the resulting precipitate from the resulting solution,

the solvent being used in conjunction with the step of intimately admixing malonic acid and parahydroxy benzaldehyde consisting essentially of cyclohexane.

4,316,996

DISCOLORATION PREVENTION OF PHENOLIC ANTIOXIDANTS

Jacques H. Collonge, Les Ulis, France, and Hans Widmer, Bottmingen, Switzerland, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

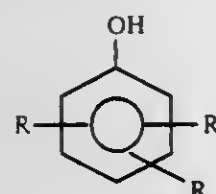
Filed Nov. 17, 1980, Ser. No. 207,111

Int. Cl.³ C07C 37/11, 29/94, 39/06

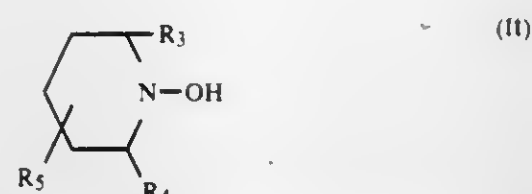
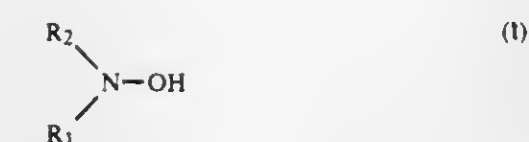
U.S. Cl. 568-784

17 Claims

1. In a process of preparing phenolic antioxidants which comprises (1) reacting one mole of at least one phenolic reactant having the following structural formula:



wherein R is selected from the group consisting of hydrogen, alkyl radicals having from 1 to 20 carbon atoms, cycloalkyl radicals having from 6 to 20 carbon atoms, and aralkyl radicals having from 6 to 20 carbon atoms, with (2) at least one tertiary olefin having from 4 to 9 carbon atoms at a temperature of from 50° C. to 150° C. in the presence of a catalyst; then (3) the catalyst is neutralized with an aqueous solution and (4) the reaction mixture is heated under vacuum to remove volatiles and filtered hot; the improvement is characterized in that (A) 0.01 to 5 percent by weight of at least one hydroxylamine selected from general formulae (I) and (II).



wherein R₁ and R₂ are the same or different radicals selected from the group consisting of alkyl radicals of 1 to 18 carbon atoms; and R₃, R₄ and R₅ are the same or different radicals selected from the group consisting of hydrogen and alkyl radicals of 1 to 8 carbon atoms; is added to the solution used to neutralize the catalyst and (B) prior to filtration 0.01 to 5 percent by weight of a substituted oxime of the structural formula (III):



wherein R₁ and R₂ are defined as above is added to the reaction mixture together with an additional 0.01 to 5.0 percent by weight of at least one hydroxylamine selected from formulae (I) and (II); to yield a phenolic antioxidant with improved color and color stability.

4,316,997

ALKYLATION PROCESS AND APPARATUS USEFUL THEREIN

Ronald J. Vaughan, Orinda, Calif., assignor to Varen Technology, Marshallton, Del.

Continuation-in-part of Ser. No. 660,634, Feb. 23, 1976. This

application Aug. 7, 1979, Ser. No. 64,480

Int. Cl.³ C07C 2/66, 2/70

U.S. Cl. 385-458

7 Claims

1. A liquid phase process for the alkylation of an aromatic hydrocarbon with an olefin which comprises contacting said aromatic hydrocarbon and said olefin; at reaction conditions, in the presence of a copolymer of a perfluorovinyl ether and tetrafluoroethylene containing pendant sulfonic acid groups, as catalyst.

4,316,998

TREATMENT OF SULFUR-CONTAINING HF-ALKYLATION FEED, HYDROCARBON PRODUCT, PROPANE AND ACID-SOLUBLE OILS DERIVED FROM THE ALKYLATION

Joe Van Pool, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jul. 29, 1980, Ser. No. 173,304

Int. Cl.³ C07C 2/56, 2/58, 7/10

U.S. Cl. 585-712

8 Claims

1. A process for the alkylation of an isoparaffin with an olefin which comprises in combination, alkylating an isoparaffin with an olefin in the presence of an HF acid catalyst in an alkylation operation in which an alkylation reaction zone effluent is settled to form a hydrocarbon phase and an acid phase, at least a portion of the acid phase is passed to acid rerun for removal of acid soluble oils, and another portion is recycled for reuse as catalyst, hydrocarbon phase is fractionated to produce an alkylate, saturated hydrocarbon stream containing C₄ hydrocarbons and a propane containing stream also containing hydrogen fluoride, water washing said propane containing stream to substantially completely remove hydrogen

acid soluble oil with a neutralizing agent adapted to regenerate aqueous alkaline solution and passing aqueous alkaline solution

fluoride therefrom, drying said propane stream which now has

been substantially completely freed of hydrogen fluoride by

contacting said stream with solid caustic, contacting said acid

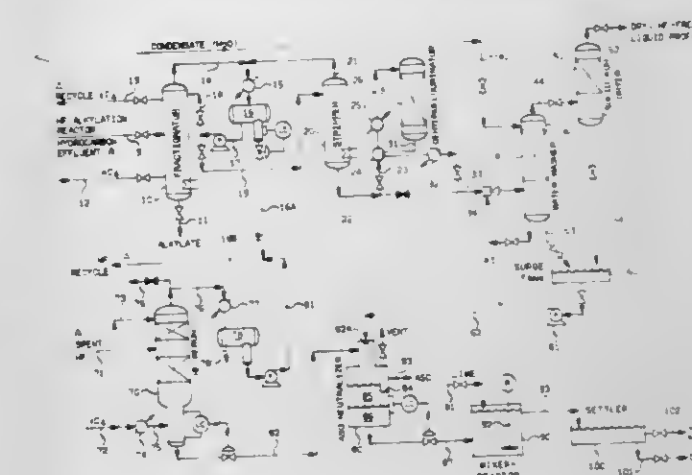
soluble oil with used water wash and aqueous alkaline treating

solution obtained from said water washing and from said dry-

ing, to remove from said acid soluble oil hydrogen fluoride,

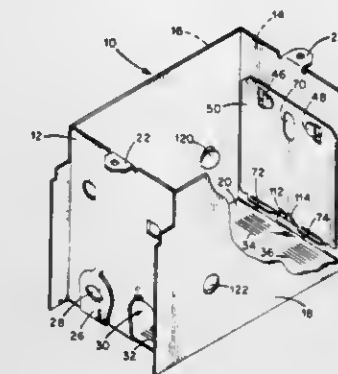
contacting the used treating solution upon separation from said

thus obtained to said alkylation operation to therein feed olefin-containing feed fed to said operation.



ELECTRICAL

4,316,999
ELECTRICAL WIRING BOX AND CABLE CLAMP
 William Nattel, Montreal, Canada, assignor to GTE Sylvania Canada Limited, Montreal, Canada
 Filed Jul. 23, 1980, Ser. No. 171,925
 Int. Cl.³ H02G 3/08
 U.S. Cl. 174—65 R 18 Claims

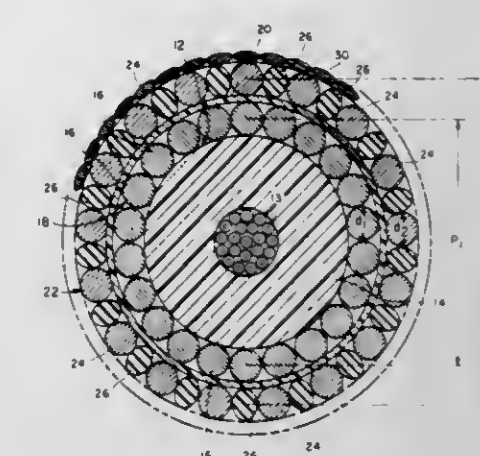


1. An electrical wiring box arrangement comprising: an electrical wiring box including:
 - a wall structure defining front-to-rear walls and a rear wall therebetween which in combination define a chamber within the box;
 - said wall structure having a knock-out region for providing a knock-out opening for receiving non metallic sheathed cable, first attachment means for mounting cable clamp means interior to said box adjacent to said knock-out region, and first cable engaging means; and
 - a cable clamp means for clamping non-metallic sheathed cable including:
 - a substantially flat flexible and resilient main body portion having opposite first and second end portions, and first and second flat surfaces; second attachment means in said first end portion for coaxing with said first attachment means of said electrical wiring box to attach said cable clamp means to said wall structure; and
 - cable retaining means comprising a foot portion contiguous with said second end portion of said cable clamp means, said foot portion having first and second surfaces; said first surface of said foot portion subtending a dihedral angle from about 75° to about 90° with said first surface of said main body portion; a heel edge being formed at the vertex of the dihedral angle at the intersection of said second surface of said foot portion and said second surface of said main body portion providing second cable engaging means;
- whereby a cable passing through a knock-out opening of an electrical wiring box having said cable clamp means attached to the wall structure thereof, deflects said second end of said cable clamp means inwardly into said chamber securing said cable against removal from said knock-out opening in an outward direction by the action of said first and said second cable engaging means bearing oppositely against said cable.

4,317,000
CONTRAHELICALLY LAID TORQUE BALANCED BENTHIC CABLE
 Kenneth M. Ferer, Covington, La., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
 Filed Jul. 23, 1980, Ser. No. 171,567
 Int. Cl.³ H01B 7/14, 7/18
 U.S. Cl. 174—70 R 10 Claims

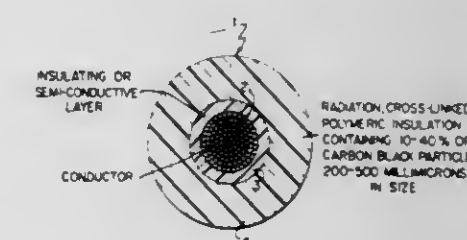
1. A torque balanced cable comprising in combination:
 - a central core means;
 - an inner strand layer comprising a number of first load bearing strands helically laid about said core means with a predetermined first pitch angle of a first hand and a first pitch diameter;
 - a composite outer strand layer comprising a number of load bearing second strands helically laid about said inner

strand layer with a predetermined second pitch angle substantially equal in magnitude to said first pitch angle but of opposite hand, a second pitch diameter, and a plurality of substantially non-load bearing filler strands disposed alternatively between said second strands; said first and second load bearing strands being formed of relatively stretch resistant first synthetic fiber material and



said filler strands being formed of relatively elastically compliant second synthetic fiber material; and barrier layer means, disposed between said inner and outer strand layers for preventing abrasion therebetween; said number of first load bearing strands bearing a ratio to said number of second load bearing strands that is substantially proportional to the ratio that said second pitch diameter bears to said first pitch diameter.

4,317,001
IRRADIATION CROSS-LINKED POLYMERIC INSULATED ELECTRIC CABLE
 David A. Silver, Livingston; Rudolf G. Lukac, East Brunswick, and Solomon Rubinstein, Fanwood, all of N.J., assignors to Pirelli Cable Corp., Union, N.J.
 Continuation of Ser. No. 14,744, Feb. 23, 1979, abandoned. This application Sep. 18, 1980, Ser. No. 188,529
 Int. Cl.³ H01B 3/18 9 Claims
 U.S. Cl. 174—102 SC



1. An electric cable comprising a conductor and at least one layer of insulating material therearound, said layer comprising a radiation cross-linked, polymeric material with carbon black distributed therein, the amount and particle size of the carbon black which is present in the polymeric material being such that the volume resistivity of said layer of insulating material is at least 1×10^{10} ohm-cm. but carbon black having a particle size in the range from about 200 to about 500 millimicrons being present in the polymeric material in an amount of about 10% to about 40% of the total weight of the polymeric material and the carbon black therein in particle sizes and amounts different from particle sizes in said range and in said amount not only by having a resistivity of at least 1×10^{10} ohm-cm. but also by having a greater dielectric strength and a reduction in

at least one of the number and of the size of electron trees therein as compared to such other insulating layers having lesser amounts of said carbon black.

4,317,002

MULTI-CORE POWER CABLE

Lyndon R. Spicer, Llandevaud, Wales, assignor to International Standard Electric Corporation, New York, N.Y.
Filed Oct. 24, 1979, Ser. No. 87,893

Claims priority, application United Kingdom, Nov. 21, 1978, 45336/78

Int. Cl.³ H01B 7/22

U.S. Cl. 174—105 R

7 Claims



1. A multi-core power cable comprising:
 - a central conductor,
 - a first insulating layer disposed coaxially around said central conductor,
 - at least one tubular intermediate conductor disposed coaxially around said first insulating layer,
 - an intermediate insulating layer disposed coaxially around each said intermediate conductor,
 - an outer tubular conductor disposed coaxially around said intermediate insulating layer,
 - at least one of said conductors comprising a plurality of stranded wires and interstitial spaces, said interstitial spaces being filled with a flexible material,
 - said conductors forming cores and being of substantially equal cross-section,
 - an insulating layer disposed over said outer tubular conductor,
 - a sheath arranged over said insulating layer, and armouring arranged over said sheath.

4,317,003

HIGH TENSILE MULTIPLE SHEATH CABLE

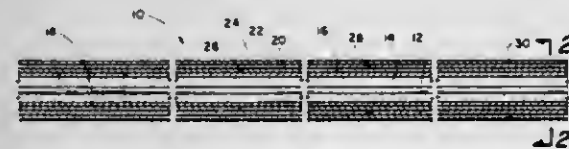
Stanley J. Gray, 8502 E. 121st St., Bixby, Okla. 74008

Filed Jan. 17, 1980, Ser. No. 112,933

Int. Cl.³ H01B 7/24

U.S. Cl. 174—106 R

8 Claims



1. A multiple sheath cable comprising at least one conductor element surrounded by insulation material, a first tubular metal sheath tightly surrounding said insulation material and conductor element, said first metal sheath comprising a plurality of elongated segments longitudinally seam welded having ends thereof butt welded to form spaced splice joints, said joints having diameter substantially equal to the diameter of the first metal sheath, a second tubular metal sheath tightly surrounding said first tubular metal sheath and comprising a plurality of elongated segments longitudinally seam welded and having ends butt welded to form second spaced splice joints, said first and second splice joints being longitudinally staggered for

increasing tensile strength of the completed cables and wherein the seam welds of said first and second tubular metal sheaths are radially offset so as not to overlap.

4,317,004

IMAGING AND SCANNING SYSTEM

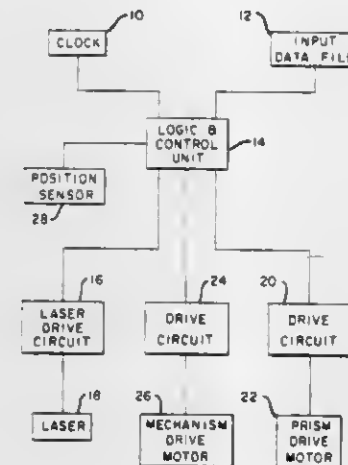
John W. Reece, Ithaca, N.Y., assignor to NCR Corporation, Dayton, Ohio

Filed Dec. 31, 1979, Ser. No. 108,878

Int. Cl.³ G09F 9/34; H04L 23/00; H04N 1/06

U.S. Cl. 178—15

5 Claims



1. An imaging system for recording input information on a photosensitive record medium, comprising a
 - laser light source,
 - light guide means comprising a sheet of optical fibers having a predetermined length and arranged in a circle at one end thereof adjacent said light source and unfurled to form a straight line at the other end thereof,
 - means for sensing a selected one of said optical fibers at said one end thereof for coinciding with and initiating flow of input information to be recorded,
 - deflective prism means receiving a beam of light in a line from said light source and for directing said light in a radial direction to said one end of said light guide means,
 - means for driving said deflective prism means in a rotary direction to direct said light in said circle of light guide means, and
 - means for synchronizing the flow of input information to be recorded with the beam of light emitted from said laser light source and with said means for driving said deflective prism means for generating a row of dots along said line corresponding to input information transmitted during one revolution of said prism means.

4,317,005

POSITION-DETERMINING SYSTEM

Pieter de Bruyne, Probsteistr 79, CH8051 Zurich, Switzerland

Filed Oct. 15, 1979, Ser. No. 84,905

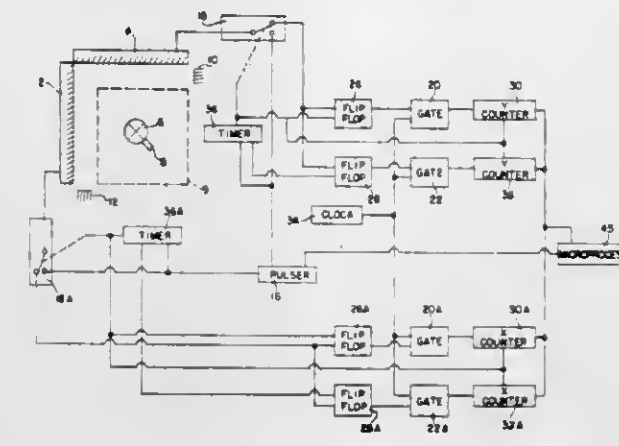
Int. Cl.³ G08C 21/00

U.S. Cl. 178—19

4 Claims

1. Position-determining apparatus including
 - a movable object whose position between maximum and minimum limits is to be determined and which includes a surface capable of reflecting acoustic waves,
 - transducer means arranged to radiate acoustic waves in the direction of said object and to receive acoustic waves reflected therefrom,
 - pulse generation means for energizing said transducer to produce acoustic impulses,
 - a calibration reflector capable of reflecting acoustic waves positioned within the range of said transducer means but outside the maximum and minimum limits of position measurement, and

timing means responsive to impulses received by said transducer means to produce acoustic impulses,



wherein said timing means is operative to measure the relative reception times of pulses reflected from said object and said calibration reflector.

4,317,006

LOAD COIL

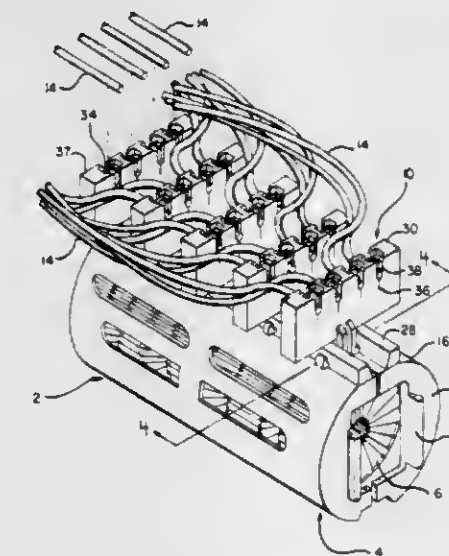
Benjamin H. Mosser, III, Middletown, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Jun. 9, 1980, Ser. No. 157,743

Int. Cl.³ H01F 17/08, 5/04, 41/10

U.S. Cl. 178—46

8 Claims



1. A coil cartridge of the type comprising a cylindrical coil housing, a stack of coils within said coil housing arranged coaxially with the axis of said coil housing, the coil wires of said coils extending from said coils through an axially extending seam in said coil housing to terminal means on the surface of said coil housing, said coil wires being connected to said terminal means, said coil housing having a longitudinally extending hinge which is opposite to said seam to permit placement of said coils in said coil housing when said coil housing is open and to permit subsequent closing of said coil housing so that said coils are contained in said coil housing, said coil cartridge being characterized in that:
 - said coils have terminal housing means associated therewith,
 - said terminal housing means having a plurality of terminal-receiving cavities extending into said housing from surface portions thereof, each of said cavities having a terminal therein, said terminal in each cavity having a coil wire-receiving slot extending into a first end thereof and a lead wire-receiving slot extending into a second end thereof, said first end of each terminal being at the inner end of its respective cavity, said second end of each terminal being adjacent to said surface portions of said terminal housing, said coil wires extending to, and being received in, said coil wire-receiving slots,
 - said terminal housing means being originally separated from, and being assembled to, said coil housing, said terminal housing means and said coil housing means having inter-

engaging means serving to maintain said coil housing in its closed condition whereby, said coil cartridge can be produced by first connecting the ends of said coil wires to terminals in said terminal housing means, thereafter placing said coils in said coil housing, closing said coil housing and engaging said interengaging means.

4,317,007

TELEPHONE-CONFERRING METHOD AND APPARATUS WITH MONITOR-ONLY ACCESS

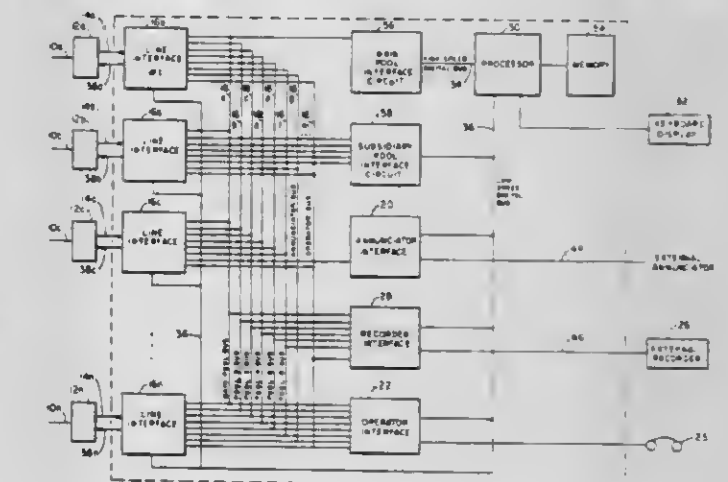
John M. Harrison, Epsom, N.H., assignor to Small World Exchange, Inc., Nashua, N.H.

Filed Mar. 23, 1979, Ser. No. 23,164

Int. Cl.³ H04M 3/22, 3/56

U.S. Cl. 179—18 BC

16 Claims



1. Caller-initiated telephone conferencing apparatus comprising
 - caller-responsive input means for concurrently receiving a plurality of incoming telephone line calls over an associated plurality of incoming telephone lines and including means for responding to a signalling indication on any incoming telephone line for conditioning the line for communication, and
 - switching means responsive to said input means for selectively connecting any of said conditioned incoming lines to any of plural conference groupings wherein any of said incoming lines in a grouping can receive signals from all other incoming lines connected to said grouping and for selectively connecting lines in at least one grouping such that a selected sub-group of the lines only receives messages whereas another sub-group of lines of that grouping both receives and transmits messages.
10. Telephone conferencing apparatus comprising
 - input means for concurrently receiving a plurality of incoming telephone-line calls over an associated plurality of incoming telephone lines,
 - switching means for selectively connecting any of said incoming lines to a conference grouping, said switching means being arranged to provide any incoming telephone line in a grouping for receiving signals from all other incoming lines connected to said grouping and to provide selected ones of the lines in a grouping for also transmitting signals to the other lines of that grouping, and wherein said grouping has the capacity of at least three incoming lines,
 - monitor means operatively responsive to incoming signal energy on each incoming line of a grouping for generating electrical incoming voice-indicative report signals distinct from incoming voice communication, and
 - control means arranged for receiving said report signals and arranged for controlling said switching means for the selection of incoming lines for said transmitting of signals.

4,317,008

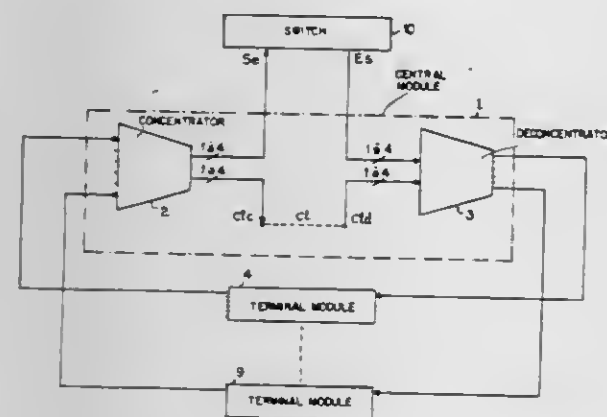
MODULAR TIME-DIVISION SWITCHING NETWORK
Claude Athenes; Jean L. J. Meresse, and Jacques E. Salle, all of
Colombes, France, assignors to Le Materiel Telephonique
Thomson-CSF, Paris, France

Filed Apr. 25, 1980, Ser. No. 143,555

Claims priority, application France, Apr. 27, 1979, 79 10805
Int. Cl.³ H04Q 3/60

U.S. Cl. 179—18 FC

6 Claims



1. A modular switching network for small-capacity time-division telephone exchange units for interconnecting subscriber and trunk line connecting units, each subscriber and trunk line connecting unit comprising a certain number of PCM trunks for connecting said subscriber and trunk line connecting units to said exchange units, and each said PCM trunk constituting an input and an output of a central module contained in the subscriber trunk line connecting unit, wherein the subscriber and trunk line connecting units are connected directly in pairs by said PCM trunks.

4,317,009

COLDPROOF REFLEX HORN SPEAKER

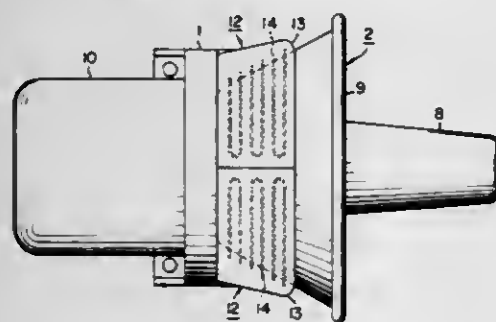
Yoshishige Shintaku, Osaka, Japan, assignor to Ibuki Kogyo Co., Ltd., Osaka, Japan

Filed Jun. 10, 1980, Ser. No. 158,277

Claims priority, application Japan, Apr. 8, 1980, 55-47574[U]
Int. Cl.³ H04R 1/00, 9/06

U.S. Cl. 179—115.5 H

3 Claims



1. A coldproof reflex horn speaker comprising:
(a) a frame;
(b) a magnet mounted to the frame;
(c) a diaphragm arranged in front of the magnet, whose end periphery is wound by a voice coil; and
(d) inner and outer horns mounted to the frame, characterizing by an electric heater device disposed to the outer horn.

4,317,010

REMOTE MONITORING SYSTEM FOR REMOTE LOCATING AND GAIN REGULATING OF AMPLIFICATION CIRCUITS IN DATA TRANSMISSION LINE

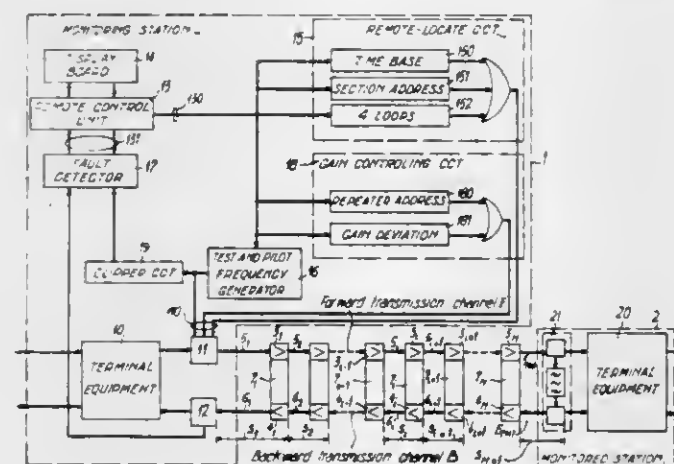
Jean-Jacques Y. Fillot, 2 Residence Grand Champ, rue des Entrees, Marly-le-Roi, France (78160)

Filed Dec. 26, 1979, Ser. No. 107,418

Claims priority, application France, Dec. 22, 1978, 78 36097
Int. Cl.³ H04M 3/32

U.S. Cl. 179—175.31 R

20 Claims



1. In a remote monitoring system for monitoring remote amplification in line sections of a bidirectional data transmission line interconnected between a monitoring station and a monitored station;

each line section comprising:

- a forward transmission channel transmitting a first data signal from said monitoring station to said monitored station which is looped through repeaters with said monitoring station;
- a forward amplification circuit comprising amplifying means for said first data signal and regulating means for said forward circuit amplifying means;
- a backward transmission channel transmitting a second data signal from said monitored station to said monitoring station;
- a backward amplification circuit comprising amplifying means for said second data signal and regulating means for said backward circuit amplifying means;
- detecting means for an address signal not modified by a repeater and delivered on the forward transmission channel of said line section from said monitoring station; and
- switching means controlled by said address signal detecting means connecting the output of said forward circuit amplifying means to the input of said backward circuit amplifying means;

said monitoring station comprising:

- delivering means for said address signals in the forward direction on said forward transmission channel to provide the remote address location of a line section;
- register delivering means for at least one test signal and a pilot signal over the forward transmission channel which is looped with the said repeaters through the monitoring and monitored stations;
- analyzing means for detecting transmission faults after said forward and backward amplification circuits of the remote located line section have been looped through said monitoring station, from said test signal and said pilot signal which have been retransmitted on the backward transmission channel of said line from said monitored station;
- means for delivering address and gain variation control signals in said forward direction on said forward transmission channel after looping of said remote located line

section through said monitoring station in response to the transmission fault analysis in said analyzing means; each of said line sections further comprising means controlled by said address signal detecting means for validating all the amplification circuit address and gain variation control signals relating to said line section; and further comprising means for controlling said gain regulating means of each of said backward and forward amplification circuits of said line section in response to the validated amplification circuit address and gain variation control signal.

4,317,011

MEMBRANE TOUCH SWITCH

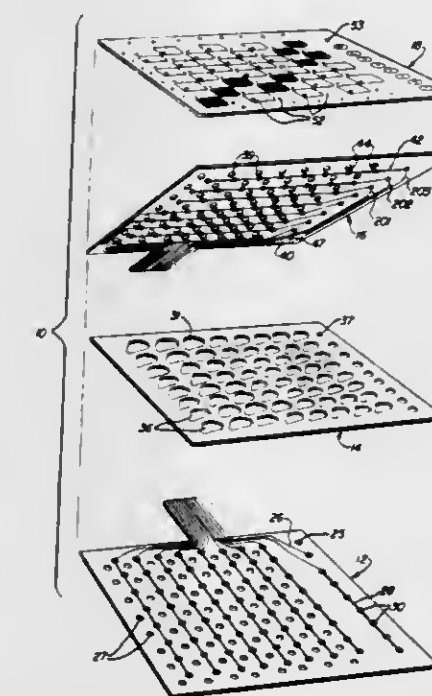
Louis R. Mazurk, Glenview, Ill., assignor to Chicago Decal Company, Chicago, Ill.

Filed Jan. 21, 1980, Ser. No. 113,609

Int. Cl.³ H01H 13/70

U.S. Cl. 200—5 A

13 Claims



1. A membrane switch comprising: a base sheet having a plurality of conductive lines on one surface of the sheet, each of said conductive lines including a layer of aluminum along the entire length of each of the conductive lines and a layer of silver contacting the layer of aluminum along the entire length of each of the conductive lines, a spacer sheet having one side adjacent to the side of the base sheet having the conductive lines, said spacer sheet having a plurality of apertures, each of said apertures being aligned with a selected portion of a selected conductive line, a flexible cover sheet positioned adjacent to the other side of the spacer sheet, a second plurality of flexible second conductive lines on the side of the flexible cover sheet adjacent to said base sheet having selected portions of the second conductive lines positioned in alignment with selected apertures, each of said second conductive lines having a second layer of aluminum along the entire length of each of the conductive lines and a second layer of silver along the entire length of each of the conductive lines contacting said second layer of aluminum, whereby flexing of a selected portion of the cover sheet toward a selected aperture moves that selected portion of the flexible second conductive line on that selected portion of the flexible cover sheet through the selected apertures into electrical contact with a selected portion of a selected conductive line on the base sheet aligned with the selected aperture.

4,317,012

DISPLAY BOARD TYPE SWITCHING DEVICE

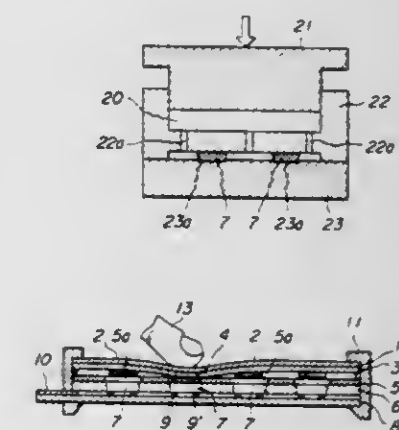
Toshiyuki Itoh, Yokosuka, Japan, assignor to Nissan Motor Company, Limited, Tokyo, Japan

Filed Apr. 17, 1980, Ser. No. 141,192

Claims priority, application Japan, Apr. 26, 1979, 54-50872
Int. Cl.³ H01H 1/02

U.S. Cl. 200—5 A

8 Claims



1. A switching device, comprising:
a flexible display board having a number of switching positions,
a sheet member in parallel and slightly spaced relationship with said flexible display board,
a number of pressure sensitive conducting rubber members integrally molded with said sheet member and disposed in corresponding positions to said switching positions respectively,
a pair of electrodes at positions corresponding to and connectable through each of said rubber members,
a hard base plate having cutout holes at positions corresponding to said respective switching positions disposed between said flexible display board and said sheet member, and
conducting bodies at said switching positions respectively contactable with the upper side of said conducting rubber members.
6. A method for manufacturing a sheet member for a pressure sensitive display board switching device and having a number of pressure sensitive conducting rubber members integrally molded with said sheet member, comprising the steps of:
arranging the number of pressure sensitive conducting rubber members at corresponding switching positions in a lower mold,
extruding gel-like insulative rubber compound from an upper mold by an extruding mold, and
vulcanizing the insulative rubber compound in the lower mold and thereby forming a flat rubber sheet having substantially the same height as that of the pressure sensitive conducting rubber members with said conducting rubber members being embedded in the insulative sheet.

4,317,013

MEMBRANE SWITCH WITH UNIVERSAL SPACER MEANS

Willis A. Larson, Crystal Lake, Ill., assignor to Oak Industries, Inc., Rancho Bernardo, Calif.

Filed Apr. 9, 1980, Ser. No. 138,656

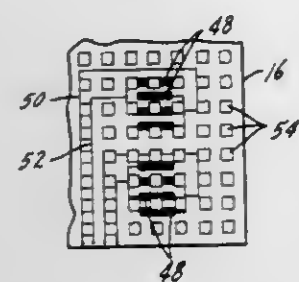
Int. Cl.³ H01H 9/00

U.S. Cl. 200—5 A

15 Claims

15. In a membrane switch, a flexible membrane, a substrate, a set of first conductors on the membrane including a plurality of switch sites, a set of second conductors on the substrate including a plurality of switch sites in facing relation with the switch sites of the first conductors, and a universal spacer

means which normally maintains the first and second conductors in spaced, non-contacting relation while permitting pres-



sure-responsive contact between aligned switch sites which can be anywhere on the membrane and substrate.

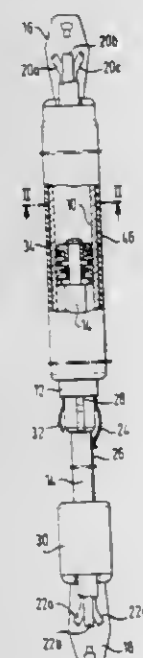
4,317,014 GAS SPRING

Rolf Langanke, Boppard, Fed. Rep. of Germany, assignor to Stabilus GmbH, Koblenz-Neuendorf, Fed. Rep. of Germany
Filed Apr. 17, 1980, Ser. No. 140,453
Claims priority, application Fed. Rep. of Germany, Apr. 28, 1979, 2917390

Int. Cl.³ H01H 3/00

U.S. Cl. 200—61.62

21 Claims



1. In a gas spring comprising

- a cylinder member having an axis and being formed with a cavity, said cylinder member being closed at one end thereof and being provided with a sealing and guiding unit at the other end thereof;
- a body of gas under superatmospheric pressure in said cavity;
- a piston rod member axially movable inward and outward of said cavity in sealing engagement with said sealing and guiding unit;
- fastening means attached to respective portions of said members outside said cavity for fastening said members to respective objects;
- at least one first electrically conductive terminal on said cylinder member accessible from outside said cavity;
- at least one second electrically conductive terminal on said piston rod member accessible from outside said cavity; and
- conductive means connecting said terminals during at least a portion of the movement of said piston rod member with respect to said cylinder member, the improvement wherein:

said conductive means includes a printed circuit-type conductor provided on a flexible strip of insulating sheet material, said strip being applied to the outer exterior face of said cylinder member and shaped in conformity there-

with and extending over at least part of the axial length of said cylinder member.

4,317,015

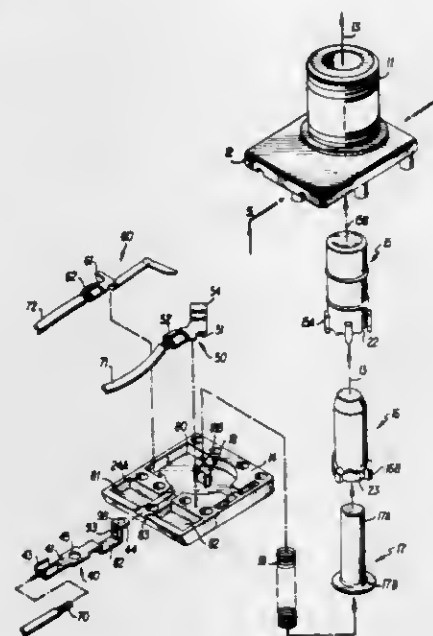
MULTI-CIRCUIT SWITCH ASSEMBLY

Horace J. Buttner, 1501 Palos Verdes Dr., North, Harbor City, Calif. 90710, and Arnold B. Nordstrom, Torrance, Calif., assignors to Horace J. Buttner, Harbor City, Calif.
Filed Nov. 30, 1979, Ser. No. 99,043

Int. Cl.³ H01H 13/56

U.S. Cl. 200—153 J

8 Claims



1. A pushbutton switch assembly, comprising:
moveable contact means projectable between first and second stable positions in which said moveable contact means is alternatively in contact with a second contact means or a third contact means;
moving means for projecting said moveable contact means between said first and second stable positions, said moving means including a rotary ratcheting mechanism having the characteristic that its travel from said first to said second stable positions includes an extra motion beyond and returning to said second stable position for indexing of said ratcheting mechanism;
said third contact means being positioned to contact said moveable contact means in said second stable position and having a configuration including a plurality of attached portions, which portions extend in at least one plane lying generally across the line of travel of said moveable contact means, said portions having longitudinal axes which are at a sufficient angle in their respective plane or planes whereby one of said portions, when deflected, is adaptable to cause torsional strain in at least one of the remaining portions.

4,317,016

INDUCTION HEATING COOKING APPARATUS

Susumu Ito, Fuji, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Dec. 17, 1980, Ser. No. 217,442

Claims priority, application Japan, Dec. 27, 1979, 54-171681

Int. Cl.³ H05B 5/04

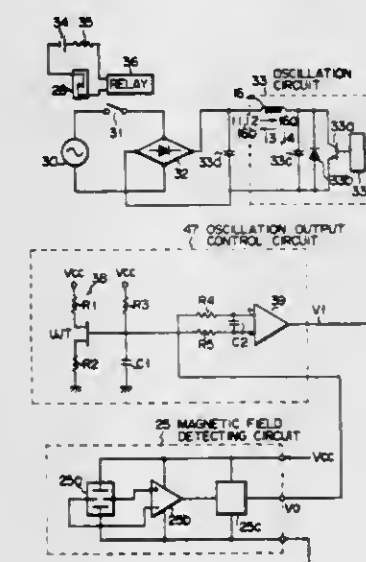
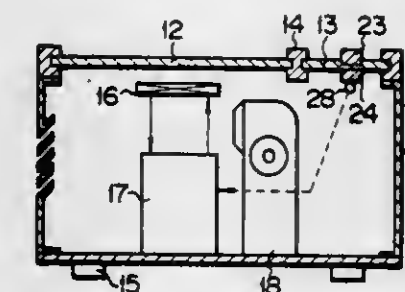
U.S. Cl. 219—10.49 R

12 Claims

1. An induction heating cooking apparatus comprising a housing with a top plate section including a first nonmagnetic portion on which an induction heating pan is placed and a second nonmagnetic portion for controlling the induction heating of the cooking pan; a drive circuit with an oscillation circuit including an induction heating coil for heating said cooking pan, which is contained in said housing for being

connected to an external power source; and oscillation output control means for controlling the oscillation output of said oscillation circuit; wherein said oscillation output control means comprises:

- a magnetic field generating element slidable along a guide path formed on the surface of said second portion of said top plate section;
- a magnetic field adjusting plate made of a magnetic material and provided on the inner side corresponding to said guide path of said second portion of said top plate section;



- a magnetic field detecting circuit which is provided close to a first end of said magnetic field adjusting plate and includes a semiconductor element for producing an output signal corresponding to an intensity of a magnetic field developed from said magnetic field generating element; and
- an oscillation output control circuit which compares the output signal from said magnetic field detecting circuit with a reference signal produced from a reference signal generating circuit.

4,317,017

MICROWAVE STEAMER

Robert F. Bowen, Burlington, Mass., assignor to Raytheon Company, Lexington, Mass.

Filed Mar. 3, 1981, Ser. No. 239,970

Int. Cl.³ H05B 6/80

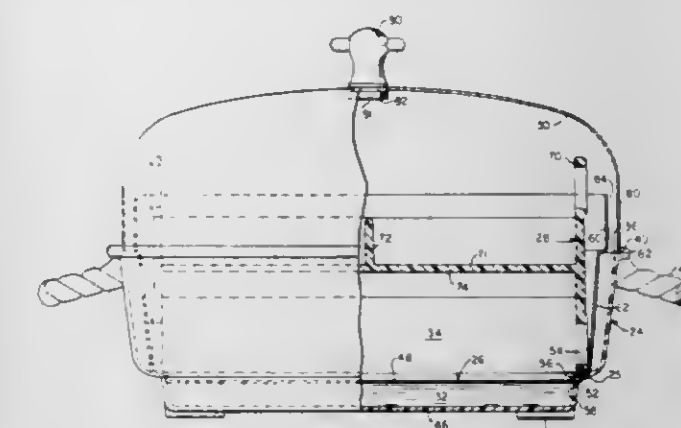
U.S. Cl. 219—10.55 E

22 Claims

1. In combination:

- a microwave transparent container;
- a microwave reflective container having at least a portion removably positioned in said microwave transparent container, said microwave reflective container having a perforated bottom spaced from the bottom of said microwave transparent container; and
- a microwave reflective lid removably supported by said microwave transparent container, said lid having a region

around its periphery substantially parallel to portions of said microwave reflective container for a distance of



greater than 0.5 inches in a direction perpendicular to the edge of said lid.

4,317,018

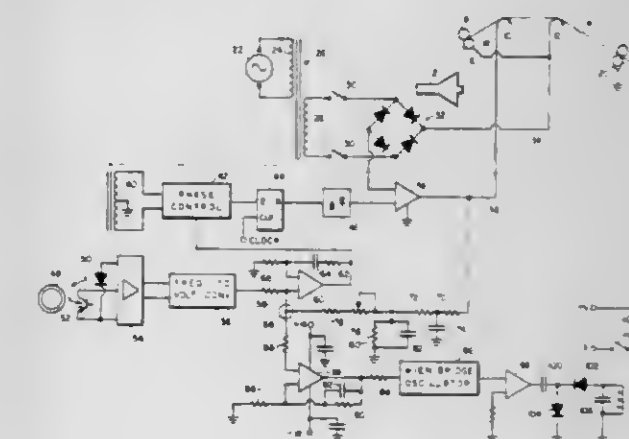
FAIL SAFE CONTROL CIRCUIT

Richard W. Denny, Littleton, and Paul A. Diddens, Denver, both of Colo., assignors to Honeywell, Inc., Minneapolis, Minn.
Filed Mar. 12, 1981, Ser. No. 242,969

Int. Cl.³ H05B 1/02

U.S. Cl. 219—216

14 Claims



1. An energization control circuit for dynamically controlling the flow of electrical current to a utilization means comprising:

- an energy loop including means connected to a current source means, a current control means, switch means connected between said current control means and said means connected to said current source means, said current control means having an output for connection to said utilization means;
- a control loop including a condition responsive signal generating means, an operational amplifier having an input at a summing junction connected to the output of said signal generating means, a control signal generating means having a control input connected to the output of said operational amplifier, said control signal generating means having an output connected to a control input of said current control means, and a feedback network connected between said output of said current control means and said summing junction; and
- a safety shut-off loop connected to said summing junction and including means responsive to a voltage signal at said summing junction to provide a deviation indicative signal, an oscillator connected to be responsive to said deviation indicative signal, said oscillator being operative to provide an oscillatory output signal only when said deviation indicative signal is between predetermined limiting values, and means connected to said oscillator to be responsive to said oscillatory output signal to maintain said switch

means closed only during the continuance of said oscillatory output signal.

4,317,019

METHOD AND APPARATUS FOR ELECTRICALLY CUTTING WORK PIECES WITH A WIRE ELECTRODE

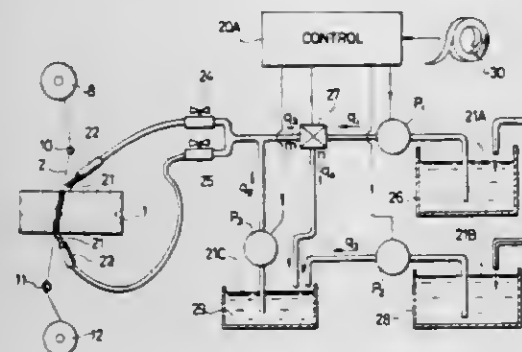
Teturoh Itoh, Nagoya, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 30, 1979, Ser. No. 71,416

Int. Cl.³ B23P 1/02

U.S. Cl. 219—69 M

7 Claims



1. In a method of electrically cutting a work piece with a wire electrode, said work piece being electrically cut by applying electric current through a cutting liquid in a cutting gap formed by said wire electrode and said work piece, said wire electrode and work piece being moved relative to each other to cut said work piece into an article having a desired configuration, the improvement comprising the step of: during said cutting, controllably changing the specific resistance of said cutting liquid supplied to said cutting gap during a taper portion of cut, as compared to a non-taper portion, said change in the specific resistance being effected in response to signals from a controller.

4,317,020

APPARATUS FOR CONDUCTING SMUT-FREE WELDING

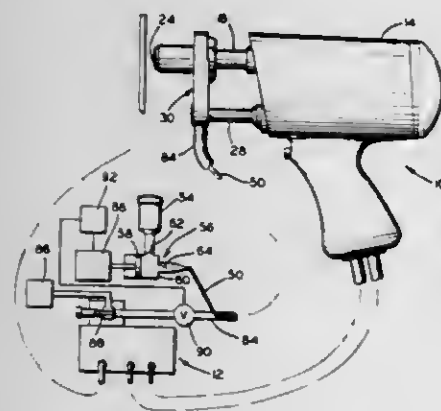
Thomas E. Shoup, Amherst, Ohio, assignor to TRW Inc., Cleveland, Ohio

Filed Sep. 14, 1979, Ser. No. 75,751

Int. Cl.³ B23K 9/20

U.S. Cl. 219—98

24 Claims



1. Apparatus for welding a stud to a workpiece with the workpiece around the stud being maintained substantially free of contaminant coatings, said apparatus comprising a welding tool having means for holding the stud, means for establishing a welding arc between the stud and the workpiece, and means for moving the stud toward and away from the workpiece, a spark shield body, a welding foot supporting an end portion of said spark shield body in a position around said holding means with said spark shield body having an inner surface spaced from said holding means and an outer surface, said spark shield body having a plurality of fluid passages extending from the

outer surface toward the other end portion of said shield body and spaced around the periphery of said shield body, each of said passages being positioned at an angle to a radius of said spark shield body, a source of gas under pressure communicating with ends of said passages for supplying gas through said passages during a welding operation, and a source of anti-smut liquid under pressure communicating with the ends of said passages for supplying liquid through said passages during the welding operation.

4,317,021

LASER CUTTING APPARATUS FOR NUCLEAR CORE FUEL SUBASSEMBLY

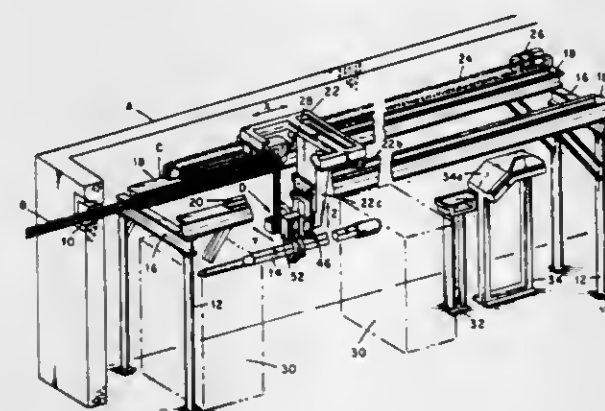
Allan P. Walch, Manchester, and Antonio B. Caruolo, Vernon, both of Conn., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Feb. 22, 1980, Ser. No. 123,861

Int. Cl.³ B23K 27/00

U.S. Cl. 219—121 LG

17 Claims



1. Apparatus for cutting an outer shroud of an elongated core fuel subassembly and the like utilizing an associated laser beam, said apparatus comprising:

- a frame;
- means for supporting said core fuel subassembly beneath said frame;
- first carriage means carried by said frame for translatable movement in a longitudinal direction along said frame;
- a first turning mirror carried by said first carriage means for directing said laser beam in a vertical direction producing a generally vertical laser beam;
- a second carriage means carried by said first carriage means for translatable movement in a vertical direction;
- a second turning mirror carried by said second carriage means for receiving said vertical laser beam and directing said beam in a generally horizontal direction;
- a third carriage means carried by said second carriage means for translatable movement in a lateral direction transverse to said longitudinal direction;
- mirror means carried by said third carriage means for receiving said laser beam from said second turning mirror and focusing said beam at a focal point on said core fuel shroud; and
- means for guiding said second and third carriage means during cutting operations automatically moving said second and third carriage means in said vertical and lateral directions to maintain said focal point of said laser beam at the correct location for cutting.

4,317,022

ELECTRON BEAM WELDING MACHINE

Hisanao Kita, Hitachi; Yoshinori Karatsu; Takamitsu Nakazaki, both of Takahagi, and Yoji Akutsu, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

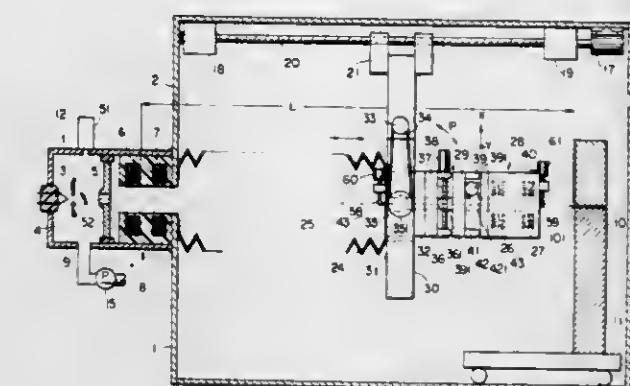
Filed Nov. 19, 1980, Ser. No. 208,428

Claims priority, application Japan, Nov. 19, 1979, 54-148914

Int. Cl.³ B23K 27/00

U.S. Cl. 219—121 EU

13 Claims



- 1. An electron beam welding machine comprising: a vacuum chamber in which a workpiece is to be located; electron gun means for producing an electron beam along a path and including first beam adjusting means for modifying said beam, said electron gun being mounted on said vacuum chamber;
- second beam adjusting means spaced from said first beam adjusting means and being movably mounted in said chamber for movement along said electron beam path for adjusting said electron beam from said first beam adjusting means so as to direct said beam to a desired spot of the workpiece; and
- position adjusting means for adjusting the position of said second beam adjusting means, said position adjusting means including first means for moving said second beam adjusting means in a plane perpendicular to the electron beam path and second means for rotating said second beam adjusting means about an axis perpendicularly crossing the electron beam path.

4,317,023

METHOD OF MAKING SLOTTED WELL SCREEN

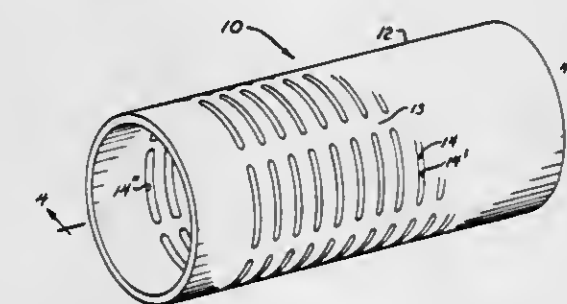
Gregory A. Gryskiewicz, North St. Paul, Minn., assignor to UOP Inc., Des Plaines, Ill.

Division of Ser. No. 119,279, Feb. 7, 1980. This application Nov. 24, 1980, Ser. No. 210,097

Int. Cl.³ B23K 27/00

U.S. Cl. 219—121 LN

4 Claims



1. A method of producing a slotted plastic well screen from a single hollow cylinder of plastic comprising the steps of rotating the cylinder, focusing a laser beam on or slightly above the outer surface of the cylinder so that the beam diverges slightly as it passes through the outer surface and vaporizes the underlying plastic to form a slightly undercut slot having tapered walls which diverge from each other in an inward direction.

4,317,024

ADJUSTABLE AIR-CARBON ARC TORCH

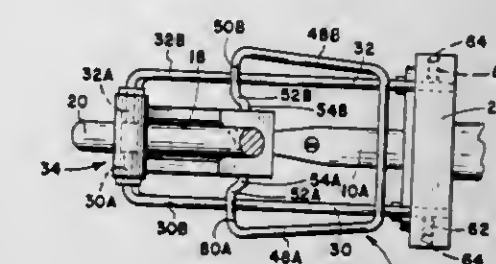
Paul B. Moss, 202 S. Lansing, Tulsa, Okla. 74102

Filed Jun. 19, 1980, Ser. No. 161,030

Int. Cl.³ B23K 9/28

U.S. Cl. 219—144

19 Claims



- 1. A holder for an electrode comprising: a body of conductive material having a forward and rearward end, the rearward portion having an insulated cover forming a handle adaptable to be engaged by the hand of the user;
- an electrode support affixed to said body forward end and having an elongated groove in the top surface configured to receive an electrode therein, the electrode support having a forward end and a rearward end;
- an insulated block affixed to said body and spaced from said forward end;
- a pair of elongated paralleled bail members extending from said block and to either side of said electrode support, the bail members each having inner and outer ends;
- an electrode engagement member secured between outer ends of said bail members, an electrode being receivable between the electrode engagement member and said electrode support; and
- a wire lever in the form of a U, the two ends being being inwardly towards each other and pivotally received, one from each side into opposed co-linear openings in the side walls of said electrode support so that the wire lever is pivotal towards and away from said handle, each leg of the wire lever being bent at a sharp angle, the intermediate portion of each leg of the wire lever engaging said bail member on the side thereof opposite said body whereby when the wire lever is pivoted towards said body it serves to deflect said bail members outer ends towards said electrode support and said wire lever is locked in closed position by toggle action.

4,317,025

LOW WATTAGE ELECTRIC OVEN FOR MOBILE VEHICLES

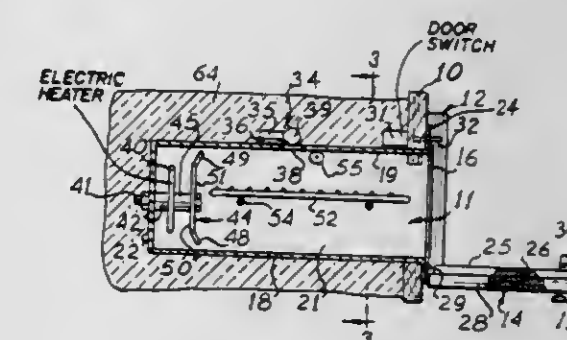
Roger A. Starnes, 4502 Sodbury Rd., Doraville, Ga. 30360

Filed Dec. 31, 1979, Ser. No. 108,564

Int. Cl.³ A21B 1/22; F24C 15/32; F27D 21/02

U.S. Cl. 219—202

1 Claim



1. An oven for mobile vehicles and the like for operation from the vehicle's electrical system, said oven including a cooking chamber defined by a top and bottom, side walls connecting said top and bottom, and a back closing the rear of

said cooking chamber, a face plate carrying said top and bottom and said side walls for mounting said oven within a vehicle, said face plate defining an opening therein for providing access to said cooking chamber, a door hinged to said face plate for selectively closing said opening, catch means for holding said door tightly closed, and sealing means between said door and said face plate to prevent heat loss, a secondary wall generally parallel to and spaced inwardly from said back, said secondary wall extending substantially the width of said cooking chamber and having less height than said cooking chamber, a low wattage electrical heating element operable on the voltage of a vehicle's electrical system for heating said cooking chamber, said electrical heating element being plate-like and mounted between said back and said secondary wall parallel to said secondary wall, the arrangement being such that air currents can pass beneath said secondary wall to be heated by said heating element and can pass over said secondary wall and into said cooking chamber, said secondary wall having a rear surface facing said heating element and a front surface facing said cooking chamber, said rear surface being smooth and shiny to reflect radiant heat, said front surface being dull and roughened to readily dissipate heat therefrom into the cooking chamber, so that said secondary wall will have a temperature no higher than the temperature of said cooking chamber, and a light operable on a vehicle's electrical system for selectively illuminating said cooking chamber, said light including a light socket and a bulb, said light socket being mounted on said top, outside said cooking chamber, a heat insulator disposed between said light socket and said top, and a hole defined in said top aligned with said bulb for admitting light into said cooking chamber, a temperature sensing means disposed within said cooking chamber and control means for selectively energizing said heating element in response to said temperature sensing means, and thick thermal insulation covering said walls, said top and bottom and said back of said oven, said light being between said insulation and said top.

4,317,026

DEVELOPING CHAMBER

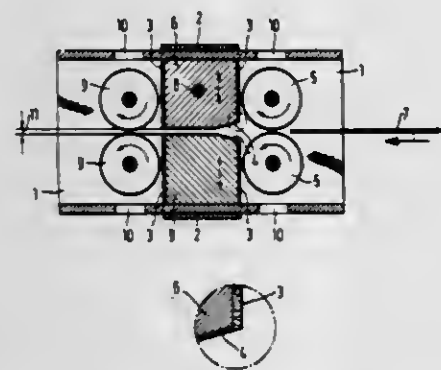
Jochen Koblo, Wiesbaden-Auringen, and Götz von dem Bussche, Schwalbach, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany
Filed Mar. 25, 1980, Ser. No. 133,894

Claims priority, application Fed. Rep. of Germany, Mar. 28, 1979, 7908775[U]

Int. Cl.³ H05B 1/00

U.S. Cl. 219—216

6 Claims



1. In a developing chamber for developing a photographic recording material for use in the vesicular method, comprising a housing and pairs of feed and discharge rolls therein, the improvement comprising at least two heatable metal blocks within said housing at an adjustable distance with respect to each other whereby a gap for a rectilinear passage of recording material is provided, the distance between said blocks facing the gap and a surface of the recording material in said gap being in the range of about 25 to 50 μm , sliding enhancing material means in areas of said blocks

facing said gap, said sliding enhancing material means being inert to said recording material, and temperature control means ensuring low temperature variations in said blocks and a temperature variation in said gap less than about $\pm 1.5^\circ\text{C}$.

4,317,027

CIRCUIT PROTECTION DEVICES

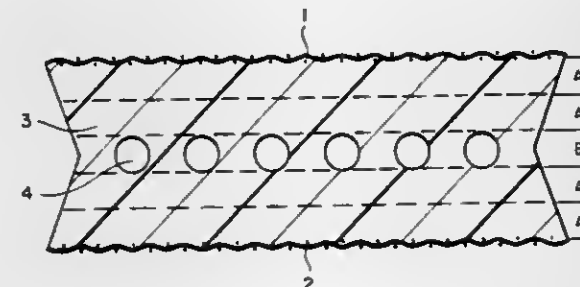
Lee M. Middleman, Portola Valley, and Joseph H. Evans, Palo Alto, both of Calif., assignors to Raychem Corporation, Menlo Park, Calif.

Filed Apr. 21, 1980, Ser. No. 142,054

Int. Cl.³ H05B 3/10

U.S. Cl. 219—553

16 Claims



1. An electrical device which comprises

(1) a laminar conductive polymer element, at least a part of which is a PTC element, and

(2) two substantially planar electrodes which lie either side of the laminar conductive polymer element and which can be connected to a source of electrical power, said electrodes being electrically connected to opposite faces of said conductive polymer element so that when the electrodes are connected to a source of electrical power, they cause current to flow through said PTC element;

said device being such that, if the portion thereof between the electrodes is divided into parallel-faced slices, the thickness of each slice being about 1/5 of the distance between the closest points of the two electrodes and the faces of the slices being planes which are perpendicular to a line joining the closest points of the two electrodes, then there are at least two Type A slices, each of which

(a) comprises a part of the PTC element which, when the current through the device is increased rapidly from a level at which the PTC element is in a low temperature, low resistance state to a level which converts the PTC element into a high temperature high resistance state, increases in temperature at a rate x , and which

(b) is free, within the periphery of the conductive polymer element, of portions having a resistivity at 23°C . higher than said conductive polymer and extending through the thickness of the slice,

and at least one Type B slice which

(a) comprises a part of the conductive polymer element which, when current through the device is increased rapidly from a level at which the PTC element is in a low temperature, low resistance state to a level which converts the PTC element into a high temperature high resistance state, increases in temperature at a rate y which is greater than x ; and

(b) comprises, within the periphery of the conductive polymer element, at least one first portion composed of a conductive polymer and at least one second portion comprising a material having a resistivity at 23°C . higher than said conductive polymer;

each of the slices adjacent an electrode being a Type A slice.

4,317,028

SUBSCRIBER CHECK ACCEPTING AND ISSUING APPARATUS

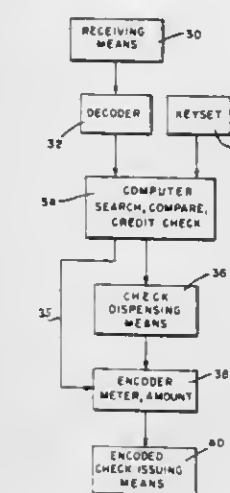
Luther G. Simjian, 1750 S. Ocean La., Fort Lauderdale, Fla. 33316

Filed Apr. 21, 1980, Ser. No. 142,263

Int. Cl.³ G06K 7/00

U.S. Cl. 235—380

6 Claims



1. A subscriber operable apparatus including check receiving means, dispensing means and computer means for establishing the authenticity of a check accepted by searching its stored account data comprising:

means for receiving an encoded check adapted to having been used for operating a metering device;

means for providing a subscriber identifying code signal;

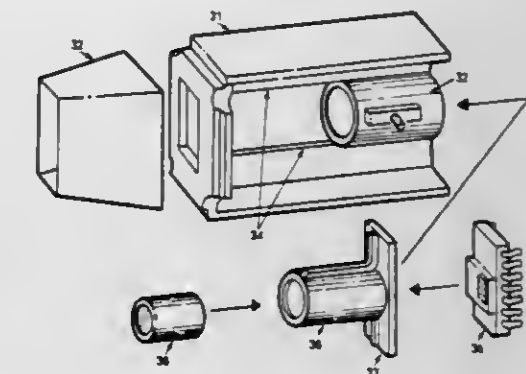
means for decoding an encoded check of the type stated received by said means for receiving and providing a check code responsive signal;

computer means coupled for receiving said subscriber identifying code signal and said check code responsive signal and in response to the receipt of both said signals searching its stored account data and determining the authenticity of said received check and providing an authenticity signal responsive to authenticity of said check having been established;

check storage and dispensing means for storing checks in character and nature substantially identical with said accepted check coupled for dispensing a new check responsive to the receipt of said authenticity signal;

encoding means coupled for encoding said dispensed check responsive to data provided by said computer means for rendering said check valid for operating a metering device, and

issuing means for rendering said dispensed new and enclosed check available to a subscriber.



4,317,030

MAILING PACKAGE FOR FACILITATING AUTOMATIC SORTING OF MAIL

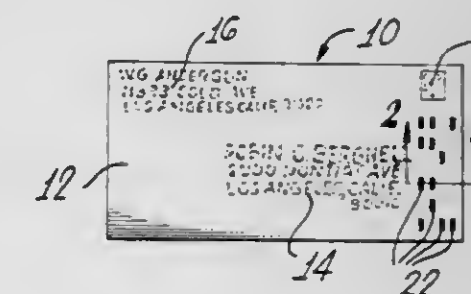
Robin C. Berghell, 1250 Westholme Ave., Los Angeles, Calif. 90024

Filed Jul. 24, 1979, Ser. No. 60,216

Int. Cl.³ G06K 21/04; B07C 5/342

U.S. Cl. 235—489

4 Claims



1. An apparatus for facilitating the automatic sorting of mail by optical scanning, said apparatus comprising:

a first sheet including a surface having a first optical reflectivity;

a second sheet including a surface having a second, contrasting optical reflectivity, and including a coded array of apertures therethrough, said second sheet overlying said first sheet so that said surface of said first sheet is visible through said apertures in said second sheet and in optical contrast to said surface of said second sheet;

said second sheet being a mailing envelope, and said first sheet being disposed in said envelope and constrained to remain below said array of apertures; and

the apparatus being further characterized in that said array of apertures is arranged adjacent one end of said envelope, a piece of correspondence is disposed in said envelope, said piece of correspondence being sized to substantially fill said envelope, and said first sheet is arranged to be folded about one end of said piece of correspondence in order to constrain said first sheet below said array of apertures.

4,317,031

CENTRAL FOCUS SOLAR ENERGY SYSTEM

Max Findell, 836 Rio Arriba Ave. SE., Albuquerque, N. Mex. 87123

Continuation-in-part of Ser. No. 930,210, Aug. 2, 1978, abandoned. This application Jun. 20, 1980, Ser. No. 161,443

Int. Cl.³ G01J 1/20

U.S. Cl. 250—203 R

10 Claims

1. A central focus solar energy system whose operation is

4,317,029

OPTICS FRAME ASSEMBLY

Jerry G. Warthan, Plano, Tex., assignor to Recognition Equipment Incorporated, Irving, Tex.

Filed Jul. 8, 1980, Ser. No. 166,934

Int. Cl.³ G06K 7/14

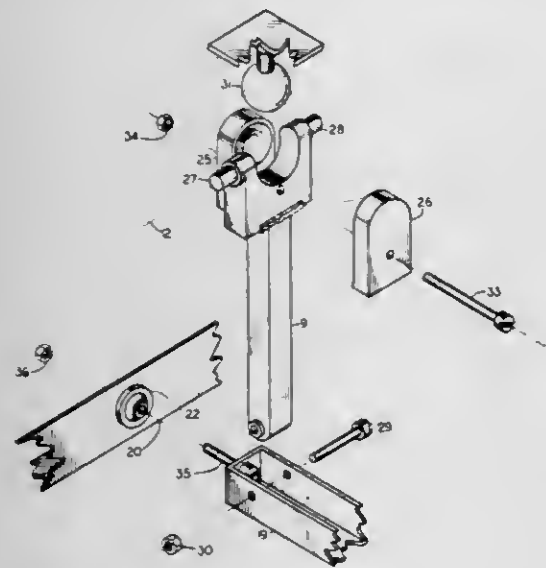
U.S. Cl. 235—454

7 Claims

1. An optics frame assembly for an electronic scanning device comprising a frame, a lens tube assembly and reflector, said lens tube assembly telescoping into a tubular part of the frame at one end thereof and the reflector mounting on the

independent of the alignment of said system with respect to the spin axis of the earth, said system comprising:

- at least one mirror array means positioned to receive direct rays of the sun, each said mirror array means including a mirror array framework, said mirror array means including a plurality of rotatable mirrors for reflecting the direct rays of the sun on a common focus, said mirrors being mounted within said framework so that principal axes of rotation of mirrors are parallel and secondary axes of rotation of said mirrors are perpendicular to, intersect and rotate about said mirror principal axes of rotation at the center of rotation for each said mirror, said mirror array means including electromechanical positioning means for reorienting said mirrors in keeping with changes in the apparent position of the sun;
- a control unit means connected to components of the system for receiving electrical signals therefrom and generating electrical control signals in response thereto, said control unit being connected to each said mirror array means for transmitting electrical control signals to said electromechanical means to cause rotations of said mirrors;
- a sun tracker means electrically connected to said control unit that includes a sensor means for viewing the sun and generating electrical signals indicative of the misalignment of said sensor with respect to the sun that are transmitted to said control unit, said sun tracker including electromechanical positioning means electrically con-



- connected to said control unit for receiving control signals therefrom and orienting said sensor means to view the sun;
- a receiver means electrically connected to said control unit and mounted adjacent to said mirror array means, said receiver means including a radiation receiver surface facing said mirror array means, said receiver means including radiation detector means mounted adjacent to said radiation receiver surface for detecting when the center of the common focus of said mirror array means is not centered on said radiation receiver surface, said radiation detector means generating electrical signals indicative of the direction the common focus must be moved to be centered on said radiation receiver surface that are transmitted to said control unit, said control unit upon receiving a signal from said radiation detector means transmitting electrical control signals to said electromechanical means to cause rotations of said mirrors and operating to disable said sun tracker means to permit small corrections in orientations of said mirrors by said receiver means;
- tilt detector means electrically connected to said control unit and mounted in said system for detecting large anomalies between said sun tracker orientation and the direction of the sun that exceed the correction capabilities of the sun tracker, said tilt detector means generating electrical signals in response to such anomalies that are transmitted to said control unit which in turn transmits electrical control signals to said sun tracker means and said mirror array means to cause said sun tracker to acquire the sun,

whereby after sun acquisition the sun tracker means and receiver means controlling the orientation of said rotatable mirrors.

4,317,032

PULSE GENERATOR FOR VARIABLE-SPEED DRIVES

Helfried Hanus, Karlsruhe-Durlach; Uwe Winkler, Ettlingen, and Patrice J. Kemmel, Stutensee, all of Fed. Rep. of Germany, assignors to Pfaff Haushaltmaschinen GmbH, Fed. Rep. of Germany

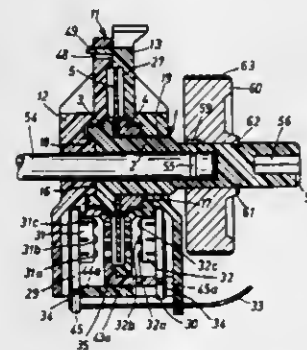
Filed Nov. 7, 1979, Ser. No. 92,192

Claims priority, application Fed. Rep. of Germany, Nov. 9, 1978, 2848612

Int. Cl.³ G01D 5/34

U.S. Cl. 250—231 SE

8 Claims



1. A pulse generator for variable speed drives, particularly sewing machine drives having a main rotatable shaft and a housing, comprising:
 - a casing defining an inner space;
 - a generator shaft rotatably mounted in said casing and rotatable in synchronism with the main shaft of the sewing machine drive;
 - a pulse disc having light-dark zones connected to said generator shaft in said inner space;
 - a light transmitting module and a light-receiving module in said casing disposed on either side of at least a portion of said pulse disc;
 - said casing including on either side of said pulse disc and spaced from said pulse disc, bearing surfaces bearing against corresponding bearing surfaces of said generator shaft for centering and rotatably mounting said pulse disc in said inner space of said casing, said bearing surfaces including axially extending and radially extending surfaces relative the axis of the said generator shaft to axially and radially hold the position of said casing with respect to said generator shaft;
 - said casing comprising two casing parts each having one receiving chamber for radially receiving one of said light-transmitting and light-receiving modules respectively;
 - each of said casing parts including a radial wall separating said receiving chamber from said inner space with a plurality of axially extending parallel apertures extending through each wall between each of said receiving chambers and said inner space for the passage of light between said light-transmitting module and said light-receiving module and through portions of said pulse disc;
 - each of said light-transmitting and light-receiving modules including a circuit board, each of said receiving chambers comprising a slide-in compartment for radially receiving each of said circuit boards respectively; and
 - each of said receiving chambers of each casing parts being closed when said casing parts are assembled to form said casing by a cover plate extending from the other of said casing parts.

4,317,033

GAMMA RAY PROSPECTING SYSTEM

Jaroslav R. Panenka, Calgary; Bohuslav Pavlik, and Daniel P. Olson, both of Ottawa, all of Canada, assignors to Kenting Earth Sciences Limited, Ottawa and Hudson's Bay Oil and Gas Company Limited, Calgary, both of, Canada

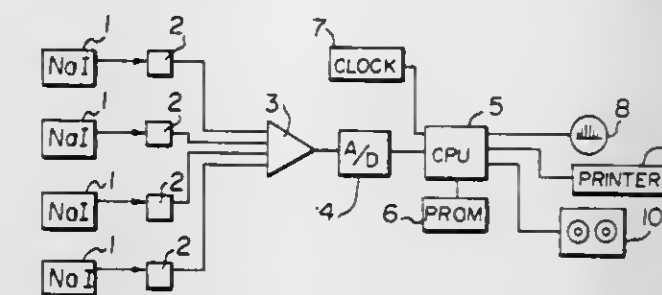
Filed Nov. 16, 1979, Ser. No. 95,101

Claims priority, application Canada, Jun. 15, 1979, 329844

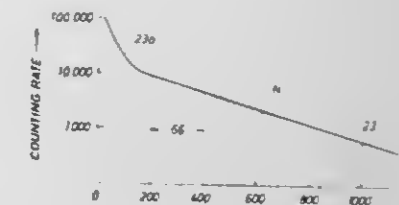
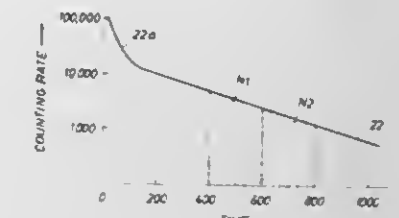
Int. Cl.³ G01V 5/00; G01T 1/20

U.S. Cl. 250—253

18 Claims



1. Means for distinguishing full energy absorption peaks received across an energy band from background energy at a particular physical location comprising:
 - (a) means for receiving a gamma ray energy spectrum of radiation,
 - (b) means for distinguishing the peak energy level within an energy band of said spectrum, and for integrating said energy within said band,
 - (c) means for distinguishing a statistical value of the background gamma radiation within said band, and for integrating the background radiation within said band,
 - (d) means for subtracting the integrated statistical value of background energy from the integrated peak energy, and
 - (e) means for providing an output signal representative of the difference of the integrated peak energy level and said integrated statistical value within said band, to provide an indication of the presence of radiation emissive mineral at said particular location.



controlling automatically the starting time of said third measurement interval in accordance with the said measurement from said first and second time intervals.

4,317,035

GOLD MONITORING PROCEDURE

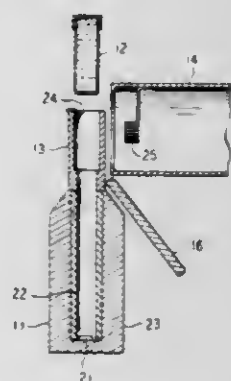
Richard L. Cohen, Berkeley Heights, N.J., and Ronald L. Meek, Lee's Summit, Mo., assignors to Western Electric, New York, N.Y. and Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 20, 1979, Ser. No. 105,619

Int. Cl.³ G01N 23/20

U.S. Cl. 250—272

11 Claims



1. A process for plating gold from a gold plating solution including the step of measuring gold concentration in the gold plating solution characterized in that the gold concentration is measured by exposing the gold plating solution to radiation from a radioactive source emitting photons of sufficiently high energy to excite X-ray fluorescence from the gold and detecting the resulting X-ray fluorescence with a solid state detector.

4,317,036

SCANNING X-RAY MICROSCOPE

Chia-Gee Wang, P.O. Box 211, Millwood, N.Y. 10546

Filed Mar. 11, 1980, Ser. No. 129,287

Int. Cl.³ G01N 21/24, 23/20

U.S. Cl. 250—274

11 Claims

4,317,034

METHOD AND APPARATUS FOR MEASURING NEUTRON CHARACTERISTICS OF MATERIAL SURROUNDING A BOREHOLE

Russel R. Randall, Houston, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Continuation-in-part of Ser. No. 156,971, Jun. 6, 1980. This

application Jun. 26, 1980, Ser. No. 163,260

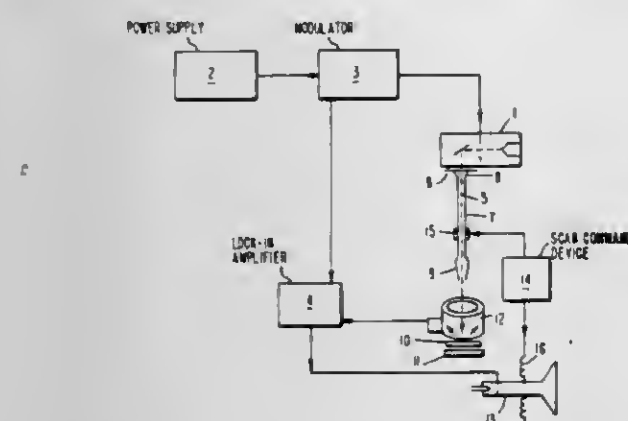
Int. Cl.³ G01V 5/00

U.S. Cl. 250—262

18 Claims

1. A method for logging the formations surrounding an earth borehole, comprising:
 - pulsedly irradiating said formations with discrete bursts from a source of high energy neutrons;
 - detecting radiations emanating from said irradiated formations at a detector spaced from said source;
 - measuring said detected radiations during first and second time intervals following a burst from said source;
 - generating time-separated electrical pulses indicative of said detected radiations during a third fixed time duration

the specimen and the focusing cone means and collimator to scan the focused X-ray beam across the specimen, a detector disposed adjacent the specimen to detect emissions by the specimen upon exposure to the focused beam of X-rays to provide an electrical output representative of this detection, means for displaying and/or recording the information pro-



vided by the output from the detector, means for providing information to the recording and/or display means representative of the scan rate and position of the focused X-ray beam relative to the specimen whereby the recording and/or display means can correlate the information received to record and/or display quantitative and distributive information as to the quantity and distribution of elements detected in the specimen.

4,317,037

RADIATION DETECTION APPARATUS

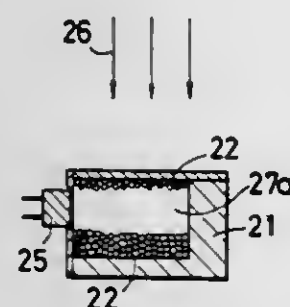
Atsushi Suzuki, Higashiyama; Koichi Urabe, Higashimurayama; Hiromichi Yamada, Hino, and Hideki Kobno, Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Jun. 11, 1979, Ser. No. 47,133

Claims priority, application Japan, Jun. 9, 1978, 53/77887[U]

Int. Cl.³ G01T 1/20

U.S. Cl. 250-367

14 Claims



1. A radiation detection apparatus comprising a plurality of scintillators each of which includes at least two spaced superposed phosphor layers made of phosphor particles for emitting light in response to received radiation, the thicknesses of said two phosphor layers being different from each other; and a plurality of photodetectors, each photodetector being disposed so as to face the space between layers and directly receive the light emitted into that space by a respective one of the scintillators.

4,317,038

DEVICE FOR DETERMINING THE SPATIAL DISTRIBUTION OF RADIATION

Georges Charpak, Paris, France, assignor to Agence Nationale de Valorisation de la Recherche, Neuilly-sur-Seine, France
Filed Mar. 24, 1980, Ser. No. 133,094

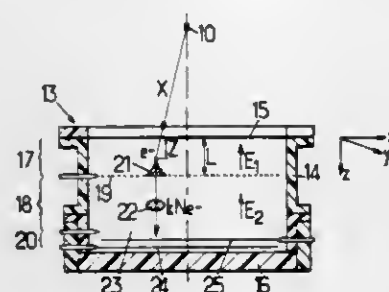
Int. Cl.³ G01T 1/18

U.S. Cl. 250-385

9 Claims

1. A device for determining the spatial distribution of monoenergetic neutral radiation from a point source, comprising: a gas-filled enclosure having a flat radiation entrance window,

a flat outlet field electrode in said enclosure for establishing in a first portion of said enclosure an electrical field of such amplitude that there occurs conversion of said radiation and avalanche electron multiplication resulting in delivery of a pulse of electrons per conversion whose pulse height is an increasing function of the travel path of the electron ava-



lanche from the location of the conversion to said outlet electrode of said first portion, and detector means, located in a second portion of said enclosure, for receiving said pulse of electrons through said outlet electrode and for determining the coordinates of the pulse in said outlet electrode and the pulse height of said pulse.

4,317,039

X-RAY DIAGNOSTIC GENERATOR

Denes Romandi, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

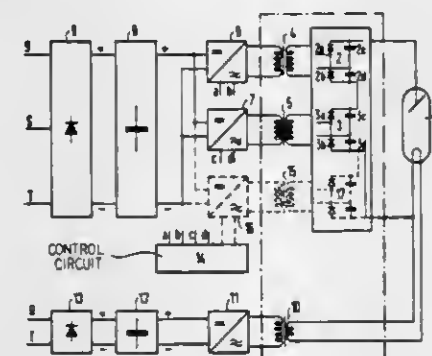
Continuation of Ser. No. 40,640, May 21, 1979, abandoned. This application Nov. 17, 1980, Ser. No. 207,739

Claims priority, application Fed. Rep. of Germany, Jul. 14, 1978, 2831093

Int. Cl.³ A61B 6/00; H05G 1/12

U.S. Cl. 250-418

2 Claims



1. An X-ray diagnostic generator characterized by the combination of:

high-voltage transformer means (4, 5, 15), with first inverter means (6, 7, 16) operating at a frequency lying in the medium frequency range, and first power supply rectifier means (9) connected with the input side of the high-voltage transformer means;

an X-ray tube (1) with high-voltage rectifier means (2, 3, 17) connected between the high voltage transformer means and the X-ray tube;

a filament transformer (10) for the X-ray tube, with second inverter means (11) operating at a frequency lying in the medium frequency range, and a second power supply rectifier means (13) connected with the input side of the filament transformer; and

filter circuit means (8, 12) connected between the power supply rectifier means (9, 13) and the inverter means (6, 7, 11, 16),

said high-voltage transformer means comprising at least three high voltage transformers having at least three respective, individual primary windings, and said first inverter means comprising at least three separate inverters each connected to a respective one of said individual

4,317,040

LOW RIPPLE REGULATED X-RAY TUBE POWER SUPPLY FILAMENT TRANSFORMER

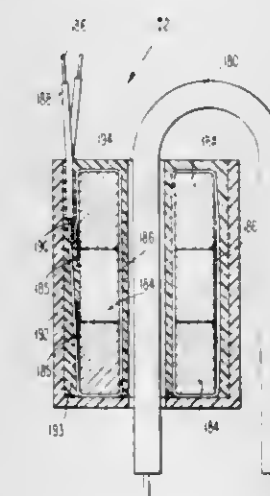
Don E. Wuerflein, Mountain View, Calif., assignor to Pennwalt Corporation, Philadelphia, Pa.

Continuation-in-part of Ser. No. 168,479, Jul. 14, 1980. This application Mar. 9, 1981, Ser. No. 242,097

Int. Cl.³ H05G 1/30, 1/10

U.S. Cl. 250-421

7 Claims



1. In an X-ray tubehead having a filament transformer associated therewith, said tubehead supplied by a low ripple, high voltage power supply adapted to receive an unregulated input and to deliver a regulated output adapted to supply power to a load connected across the output of said supply, said power supply comprising

- (a) a regulator circuit providing regulation under control of a control signal inputted thereto;
- (b) control signal generating means for generating said control signal and inputting same to said regulator circuit;
- (c) means for developing a signal representative of said unregulated input and connecting said unregulated input signal to said control signal generating means;
- (d) means for developing a signal representative of said regulated output and connecting same to said control signal generating means; and
- (e) said control signal generating means having means responsive to both of said representative signals for generating said control signal as a function to both of said representative signals, in combination therewith, the improvement to said filament transformer for providing minimal high voltage stress areas and negligible high voltage breakdown, said filament transformer comprising a coaxial structure having a single turn secondary.

4,317,041

MULTICHAMBER PHOTOREACTOR

Günther O. Schenck, Bismarckstrasse 31, 433 Mülheim, Fed. Rep. of Germany

Division of Ser. No. 923,710, Jul. 11, 1978, Pat. No. 4,255,283. This application Jun. 2, 1980, Ser. No. 155,580

Claims priority, application Fed. Rep. of Germany, Aug. 6, 1977, 2735550

Int. Cl.³ G01M 21/01

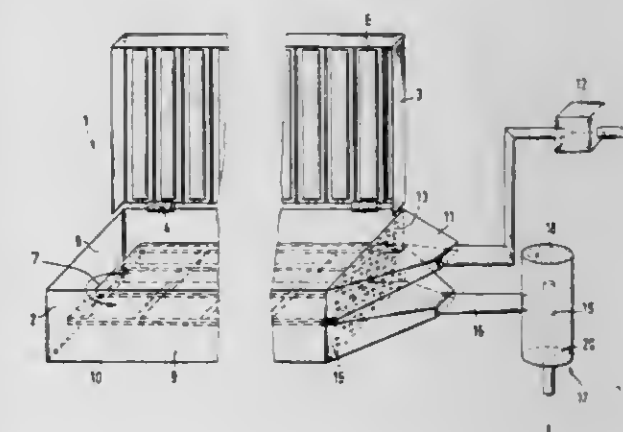
U.S. Cl. 250-435

32 Claims

1. An apparatus for purifying a fluid medium and comprising a continuous flow reactor defining a radiation chamber having two sides and through which chamber said medium flows, and an ultraviolet radiation source positioned to introduce ultraviolet

radiation into the medium in said chamber at one of said sides, said chamber having a depth between said sides such that some of the incident radiation is not absorbed by the medium in said chamber, said reactor including first means forming a window transparent to ultraviolet radiation at the other of said sides of said chamber and, at the other side of said window from said chamber, second means forming a second reaction chamber for the flow of medium therethrough to be acted upon by the radiation passing through said window into said second chamber, said apparatus characterized by:

the relationship between said medium, the strength of the incident radiation and said depth is established such that the radiation received at said window is at least fifty percent of the incident radiation;



said reactor having a total number n, less than six, of successive series-connected reaction chambers and windows therebetween through which windows radiation will pass from one chamber to the next;

the relationship between the strength of the incident radiation, the character of the media in the chambers and the depth of the chambers being such that the total radiation absorbed by the media in all of the chambers does not exceed (1-0.5ⁿ)-100 percent of the total incident radiation; and

the relationship between the rate of flow of the medium through all the reaction chambers and the radiation intensity effective in each reaction chamber being established so that the sum of the fractional doses applied to the medium in each one of the reaction chambers equals a predetermined minimum radiation dose.

4,317,042

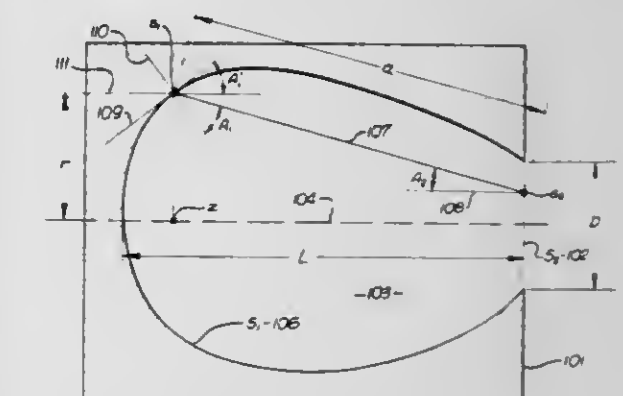
BLACKBODY SIMULATOR WITH UNIFORM EMISSIVITY

Frederick O. Bartell, 2636 W. Calle Puebla, Tucson, Ariz. 85705
Filed Jun. 26, 1980, Ser. No. 163,305

Int. Cl.³ G21G 4/00

U.S. Cl. 250-493

36 Claims



1. A blackbody simulator, comprising: a core with a first side; the core having an aperture on its first side to a cavity, the

cavity being rotationally symmetrical about an axis and having a cone-like apex on the axis opposite the aperture, the cavity surface shaped so that the value of the projected solid angle of the aperture with respect to any point on the cavity surface is generally constant.

4,317,043

NORMAL INCIDENCE X-RAY REFLECTORS AND RESONANT CAVITIES FOR SUPPORTING LASER ACTION USING THE SAME

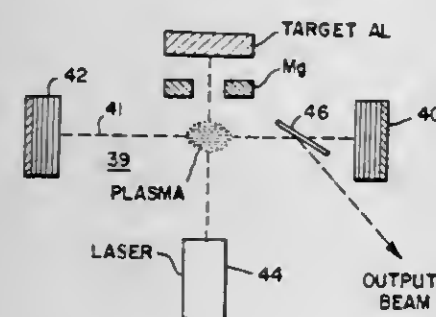
Alan E. Rosenbluth, Rochester, and James M. Forsyth, Pittsford, both of N.Y., assignors to The University of Rochester, Rochester, N.Y.

Filed Oct. 26, 1979, Ser. No. 88,699

Int. Cl.³ H05G 1/02

U.S. Cl. 250—510

17 Claims



1. An x-ray reflector adapted to reflect x-rays having normal incidence to the surface thereof which comprises an array of layers arranged in successive groups, each of said groups including a plurality of layers, each said group of said array having at least one metal layer of monoatomic thickness in a direction normal to said surface, a first hydrocarbon molecular Langmuir-Blodgett layer having a first chain length, and a structure having at least one additional layer, selected from metal and hydrocarbon Langmuir-Blodgett layers, having a length in said direction different from said first chain length.

4,317,044

OZONE PRODUCTION APPARATUS

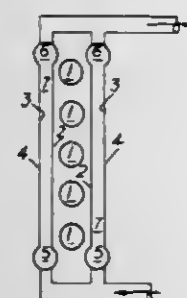
Vesper A. Vaseen, Wheatridge, Colo., assignor to Robert Dougan Construction Co., Denver, Colo.

Continuation-in-part of Ser. No. 885,956, Mar. 13, 1978, Pat. No. 4,182,663. This application Jun. 4, 1979, Ser. No. 44,963

Int. Cl.³ C01B 13/10

U.S. Cl. 422—186.3

3 Claims



1. An apparatus for producing ozone comprising means to absorb or dissolve an oxygen containing gas selected from the group consisting of oxygen, air and mixtures thereof in an inert dielectric liquid under superatmospheric pressure to form an oxygen pregnant liquid.

a source of ultra-violet radiation having a wavelength between 1100 and 2200 angstrom.

transparent conduit means for exposing a stream of said oxygen pregnant liquid as a thin, non-turbulent sheet to said radiation to convert at least a portion of said oxygen to ozone, and

means for maintaining superatmospheric pressure throughout the apparatus.

4,317,045

FLAME MONITORING APPARATUS AND METHOD

Charles D. Coe, Donald Bell, and Michael R. Bray, all of Dronfield, England, assignors to Land Combustion Limited, Chesterfield, England

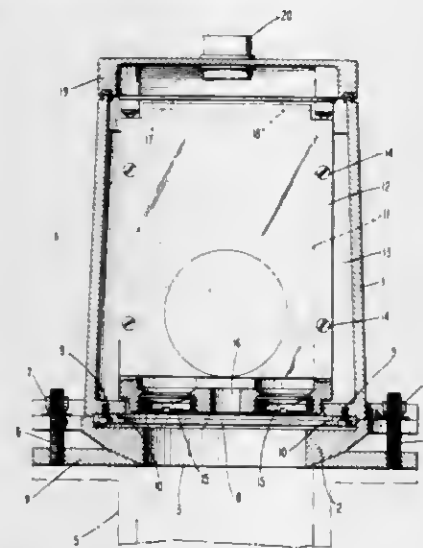
Continuation-in-part of Ser. No. 895,531, Apr. 11, 1978, abandoned. This application Aug. 12, 1980, Ser. No. 177,371

Claims priority, application United Kingdom, Apr. 12, 1977, 15103/77

Int. Cl.³ H01J 40/14

U.S. Cl. 250—554

7 Claims



1. A method of monitoring a selected flame in a multi-burner furnace comprising positioning two arrays of photoelectric sensors, providing an optical path for the sensors of each array so that the line of sight of one sensor of one array will intersect the line of sight of one sensor of the other array, electronically scanning the two arrays to determine the sensors, one from each array, which give maximum correlation of output signal from the sensors and electronically locking onto those two sensors to monitor the selected flame.

4,317,046

ENERGY PRODUCING APPARATUS AND METHOD

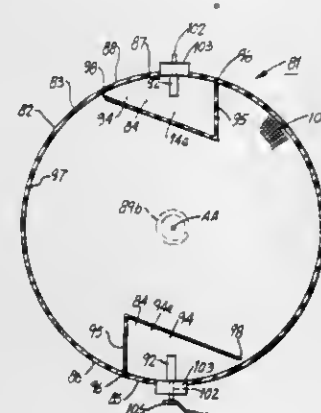
Richard Holmberg, c/o Scientific Dye Works, 114 Troutman St., Brooklyn, N.Y. 11206

Filed Dec. 4, 1980, Ser. No. 213,246

Int. Cl.³ F01D 15/10; F03C 2/00

U.S. Cl. 290—1 R

27 Claims



1. Energy producing apparatus comprising an imbalance wheel adapted to be mounted for energy producing rotation about a substantially horizontal axis to provide a lower half wheel portion below such axis and an upper half wheel portion above such axis, said wheel being substantially in rotational balance and defining at least two peripherally located and substantially

equally circumferentially distributed electrochemical cell zones for conversion of liquid to gas, each zone having operatively opposed cathode means and anode means and operatively disposed imbalance imparting captive gas collection space means for collecting corresponding conversion gas therein, liquid feed means for feeding liquid to the zones, electrical conductor means arranged for selectively providing a circuit of current from a source to the corresponding cathode means and anode means of each successive zone when at a selective imbalance imparting lower location in the lower half wheel portion, and gas delivery means arranged for delivering conversion gas from the corresponding collection space means of each successive zone when at the substantially uppermost location in the upper half wheel portion for recovery therefrom, whereby successively at such lower location to convert liquid to gas in each zone and collect the gas in the collection space means thereof, and thereby displace a concordant volume of liquid therefrom and decrease the weight of the adjacent portion of the wheel thereat in relation to the remainder thereof, for creating an imbalance in the wheel sufficient for energy producing rotation thereof in addition to delivery of conversion gas via the delivery means for recovery.

of said beams for generating a pressure output in response to the force derived from the relative motions between said pendulum and said beams; said device comprising hydraulic cylinder units, each including a cylinder and a piston slidable therein; each said cylinder and the associated piston defining a work chamber accommodating hydraulic liquid and having an outlet opening constituting said pressure output; each said cylinder being connected to a separate beam in an abutting relationship with said inward side thereof and each said piston being connected with said pendulum for causing said pistons to pressurize hydraulic liquid in respective said work chambers by the force derived from the motion of said pendulum relative to said beams; and

(d) means coupled to said pressure output of said device for utilizing, at least indirectly, the energy derived from said pressure output.

4,317,048

ENERGY FARM

Wellesley R. Kime, 8745 Appian Way, Los Angeles, Calif. 90046

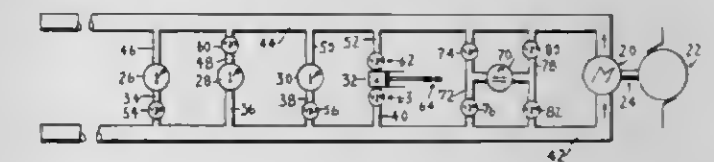
Continuation-in-part of Ser. No. 158,415, Jun. 11, 1980. This

application Jun. 30, 1980, Ser. No. 164,743

Int. Cl.³ F03B 13/10, 13/12; H02P 9/04

U.S. Cl. 290—53

6 Claims



1. An energy farm for the conversion of natural kinetic energy into electrical energy, comprising:

- a first common conduit for the flow of fluid;
- a second common conduit for the flow of fluid;
- a fluid pressure pump;
- a first bridging conduit communicating with the first and second common conduits and communicating with the fluid pressure pump;
- a second bridging conduit communicating with the first and second common conduit and communicating with the fluid pressure pump;
- a first check valve in the first bridging conduit located between the first common conduit and the fluid pressure pump for preventing back flow of fluid from the fluid pressure pump to the first common conduit;
- a second check valve in the first bridging conduit located between the fluid pressure pump and the second common conduit for preventing the back flow of fluid between the second common conduit and the fluid pressure pump;
- a first check valve in the second bridging conduit located between the first common conduit and the fluid pressure pump for preventing the back flow of fluid from the fluid pressure pump and the first common conduit;
- a second check valve in the second bridging conduit located between the second common conduit and the fluid pressure pump for preventing the back flow of fluid from the second common conduit to the fluid pressure pump;
- a natural kinetic energy receptor coupled to the fluid pressure pump for activating the pump for moving hydraulic fluid from the first common conduit to the second common conduit and generating hydraulic pressure in the second common conduit;
- a fluid pressure motor coupled to the first common conduit and the second common conduit for providing the passage of fluid between the second common conduit and the first common conduit and for generating rotational energy as fluid flows from the second common conduit to the first common conduit;

4,317,047

ENERGY HARNESSING APPARATUS

Fernando F. de Almada, Rua Cottinelli Telmo Residencia S. Jose, 11, S. Pedro do Estoril, Portugal

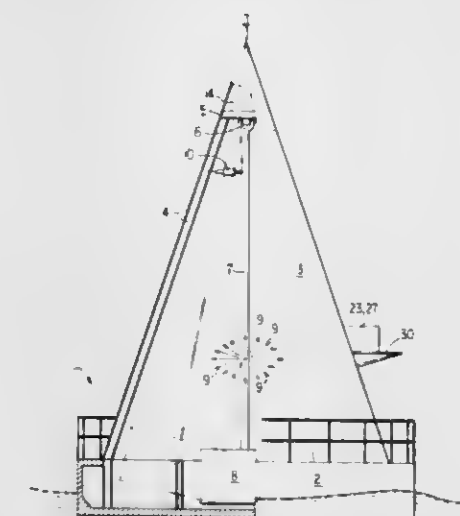
Filed Dec. 31, 1979, Ser. No. 108,463

Claims priority, application Portugal, Dec. 29, 1978, 68996[U]

Int. Cl.³ F03B 13/10, 13/12

U.S. Cl. 290—53

8 Claims



1. In an apparatus for harnessing the energy derived from the undulatory motion of a body of water, including an assembly having a buoyancy sufficient for maintaining it afloat in the water, the improvement comprising

- a first structure mounted on the assembly and substantially following therewith multidirectional undulatory motions of the water; said first structure having generally upwardly oriented beams having upper ends connected at least indirectly to one another;
- a second structure mounted in said assembly for free movement in a plurality of planes with respect to said first structure; said second structure comprising a pendulum including a pendulum bar and a pendulum weight attached to the pendulum bar and a joint suspending said pendulum bar from the upper ends of said beams and permitting motion of said pendulum in said plurality of planes; said beams together enclosing said pendulum; each beam having an inward side oriented towards said pendulum;
- a device connected to said pendulum and to at least some

(L) an electricity generating unit coupled to the fluid pressure motor for converting the rotational energy to electrical energy.

4,317,049

FREQUENCY ADAPTIVE, POWER-ENERGY RE-SCHEDULER

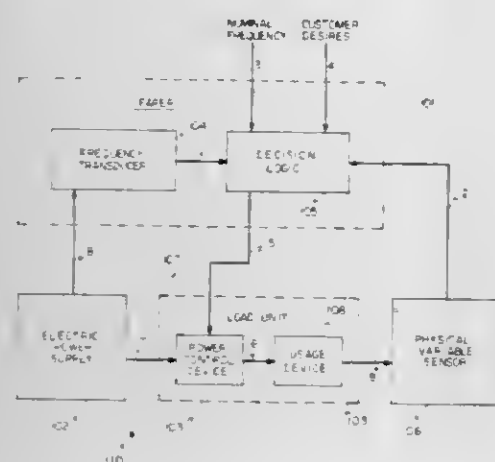
Fred C. Schweppe, Carlisle, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Sep. 17, 1979, Ser. No. 76,019

Int. Cl.³ H02J 3/14

U.S. Cl. 307—39

6 Claims



1. For use in a power distribution system wherein plural load systems operate independently of each other, a frequency adaptive power-energy re-scheduler for a said load system, that comprises, in combination:

frequency transducer means that senses deviation of electrical input frequency from nominal frequency and provides an output signal; and

logic means connected to receive said output signal and operable to provide an output which combines physical variable measurements to a controlled load unit to affect the values of the physical variable so as to re-schedule the electric-energy consumption of the load unit on the basis of the values of said frequency.

4,317,050

USER CONTROL ARRANGEMENT FOR CONTROLLING A PLURALITY OF FUNCTIONS

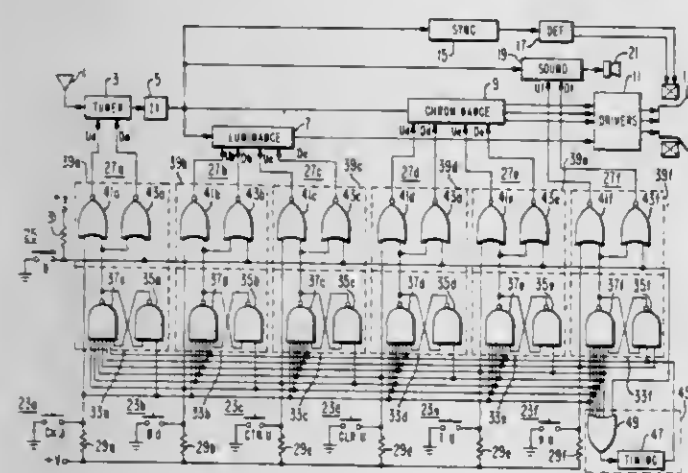
Charles M. Wine, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Oct. 15, 1979, Ser. No. 84,714

Int. Cl.³ H03K 17/56; H04N 5/44

U.S. Cl. 307—541

6 Claims



1. In a system including means for increasing and decreasing a plurality of functions or properties in response to respective

pairs of "up" and "down" command signals, user control apparatus comprising:

- a plurality of individual function switches each for both selecting a respective individual function to be controlled and changing its sense in a predetermined sense;
- a single common switch for changing all of said functions in the sense opposite to said predetermined sense; and
- a plurality of command signal generating means each for generating a predetermined one of a respective pair of said "up" and "down" command signals in response to the operation of a respective one of said individual function switches and for generating the other one of said respective pair of said "up" and "down" command signals when said respective one of said individual function switches and said common switch are both operated.

4,317,051

CLOCK GENERATOR (BUFFER) CIRCUIT

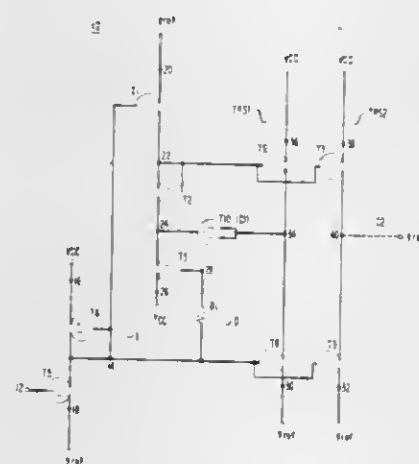
Ernst H. Young, Jr., Center Valley, Pa., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Oct. 9, 1979, Ser. No. 82,583

Int. Cl.³ H03K 3/26

U.S. Cl. 307—246

10 Claims



1. A circuit comprising:

- an inverter stage having a first terminal which serves as an input terminal of the circuit and a second terminal which serves as the output terminal of the inverter stage;
- capacitor circuit means having first and second terminals;
- first, second, and third switching devices T1, T2, and T3, respectively, which each has a control terminal and first and second output terminals;
- a totem pole stage having first and second input terminals and an output terminal;
- a delay element coupled to the output of the inverter stage and to the control terminal of T3;
- the output terminal of the inverter stage being coupled to the control terminal of T1, and to the second input terminal of the totem pole stage;
- the second output terminal of T1 being coupled to the first input terminal of the totem pole stage and to the first input terminal and the control terminal of T2;
- the second output terminal of T2 being coupled to the first terminal of the capacitor circuit means and to the first output terminal of T3; and
- the output terminal of the totem pole stage being coupled to the second terminal of the capacitor circuit means.

4,317,052

APPARATUS FOR CONVERTING AN A.C. INPUT SIGNAL TO A RECTIFIED AND SMOOTHED D.C. SIGNAL

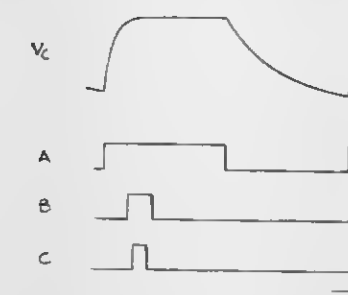
Darryl C. Morris, Concord, N.H., assignor to Northern Telecom, Inc., Nashville, Tenn.

Filed Jan. 8, 1980, Ser. No. 110,476

Int. Cl.³ H03K 5/00; H02M 7/00

U.S. Cl. 307—261

11 Claims



1. Apparatus for converting an a.c. input signal to a rectified and smoothed d.c. signal, comprising:

- a precision rectifier circuit;
- means for applying the a.c. input signal to an input of the precision rectifier circuit;
- a smoothing filter including at least one capacitor;
- means coupling an output of the precision rectifier circuit to an input of the smoothing filter;
- a coupling capacitor;
- an amplifier having an inverting input and an output;
- means coupling an output of the smoothing filter via the coupling capacitor to the inverting input of said amplifier; and
- switching means selectively operable to disconnect the input of the precision rectifier circuit from the a.c. input signal, to open-circuit said at least one capacitor of the smoothing filter, and to connect the output of said amplifier to its inverting input, whereby when said switching means is operated the coupling capacitor is charged to a voltage dependent upon offset voltages of the apparatus and when said switching means is not operated the a.c. input signal is rectified and smoothed to produce a d.c. signal in which errors due to said offset voltages are compensated for by the charge of said capacitor.

4,317,053

HIGH SPEED SYNCHRONIZATION CIRCUIT

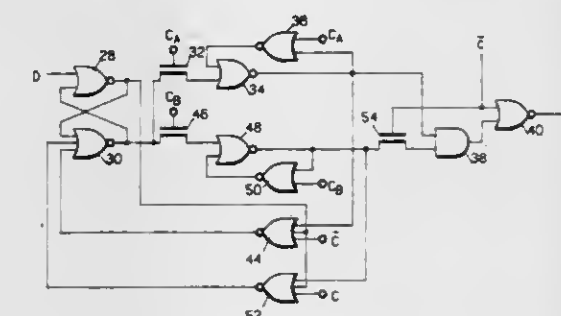
Pern Shaw, Austin, and Stanley E. Groves, Round Rock, both of Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 5, 1979, Ser. No. 100,785

Int. Cl.³ H03K 19/08; 1/17

U.S. Cl. 307—269

10 Claims



1. A high speed circuit for receiving an asynchronous signal and synchronizing said asynchronous signal with a system clock signal, comprising:

- first logic means for generating a first signal in response to receipt of said asynchronous signal;
- second means coupled to said first means for generating a second signal when the first signal occurs during a first level of said system clock signal;
- third means coupled to said first means for generating a third

signal when the first signal occurs during a second level of said system clock signal; and

fourth means coupled to said second and third means and to said system clock signal for generating a synchronized signal in response to the absence of either the second or third signals during said second level of said system clock signal.

4,317,054

BANDGAP VOLTAGE REFERENCE EMPLOYING SUB-SURFACE CURRENT USING A STANDARD CMOS PROCESS

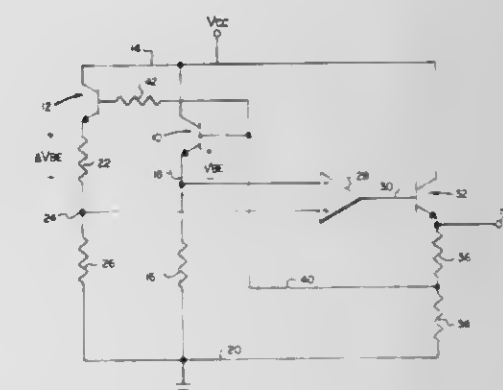
Michael J. Caruso, Carrollton; David B. Hildebrand, Bedford, and Kul B. Ohri, Carrollton, all of Tex., assignors to Mostek Corporation, Carrollton, Tex.

Filed Feb. 7, 1980, Ser. No. 119,539

Int. Cl.³ G05F 1/56

U.S. Cl. 307—297

19 Claims



1. A bandgap voltage reference for use with CMOS integrated circuits comprising:

- first and second bipolar transistors having common collectors formed in an integrated circuit substrate;
- a first resistor connected between the emitter of said first transistor and a ground potential node;
- a second resistor connected between the emitter of said second transistor and a reference node;
- a third resistor connected between said reference node and said ground potential node;
- a differential amplifier having a positive input connected to said reference node and a negative input connected to said first transistor emitter, and an output coupled to bases of said first and second transistors, said output providing a temperature stabilized reference potential.

4,317,055

HIGH-VOLTAGE CIRCUIT FOR INSULATED GATE FIELD-EFFECT TRANSISTOR

Isao Yoshida, Hinodemachi; Minoru Nagata, Kodaira; Shikayuki Ochi, Akishima, and Hisao Katto, Hinodemachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 8, 1979, Ser. No. 36,972

Claims priority, application Japan, May 24, 1978, 53-61057

Int. Cl.³ H03K 3/353; 17/687; H03F 3/16; H01L 29/78

U.S. Cl. 307—304

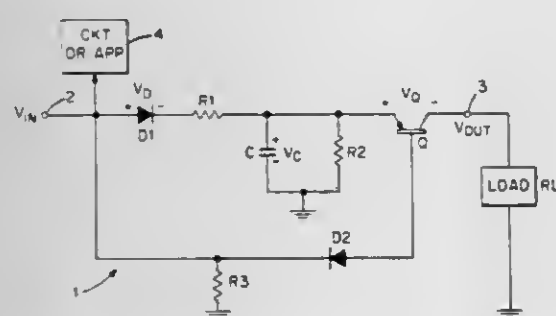
12 Claims

1. A high-voltage MOSFET (insulated gate field-effect transistor) circuit wherein n MOSFETs are connected in series by electrically connecting a drain of the m-th ($1 \leq m \leq n-1$) MOSFET and a source of the (m+1)-th MOSFET, a source and gate of the first MOSFET being respectively used as a source terminal and gate terminal of the MOSFET circuit, a drain of the n-th MOSFET being used as a drain terminal of the MOSFET circuit, and wherein divided voltages obtained by dividing a voltage applied across the source and drain terminals, by means of a first voltage divider circuit in which a plurality of resistors are connected in series are applied to gates of the second to n-th MOSFETs; the high-voltage MOS-

4,317,056

U.S. Cl. 307-350

14 Claims



said storage means being operative when it has been charged to

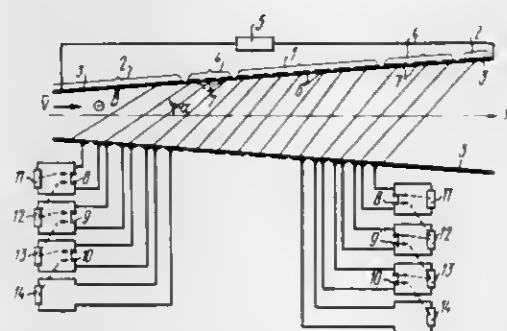
said discharge means of the circuit means including third resistance means coupled to the second electrode of the transistor means, to the input terminal, and to the source of reference potential, and being operative when the transistor means is in its second conducting state to provide a discharge path through the transistor means for the storage means, the output pulse produced by the transistor means being produced during the discharge of the storage means.

4.317.057

Int. Cl.³ H02N 4/02

U.S. Cl. 310-11

2 Claims



1. A channel of a series-type magnetohydrodynamic generator comprising: a central section; a plurality of sectionalized electrodes included in said central section; two transition sections each adjoining respective ends of said central section; another plurality of sectionalized electrodes included in said transition sections; two end sections each adjoining other ends of respective transition sections, each of said end sections including a continuous load electrode; a plurality of switching elements, each being inserted between adjacent electrodes of said end and transition portions; a plurality of relay-type limit voltage sensitive elements, each being connected in parallel with a respective switching elements, sensitive elements of the same type being inserted respectively between outermost adjacent electrodes of said central and transition sections; actuating organs of said sensitive elements, the actuating organs of some of said sensitive elements, being connected in parallel with said switching elements between load electrodes and an outermost electrode of a respective transition section to control the making of said switching elements only, the actuating organs of some of said sensitive elements being inserted between outermost adjacent electrodes of said central and transition sections to control the breaking of said switching elements inserted between the nearest adjacent pair of said electrodes, and the actuating organs of remaining sensitive elements being connected in parallel with said electrodes of said transition sections to control the making of the switching elements to which they are connected in parallel and to control the breaking of switching elements inserted between the nearest adjacent pairs of said electrodes on the side of said load electrode.

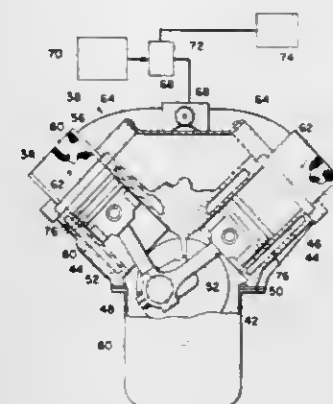
4,317,058

Filed Dec. 28, 1979, Ser. No. 108,220

Int. Cl.³ H02K 33/00

U.S. Cl. 310-24

9 Claims



(g) means for selectively intermittently polarizing the electro-magnet for creating a magnetic field about said piston to effect reciprocal movement of said piston within the cylinder.

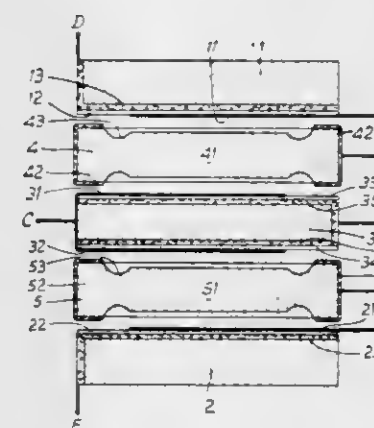
4.317.059

Filed Sep. 26, 1979, Ser. No. 79,239

Claims priority, application France, Oct. 9, 1978, 78 28728
Int. Cl.³ H01L 41/08

U.S. Cl. 310-361

2 Claims



1. A piezoelectric bi-resonator having a piezoelectric body

f. each of said faces having thereon a layer of electrical resistance material that heats upon passage of a current therethrough, insulated from the electrode on the same face by a layer of insulating material.

4,317,060

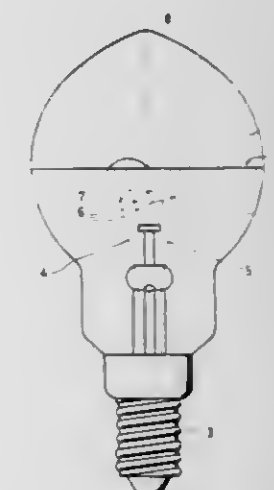
Filed Oct. 19, 1979, Ser. No. 86,564

Claims priority, application Netherlands, Oct. 30, 1978,
7810774

Int. Cl.³ H01J 3/14

c. U.S. Cl. 313-113

3 Claims



1. A bowl mirrored incandescent lamp having a lamp envelope which comprises a generally spherically curved mirrored bowl portion, an adjoining light-pervious portion provided with a lamp cap at its end remote from the bowl portion, and a filament accommodated in said lamp envelope near the center of curvature of the mirrored bowl portion of the lamp envelope, characterized in that the filament is arranged asymmetrically with respect to the axis of the lamp envelope and surrounds said axis over an angle greater than 180° in such a manner that it does not coincide at any point with the image of the filament formed by the mirrored bowl portion of the lamp envelope.

4,317,061

PRESSURE COMPENSATING DEVICE FOR A PLASMA DISPLAY PANEL

Charles Mendelsohn, Monsey, N.Y., assignor to United Technologies Corporation, Hartford, Conn.

Filed Dec. 17, 1979, Ser. No. 104,606

Int. Cl.³ H01J 17/22, 17/49

U.S. Cl. 313—174

9 Claims



1. A pressure compensating device for use with a plasma display panel, said panel including an ionizable gas disposed in a sealed envelope between a pair of sidewalls at least one of which is transparent, comprising:

- a pressure responsive means secured to one of said sidewalls and having a first position in an unexpanded state, and a second position in an expanded state,
- means providing a passageway from said sealed envelope within said plasma panel to said pressure responsive means thereby allowing said gas to flow therebetween, and
- whereby said pressure responsive means moves from said first position to said second position in response to a positive pressure differential across said sidewalls of said panel thereby providing a space into which a portion of said ionizable gas flows thus maintaining said positive pressure differential within predetermined limits.

4,317,062

VALVE MEANS AND MERCURY RESERVOIR FOR GAS DISCHARGE DISPLAY

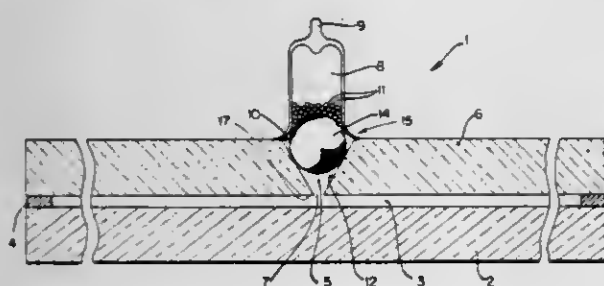
Roger A. Frankland, Scottsdale, Ariz., assignor to Beckman Instruments, Inc., Fullerton, Calif.

Filed Aug. 6, 1979, Ser. No. 64,156

Int. Cl.³ H01J 17/49, 61/28

U.S. Cl. 313—175

6 Claims



1. A display device comprising:

- a base plate with an opening;
- a face plate sealed to the base plate in such a manner as to create an envelope between the two plates;
- one or more cathode and anode electrodes within the envelope;
- an ionizable gas contained within the envelope;
- a reservoir providing chamber secured to the base plate adjacent the opening in the base plate, the chamber containing liquid mercury; and
- movable valve means seating in the opening of the base plate, said valve means blocking the passage of liquid mercury and allowing the passage of mercury vapor from said chamber to said envelope via said opening.

4,317,063

PYROELECTRIC DETECTORS

David J. Pedder, Oxford, and David J. Warner, Northampton, both of England, assignors to Plessey Handel und Investments AG, Zug, Switzerland

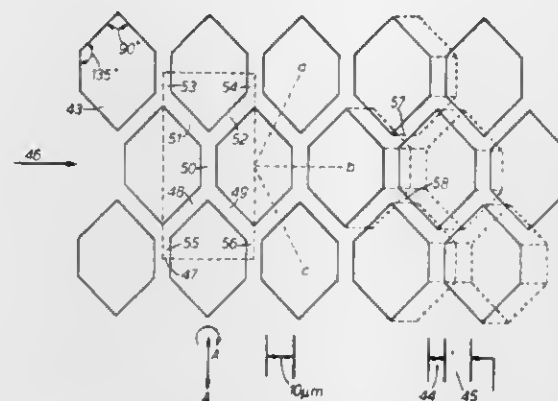
Filed Oct. 25, 1979, Ser. No. 88,169

Claims priority, application United Kingdom, Oct. 28, 1978, 42361/78; Oct. 28, 1978, 42362/78; Oct. 28, 1978, 42363/78

Int. Cl.³ H01J 29/45

U.S. Cl. 313—388

8 Claims



1. A reticulated pyroelectric target for the detection of thermal radiation and having a target surface, and comprising a plurality of islands of pyroelectric material disposed on said target surface and separated by a plurality of grooves, each said groove adjacent each said island forming a portion of a boundary of each said island, each said groove being limited in length to and coinciding with said portion of said boundary of each said island, and wherein each groove in respect to any one said island forms, at its junction with adjacent grooves of adjacent said islands, all non-straight lines with the adjacent grooves of adjacent said islands, whereby to minimize lines of weakness and improve structural strength over the target surface.

4,317,064

SHADOW MASK SUSPENSION SYSTEM

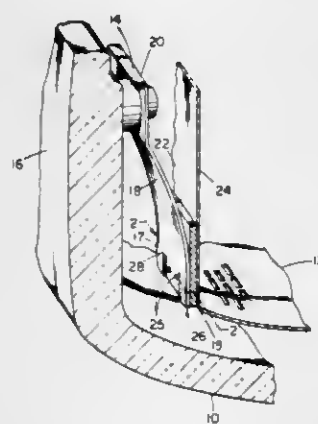
Lawrence W. Dougherty, Sleepy Hollow, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed Oct. 15, 1979, Ser. No. 84,708

Int. Cl.³ H01J 29/07

U.S. Cl. 313—406

2 Claims



1. For use in a color cathode ray tube having a faceplate and a shadow mask mounted in precise relationship to said faceplate by a plurality of suspension devices spaced on the periphery of said faceplate for rigidly and stably suspending said mask, each suspension device comprising:

- a stud extending from said faceplate;
- a leaf spring formed to support and space said mask in proper relationship to said faceplate, said spring having a first end formed for detachable engagement to said stud;

a bracket attached to said mask and having a seat for receiving in permanent attachment the second end of said spring; said suspension device being characterized by said spring and said bracket having configurations at their interface which are such that the lateral edges of said spring are compressively preloaded against said bracket to provide a wide stance which enhances the stability of the suspension of said mask in relation to said faceplate.

4,317,065

COLOR PICTURE TUBE HAVING AN IMPROVED ELECTRON GUN WITH EXPANDED LENSES

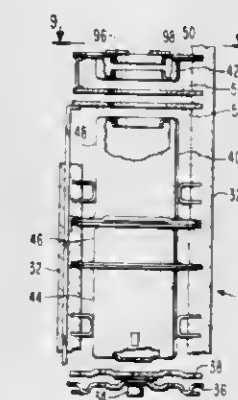
Richard H. Hughes, Lancaster, Pa., assignor to RCA Corporation, New York, N.Y.

Filed Feb. 28, 1980, Ser. No. 125,648

Int. Cl.³ H01J 29/50

U.S. Cl. 313—414

4 Claims



1. In a color picture tube having an inline electron gun for generating and directing a plurality of electron beams, along coplanar paths toward a screen of said tube, said gun including a main focus lens for focusing said electron beams, the improvement comprising

- the main focus lens being formed by two spaced electrodes, each electrode including a member having a plurality of apertures therein equal to the number of electron beams and a lens plate spaced from said member which is electrically connected to said member, the lens plates of the two electrodes being adjacent and spaced from each other and being located between the members of the electrodes having a plurality of apertures therein, each lens plate including a single large hole therein formed by a plurality of overlapping apertures equal to the number of electron beams.

4,317,066

GASEOUS DISCHARGE LAMP HAVING NOVEL ELECTRODE MOUNTINGS

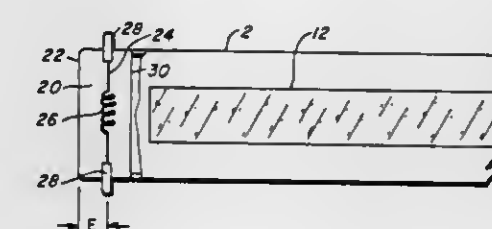
Thomas J. Hammond, Penfield, and Karl A. Northrup, Rochester, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Feb. 4, 1980, Ser. No. 118,337

Int. Cl.³ H01J 61/36

U.S. Cl. 313—493

7 Claims



1. A low pressure gaseous discharge lamp comprising an elongated tubular glass envelope containing an ionizable medium therein; and

- a pair of filament electrodes sealed within the envelope at opposite ends thereof, each of said electrodes having a

pair of electrical terminal connections projecting through said elongated envelope surface.

4,317,067

DIELECTRIC SURFACE ELECTRICAL DISCHARGE DEVICE

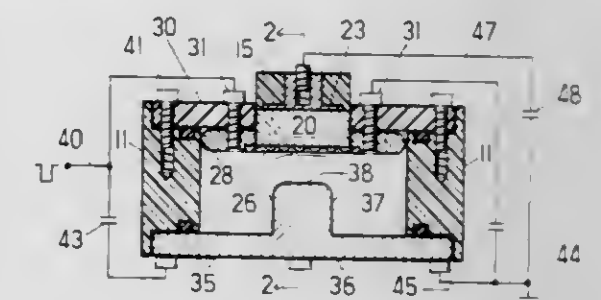
William A. Fitzsimmons, and Louis A. Rosocha, both of P.O. Box 5321, Madison, Wis. 53705

Filed Apr. 11, 1980, Ser. No. 139,288

Int. Cl.³ H01S 3/091; H05B 41/02

U.S. Cl. 315—150

18 Claims



9. An electrical discharge device adapted to provide a uniform glow type discharge, comprising:

- (a) a first electrode adapted to provide a uniform area source of ultraviolet wave length photons, comprising:
 - (1) a solid core formed of dielectric material having a peripheral surface;
 - (2) a grid of electrical conductors mounted on a portion of the peripheral surface of said dielectric core; and
 - (3) a conductive plate mounted on a portion of the peripheral surface of said dielectric core which is spaced away and electrically isolated from said grid, the material of which said dielectric core is formed and the thickness of said dielectric core between said grid and said plate being selected such that a potential difference can be applied between said grid and said plate which will initiate an electrical discharge between said grid conductors and the adjacent surface of said dielectric core without electrical breakdown of said core;
- (b) a second electrode; and
- (c) an enclosure supporting said first and second electrodes in spaced relation with a discharge gap defined between them;

whereby the application of a sufficient voltage potential difference between said plate and grid of said first electrode will cause an electrical discharge between the conductors of said grid and the adjacent surface of said dielectric core, without the need for external heating of said first electrode, with a resulting release of ultraviolet wave length photons into the discharge gap to yield two dimensionally uniform ionization of a gas in the gap.

4,317,068

PLASMA JET IGNITION SYSTEM

Michael A. V. Ward, Lexington, and Tai T. Wu, Cambridge, both of Mass., assignors to Combustion Electromagnetics, Inc., Arlington, Mass.

Filed Oct. 1, 1979, Ser. No. 80,690

Int. Cl.³ H05B 37/02, 39/04, 41/36

U.S. Cl. 315—209 CD

10 Claims

1. In an electrical ignition system including a transformer, means for coupling an electrical energy source to the primary winding of said transformer, and means for coupling the secondary winding of said transformer across the electrodes of a main ignition spark gap, the improvement comprising:

- an output capacitor connected in parallel to said secondary winding; and
- a by-pass circuit including, in series connection from a high

circuit means connected to provide a control signal varying as a function of the level of the motor current; and a constant voltage circuit, coupled to the circuit means, connected to provide a modified control signal for regulating the operation of the d-c bridge and thus regulating the amplitude of the d-c bus voltage, to regulate the amplitude of the inverter a-c output voltage in a manner such that as the inverter is reduced from 100% load to a reduced operating level substantially below 100% load, the frequency of the inverter a-c output voltage is gradually reduced but the amplitude of the inverter a-c output voltage remains substantially constant.

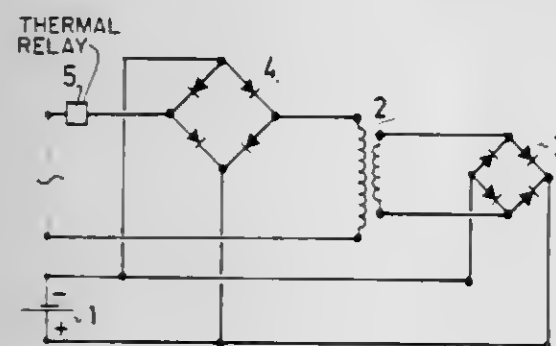
4,317,075

DEVICE FOR TRANSFORMING AN ALTERNATING CURRENT TO A DIRECT CURRENT, AND APPLICATION THEREOF TO THE CHARGING OF STORAGE BATTERIES

Francois Guerbet, 6, rue de Vergennes, 78000 Versailles, France
Filed May 30, 1979, Ser. No. 43,900
Int. Cl.³ H02J 7/06

U.S. Cl. 320—53

8 Claims



1. Device for transforming an alternating current supply of a given voltage to direct current of a desired voltage, comprising at least one transformer having a primary which is part of a primary circuit and a secondary which is part of a secondary circuit, and comprising at least one rectifying element which is in the secondary circuit and is connected in series with the secondary of said at least one transformer; means for direct application and rectification of the alternating current in series with the primary of said at least one transformer and connected to the output of said at least one rectifying element in said secondary circuit, and said means being adapted to divert and rectify a part of the alternating current supply in the primary circuit and deliver the rectifying current to the secondary circuit at the output of said at least one rectifying element such that said resulting current has the same direction as the secondary current leaving said at least one rectifying element.

4,317,076

POWER FACTOR CONTROL SYSTEM

Arthur L. Price, Canton, Ohio, assignor to Hilscher-Clarke Electric Co., Canton, Ohio
Filed Mar. 20, 1980, Ser. No. 132,074
Int. Cl.³ G05F 1/70

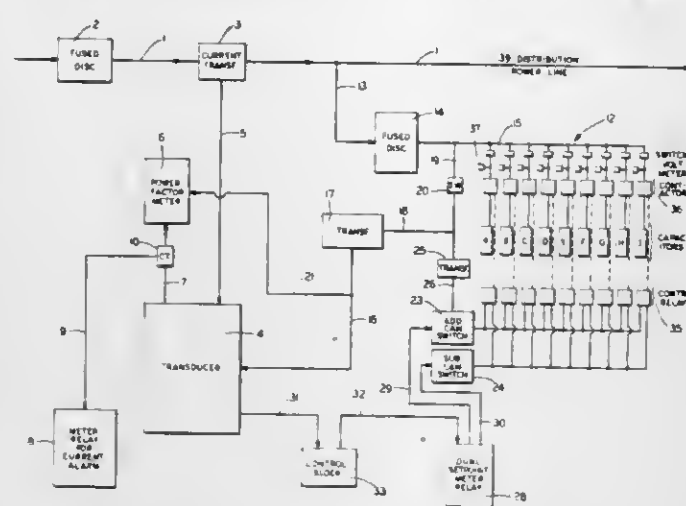
U.S. Cl. 323—210

10 Claims

1. A control system for adding and subtracting capacitors to an electrical supply line including:

- sensing means for generating signals in response to the load characteristic of the supply line;
- dual setpoint relay means operatively connected with the sensing means for receiving the signals generated thereby to indicate when more or fewer capacitors are needed on the supply line by generating "add" and "subtract" signals upon one of the setpoints being reached;
- a plurality of contactor means each associated with a capacitor for electrically connecting or disconnecting said capacitors to or from the supply line; and
- first and second cam timer stepping switch means operatively connected to the dual setpoint relay means and

controlling the contactor means, said first switch means progressively adding capacitors on the electrical supply line in response to capacitor "add" signals from the relay means, with said added capacitors being the next available capacitors in a sequence to provide a first-in, longest-out



pattern, and said second switch means progressively removing capacitors from said supply line in response to capacitor "subtract" signals from said relay means, with said removed capacitors being in a sequence to provide a first-out, longest-in pattern whereby said capacitors and associated contactor means receive uniform usage.

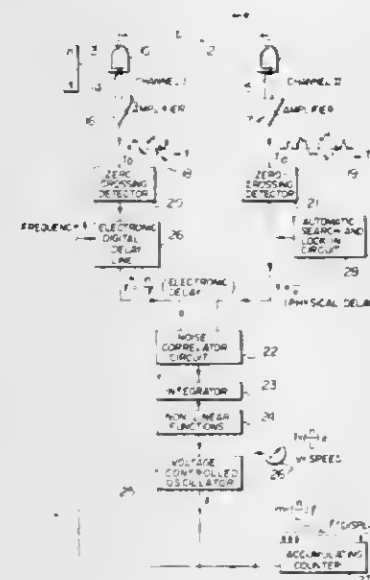
4,317,077

TRANSDUCER FOR MEASURING THE VELOCITY OR DISPLACEMENT OR BOTH OF FERROMAGNETIC MATERIAL

Cornelis M. G. Zwarts, Touraine, Canada, assignor to Canadian Patents & Development Limited, Ottawa, Canada
Filed Mar. 24, 1980, Ser. No. 133,412
Int. Cl.³ G01P 3/66

U.S. Cl. 324—179

4 Claims



1. A transducer for measuring the velocity or displacement or both of ferromagnetic material comprising:

- first and second magnetic read-heads positioned close to but not contacting the magnetic element whose relative velocity or displacement or both is to be measured with the two read-heads located a fixed distance apart in the direction of travel of the element,
- magnetic means positioned close to the magnetic element ahead of the first and second read-heads in the direction of travel of the element for increasing the magnetic surface noise levels of the material of the magnetic element,
- amplifiers connected to the two read-heads for amplifying the random voltage noise signals induced in the read-

- heads, said signals being substantially identical with one being delayed in time with respect to the other,
- zero-crossing detectors connected to the outputs of the amplifiers,
- means for correlating the noise signals obtained from the zero-crossing detectors and providing an output frequency signal,
- an electronic digital delay line circuit connected between the zero-crossing detector of the first read-head and the means for correlating the noise signals,
- feedback means for applying the output frequency signal to the electronic digital delay line circuit to control the amount of delay such that it is equal to the physical delay produced in the signal from the second read-head, said delay being relative to the velocity of the magnetic element, and
- means for measuring the frequency or number or both of the cycles of the output frequency signal to give an indication of the relative velocity or displacement or both of the magnetic element.

4,317,078

REMOTE POSITION AND ORIENTATION DETECTION EMPLOYING MAGNETIC FLUX LINKAGE

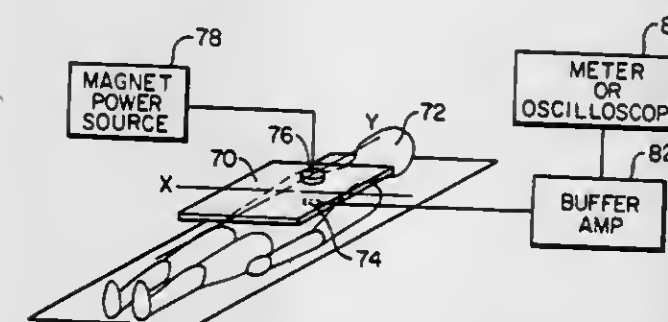
Herman R. Weed, Columbus, Ohio, and Ram M. Engira, Ludhiana, India, assignors to Ohio State University Research Foundation, Columbus, Ohio

Filed Oct. 15, 1979, Ser. No. 84,869

Int. Cl.³ G01B 7/14

U.S. Cl. 324—208

32 Claims



1. The process for determining the location and orientation in space of a magnetic field responsive sensor having an output signal in the presence of a magnetic flux linkage comprising the steps of:

- defining a plane within which are established first and second intersecting reference axes for deriving the position of said sensor with respect to said axes;
- providing a magnetic field source movable with respect to said plane to derive alternating magnetic flux fields; effectively moving said magnetic field source parallel to said first reference axis and determining, from said sensor output signal, locations representing a first null point of substantially no said flux linkage, those first and second locations on each side of said first null point representing maximum said flux linkage and the magnitudes of said sensor output signal values at said first and second locations;
- effectively moving said magnetic field source parallel to said second reference axis and determining, from said sensor output signal, locations representing a second null point of substantially no said flux linkage, those third and fourth locations on each side of said second null point representing maximum said flux linkage and the magnitudes of said sensor output signal values at said third and fourth locations;
- determining said sensor position geometrically most proximate said first axis as a function of said first null point location and the magnitude of the output difference between said sensor output signal values at said first and second locations;
- determining said sensor position geometrically most proximate said second axis as a function of said second null

4,317,079

BURIED CABLE LOCATING SYSTEM

Kazuomi Yamamura, Yokohama; Takasuke Fukui, Tokyo; Yoshinao Iwamoto, Fujimi; Yuichi Shirasaki, Tokyo, and Masayuki Fujise, Yamato, all of Japan, assignors to Kokusai Denshin Denwa Co. Ltd., Tokyo, Japan

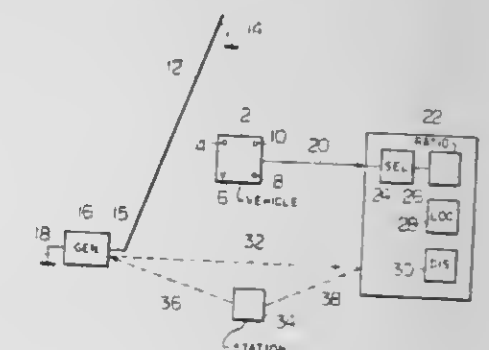
Filed Sep. 4, 1979, Ser. No. 72,282

Claims priority, application Japan, Sep. 4, 1978, 53/107463

Int. Cl.³ G01V 3/11, 3/165, 3/38

U.S. Cl. 324—326

7 Claims



1. A cable detecting system for searching of an electrical cable in which an electrical current flows comprising non-directional flux measurement means located near the cable for measuring the flux from said electric current at four vertex points said points forming a horizontal square plane, means coupled to said flux measurement means for providing squared amplitude ratios of each of said magnetic flux to a selected one of said magnetic flux, and means responsive to said amplitude ratios for determining distance to the cable from center of said four vertex points, angle between a transverse direction to the cable and extension of a diagonal line from said four vertex points, and depth between the cable and said horizontal square plane, wherein said distance, said angle and said depth each have a mathematical relationship of said amplitude ratios.

4,317,080

SIGNAL MONITOR SYSTEM

William F. Acker, Seminole, Fla., assignor to Honeywell Inc., Minneapolis, Minn.

Division of Ser. No. 829,705, Sep. 1, 1977, Pat. No. 4,207,523.

This application Dec. 12, 1979, Ser. No. 102,601

Int. Cl.³ H03K 5/153, 5/24

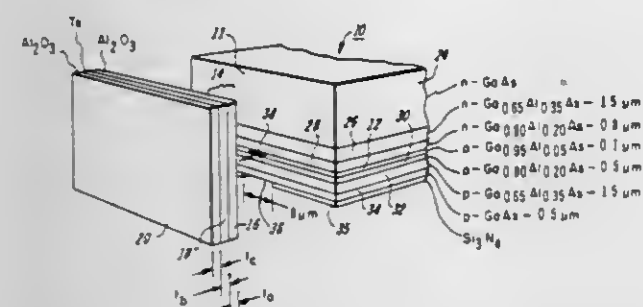
U.S. Cl. 328—151

3 Claims

1. An input signal amplitude range classifier for classifying amplitude values of an input analog signal into amplitude ranges, said classifier providing an indication as to whether a sample value of said input analog signal occurs within one of a plurality of input signal amplitude ranges, said classifier comprising:

- a sample and hold means, adapted to receive said input analog signal at an input thereof, and which has a sample and hold means output, said sample and hold means being capable of providing, for a holding period, a data sample of said input analog signal at said sample and hold means output, said data sample having an amplitude which is free of further influence by said input analog signal during said holding period;

junction, the emission of the radiation from said device being from at least one facet surface thereof and characterized by



a passivation layer of organic perylene encapsulating at least said one facet surface, said perylene having high optical transparency and impervious to the ambient environment.

4,317,087

APPARATUS FOR IMPROVING THE WORKING TIME OF THE XeBr LASER

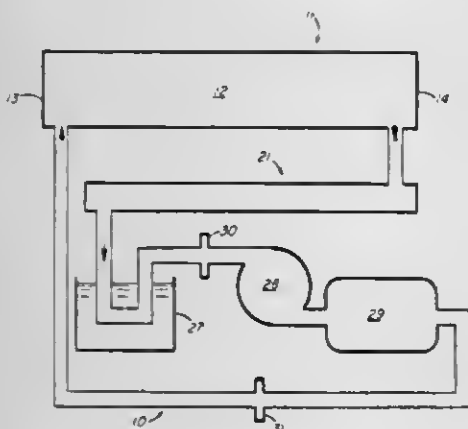
Robert K. Sander, George Balog, and Emma T. Seegmiller, all of Los Alamos, Minn., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Mar. 4, 1980, Ser. No. 127,008

Int. Cl.³ H01S 3/22

U.S. Cl. 372-57

11 Claims



1. A XeBr laser system which comprises:

- a closed loop conduit through which a gaseous working medium may be repeatedly circulated;
- a gaseous working medium comprising initially xenon, HBr, and a desired rare gas diluent in a desired ratio contained in said closed loop conduit;
- means for producing coherent laser radiation in an optical gain region of said conduit;
- means in said conduit positioned downstream of said optical gain region for including recombination of H₂ and Br₂ into HBr; and
- recirculation means for continuously pumping said working medium around the fluid circuit described by said conduit.

4,317,088

CAPILLARY WAVEGUIDE LASER WITH COOLED POROUS WALLS

Thomas G. Roberts, Huntsville, Ala., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Apr. 7, 1980, Ser. No. 138,055

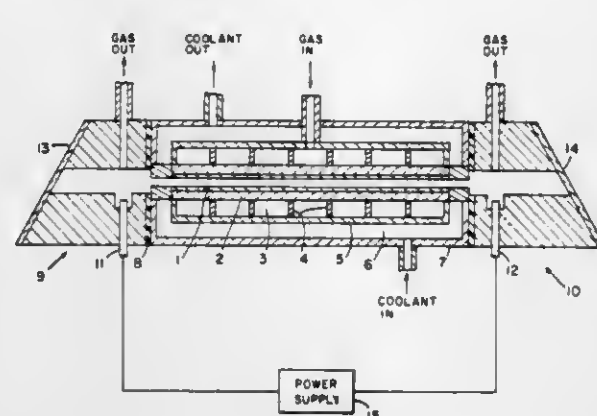
Int. Cl.³ H01S 3/19

U.S. Cl. 372-92

5 Claims

1. In a laser having a porous wall capillary tube for flowing gas from outside the circumference of the tube into the tube

and out its ends; the improvement comprising a second porous tube enclosing said capillary tube; said second tube having a



greater thermal conductivity than said capillary tube; and cooling means attached to said second tube.

4,317,089

RING LASER

David C. Grant, Jr., and Thomas J. Hutchings, both of Thousand Oaks, Calif., assignors to Litton Systems, Inc., Beverly Hills, Calif.

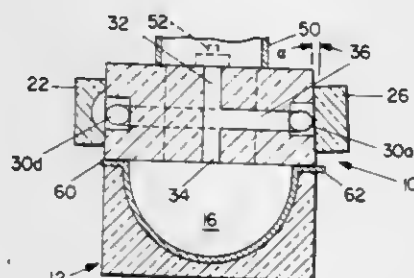
Continuation of Ser. No. 947,355, Oct. 2, 1978. This application

Dec. 8, 1980, Ser. No. 214,143

Int. Cl.³ H01S 3/083

U.S. Cl. 372-94

16 Claims



1. A ring laser, including means forming a resonant cavity, an active gaseous medium within said cavity, a pumping source, and energy abstracting means, comprising:

- a block defining said resonant cavity in a closed path containing said active gaseous medium, including at least one laser gain region within said cavity, said means forming a resonant cavity including a plurality of mirrors positioned within said gaseous medium in said cavity, a cathode and at least two anodes connected by passageways formed in said block through said gain regions of said cavity, the passageways between said cathode and said anodes including said gain regions;
- at least one of said mirrors being concave, and the remaining mirrors being substantially planar;
- at least one of said mirrors being tilted at a pyramid angle relative to the other said mirrors; and
- at least one of said mirrors being partly transmissive.

4,317,090

LASER OSCILLATOR

Akio Nagai, Haruhiko Nagai, and Masao Hishii, all of Amagasaki, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 20, 1979, Ser. No. 59,858

Int. Cl.³ H01S 3/09

U.S. Cl. 372-58

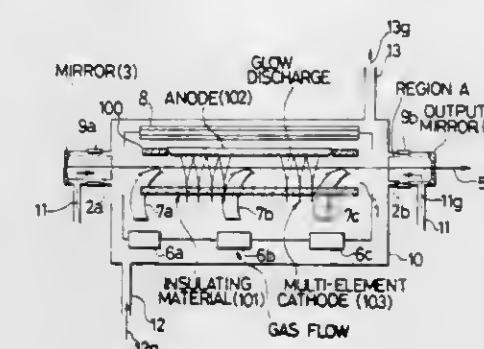
14 Claims

1. A gas laser oscillator comprising: a laser chamber containing a first active gas medium capable of sustaining laser oscillation in a first region thereof and a second gas medium in a second region thereof, said second gas medium having substan-

tially no amplification function but having a laser beam absorption function;

means for producing an electric discharge disposed in said first region to excite said first gas medium into laser oscillation having an amplification function to thereby generate a laser beam;

a pair of mirrors provided at respective ends of said laser chamber, said mirrors constituting an optical resonator together with said first and second chamber regions;



an input port and an output port provided to and from said second region; and

means for selectively introducing said second gas medium into said second region through said input port and means for selectively removing said second gas medium from said second region through said output port to thereby reduce the laser beam absorption function in said second region.

4,317,091

NEGATIVE SEMICONDUCTOR RESISTANCE

Reinhard Dahlberg, Flein, Fed. Rep. of Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Fed. Rep. of Germany

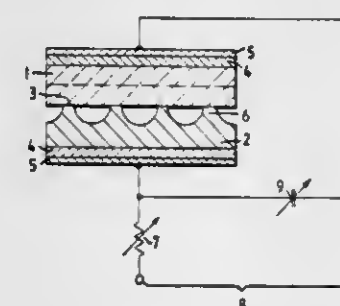
Filed May 28, 1980, Ser. No. 153,938

Claims priority, application Fed. Rep. of Germany, Jul. 3, 1979, 2926757

Int. Cl.³ H01L 45/00

U.S. Cl. 331-107 R

12 Claims



1. A negative semiconductor resistance in which two separate semiconductor elements are provided having the same conductivity characteristics; both semiconductor elements have at least three fixed areas of contact with a diameter of less than 1·10⁻² under mechanical pressure; and an electrical d.c. or a.c. voltage is applied to the two separate semiconductor elements and is so high that an electrical field strength greater than the breakdown field strength is formed at these areas of contact.

4,317,092

RECURSIVE LOW PASS DIGITAL FILTER

Ronald W. Potter, Saratoga, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jun. 30, 1980, Ser. No. 164,411

Int. Cl.³ H03H 17/04, 11/12

U.S. Cl. 333-165

5 Claims

1. An apparatus for filtering a digital input signal representa-

tive of a sequence of substantially equally-spaced samples of a signal x(t) comprising:

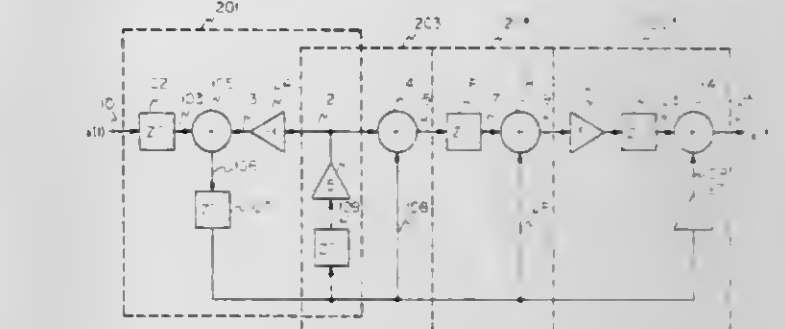
first combining means for providing a first signal in response to the combining of a feedback signal and said digital input signal;

feedback means coupled to said first combining means for providing said feedback signal in response to said first signal;

feedforward means coupled to said first combining means

for delaying and scaling by selected values said first signal to provide a plurality of feedforward signals; and

second combining means coupled to said feedforward means for producing a filtered digital output signal representative of a signal y(t) having an information bandwidth substantially one-half that of the signal x(t) in response to selected combinations of said feedforward signals and having a transfer function H(z) as the combination of signals from said first and second combining means, feedback means, and feedforward means, where:



for delaying and scaling by selected values said first signal to provide a plurality of feedforward signals; and second combining means coupled to said feedforward means for producing a filtered digital output signal representative of a signal y(t) having an information bandwidth substantially one-half that of the signal x(t) in response to selected combinations of said feedforward signals and having a transfer function H(z) as the combination of signals from said first and second combining means, feedback means, and feedforward means, where:

$$H(z) = B \frac{(z^2 + z + 1)(z + 1)}{z^n(z^2 + 0.5)}$$

$z = e^{s\Delta t}$, which represents a time advance of Δt seconds; s is the complex variable of the Laplace transform; B is a selected scaling; and n is a selected integer.

4,317,093

ELECTRIC FILTER AND METHOD OF MANUFACTURE

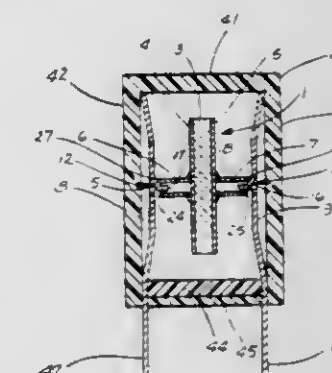
Antonio Lungo, 11941 Abbey Rd., North Royalton, Ohio 44133

Filed Mar. 1, 1979, Ser. No. 16,566

Int. Cl.³ H03H 9/58, 9/05, 9/50, 9/15

U.S. Cl. 333-187

37 Claims



1. A piezoelectric resonator assembly including support means at least two piezoelectric resonators disposed adjacent each other and operably connected to said support means coupling means mechanically coupling said resonators together said coupling means being hollow.

4,317,094

REMOTELY CONTROLLED CIRCUIT BREAKER SYSTEM

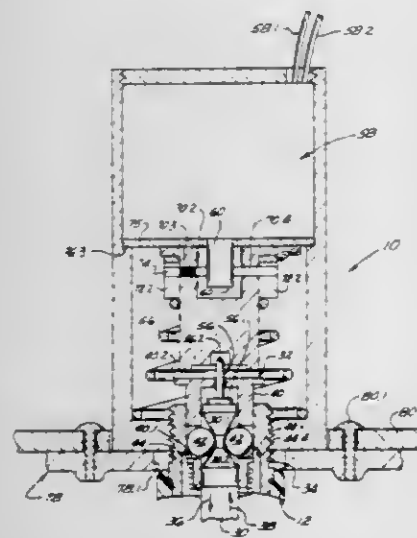
Robert W. Peterson, North Attleboro, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed May 21, 1980, Ser. No. 151,857

Int. Cl.³ H01H 71/10

U.S. Cl. 335-13

9 Claims



1. In a system having latch means moveable in a first direction to move a member from a first position to be latched in a second position and having the member arranged in said second position to be independently moveable in said first direction for unlatching the member to return to said first position, remote control means having a plunger, the remote control means being operable from a remote location for moving the plunger, pawl means pivotally mounted on the plunger, and means biasing the pawl means for pivotal movement, the pawl means being normally disposed so that operation of the control means to move the plunger when the member is in said first position engages the pawl means with the latch means for moving the member in said first direction to be latched in said second position and so that operation of the control means to move the plunger when the member is in said second position permits the pawl means to rotate in response to said biasing means to engage the member and move the member in said first direction for unlatching the member to return to said first position.

4,317,095

MILLI-VOLT SWITCHING DEVICE

Walter J. Jankiewicz, 3719 Mount Blackburn Ave., San Diego, Calif. 92111

Filed Apr. 7, 1980, Ser. No. 138,009

Int. Cl.³ H01H 53/015

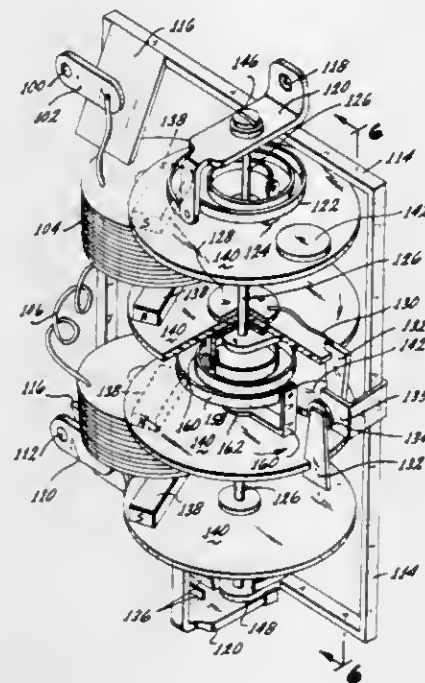
U.S. Cl. 335-149

9 Claims

4. A switching device acting responsive to initiating of current flow in a primary control circuit to close a switch in a secondary controlled circuit, comprising:

- (a) magnetic means forming a magnetic field,
- (b) said primary control circuit including coil means disposed in said magnetic field whereby a force is created between said coil means and said magnetic field when current flow is initiated in said primary control circuit,
- (c) said magnetic means and said coil means being relatively pivotally mounted so that one of said means can pivotally move responsive to said force and said one means having switching means operative to close said switch upon such pivotal movement,
- (d) spring means acting on said one means resisting pivotal movement of said one means to close said switch, said spring means being of a strength to be overcome by said force when current flows in said primary control circuit,
- (e) said one means being said magnetic means, and
- (f) a pair of vertically spaced fixed coils, a pair of pivotal mounts above and below each coil and each pair of

mounts supporting a superposed pair of permanent magnets above and below each coil thereby directing a magnetic field relative to each coil, each pair of mounts being pivotal about a vertical axis, whereby when current flows through said coils said magnets will be pivoted, said coils



and magnets being arranged so that one pair of mounts will pivot clockwise and one pair of mounts will pivot counterclockwise in plan view under the force occasioned by initiation of current flow in said primary control circuit.

4,317,096

ELECTROSTATIC SHIELDING OF NONSEQUENTIAL DISC WINDINGS IN TRANSFORMERS

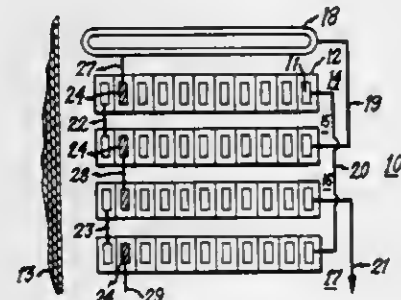
Robert C. Degeneff, Pittsfield, Mass., and John C. Crouse, Rome, Ga., assignors to General Electric Company

Division of Ser. No. 30,157, Apr. 16, 1979, Pat. No. 4,243,966. This application Jul. 7, 1980, Ser. No. 166,524

Int. Cl.³ H01F 15/14

U.S. Cl. 336-70

2 Claims



1. A disc coil winding arrangement for a transformer comprising:
 - a plurality of turns of insulated electrical conductors radially disposed around a winding form in a disc winding configuration;
 - a plurality of winding sections of said radially disposed conductors linearly arranged along said winding form;
 - an electrostatic ring shield adjacent one of said winding sections and electrically connected with another of said winding sections;
 - said winding sections being electrically interconnected in a nonsequential manner wherein a first one of said winding sections is electrically connected with a second one of said winding sections and a third one of said winding sections is electrically connected with a fourth one of said winding sections, said first and said fourth winding sections being electrically connected together, said second winding sec-

tion being electrically connected to the electrostatic ring shield and said third winding section being adapted for connection to a terminal on the transformer;

at least one electrostatic shield within said first winding section electrically connected to the electrostatic ring shield;

at least one electrostatic shield within said second winding section electrically connected with at least one electrostatic shield in said third winding section; and

an electrostatic shield in said fourth section adapted for connection with a terminal on the transformer.

4,317,097

HEAT SWITCH

Peter Hofsaess, Strietweg 45, D-7530 Pforzheim, Fed. Rep. of Germany

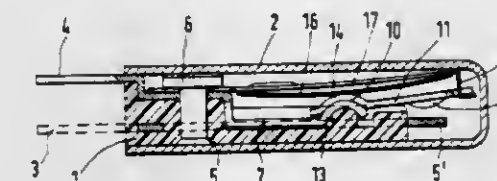
Filed Apr. 30, 1980, Ser. No. 145,253

Claims priority, application Fed. Rep. of Germany, Apr. 30, 1979, 2917557

Int. Cl.³ H01H 61/00

U.S. Cl. 337-89

18 Claims



1. In a heat switch of the type having a base body, electrical connection elements fixed on the base body and insulated from each other, a movable contact member, a fixed contact member, and a bimetallic member for controlling the relative positions of said contact members with respect to each other, wherein each of the contact members is connected with a respective one of the electrical connection elements in an electrically conductive manner, and said bimetallic member is operable for conductively connecting or separating the contact members from each other, the improvement wherein the movable contact member is relatively resistant to bending and is connected by an electrically conducting articulated connection with one of said electrical connection elements, said articulated connection comprising an articulation part formed on said one of the connection elements and a movable articulation part formed on said movable contact member, said articulation parts being rotationally slidably and electrically conductively applied against each other and resiliently pressed toward each other by spring force.

4,317,098

GROUNDING THERMOSTAT SWITCH

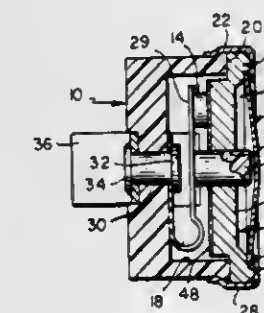
Robert Colavecchio, Johnston, R.I., assignor to Elmwood Sensors, Inc., Cranston, R.I.

Filed Jan. 28, 1980, Ser. No. 117,535

Int. Cl.³ H01H 37/74

U.S. Cl. 337-113

12 Claims



1. A thermostatic switch comprising means defining a receptacle, one side of which is electrically nonconductive and the other side of which is electrically conductive, said electrically

conductive side constituting a fixed contact, a movable contact supported within the receptacle from the nonconductive side thereof, and spring-biased into engagement with the fixed contact, an electrically nonconductive transmitter element extending through the electrically conductive side having an end in the receptacle in engagement with the movable contact and an end protruding from the receptacle, and a bimetallic element affixed to the receptacle in operative relation to the protruding end of the nonconductive transmitter.

4,317,099

FUSE LINK

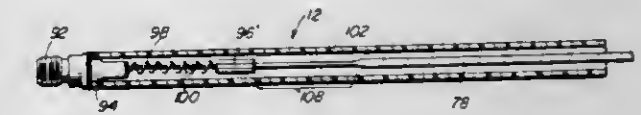
Richard J. Sabis, Chicago, Ill., assignor to S&C Electric Company, Chicago, Ill.

Filed Mar. 24, 1980, Ser. No. 132,923

Int. Cl.³ H01H 85/02

U.S. Cl. 337-170

13 Claims



1. An improved fuse link of the type having a fusible element attached between first and second terminals, the first terminal being in turn attached to a length of flexible, stranded cable; the first terminal, the fusible element, at least a portion of the second terminal, and a portion of the cable being normally surrounded by an arc-extinguishing sheath held at one end to the second terminal, wherein the improvement comprises: a unified and thereby stiffened region of the cable having no sleeve-like or tube-like member thereabout, which region is formed immediately adjacent the first terminal and extends away a selected distance therefrom, the region normally acting substantially as a solid rod, while the remainder of the cable remains flexible.

4,317,100

READILY MOUNTABLE THERMOSTAT

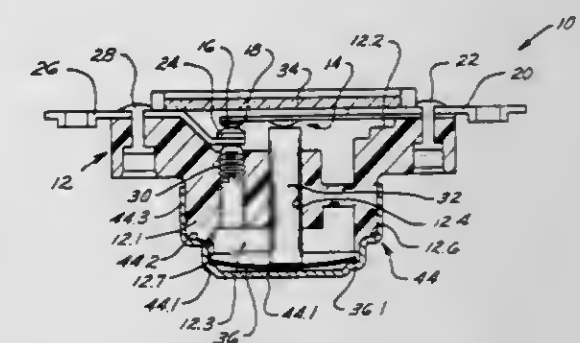
Henry J. Boulanger, Cumberland, and Philip R. Gouin, Manville, both of R.I., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Oct. 29, 1980, Ser. No. 201,939

Int. Cl.³ H01H 37/12

U.S. Cl. 337-347

7 Claims



1. A thermally responsive control device having control means mounted on base means for movement between first and second control positions, having a thermally responsive thermostat metal element mounted in a control location on the base means for movement between an original dished configuration of the element and an inverted dished configuration of the element in response to selected temperature changes to move the control means between said control positions when said temperature changes occur, and having means for mounting the device with the dished element in close heat-transfer relation to an object whose temperature is to be monitored, characterized in that, the base means has boss means formed thereon, mounting bracket means of a first relatively high strength

metal material have openings formed therein and are positioned on the base means with said openings in a selected location relative to said boss means, the thermally responsive dished element is disposed in said control location on the base means, and cap means of a second relatively more formable metal material having selected thermal conductivity properties is fitted over the base means, the bracket means and the boss means and has portions thereof formed to fit into said openings in the bracket means to movably secure the thermally responsive dished element in said control location and to secure the mounting bracket means to the base means for use in mounting the device on the object whose temperature is to be monitored with the thermally responsive dished element disposed in close heat transfer relation to the object through the cap means.

4,317,101

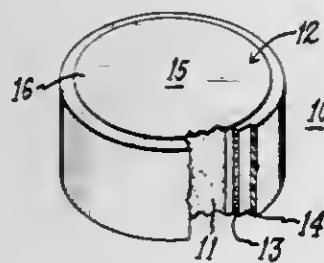
STABLE HIGH VOLTAGE DC VARISTOR

Howard F. Ellis, Stephentown, N.Y., and James S. Kresge, Pittsfield, Mass., assignors to General Electric Company
Filed Oct. 27, 1980, Ser. No. 201,182

Int. Cl.³ H01C 7/10

U.S. Cl. 338—21

3 Claims



1. A zinc oxide varistor for high voltage DC operation comprising:
a sintered disc of zinc oxide varistor material;
a metal electrode on each opposing surface of said disc for providing electrical contact with said varistor material;
a glass collar around the periphery of said disc; and
an electrically insulating coating on the surface of said glass collar for preventing electrical breakdown between said opposing electrodes.

4,317,102

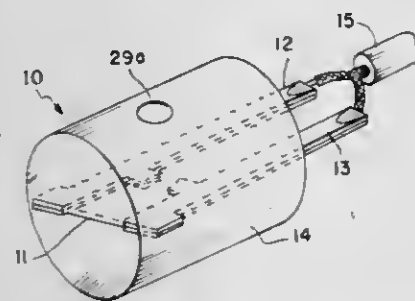
HOT FOIL TRANSDUCER SKIN FRICTION SENSOR

Thomas Vranas, Hampton, Va., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.
Filed Aug. 14, 1980, Ser. No. 178,195

Int. Cl.³ H01C 7/02

U.S. Cl. 338—25

10 Claims



1. A skin friction sensor comprising:
a hot transducer for measuring temperature; and
means for supporting said hot foil transducer including:
(a) a pair of rigid conductive elements disposed one at each end of said hot foil transducer;
(b) a nonconductive body encasing all but one edge of said foil transducer; and

(c) means for connecting said conductive elements to an electrical circuit.

4,317,103

VARIABLE RESISTOR

Atsushi Kawasaki, and Yukio Munakata, both of Tokorozawa, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

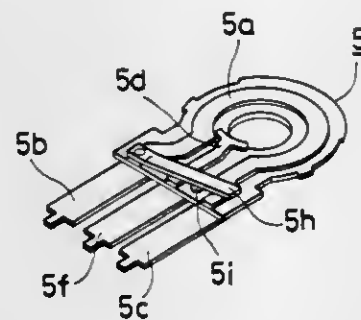
Filed Jul. 19, 1979, Ser. No. 58,648

Claims priority, application Japan, Jul. 21, 1978, 53/99643[U]; Jul. 21, 1978, 53/99644[U]; Jul. 21, 1978, 53/99645[U]; Aug. 16, 1978, 53/99119; Aug. 16, 1978, 53/111478[U]

Int. Cl.³ H01C 10/30, 10/36

U.S. Cl. 338—160

15 Claims



1. A variable resistor comprising a casing, a sliding member mounted in said casing and a substrate member having a resistance member in sliding contact with said sliding member, terminal members coupled to said resistance member, and bimetal strip means responsive to heat inside said casing to terminate the application of current through said variable resistor, said terminal members including terminal boards mounted on said substrate, and said bimetal strip being coupled to one of said terminal members.

4,317,104

PRECISION RESISTOR FOR MEASUREMENT PURPOSES

Eduard Bergmann, and Wolfgang Bonczek, both of Ludenscheid, Fed. Rep. of Germany, assignors to Firma Leopold Kostal, Ludenscheid, Fed. Rep. of Germany

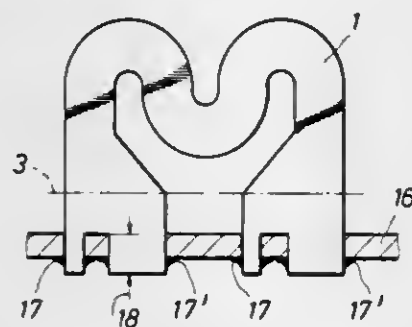
Filed Nov. 7, 1979, Ser. No. 91,894

Claims priority, application Fed. Rep. of Germany, Feb. 5, 1979, 2904197

Int. Cl.³ H01C 1/14

U.S. Cl. 338—330

6 Claims



1. A precision resistor for use in electrical circuits arranged on printed circuit boards, said resistor comprising a single piece produced by punching or stamping said resistor from a flat band of thermally conductive alloy selectively surface treated with a conductive coating in confined areas on said resistor so as to improve solderability of the resistor to conductors of a circuit board, said resistor being formed at portions thereof which are to be mounted to said board with spaced feet by means of which the resistor can be soldered to the conductors of a circuit board, each of said feet being formed with two

spaced toes; both surfaces of said resistor which encompass said feet being treated with said conductive coating.

4,317,105

CONDITION INDICATING DEVICE FOR WHEELED VEHICLE SHOCK ABSORBERS

Brajnandan Sinha, S-951, 47 Lulea, Sweden, and Sven-Erik Tiberg, Kaptensgatan, Sweden, assignors to Brajnandan Sinha, Lulea, Sweden

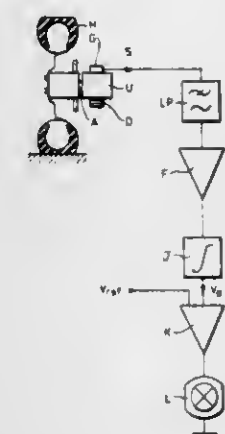
Filed Apr. 30, 1980, Ser. No. 144,971

Claims priority, application Sweden, May 2, 1979, 7903814

Int. Cl.³ G01M 17/04; G08B 21/00

U.S. Cl. 340—52 R

4 Claims



1. A device for indicating the condition of shock absorbers of wheeled vehicles by using an acceleration-sensitive means, which is rigidly attached to the vehicle near the shock absorber and emits a signal which via an electronic circuit results in an indication when a predetermined acceleration value is exceeded, characterized in that the means includes an accelerometer which is rigidly attached adjacent the wheel hub for continuously measuring the oscillations of the wheel axle, induced via a shock absorber by vertical irregularities in the road, and emitting correspondingly varying electric signals to an integrator, the output signal of which is compared in a comparator with a reference signal corresponding to a predetermined unpermissible shock absorber value, in order to, upon reaching the same, release an indication, for example lighting up an alarm lamp.

4,317,106

DIGITAL INDICATING INSTALLATION FOR MOTOR VEHICLES

Manfred Hüber, Munich, Fed. Rep. of Germany, assignor to Bayerische Motoren Werke AG, Munich, Fed. Rep. of Germany

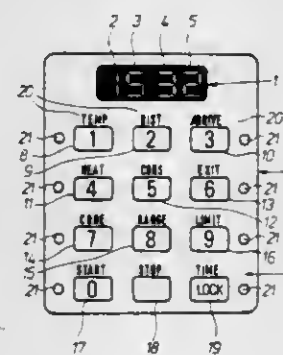
Filed Aug. 11, 1978, Ser. No. 932,785

Claims priority, application Fed. Rep. of Germany, Aug. 12, 1977, 2736465

Int. Cl.³ G08B 19/00; G06F 15/20

U.S. Cl. 340—52 F

37 Claims



1. A digital indicating installation for vehicles having means for generating a first function value and at least one further

function value and which selectively displays several function values in a single indicating field comprising display means responsive to the generating means for normally displaying the first function value in the indicating field, and at least one switch means operable during the actuation thereof to interrupt the display of the first function value for a fixed predetermined time, the display means being responsive to operation of the at least one switch means for displaying in the indicating field during the fixed predetermined time a single further function value coordinated to the at least one switch means and for automatically displaying in the indicating field the first function value after the expiration of the fixed predetermined time, and further comprising means responsive to the actuation of the at least one switch means for initiating a switching command and enabling a numerical value to be displayed in the indicating field in accordance with subsequent actuation of the at least one switch means.

4,317,107

AUDIBLE VACUUM DETECTOR

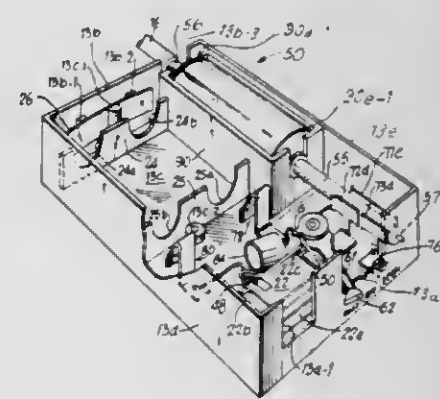
Burton C. Trattner, Coram, N.Y., assignor to Harvey-Westbury Corp., Westbury, N.Y.

Filed Oct. 30, 1979, Ser. No. 89,407

Int. Cl.³ B60Q 5/00; G08B 21/00

U.S. Cl. 340—52 R

18 Claims



1. Compact, self-contained vacuum gauge apparatus, comprising:
a housing, said housing containing:
vacuum sensing means including a reciprocating member, said vacuum sensing means having a coupling for connection with a source whose vacuum condition is to be measured;
said reciprocating member having an arm projecting from said vacuum sensing means;
an electrical circuit including first and second resilient flexible contacts slidably engaging said arm and maintaining and guiding said arm for movement along said path coincident with the longitudinal axis of said arm;
audible alarm means;
a battery;
said arm including a rigid contact for completing a conductive path between said first and second contacts for electrically coupling said audible alarm means to said battery when said rigid contact engages said first and second contacts; and
an elongated flexible conduit for connection between said coupling and the source to permit monitoring of the vacuum condition at a location remote from said source.

4,317,108

VEHICLE THEFT PREVENTION DEVICE

Jerome Schwartz, and George J. Infante, both of Philadelphia, Pa., assignors to Taylor Lock Company, Philadelphia, Pa.

Filed May 27, 1980, Ser. No. 153,410

Int. Cl.³ B60R 25/04, 25/10

U.S. Cl. 340—64

2 Claims

1. A testable theft prevention device for an internal combus-

a signal level converting circuit for varying the level of the receiving light signal produced by the light receiving device in response to a converting level control signal to produce a converted level receiving light signal;

a memory circuit, coupled to said signal level converting circuit, for storing and holding in digital form an initial value of the converted level receiving light signal;

a D/A converting circuit, coupled to said memory circuit, for converting the digital form of the initial value of the converted level receiving light signal into an analog output signal;

a first comparing circuit, coupled to said D/A converting circuit and said signal level converting circuit, for comparing the analog output signal with the converted level receiving light signal to produce the fire alarm signal when there is a level difference between the analog output signal and the converted level receiving light signal;

a second comparing circuit, coupled to said D/A converting circuit and said signal level converting circuit, for comparing the analog output signal with the converted level receiving light signal at a predetermined period and for producing a comparison output signal when there is a level difference between the analog output signal and the converted level receiving light signal; and

a converting level correcting circuit, coupled to said second comparing circuit, for producing the converting level control signal in response to the comparison output signal.

4,317,114

COMPOSITE DISPLAY DEVICE FOR COMBINING IMAGE DATA AND METHOD

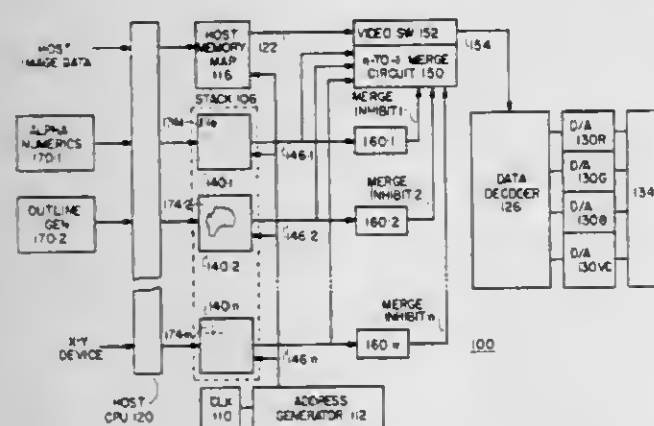
James T. Walker, Palo Alto, Calif., assignor to Cromemco Inc., Mt. View, Calif.

Filed May 12, 1980, Ser. No. 148,964

Int. Cl.³ G09G 1/16

U.S. Cl. 340—721

37 Claims



1. A method for merging subimage scanline type digital data into a host image to form a composite display on a raster type display device, comprising the steps of:

providing a stream of host image data;

providing a source of the subimage data formed by pixels of subimage data containing at least one image code representing at least one visual display characteristic of the subimage, and formed by pixels of background data containing at least one background code;

systematically addressing the source of subimage data to form a stream of subimage data containing subimage pixels and background pixels;

synchronizing the stream of subimage data with the stream of host image data;

detecting the absence of background pixels in the stream of subimage data;

substituting subimage pixels in the stream of subimage data for the corresponding host image data in the stream of host image data in response to the absence of the background pixels in the stream of subimage data to form a composite display.

4,317,115
DRIVING DEVICE FOR MATRIX-TYPE DISPLAY PANEL USING GUEST-HOST TYPE PHASE TRANSITION LIQUID CRYSTAL

Hideaki Kawakami, Mito; Masaaki Kitajima, Hitachi; Naoyuki Izaki, Hitachi, and Yoshiharu Nagae, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

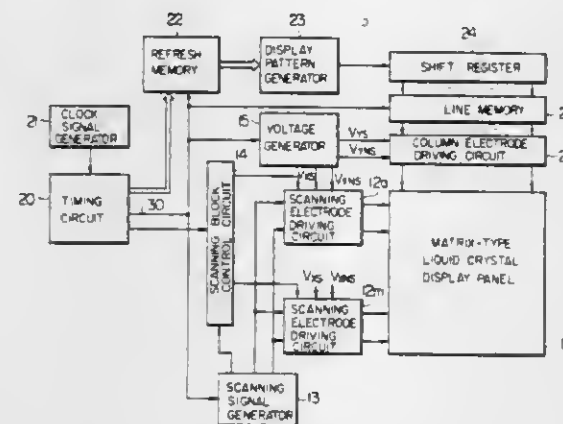
Filed Nov. 29, 1979, Ser. No. 98,666

Claims priority, application Japan, Dec. 4, 1978, 53-149153

Int. Cl.³ G09G 3/36

U.S. Cl. 340—784

5 Claims



1. A driving device for a matrix-type display panel using a guest-host type phase transition liquid crystal comprising:

a matrix-type display panel including a guest-host type liquid crystal, said guest-host type crystal being made by adding a pleochroic dye to either one of a nematic-cholesteric phase transition liquid crystal and a chiralnematic phase transition liquid crystal;

a scanning region selecting circuit for selecting a scanning region on a display plane of said matrix-type display panel, said selected scanning region including a predetermined number of scanning lines, and being scanned to write information therein, said scanning region selecting circuit selecting a next scanning region when the scanning operation in said selected scanning region has been completed, so that said scanning region selecting circuit divides said matrix into said scanning region in which new information can be written and at least one holding region wherein new information cannot be written;

a scanning circuit for repeatedly scanning said scanning lines of said selected scanning region in a one-line-at-a-time scanning fashion, said scanning operation being repeated a plurality of times to write and display said information in full degree;

a scanning line voltage applying circuit for applying a desired selection voltage and a non-selection voltage respectively to a selected scanning line and all other scanning lines than said selected scanning lines, in synchronism with said one-line-at-a-time scanning operation performed by said scanning circuit;

a column voltage applying circuit for applying another selection voltage and another non-selection voltage respectively to one or more column electrodes and the remaining column electrodes in synchronism with said one-line-at-a-time scanning operation performed by said scanning circuit, said one or more column electrodes corresponding to one or more selected positions on said selected scanning line, all of said column electrodes being arranged perpendicular to said scanning lines; and

a voltage generator for supplying said scanning line voltage applying circuit with said selection and non-selection voltages and for supplying said column voltage applying circuit with said another selection and non-selection voltages,

wherein said respective selection and non-selection voltages applied to said scanning region serve to provide write-in signals for writing in new information to said scanning

region, and wherein said respective selection and non-selection voltages applied to said holding region serve as holding signals to said holding region to maintain the display state of said holding region as it is.

4,317,116

ARRANGEMENT FOR THE GENERATION OF A SIGNAL IN PROPORTION TO A CAPACITY

Franz Macho, Marxzell-Pfaffenrot, Fed. Rep. of Germany, assignor to VEGA Vertrieb und Fertigung Elektronischer Geräte und Apparate Grieshaber KG, Wolfach, Fed. Rep. of Germany

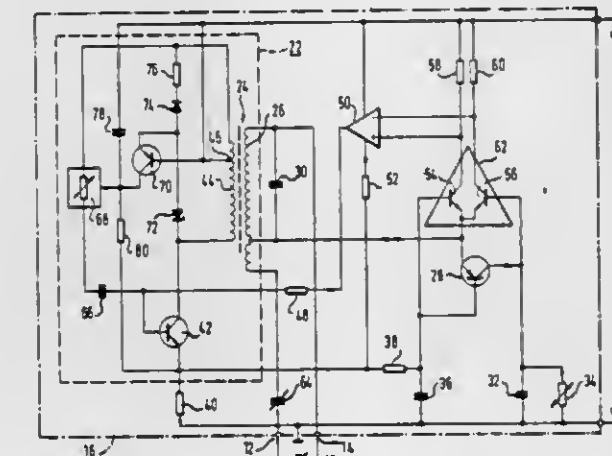
Filed Jan. 14, 1980, Ser. No. 111,785

Claims priority, application Fed. Rep. of Germany, Jan. 16, 1979, 2901516

Int. Cl.³ G08C 19/10

U.S. Cl. 340—870.39

18 Claims



1. In a system for generating a measurement signal proportional to an impedance to be measured, comprising an active supplying operating current to said measuring converter and receiving said measurement signal, said measuring converter being coupled between said two-wire line and said impedance to be measured and comprising:

oscillator means for generating an alternating current signal, said oscillator means including regulating means for stabilizing said alternating current signal, and means for coupling said alternating current signal to said impedance;

control circuit means coupled between said oscillator means and said two-wire line, said control circuit means comprising switching means coupled to said oscillator means, first differential amplifier means coupled to said oscillator means for generating an output signal in accordance with the difference between the alternating current signal and a reference signal, and second differential amplifier means coupled between said first differential amplifier means and said first switching means, said second differential amplifier means being responsive to the polarity of said alternating current signal to couple said alternating current signal to said two-wire line at one polarity of said alternating current signal, said switching means being responsive to the polarity of said alternating current signal to couple said alternating current signal to a reference signal establishing circuit at the other polarity of said alternating current signal, said reference signal establishing circuit providing said reference signal and being coupled between said second differential amplifier means and said two-wire line; and

wherein the alternating current oscillator signal current is controlled by said first differential amplifier means and said regulating means and varies in accordance with said impedance, whereby said two-wire line receives a measurement signal current in accordance with the impedance measured.

4,317,117

CROSS CORRELATED DOPPLER RADAR/INFRA RED VELOCITY AND PRESENCE SENSOR

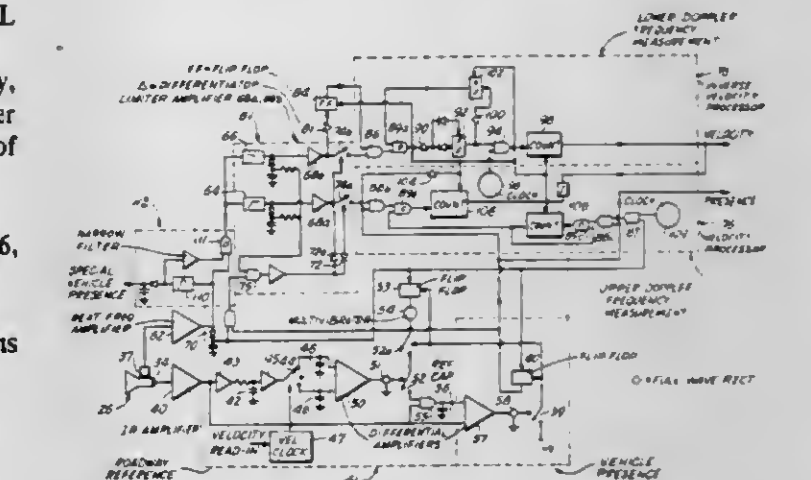
Norman E. Chasek, 24 Briar Brae Rd., Stamford, Conn. 06903

Filed Jul. 20, 1979, Ser. No. 59,332

Int. Cl.³ G01S 13/86

U.S. Cl. 343—6 ND

2 Claims



2. Apparatus for sensing the presence and velocity of an object in a region comprising,

a protective housing including a window that passes microwave and infra red radiation,

a parabolic reflector within said housing for focusing both microwave and infra red radiation arriving through said window,

a feed means located at the focus of said parabolic reflector for illuminating said reflector, said feed means including an infra red level sensing element and a coupler for a doppler radar receiver-transmitter,

a doppler radar mixer-transmitter connected to said coupler, a plurality of low frequency amplifiers one of said amplifier being connected to said radar mixer-transmitter and the other being connected to said infra red sensing element, a sample and hold circuit to retain voltage samples representative of IR emissions from said region when free of objects to establish a reference level,

a circuit that establishes presence by indicating whenever IR levels differ from said reference following a doppler radar indication of entry into said region and,

a circuit for measuring the doppler beat frequency when coincident with said presence indication.

4,317,118

SYMMETRICAL BEAM-FORMING NETWORK
Robert G. Corzine, China Lake, and Guenter H. Winkler, Ridgecrest, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 8, 1973, Ser. No. 411,588

Int. Cl.³ H04B 7/00

U.S. Cl. 343—100 R

6 Claims

1. A beam forming network for forming four beams from Σ and Δ modes generated on an associated antenna comprising; input means adapted to receive a sum (Σ) mode from an antenna;

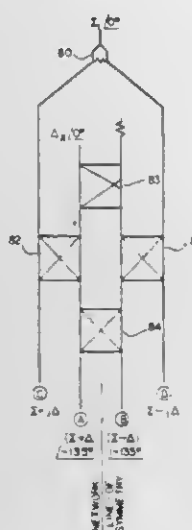
power divider means receiving the sum (Σ) mode from said input means and outputting two quantities in phase;

other input means adapted to receive a difference (Δ) mode from said antenna;

other power divider means receiving the difference (Δ) mode from said other input means and outputting to quantities 180° out of phase with respect to one another;

beam-forming means having inputs and four outputs;

said inputs of said beam forming means operatively receiving the two sum outputs and two difference outputs;



said beam-forming means being operative to provide $\Sigma + j\Delta$, $\Sigma + \Delta$, $\Sigma - \Delta$, and $\Sigma - j\Delta$ at the respective outputs thereof.

4,317,119

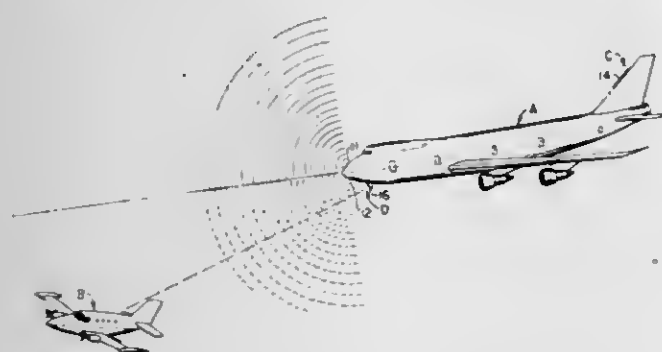
STAND ALONE COLLISION AVOIDANCE SYSTEM

Luis W. Alvarez, 131 Southhampton Ave., Berkeley, Calif. 94907
Filed Dec. 12, 1979, Ser. No. 102,803

Int. Cl.³ G01S 3/38

U.S. Cl. 343—112 CA

10 Claims



1. In an aircraft-carried collision avoidance system for providing warning of potential collision with other craft or objects, the combination of:

- first radar means including a millimeter-wavelength transmitter carried by an aircraft for transmitting, forwardly of said aircraft, a train of time-spaced radiation pulses;
- second radar means including a millimeter-wavelength receiver including a receive-only phased array antenna; one of said radar means having a first left-right mechanically scanned antenna with a substantially vertically oriented beam having a horizontal-plane beam width of the order of one degree and a relatively very large vertical beam width;
- the other of said radar means having a second synchronized left-right mechanically scanned antenna and having an antenna pattern beam width of about one degree in the horizontal plane and a much narrower beam in the vertical plane and with said pattern being electronically scannable through a vertical angle whereby the pencil beam formed by the overlap of the receiver and transmitter pattern scan a segment of the forward direction of said aircraft;
- means for using said output signals to evaluate the threat of potential collision.

4,317,120

SECTOR SCAN ADF SYSTEM

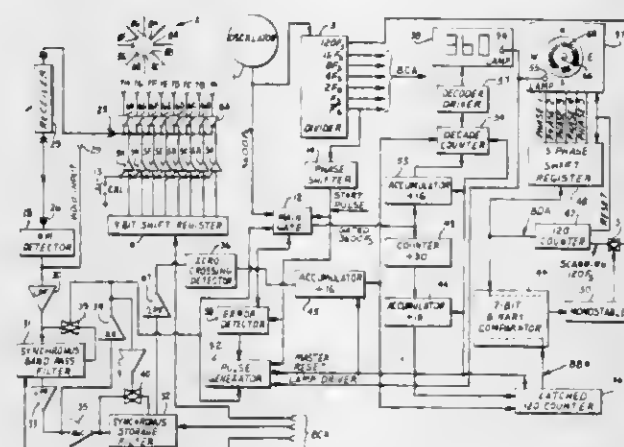
W. Ferrel Bentley, Smyrna; Arthur Luedtke, Marietta, and James E. Scott, Austell, all of Ga., assignors to The United States of America as represented by the Field Operations Bureau of the Federal Communications Commission, Washington, D.C.

Filed Sep. 24, 1979, Ser. No. 78,270

Int. Cl.³ G01S 3/54

U.S. Cl. 343—120

7 Claims



1. An automatic direction finding system for instantaneously determining the direction of the location of a radio frequency source with respect to the receiving location comprising:

- a regular polyangular directional antenna array consisting of four or more antennas whose spacing is not limited by frequency, each antenna having a directional pattern of identical directional shape and of equal value, the antennas being switched in sequence to effectively produce a rotating pattern; a switcher means which combines the separate antenna signals onto a common signal port on which is superimposed an AM modulation related to the direction of the signal source; a receiver means which processes the common RF signal and feeds the resultant signal to a detector means; the entire system being synchronized by a controlling means which coordinates the actions of a driver means, a filter means, an accumulation means, and a display means; said driver means creating switching voltages which control said switcher means, the output of said detector means being followed by said filter means which can then integrate and store the bearing information, said accumulation means averaging bearing information from said filter means which output is then fed to said bearing display means, error detecting to minimize erroneous bearings being built into said bearing display means as well as a bearing status indicating means to display the current status of the indicated bearing.

4,317,121

CONFORMAL HF LOOP ANTENNA

William P. Allen, Jr., and Benjamin S. Zieg, both of Atlanta, Ga., assignors to Lockheed Corporation, Burbank, Calif.

Filed Feb. 15, 1980, Ser. No. 121,749

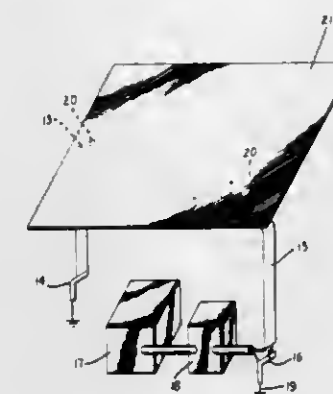
Int. Cl.³ H01Q 11/32

U.S. Cl. 343—712

5 Claims

- A conformal HF two-way radio loop antenna comprising an inverted generally U-shaped, continuous, single, radiating metal strip connected at one end to ground and at its other end to a grounded impedance matching device, said metal strip being one of low loss/low resistance material with dimensions such as to make it compatible with the characteristics of said

impedance matching device and secured to a non-conductive, relatively rigid material on top of a metal frame vehicle body,



4,317,122

DUOPYRAMID CIRCULARLY POLARIZED BROADCAST ANTENNA

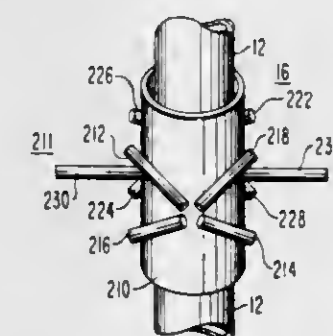
Oded Ben-Dov, Medford, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Aug. 18, 1980, Ser. No. 179,155

Int. Cl.³ H01Q 21/26

U.S. Cl. 343—798

9 Claims



1. A circularly or elliptically polarized antenna including a conductive support mast, comprising:

- first and second crossed dipoles disposed on opposite sides of the mast, the dipole elements being displaced by about 45° from first and second vertical planes parallel with the axis of said mast for radiating a CP field whereby currents are induced in said mast which perturb the vertical component of the radiated field;
- a conductive sleeve fitted about said mast in the region of said first and second crossed dipoles for forming a choke for reducing current flow in said mast, whereby currents induced in said sleeve contribute a vertically polarized component to said radiated field which increases the axial ratio; and
- a polarizer element coupled to said sleeve and oriented perpendicular to said mast for producing as a result of induced currents a horizontally polarized field which reduces the axial ratio.

4,317,123

THERMAL RECORDING MATERIAL

Tomizo Namiki; Osamu Seshimoto; Fumiaki Shinozaki; Akira Nahara, and Tomoaki Ikeda, all of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Oct. 25, 1979, Ser. No. 88,233

Claims priority, application Japan, Oct. 25, 1978, 53/131927

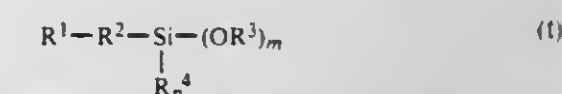
Int. Cl.³ G01D 15/34, 15/10; B32B 15/08

U.S. Cl. 346—135.1

15 Claims

- A thermal recording material having increased recording sensitivity to thermal radiation which comprises a support having thereon in sequence a subbing layer and a recording

layer comprising metal having high optical density which undergoes thermal deformation under the action of high intensity radiation to result in a difference in optical density between irradiated areas and non-irradiated areas, said subbing layer containing a composition which comprises (A) 100 parts by weight of chlorinated polyolefin selected from the group consisting of chlorinated polyethylene, chlorinated polypropylene or a mixture thereof having a chlorine content of about 30% by weight or more, said chlorinated polyolefin increasing the thermal recording sensitivity of said recording layer and (B) a one part by weight to 100 parts by weight of aminoalkyl alkoxy silane compound represented by the following general formula (I):



wherein R^1 represents an amino group or a $\text{H}_2\text{N}-\text{R}^5-\text{NH}-$ group; R^2 and R^5 each represents a polymethylene group having 1 to 2 carbon atoms or a straight or branched chain alkanediyl or alkylene group having 3 to 5 carbon atoms, and may be the same or different; R^3 represents a straight or branched chain alkyl group having 1 to 5 carbon atoms; m represents 2 to 3; R^4 represents a straight or branched chain alkyl group having 1 to 5 carbon atoms or a R^1-R^2- group; and p represents 0 or 1, provided $m+p=3$.

4,317,124

INK JET RECORDING APPARATUS

Yoshiaki Shirato, Yokohama; Yasushi Takatori, Sagami-hara; Toshitami Hara, Tokyo; Yukuo Nishimura, Sagami-hara, and Michiko Takahashi, Ohizumi, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

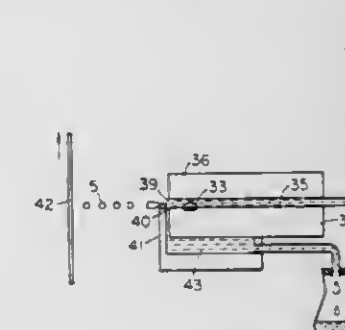
Filed Feb. 1, 1980, Ser. No. 117,487

Claims priority, application Japan, Feb. 14, 1979, 54-15706; Feb. 16, 1979, 54-16953; Feb. 19, 1979, 54-18797; Feb. 19, 1979, 54-18798

Int. Cl.³ G01D 15/18

U.S. Cl. 346—140 R

16 Claims



1. An ink jet recording apparatus for ejecting a recording liquid in the form of droplets from an orifice communicating with a chamber containing said liquid and depositing at least a part of said droplets onto a recording material to perform recording, comprising liquid intake means outside said orifice and adjacent said orifice to take in the liquid which does not become droplets.

4,317,125

FIELD EFFECT DEVICES AND THEIR FABRICATION

Brian T. Hughes, Sandy; John C. Vokes, Harpenden, and David R. Wight, Hitchin, all of England, assignors to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed May 31, 1979, Ser. No. 43,979

Claims priority, application United Kingdom, May 31, 1978, 25552/78

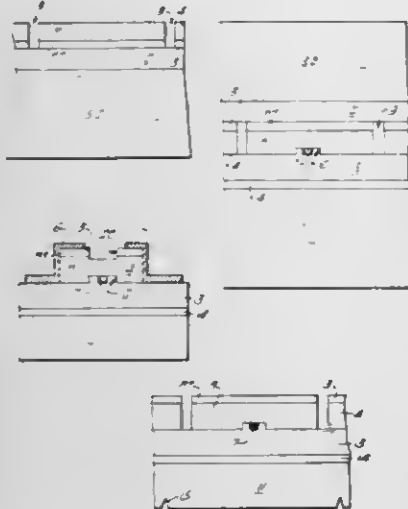
Int. Cl.³ H01L 21/302

U.S. Cl. 357—15

33 Claims

- A method of fabricating a field effect transistor compris-

ing the steps of forming an active layer of semiconductor material over a surface of a first substrate of semiconductor material, forming a gate electrode on the surface of the active layer, applying a second substrate of insulating material to the



surface of the structure comprising the first substrate and active layer so that the active layer lies between the two substrates, removing the first substrate, and forming source and drain electrodes over the opposite surface of the active layer to the gate electrode.

4,317,126

SILICON PRESSURE SENSOR

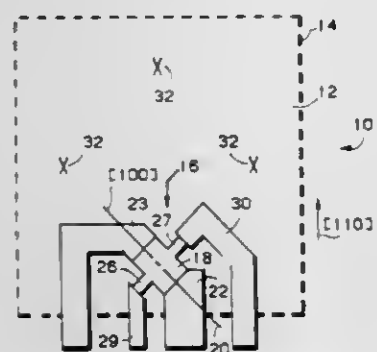
John E. Gragg, Jr., Paradise Valley, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Apr. 14, 1980, Ser. No. 140,289

Int. Cl.³ H01L 29/84

U.S. Cl. 357—26

17 Claims



12. A silicon pressure sensor comprising: a monocrystalline silicon diaphragm of first conductivity type having a square shape, said diaphragm having a (100) surface orientation and having sides oriented in [110] crystalline directions; a resistor of opposite conductivity type diffused into said diaphragm having current contact areas at the ends thereof, a line between said current contact areas forming a current axis, and first and second voltage contact areas positioned at opposite sides of said resistor.

4,317,127

STATIC INDUCTION TRANSISTOR AND INTEGRATED CIRCUIT UTILIZING SAME

Jun-ichi Nisbizawa, Sendai, Japan, assignor to Zaiden Hojin Handotai Kenkyu Shinkokai, Sendai, Japan

Filed Sep. 17, 1979, Ser. No. 76,439

Claims priority, application Japan, Sep. 28, 1978, 53-120122

Int. Cl.³ H01L 27/04; H03K 19/091

U.S. Cl. 357—42

24 Claims

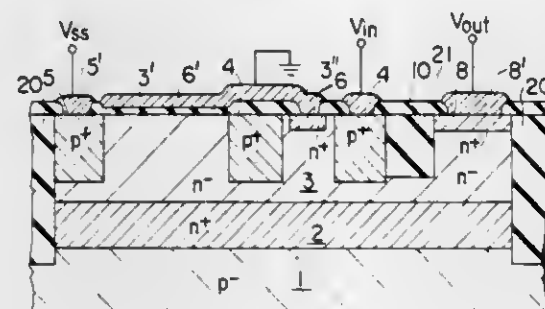
1. A static induction type semiconductor integrated circuit device containing at least a static induction transistor including

a source, a channel, a gate and a drain region, and a field effect transistor, the static induction transistor comprising:

a first semiconductor region of a low resistivity having a first conductivity type;

a second semiconductor region of a high resistivity having said first conductivity type and formed on and adjacent to said first semiconductor region and having a first main surface on that side located away from the side located adjacent to said first semiconductor region;

a third semiconductor region of a low resistivity having said first conductivity type and formed in said first main surface of said second semiconductor region to face a first portion of said first semiconductor region, sandwiching a first portion of said second semiconductor region between this third semiconductor region and said first semiconductor region and serving as a source region;



a fourth semiconductor region having a second conductivity type opposite to said first conductivity type and formed adjacent to at least part to said first portion of the second semiconductor region and serving as a gate region and defining a current path formed with said first portion between said first and third semiconductor regions and effectively isolated from the remaining portion of the second semiconductor region;

at least one charge carrier deriving means formed in said first main surface of said second semiconductor region in a second portion of said remaining portion and facing a second portion of said first semiconductor region; and means for isolating said first semiconductor region excepting the area exposed to said second semiconductor region, and said field effect transistor having a drain semiconductor region which is merged in said gate region of said static induction transistor.

4,317,128

TWO TRANSISTOR SWITCH

Eise C. Dijkmans, and Rudy J. van de Plassche, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

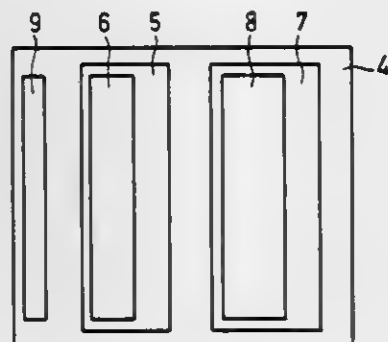
Filed Mar. 31, 1980, Ser. No. 135,943

Claims priority, application Netherlands, Apr. 4, 1979, 7902632

Int. Cl.³ H01L 27/06

U.S. Cl. 357—46

2 Claims



1. A transistor switch comprising a first transistor whose collector-emitter current path comprises the switching path and a second transistor, whose emitter electrode is connected

to the base electrode of the first transistor and whose base electrode comprises a switching input, characterized in that the total capacitance between the base and the emitter of the second transistor relative to the capacitance at the base electrode of the first transistor is selected such that in the conductive state of the first and the second transistors a voltage variation on the base electrode of the second transistor relative to the voltage on the emitter electrode of the first transistor is distributed substantially uniformly over the base-emitter junctions of the first and the second transistors.

4,317,129

APPARATUS FOR THE DIGITIZATION OF VIDEOFREQUENCY TELEVISION SIGNALS

Michel Favreau, Paris, France, assignor to Thomson CSF, Paris, France

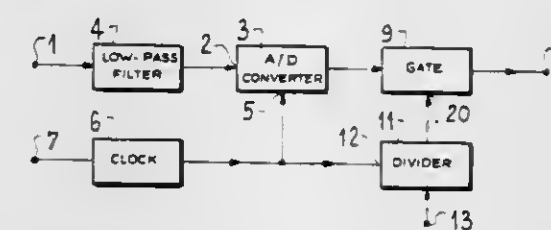
Filed Jul. 3, 1980, Ser. No. 165,660

Claims priority, application France, Jul. 4, 1979, 79 17357

Int. Cl.³ H04N 7/00

U.S. Cl. 358—13

6 Claims



1. An apparatus for the digitization of a video frequency signal comprising:

on transmission, at least one coder comprising a first low pass filter having a cut-off frequency F_1 ; an analog-digital sampling converter having an input coupled to the output of said first low pass filter, a control input, and an output; a clock of frequency at least equal to $2F_1$ having an output coupled to said control input; and an output circuit having an input coupled to the output of said analog-digital converter and output delivering staggered sampled data having a rhythm F_E ;

on reception, at least one decoder having an input and an output and comprising: a first digital-analog converter having an input coupled to the input of said decoder and an output; a second low pass filter of cut-off frequency F_2 slightly below $F_E/2$, having an input coupled to the output of said second low pass filter and an output; a mixer having a first input coupled to the output of said second low pass filter, a second input, and an output which is the output of said decoder; said decoder further comprising a circuit for restoring the upper part of the spectrum of the video frequency signal comprising: a circuit, having an input coupled to the input of the decoder, for combining the staggered sampled data, having an output for delivering orthogonal sampled data at rhythm $2F_E$; a second digital analog converter having an input coupled to the output of said circuit and an output coupled to said second input of said mixer through a band pass filter having a low cut-off frequency equal to F_2 and a high cut-off frequency at least equal to F_1 .

4,317,130

NARROW BAND TELEVISION TRANSMISSION SYSTEM

Daniel P. Brown, Elmhurst, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Oct. 10, 1979, Ser. No. 83,431

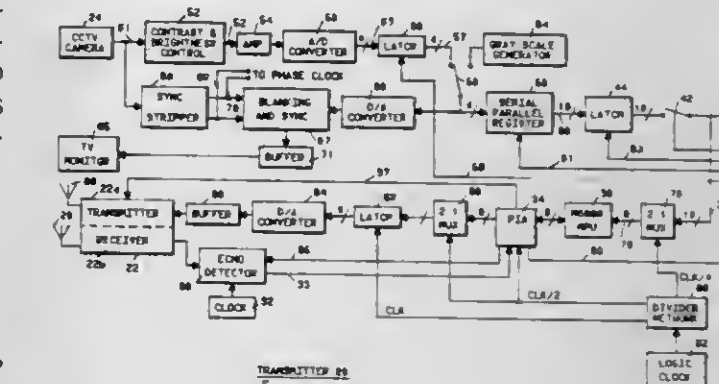
Int. Cl.³ H04N 7/18

U.S. Cl. 358—108

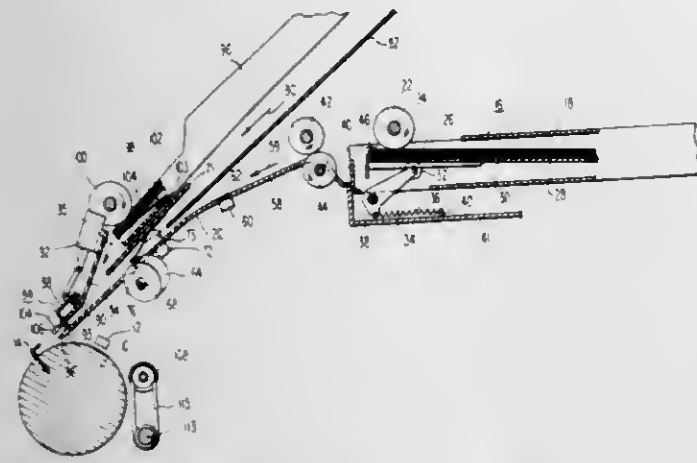
12 Claims

1. A television transmission system for asynchronously transmitting a television picture as a plurality of video signals over a narrow bandwidth medium from a transmitter at a remote transmitting site to a receiver at a receiving or base site,

said transmitter comprising means to generate and transmit a dotting pattern consisting of alternating logic ones and zeros to precede said video signals, and said receiver comprising a



feed means in said transport path for moving said sheets along said path to said scanning means; and



means including sensor means in said transport path for determining the length of said sheets.

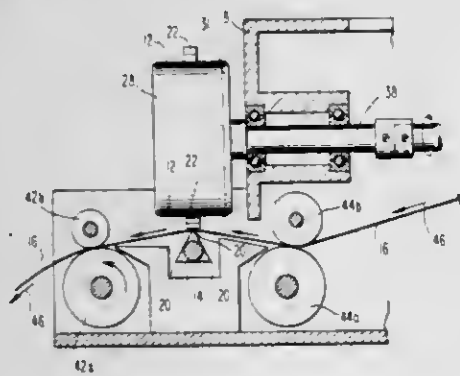
4,317,139

FACSIMILE APPARATUS AND METHOD OF OPERATION

Richard L. Nelson, New York, N.Y., assignor to Exxon Research & Engineering Co., Florham Park, N.J.
Filed Apr. 20, 1979, Ser. No. 31,949
Int. Cl.³ H04N 1/032, 1/14

U.S. Cl. 358—300

14 Claims



1. A facsimile apparatus for producing a copy at one location of a document at another location comprising:
means for advancing a copy medium in a first direction;
stylus means located on one side of the copy medium;
means for advancing the stylus means in a second direction;
platen means extending in said second direction on the other side of said copy medium, said platen means being triangular in cross-section and having a plurality of edges, said platen means being stationary during the advancement of said stylus in said direction so as to form a pinch spot between one of said edges and said stylus, said platen means being rotatable after said advancement so as to individually and selectively locate each of said edges adjacent said stylus.

4,317,140

STOP AND VARIABLE-SPEED MOTION ON SEGMENTED-SCAN TAPE RECORDING

Henry R. Warren, Belle Mead, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Oct. 19, 1979, Ser. No. 86,401

Claims priority, application United Kingdom, Aug. 3, 1979, 27116/79

Int. Cl.³ H04N 5/78

U.S. Cl. 360—10

1 Claim

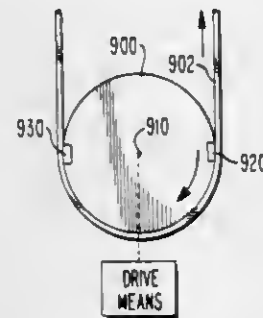
1. An improved arrangement adapted for transducing signals from a tape helically recorded within first and second tracks alternately impressed with information from the upper and lower parts of a raster, the first tracks being recorded at a first

azimuth angle and the second tracks being recorded at a second azimuth angle, the arrangement comprising:

a headwheel about which said magnetic tape moves along a helical path during said normal and variable-speed modes of operation, said tape being wrapped substantially 180 degrees about said headwheel;

drive means coupled to said headwheel for driving said headwheel one complete revolution per field; and

first and second playback heads disposed at diametrically opposed positions about the periphery of said headwheel, said first and second playback heads sequentially scanning first and second tracks on said tape for transducing signals therefrom, whereby said motion of said tape during said modes of operation other than said normal mode of operation causes the playback head then scanning said tape to cross from said first recorded track to said second recorded track thereby causing distortion;



wherein the improvement lies in that said first and second heads each have a gap width exceeding the width of said first and second tracks, respectively, whereby said first and second gaps overlie at least a portion of said first and second tracks, respectively, during the entirety of each scan; and

said first and second playback head gaps each have an azimuth angle corresponding to those at which said first and second tracks were recorded, respectively, whereby said first head responds to the signals on one of said first tracks and does not respond to the signals on said second tracks during the entirety of each scan of said first head, and said second head responds to the signals on one of said second tracks and does not respond to the signals on said first tracks during the entirety of each scan of said second head for eliminating said distortion.

4,317,141

DATA PROCESSOR FOR RECORDING AND READING OUT CHECK DATA AND TRUE DATA IN A CASSETTE TAPE

Soichi Onishi, Yao, and Shigeru Kitano, Nara, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Oct. 5, 1979, Ser. No. 82,333

Claims priority, application Japan, Oct. 11, 1978, 53-125308; Oct. 11, 1978, 53-139741

Int. Cl.³ G11B 15/04, 15/45

U.S. Cl. 360—60

7 Claims

1. A data recorder for recording data in the form of signals into a cassette tape, comprising:

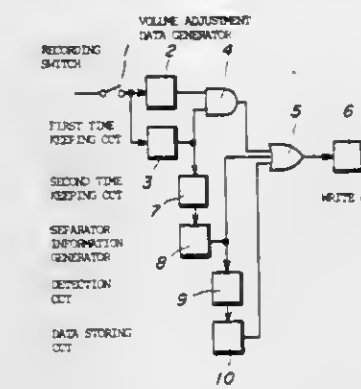
first means for recording first signals in a first section of the cassette tape and for determining the amplitude of a sound volume of the first signals, said first means including,

a first signal generator for generating the first signals, a time keeping circuit coupled to the signal generator for counting a predetermined time passage when the first signals are generated, and

a write-in circuit responsive to the first signal generator and the time keeping circuit for recording the first signals onto the cassette tape; and

second means responsive to the determination of the amplitude of a sound volume of the first signals made via said

first means for recording second signals in a second section of the cassette tape when the amplitude of the sound



volume of the first signals has been appropriately controlled.

4,317,142

ELECTRONIC GAIN AND NOISE CONTROL FOR RECORDING OF ANALOG INFORMATION

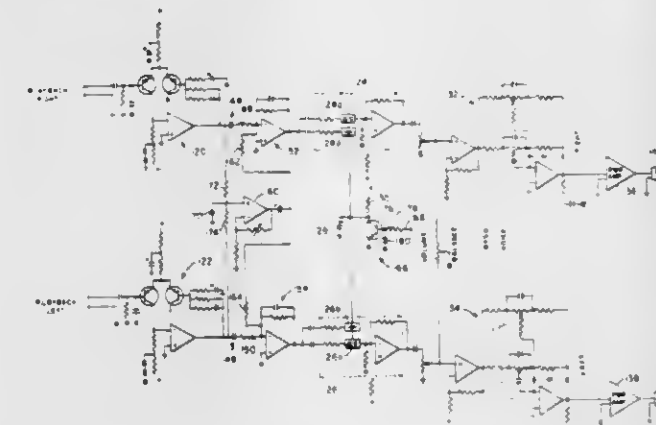
William R. Wray, Sudbury, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Division of Ser. No. 32,942, Apr. 24, 1979. This application Oct. 27, 1980, Ser. No. 201,029

Int. Cl.³ G11B 5/02

U.S. Cl. 360—67

2 Claims



4,317,144

AZIMUTH CORRECTION OF HEAD GAPS

Edmond De Niet, and Albert M. A. Rijckaert, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

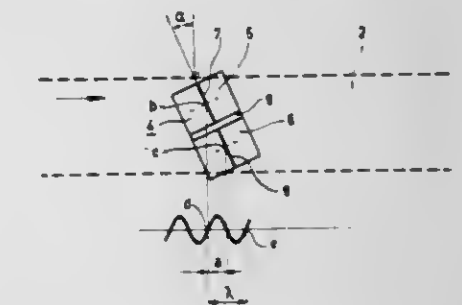
Filed May 23, 1979, Ser. No. 41,673

Claims priority, application Netherlands, May 29, 1978, 7805803

Int. Cl.³ G11B 5/43

U.S. Cl. 360—76

17 Claims



1. Recorder apparatus for the playback of analog signals from recording medium comprising:

dynamic expander means for expanding the dynamic range of a playback signal, said expander means comprising an operational amplifier, a variable gain element connected to receive the analog signal to be played back and to transmit the analog signal to be played back to an input terminal of said operational amplifier, and a rectifier element connected to receive the same analog signal received by said variable gain element,

a capacitor operatively connected with respect to the rectifier element for averaging the current rectified by said rectifier element, said variable gain element and said rectifier element being connected with respect to each other so that the average value of said rectified current controls the gain of said variable gain element, and

means connected in parallel relation with respect to said capacitor for selectively clamping the voltage across said capacitor to a selective level responsive to a further applied control signal for muting said playback volume.

1. A method of adjusting and maintaining the correct angular position of a gap of a reproducing head relative to a signal on a magnetic record carrier which comprises: measuring the phase difference between two scanned signals of identical appearance and a control signal being derived therefrom for correcting the angular position of said gap, after obtaining the scanned signals by separately scanning the upper half and the lower half of axial portions of a single information track and measuring the time difference between every two associated zero passages of the scanned signals.

4,317,145

CASSETTE TAPE RECORDER WITH AN ENGAGEMENT MECHANISM FOR LOCKING A MOVABLE CHASSIS

Akira Osanai, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

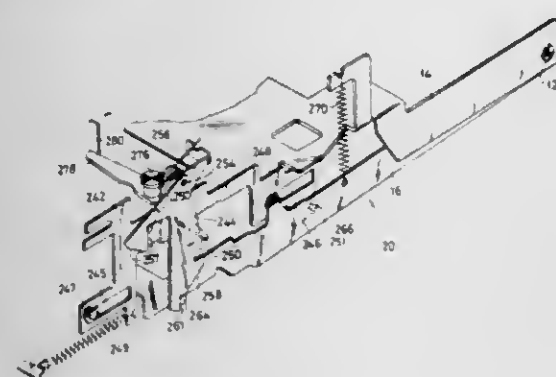
Filed Nov. 16, 1979, Ser. No. 94,917

Claims priority, application Japan, Nov. 16, 1978, 53-141617

Int. Cl.³ G11B 15/24

U.S. Cl. 360—96.6

8 Claims



1. A cassette tape recorder which comprises: a movable chassis which carries a reel capstan shaft and other members, is rotatably fitted to a fixed chassis and, upon the insertion of a cassette into the tape recorder said movable chassis is rotated from a lower position to an upper position; urging means stretched between the fixed and movable chassis and adapted to urge the movable chassis from the lower position to the upper position; engagement mechanism for the movable chassis which includes an engagement cam rotatably fitted to the fixed chassis and engageable with the movable chassis in the lower and upper positions, and an engagement lever which is reciprocally fitted to the fixed chassis, and, when moved inwardly relative to the fixed chassis, rotates the movable chassis to the lower position against the force of the urging means, thereby accumulating an urging force; a release lever which is rotatably fitted to the fixed chassis, and is adapted to rotate in one direction upon insertion of a the cassette into the tape recorder by pressing against the engagement cam of the engagement mechanism for rotation of the engagement cam, thereby disengaging the engagement cam from the movable chassis, and, when the engagement lever of the engagement mechanism is pressed inwardly relative to the fixed chassis, said release lever is rotated in the other direction by the engagement cam for the ejection of the cassette.

4,317,146

COMPACT MAGNETIC DISK STORAGE SYSTEM

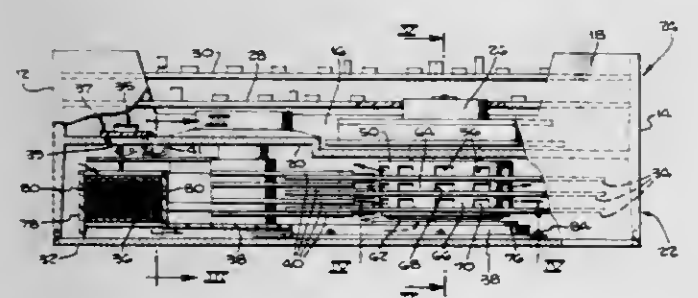
William J. Gervais, Northridge, Calif., assignor to Micropolis Corporation, Chatsworth, Calif.

Filed Dec. 3, 1979, Ser. No. 99,607

Int. Cl.³ G11B 5/012, 5/82

U.S. Cl. 360—98

16 Claims



1. A compact, high capacity, rigid magnetic disk digital storage system comprising: a deck formed principally of a single casting, having first

section and a second clean zone section separated by a central cast web or partition;

a disk drive motor;

a plurality of active input and output electronic components including at least one printed circuit board;

means for mounting said motor and said active electronic components in said first section;

a plurality of rigid magnetic disks;

a plurality of heads movably mounted for reading and writing digital information on said magnetic disks;

means for mounting said disks in stacked spaced relationship for rotation by said motor within said second clean zone section;

means for directing air outwardly across both of the surfaces of each of said magnetic disks, said air directing means including centrifugal pumping means mounted directly radially inwardly from said disks, said air directing and said pumping means including a central hub having a plurality of spaced peripheral slots, open at the end of said hub facing away from said motor, and a plurality of annular spacer rings mounted between said disks and around said hub, said annular spacer rings also being provided with radially extending openings aligned with the slots in said hub to draw air from the end of said hub down through said slots and out across the surfaces of said disks as a result of the centrifugal pumping action of said rotating spacer rings and disks; and

filter assembly means including a housing defining an ultra-clean low pressure zone, said housing extending over and closely fitting around the openings at the end of said hub, and said housing being of relatively shallow extent in the direction extending along the axis of said hub and said disks, and broad area filtering material defining the other limit of said low pressure ultra-clean zone, said filtering material being mounted in an enlarged portion of said filter housing spaced to one side of said disks, to complete the air circulation path within said second clean zone section of said system.

4,317,147

SANDWICH TYPE MAGNETORESISTIVE READ HEAD

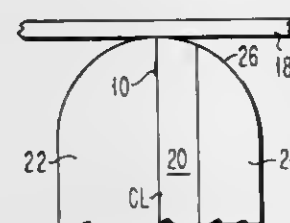
Gerald A. Daughenbaugh, Tucson, Ariz.; Philip W. Koob, Concord, N.C.; Arthur E. Moxley, Longmont, Colo., and Joseph E. Wallace, Charlotte, N.C., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 20, 1979, Ser. No. 105,480

Int. Cl.³ G11B 5/12, 5/22

U.S. Cl. 360—113

6 Claims



1. A magnetoresistive head assembly consisting of a silicon substrate having two sides; a magnetoresistive element disposed on one side of said silicon substrate; a first sapphire member bonded to said one side of said silicon substrate and said magnetoresistive element; and a second sapphire member bonded to the other side of said silicon substrate whereby a sandwich configuration is formed so that said assembly realizes improved wear life, improved heat dissipation characteristics and improved ease in manufacture.

4,317,148

TRANSDUCER FOR PERPENDICULAR MAGNETIC RECORDING

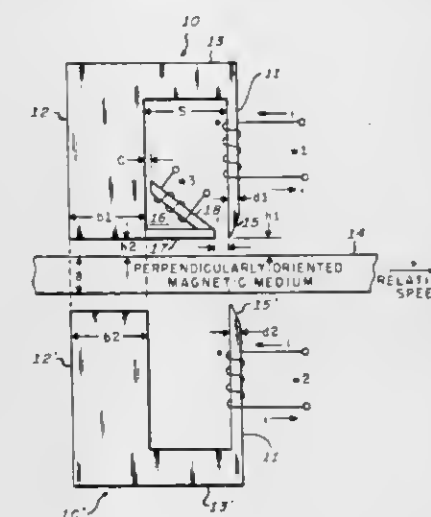
Chao S. Chi, Worcester, Mass., assignor to Sperry Corporation, New York, N.Y.

Filed Jan. 24, 1980, Ser. No. 114,915

Int. Cl.³ G11B 5/25, 5/30, 5/22

U.S. Cl. 360—119

33 Claims



1. A transducer for perpendicular magnetic recording on a magnetic medium comprising a core of magnetic material, a coil disposed on said core, said core comprising a recording member and a flux return member, said recording member and said flux return member, in use, being disposed adjacent said medium on one side thereof, said flux return member having a substantially greater cross sectional area than said recording member, further flux return means, in use, disposed adjacent said medium on the side thereof opposite said one side and spanning said recording and flux return members, said recording member, flux return member and further flux return means being so arranged with respect to each other that current flowing through said coil generates closed lines of flux threading said flux return member, said recording member and said further flux return means and traversing said medium perpendicular thereto from said recording member to said further flux return means and, means disposed between said recording member and said flux return member for reading data recorded on said medium.

4,317,149

MAGNETIC HEAD HAVING STATIC DISCHARGE MEANS

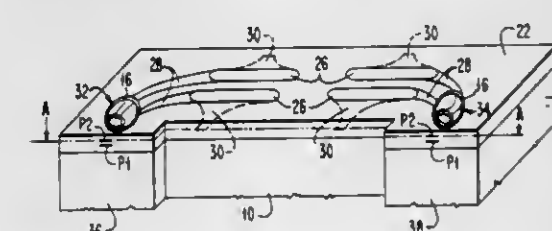
Karl H. Elser, and Russell R. Kerl, both of San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 2, 1980, Ser. No. 155,348

Int. Cl.³ G11B 5/16, 5/25, 21/24

U.S. Cl. 360—126

6 Claims



1. A magnetic head assembly comprising: an electrically conductive air-bearing slider support; magnetic transducer means mounted to said slider support;

means for conducting electrical signals to and from said transducer means;

an insulating overcoat layer disposed over said magnetic transducer means; and

conductive paths formed in said insulating overcoat layer for providing low resistance bleed paths that bypass said transducer means so that static electrical charges are discharged at an effective distance from said transducer means.

4,317,150

FOIL RECORDING DISK STRUCTURES

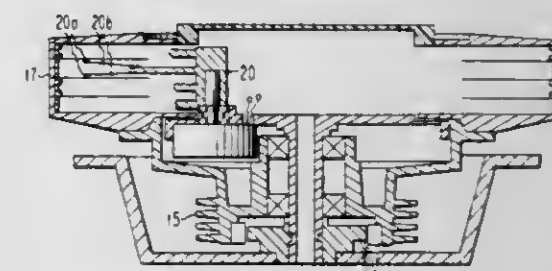
Edward G. Gruss, Campbell, and Armin R. Tietze, San Jose, both of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 10, 1979, Ser. No. 102,166

Int. Cl.³ G11B 5/82, 5/016

U.S. Cl. 360—135

7 Claims



1. A magnetic recording structure, comprising a cylindrical support member, a pair of circular tensioned metal magnetic foil members secured on opposite sides of said support member, said foil members having central openings therein, said foil members being secured to said support member only at their periphery and being spaced from the remainder of said support member, said support member being a generally cylindrical element having recessed portions on both of its surfaces inwardly of the periphery, said foil members being secured at their periphery to the periphery of said support member and being spaced from said recessed portions; and means for rotating said recording structure past an associated magnetic transducing assembly.

4,317,151

APPARATUS FOR FAULT DIRECTION-COMPARISON PROTECTION

Ivan de Mesmaeker, Fislisbach, and Peter Müller, Nussbaumen bei Baden, both of Switzerland, assignors to BBC Brown, Boveri & Company Limited, Baden, Switzerland

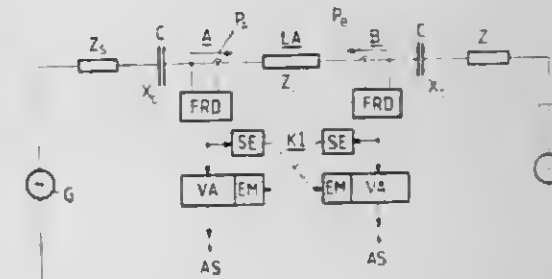
Filed Dec. 17, 1979, Ser. No. 104,170

Claims priority, application Switzerland, Jan. 3, 1979, 12/79

Int. Cl.³ H02H 3/18

U.S. Cl. 361—69

5 Claims



1. An apparatus for the fault direction comparison protection of electrical lines containing at least one series capacitor, comprising:

a respective measuring and monitoring station provided at each end of a line section to be monitored and protected; each measuring and monitoring station containing a fault direction detector; each said fault direction detector containing a timer mechanism for zone switching; a transmission channel means for fault direction data arranged between and operatively linking both stations; at least one comparison-evaluation device provided for each station for the fault direction determination with respect to the line section to be protected and cooperating with said transmission channel means; said fault direction detector of at least one station comprising a distance protection relay having line-image impedance which can be switched for correspondingly different protective zones with a timewise stagger between different impedance values; and said fault direction detection, during a starting time interval up to a first zone switching time point, having correlated thereto by means of said timing mechanism an impedance value of the line image impedance which, with respect to the line section to be protected, is at least approximately equal to or greater than such line section.

4,317,152

A.C. POWER LINE ASSEMBLY

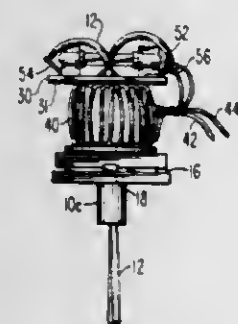
Raymond A. Altenschulte, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Feb. 8, 1980, Ser. No. 119,964

Int. Cl.³ H02H 3/08

U.S. Cl. 361-104

6 Claims



1. An A.C. power line assembly for a home instrument comprising:
a fuse board assembly;
an A.C. line choke including first and second wires;
an insulator collar suitable for engaging said fuse board assembly and said line choke, and including means for retaining said fuse board and line choke in position; and
an insulated line cord including a molded strain relief bushing adapted for mounting in said instrument, said bushing including means for locking said assembly in place in said instrument when installed, and means for engaging said insulator collar,
wherein said line cord, said fuse board, and said line choke are coupled to provide fuse protected and filtered A.C. power at the ends of said first and second wires.

4,317,153

CLIP-ON PROTECTOR

Gerald Coren, 18 Willben La., Plainview, N.Y. 11803

Continuation-in-part of Ser. No. 880,756, Feb. 24, 1978, Pat. No.

4,191,987. This application Sep. 12, 1979, Ser. No. 74,885

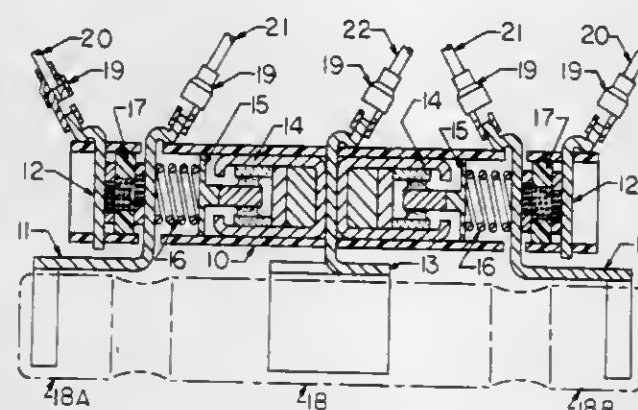
Int. Cl.³ H02H 9/06

U.S. Cl. 361-119

6 Claims

1. A protection device for communications lines that are protected by a gas tube arrestor, the protection device having built-in fail-safe redundancy and comprising an elongated housing, electrical transfer plate means disposed in insulated spaced array in said housing and adapted to be electrically coupled to a given apparatus line, heat transfer plate means disposed in said housing and electrically insulated and spaced

from said electrical transfer plate means, each of said electrical and heat transfer plate means including means extending from said housing which is adapted detachably to engage the respective electrodes of the gas tube arrestor such that said heat transfer plate means is in thermal and electrical communication with the common or grounded electrode of the gas tube arrestor, and each of said electrical transfer plate means is in respective electrical communication with a line-electrode of the gas tube arrestor, air gap assembly means disposed in said housing, the last-mentioned means including fusible means and a plunger, means biasing said plunger so as to urge said air gap assembly means into a pressured engagement against that por-



tion of said heat transfer plate means which is disposed in said housing whereby said air gap assembly means is in thermal and electrical communication therewith, said plunger being in electrical communication with said electrical transfer plate means with the former adapted to ground the latter upon a fusing of said fusible means, circuit transfer plate means disposed in insulated spaced array in said housing and adapted to be electrically coupled to a given incoming line, and over-current protection means establishing electrical continuity between said circuit transfer plate means and said electrical transfer plate means until a sustained over-current condition causes said over-current protection means to open-circuit and electrically isolate an associated incoming and apparatus line.

4,317,154

COMMUNICATION CIRCUIT PROTECTOR

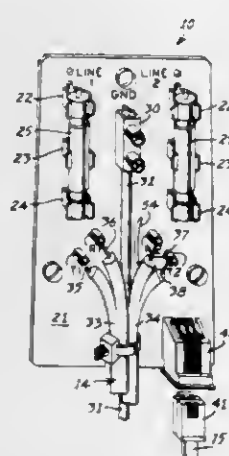
Thomas M. Passarella, Rte. 1, Box 357, Florence, Ala. 35630

Filed May 16, 1980, Ser. No. 151,187

Int. Cl.³ H02H 1/00

U.S. Cl. 361-119

3 Claims



1. A telephone circuit overload protector device adapted to be mounted upon the wall of a building containing a telephone set, comprising:
(a) a circuit board,
(b) an over-voltage protector unit including first and second power electrodes and a ground electrode,
(c) means mounting said over-voltage protector unit on said circuit board,
(d) first and second electrical telephone input leads electri-

cally connected respectively to said first and second power electrodes,
(e) a ground lead electrically connected to said ground electrode,
(f) a jack having first and second contacts mounted on said circuit board,
(g) a first lead on said circuit board electrically connecting said first contact and said first power electrode,
(h) a second lead on said circuit board electrically connecting said second contact and said second power electrode,
(i) said jack being adapted to receive in electrical communication a corresponding connector plug,
(j) an electrical telephone cord having first and second ends, said first end terminating in a quick-disconnect connector plug detachably receivable within said jack and in electrical communication with said first and second contacts, and
(k) means connecting said second end of said telephone cord to a telephone set contained within the building.

4,317,155

SURGE ABSORBER

Mikio Harada, 1014; Kan-ichi Tachibana, 1019; Akio Uebida, 1019, and Takashi Saitoh, 1019, all of Oaza Yokozoe, Yokozemura, Chichibu-gun, Saitama, Japan

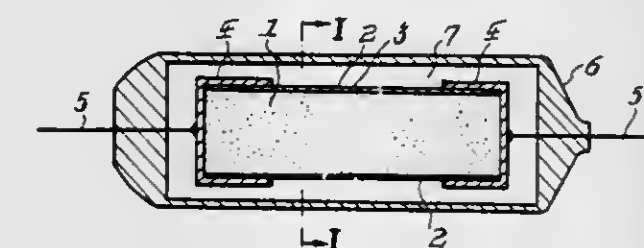
Filed Aug. 20, 1979, Ser. No. 68,181

Claims priority, application Japan, Mar. 27, 1979, 54-35773

Int. Cl.³ H02H 9/04

U.S. Cl. 361-120

7 Claims



1. A surge absorber comprising a plurality of areas of conductive ceramic thin film formed on the surface of a molded insulating body having a relative inductive capacity of more than one and separated from each other by a streak of less than 200 μm in width, said conductive ceramic thin film being one selected from the group consisting of conductive metal oxides and interstitial nitrides, electrodes consisting of an anticorrosive and highly conductive metallic material directly fixed to both ends of said plurality of areas of conductive ceramic thin film and apart from said streak respectively, and at least one gas selected from the group consisting of rare gases and nitrogen gas sealed between the electrodes by means of an insulating material, so as to generate an electron emission through said streak at a first stage and then generate a creeping discharge between said electrodes at a second stage when a surge voltage is applied to said electrodes.

4,317,156

LOCKING DEVICE

Rupert Stangl, Oberwerrn, Fed. Rep. of Germany, assignor to Sachs-Systemtechnik GmbH, Schweinfurt, Fed. Rep. of Germany

Filed May 30, 1979, Ser. No. 43,681

Claims priority, application Fed. Rep. of Germany, Jun. 6, 1978, 2824684

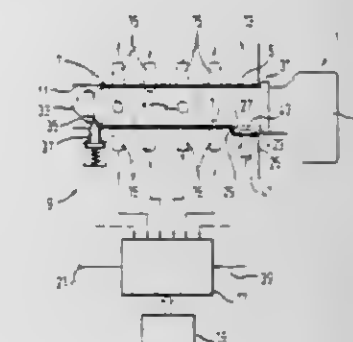
Int. Cl.³ E05B 27/00

U.S. Cl. 361-171

7 Claims

1. Locking device comprising a key having a locking code thereof and a reading device for reading the locking code, said key comprising a grip portion, an information carrier attached to said grip portion, and magnetic information elements located on said information carrier and arranged in a selected pattern for forming the locking code on the key, said reading

device including reading elements susceptible to a magnetic field and arranged to read the locking code on said key and to compare the locking code as read to a predetermined locking code, wherein the improvement comprises that said information carrier is elongated and projects outwardly from said grip portion, said information carrier having an axis extending in the elongated direction thereof and an outer peripheral surface extending in the direction of and laterally surrounding said axis, said magnetic information elements comprise a plurality of first information elements located on, along and around the outer peripheral surface of said information carrier in the direction of the axis thereof and a second information element spaced in the axial direction of said information carrier from said first information elements, a projection on said information carrier extending outwardly from said outer peripheral surface transversely of said axis of said information carrier, said second information element located on said projection, said reading device comprising a housing having an elongated



opening extending therein arranged to receive said information carrier, said projection arranged to interengage the opening in said housing so that said information carrier can be inserted in only one position relative to said reading elements in said opening, said reading elements comprising first reading elements and a second reading element located within said housing along the opening therein, said first reading element arranged to read said first information elements and said second reading element arranged to read said second information element, and the dimension extending transversely from the axis of said information carrier outwardly to said second information element on said projection is greater than the dimension extending transversely from the axis of said information carrier to said first information elements on the outer peripheral surface of said information carrier so that said second reading element is excited during the insertion of said key into the opening in said housing of said reading device only by said second information element.

4,317,157

LOCKING DEVICE FOR UTILITY LOCKS WITH A KEY SIGNAL TRANSMITTER AND A KEY SIGNAL RECEIVER

Martin Eckloff, Ziegelweg 4, 8951 Irsee, Fed. Rep. of Germany

Filed Aug. 30, 1979, Ser. No. 71,358

Claims priority, application Fed. Rep. of Germany, Aug. 31, 1978, 2838056

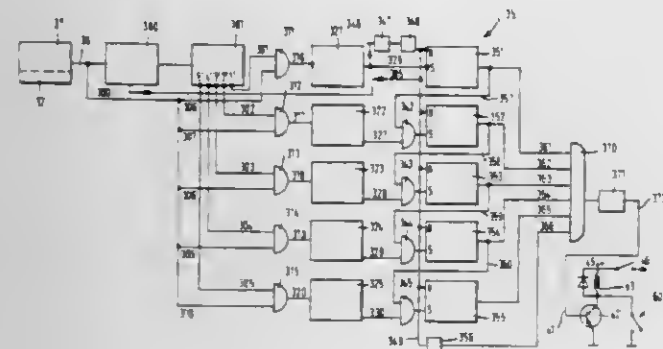
Int. Cl.³ E05B 49/00; H04Q 3/00

U.S. Cl. 361-172

16 Claims

1. In a locking device for utility locks having a lock bolt; wherein a key signal transmitter is disposed in a portable housing and a stationary key signal receiver is disposed in the vicinity of the lock bolt and controls the operation of the lock bolt, said transmitter having a coder for generating a predetermined code specific to the locking device, said receiver having a decoder for decoding the code generated by said coder, the improvement comprising:
said coder comprising:
an impulse generator for producing pulses at a constant pulse repetition rate, and
pulse width modulation means coupled to said impulse gen-

erator for producing a key pulse upon each generation of a pulse by said impulse generator, each key pulse having a pulse width selected between predetermined limits within the period determined by the pulse repetition rate of said impulse generator, said pulse width generator producing a



predetermined sequence of key pulses characterized by at least three different pulse widths; and said decoder comprising means for decoding the predetermined sequence of said key pulses characterized by said at least three different pulse widths.

4,317,158

AC CAPACITOR

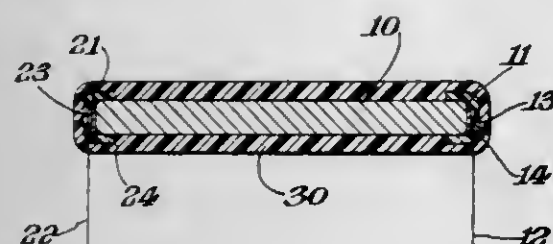
Andrew Dequasie, Pownal, Vt., assignor to Sprague Electric Company, North Adams, Mass.

Filed Mar. 3, 1980, Ser. No. 126,751

Int. Cl.³ H01G 1/13

U.S. Cl. 361-272

13 Claims



1. An AC capacitor comprising a convolutely wound capacitor section of electrodes separated by dielectric films, lead attachments to said electrodes extending from at least one end of said section, a coating over at least both ends of said section and said lead attachments, and an outer protective casing over said section, said coating being partially cured urethane with about 50% to about 75% unreacted isocyanate groups to improve both AC life and corona properties of said capacitor.

4,317,159

AC CAPACITOR AND IMPREGNANT THEREFOR

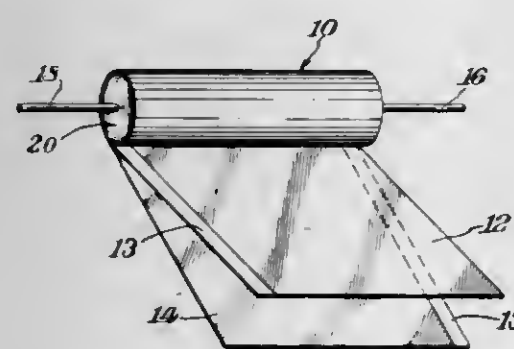
Andrew Dequasie, Pownal, Vt., assignor to Sprague Electric Company, North Adams, Mass.

Filed Dec. 10, 1979, Ser. No. 101,618

Int. Cl.³ H01G 4/22

U.S. Cl. 361-318

6 Claims



1. An AC metallized film capacitor comprising two contigu-

ously wound aluminized polypropylene films impregnated with a dielectric fluid selected from the group consisting of ester and hydrocarbon dielectric fluids containing 1 to 20% of an isocyanate containing unreacted isocyanate groups as additive to improve AC life, said isocyanate being selected from the group consisting of a C₃₆-aliphatic diisocyanate, a polymethylene polyphenyl isocyanate, a diphenylmethane diisocyanate, a diphenylmethane diisocyanate prepolymer, a liquid ricinoleate urethane prepolymer, and a toluenediisocyanate-free diisocyanate prepolymer.

4,317,160

ELECTRICAL SWITCHBOARD HAVING IMPROVED DRAWOUT APPARATUS

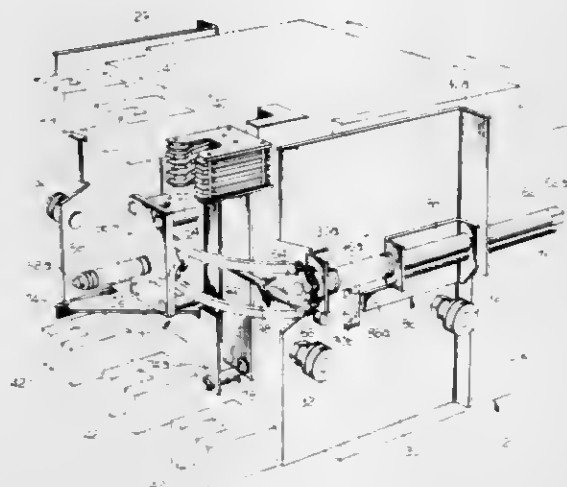
Robert S. Tillson, Terryville; William F. Olashaw, Plainville, and James H. Postlethwait, Simsbury, all of Conn., assignors to General Electric Company, New York, N.Y.

Filed Jul. 31, 1980, Ser. No. 173,949

Int. Cl.³ H02B 1/04

U.S. Cl. 361-339

10 Claims



1. An electrical switchboard comprising, in combination:
A. an electrical device having a transverse array of rearwardly extending line terminal disconnects and a transverse array of rearwardly extending load terminal disconnects in vertically spaced relation to said line terminal array;

B. a transverse array of switchboard line terminal disconnects and a transverse array of switchboard load terminal disconnects disposed at the rear of a switchboard cubicle, said switchboard disconnect arrays being in vertically spaced relation;

C. rails mounted to opposed sides of the switchboard cubicle;

D. means mounting said electrical device on said rails for racking movement between an engaged position, wherein said device and switchboard line and load terminal disconnects are respectively electrically mated, and a disengaged position, wherein said device and switchboard line and load terminal disconnects are respectively electrically unmated; and

E. a racking mechanism including

(1) a single nut fixedly mounted to one of said device and switchboard.

(2) a single lead screw rotatably mounted to the other of said device and switchboard, the respective mounted positions of said nut and lead screw being centrally located between said transverse arrays of switchboard and device line and load terminal disconnects such that, with threaded interengagement, rotation of said lead screw creates a single line of force effective in propelling racking movement of said device between said engaged and disengaged positions and incidentally achieving essentially uniformly distributed mating and

unmating forces at the individual switchboard and device line and load terminal disconnects, and
(3) a right angle drive train mounted by the other of said device and switchboard for communicating rotational drive to said lead screw from a manual drive input applied at a frontal switchboard cubicle location.

4,317,162

BATTERY OPERATED LUMINAIRE WITH EMERGENCY SWITCHING MEANS

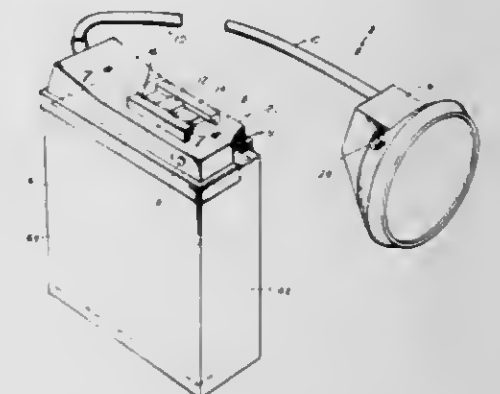
Raymond R. Richards, Milton, and John E. Gulliksen, Shrewsbury, both of Mass., assignors to Koehler Manufacturing Co., Marlborough, Mass.

Filed May 2, 1980, Ser. No. 146,351

Int. Cl.³ F21V 33/00

U.S. Cl. 362-106

13 Claims



4,317,161

COMBINED BATTERY HOLDER AND SWITCH

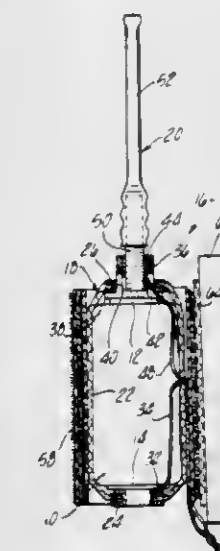
Samuel Aiello, Jr., Royal Oak, Mich., assignor to Ilo Engineering, Inc., Troy, Mich.

Filed Nov. 30, 1979, Ser. No. 98,937

Int. Cl.³ F21L 15/08

U.S. Cl. 362-103

14 Claims



1. A combined battery holder and switch for use with an electrically energized device comprising a circumferentially continuous, annular, resiliently elastic member adapted and dimensioned to be stretched around an elongate cylindrical battery having a terminal at each of the axially opposite ends thereof so that the elastic member encircles the battery lengthwise in tight fitting relation, said elastic member having a pair of diametrically opposed fittings thereon, each adapted to overlie a terminal at the opposite ends of the battery when stretched lengthwise thereover, one of said fittings comprising an electrical contact member to which a conductor for the electrically energized device is fixedly connected, said contact being adapted to be biased into contacting engagement with one of said terminals by the resiliency of said elastic member when so stretched over the battery, the other fitting being adapted to be biased into contact with the other terminal at the opposite end of the battery by the elastic member and including a sleeve formed of an electrically conductive material and to which a second conductor for the electrically energized device is fixedly connected, said sleeve being axially aligned with said other terminal of the battery, said fitting also including an electrically insulating member arranged to lie between said sleeve and said other terminal of the battery when the sleeve is stretched over the battery such as to insulate the sleeve from the battery terminal and a stud formed of electrically conductive material within said sleeve and in electrical contact therewith, said stud being axially displaceable in said sleeve while in electrical contact therewith into and out of contacting engagement with said other terminal to open and close the circuit through said electrical device.

1. A lead-acid battery and cap lamp apparatus, said apparatus comprising a headpiece, a battery and a cable for connecting the headpiece to the battery through a manually operated switch in the headpiece to selectively energize incandescent lamp means therein, said battery containing rechargeable cell groups of equal voltage and at its upper side presenting a detachable battery top occurring in spaced relation above the rechargeable cell groups to define a space of limited extent, adjustable switching means mounted in the battery top and extending into the said space, electrical circuit means including electrical contacts engageable by the switching means in one position of adjustment thereof to provide for operating the cell groups in series, said adjustable switching means being movable into engagement with additional contact means in the said electrical circuit means such that the cell groups are operated in parallel to energize the lamp means at a relatively lower level of light intensity than the intensity of the lamp means when the cell groups are operated in series, said electrical circuit means further including means for supplying current to the lamp means by the cell groups during parallel operation at a value greater than the value of the current supplied to the lamp means by the cell groups during series operation divided by the number of cell groups.

4,317,163

LUMINAIRE FOR AN ELECTRIC LAMP

Willem J. F. Bout, Hilversum, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

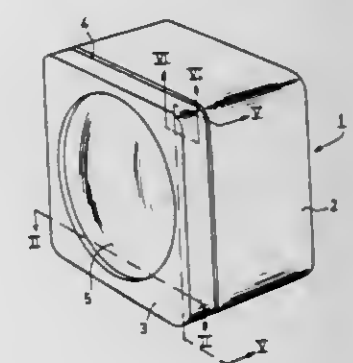
Filed Mar. 10, 1980, Ser. No. 129,067

Claims priority, application Netherlands, Mar. 19, 1979, 7902135

Int. Cl.³ B60Q 3/04; F21M 1/00

U.S. Cl. 362-362

4 Claims



1. A luminaire for an electric lamp having a bipartite housing

one part of which engages around the other part and is connected thereto by means of a double-hinge situated within the housing, of which double-hinge a first shaft is connected to the side wall of a first part of the housing and the second shaft is connected to the second part of the housing, both shafts being incorporated in a rigid hinge intermediate member while being spaced from each other and being parallel to each other, characterized in that the rotation of the second part of the housing about the second shaft of the double-hinge is restricted by a stop.

4,317,164

SYSTEM AND METHOD OF MOUNTING A LAMP HOLDER ON A SUPPORT

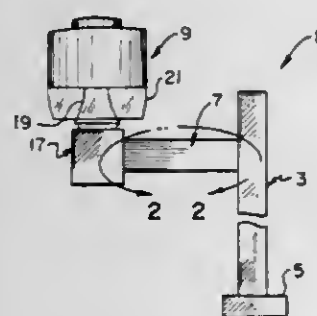
Vincent M. Karaktin, New Hyde Park, N.Y., assignor to Emerson Electric Co., St. Louis, Mo.

Filed Apr. 2, 1980, Ser. No. 136,435

Int. Cl.³ F21S 1/02

U.S. Cl. 362—432

9 Claims



1. In a lighting fixture including a vertical support post, and a support arm cantilevered secured to said post and extending horizontally outwardly therefrom, at least one end of said support arm being hollow, wherein the improvement of this invention comprises: means for rigidly cantilever securing said support arm to said post, said post having a mounting bracket rigidly secured to the exterior thereof, said post mounting bracket having a portion thereof secured to said post, an upwardly extending flange interconnected to said securement portion, one face of this last-said flange facing toward said post being inclined with respect to the vertical such that its top is spaced farther from said post than its bottom, said support arm having a support mounting bracket installed internally therewithin adjacent said post, said support mounting bracket having a portion adapted to be rigidly secured to an upper wall of said support arm on the inside thereof, said support mounting bracket having a flange extending downwardly from said securement portion, one face of this last-said flange facing away from said post being inclined with respect to the vertical so that the bottom of this last said flange face is closer to said post than its top, said inclined flange faces of both of said mounting brackets being wedgingly cooperable with one another so that upon said support arm being brought substantially into abutting relation with said post and upon said support arm and said post being moved vertically relative to one another, said inclined faces of said flanges cooperate with one another so as to draw and to hold said support arm in cantilevered abutting relation with said post.

4,317,165

INVERTER HAVING IMPROVED EFFICIENCY AND REGULATION

James D. Sullivan, Grove City, Ohio, assignor to Vanner, Inc., Columbus, Ohio

Filed Jun. 17, 1980, Ser. No. 160,555

Int. Cl.³ H02M 1/12

U.S. Cl. 363—41

11 Claims

1. In an inverter circuit of the type including a transformer having a center tapped primary to which a dc source is connected, a pair of push-pull connected bipolar transistor switching means connected to the ends of said primary for alternately

applying said dc source to opposite halves of said primary, said switching means each having a control input, and a control means connected to said control inputs to control the alternate switching of said switching means, the improvement comprising:

a pair of windings, magnetically coupled to said transformer,



a different one of said pair of windings connected in series with the control input circuit of each of said switching means, wherein each of said switching means comprises a pair of Darlington-connected bipolar transistors having said winding as the circuit element connecting the base of the output one of a said Darlington pair to the output of the input one of said Darlington pair.

4,317,166

CIRCUIT ARRANGEMENT FOR SELF-COMMUTATED INVERTERS

Jiri Winkler; Josef Cibulka; Jan Bryksi; Richard Jelinek, all of Prague; Jan Krtek, Karlovy Vary; Vladimir Mickal, Pilsen; Jaroslav Hloušek, and Milan Kondr, both of Prague, all of Czechoslovakia, assignors to CKD Praha, oborovy podnik, Prague, Czechoslovakia

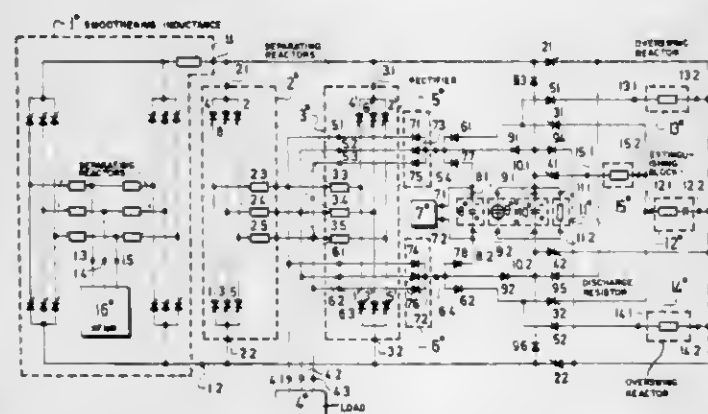
Filed Jan. 2, 1980, Ser. No. 109,187

Claims priority, application Czechoslovakia, Jan. 2, 1979, 40-79

Int. Cl.³ H02M 7/515

U.S. Cl. 363—138

7 Claims



1. An inverter apparatus for energizing an AC load, said inverter apparatus comprising a plurality of inverter output terminals connected to said AC load and a source of DC current having a first and second DC output terminal, an inverter circuit comprising a first main thyristor circuit comprising a first and second group of main thyristors, the cathodes of said

first group of main thyristors being coupled, respectively, to the anodes of said second group of main thyristors, while the anodes of said first group of main thyristors are coupled to said first DC terminal, first connecting means for connecting said cathodes of said first group of main thyristors, respectively, to a first selected one of said plurality of inverter output terminals, and a second main thyristor circuit, the improvement comprising:

a first commutation circuit comprising a first commutation thyristor having an anode, connected to said first DC output terminal, a cathode and a gate, an extinguishing circuit connected to said cathode of said first commutation thyristor, a second commutation thyristor having an anode, connected to said extinguishing circuit, a cathode and a gate, a first separating diode connected to said cathode of said second commutating thyristor, and a first block of accumulating diodes having a first DC block terminal, comprising the anodes thereof, connected to said cathode of said first separating diode and a plurality of first accumulating diode output terminals, comprising the cathodes thereof, each being connected to a corresponding one of said inverter output terminals, a second commutation circuit coupled to said second main thyristor circuit and comprising a second block of accumulating diodes having a plurality of anodes, each being connected to a corresponding one of said inverter output terminals, and a plurality of cathodes connected in common to a second DC block terminal, a second separating diode connected to said second DC block terminal, an accumulating capacitor connected to said second separating diode, and a third separating diode interconnected between said accumulating capacitor and said first DC block terminal;

wherein said thyristors are energized so that said current passes from said first main thyristor circuit to said first commutation circuit, and from said first commutation circuit to both said second main thyristor circuit and said second commutation circuit;

and further comprising means for subsequently blocking said current in said second commutation circuit, whereby said current has transferred from said first main thyristor circuit to said second main thyristor circuit.

4,317,167

CIRCUIT ARRANGEMENT FOR THE PROCESSING OF INFORMATION

Alfred Hartig, and Harald Beckermann, both of Essen, Fed. Rep. of Germany, assignors to Ruhrtal Elektrizitäts-Gesellschaft Hartig GmbH & Co., Essen, Fed. Rep. of Germany

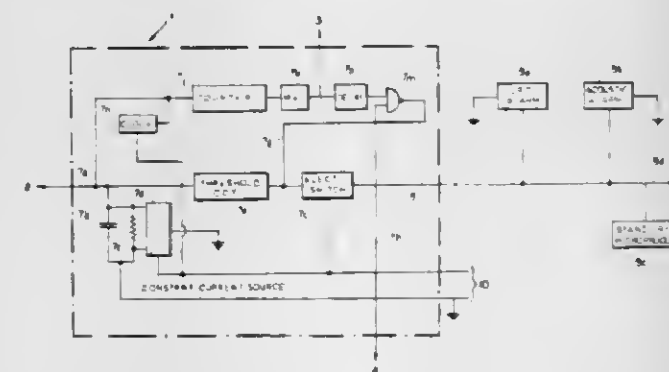
Filed Sep. 20, 1979, Ser. No. 77,474

Claims priority, application Fed. Rep. of Germany, Sep. 21, 1978, 2841073

Int. Cl.³ G06F 15/46; G05B 23/02; G06F 11/00

U.S. Cl. 364—185

10 Claims



1. An information-processing circuit comprising, in combination:

a microprocessor-controlled unit responsive to input signals of an installation representing parameters of the operation thereof to be monitored and producing output signals for controlling said operation, said microprocessor-controlled unit including a microprocessor having a power supply

source and a memory cooperating with said microprocessor; and

a control unit connected to said microprocessor for continuously monitoring the operation thereof, said control unit being responsive to a control signal outputted from said microprocessor and including means for generating a failure signal upon detection of a functional failure of said microprocessor, said microprocessor outputting a train of control signals in predetermined time-spaced relationship which pass through at least one stage of the microprocessor prior to appearing at a control terminal thereof, said control unit being responsive to a failure in the train of control signals.

4,317,168

CACHE ORGANIZATION ENABLING CONCURRENT LINE CASTOUT AND LINE FETCH TRANSFERS WITH MAIN STORAGE

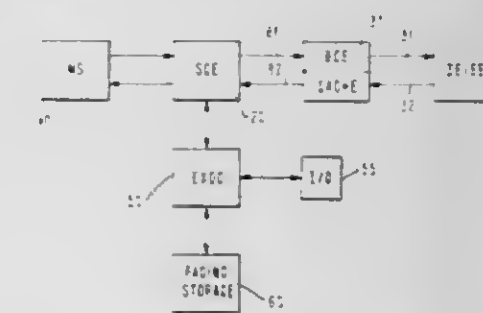
Benedicto U. Messina, Poughkeepsie, and William D. Silkman, Hopewell Junction, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 23, 1979, Ser. No. 96,860

Int. Cl.³ G06F 13/00

U.S. Cl. 364—200

40 Claims



1. A cache accessing system for a store-in cache for enabling a processor to have fast access to any transfer unit of data in the cache, each line of cache data being addressed on a main storage (MS) line address boundary, each line being comprised of plural transfer units, each transfer unit being addressed on a MS transfer unit address boundary, the cache accessing system comprising:

a cache array containing a plurality of cache accessible units, each cache accessible unit have a plurality of transfer units, each access of the cache in one cache cycle capable of accessing the plurality of transfer units comprising one cache accessible unit,

directory means for receiving cache access requests and connected to the cache array for controlling the addressing of the cache for each cache accessible unit required by a request,

cache registering means for registering plural transfer units into a cache accessible unit,

first cache bus means connected to the cache registering means for transferring one transfer unit per cycle from a first source to the cache registering means,

cache write accessing means for writing into each cache accessible unit from the cache registering means at an addressed location in the cache in one cycle,

cache read accessing means for reading an accessible unit out of the cache in one cycle,

second cache bus means for outputting one transfer unit per cycle from the cache reading means to a second source,

cycle control means connected to the cache for controlling cache accesses an alternate cycles by the cache write accessing means and by the cache read accessing means, the first bus means and second bus means being capable of simultaneously transferring the transfer units on the same cycle in which either the cache write access means or the cache read access means is accessing an accessible unit in the cache.

whereby the cache access rate being equal to the combined transfer unit rates on both the first and second cache bus means.

4,317,169

DATA PROCESSING SYSTEM HAVING CENTRALIZED MEMORY REFRESH

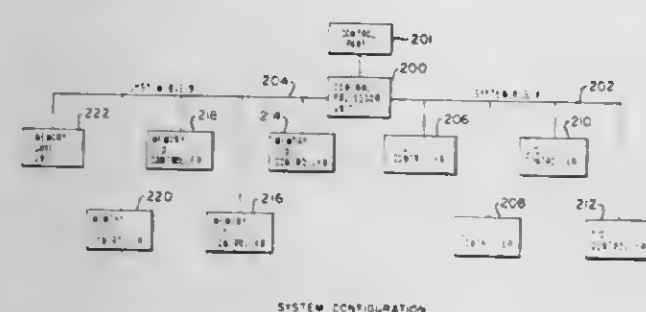
William Panepinto, Jr., Tewksbury; Ming T. Miu, Chelmsford; Chester M. Nibby, Jr., Peabody, and Jian-Kuo Shen, Watertown, all of Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Feb. 14, 1979, Ser. No. 12,081

Int. Cl.³ G06F 13/00

U.S. Cl. 364—200

11 Claims



1. In a data processing system comprising a rechargeable main memory and a central processing unit (CPU), said rechargeable main memory coupled to said CPU, said system further comprising:

- first means, included in said rechargeable main memory, for receiving a refresh signal from a refresh means;
- said refresh means, included in said CPU and coupled to said first means, said refresh means for generating said refresh signal at least once during a period of time equal to a first predetermined time interval and for generating said refresh signal whenever it is determined that said CPU will not require access to said rechargeable main memory before the refreshing of said rechargeable main memory can be completed and wherein each generation of said refresh signal restarts the expiration of said first predetermined time interval;
- second means, coupled to first means and included in said rechargeable main memory, for refreshing said rechargeable main memory in response to said refresh signal; and
- third means, coupled to said first means and said second means and included in said rechargeable main memory, for inhibiting said second means from responding to said refresh signal if said second means has already performed a refresh of said rechargeable main memory within a second predetermined time interval, said second predetermined time interval determined by the refresh frequency proximately required to maintain information in said rechargeable main memory, said first predetermined time interval being less than said second predetermined time interval, and wherein the inhibiting of said second means from performing a refresh of said rechargeable main memory in response to said refresh signal more frequently than once per said second predetermined time interval saves energy by preventing the refreshing of said rechargeable main memory at a frequency greater than the frequency proximately required to maintain the information in said rechargeable main memory and whereby because all refreshing of said rechargeable main memory is done in response to said refresh signal normally generated by said CPU, the need for logic within said CPU or rechargeable main memory to handle the case of an attempt by said CPU to access said rechargeable main memory during refreshing is eliminated.

4,317,170 MICROINSTRUCTION CONTROLLED DATA PROCESSING SYSTEM INCLUDING MICRO-INSTRUCTIONS WITH DATA ALIGN CONTROL FEATURE

Kenichi Wada, Zama, and Mamoru Hinai, Hadano, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

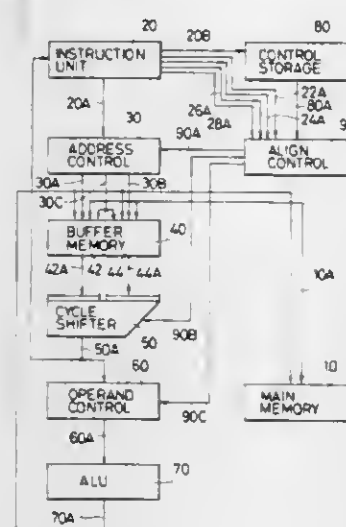
Filed Sep. 27, 1979, Ser. No. 79,247

Claims priority, application Japan, Jan. 19, 1979, 54/3956

Int. Cl.³ G06F 9/00, 9/22, 9/34, 9/28

U.S. Cl. 364—200

12 Claims



1. A data processing system which comprises:

- instruction means including means for decoding stored macroinstructions in order to generate addresses of operand and data to be used in execution of said macroinstructions and a length indication of the entire length of that operand data;
- storage means for storing said operand data including first and second storage means, and means connected to said decoding means for reading out first and second partial operand data in parallel from said first and second storage means, respectively, in response to one of said operand addresses, said first and second partial operand data being located in a continuous address region having a predetermined length in said storage means and being the data specified by said one of said operand addresses;
- positioning means connected to said first and second storage means for selectively positioning data read therefrom;
- operation executing means connected to said positioning means for executing operation on said positioned data;
- control storage means connected to said instruction means for storing microinstruction sequences each corresponding to one of said macroinstructions for executing said macroinstructions, each microinstruction sequence including a plurality of microinstructions having a control field for controlling said operation executing means and said storage means so that operations specified by said decoded macroinstructions are executed on operands specified by said operand addresses, each microinstruction further including an align field for controlling said positioning means; and
- align control means including first means connected to said decoding means for generating a plurality of shift numbers, at least some of said shift numbers depending on said one of said operand addresses; selecting means connected to said first means for selecting one of said shift numbers in response to said align field; second means connected to said first and second storage means for cycle-shifting said first and second partial operand data in combination by an amount equal to said selected shift number; third means for outputting a plurality of mask pattern signals for indicating a part of said cycle-shifted data to be masked in response to said length indication of the entire length of said operand data, at least one of said

mask pattern signals depending on said one of said operand addresses; fourth means for selecting one of said mask pattern signals in response to said align field; and fifth means for masking said cycle-shifted data in response to said selected mask pattern signal.

4,317,171

LSI MICROPROCESSOR HAVING AN ERROR PROCESSING CIRCUIT

Hideo Maejima, and Kunihiko Ohnuma, both of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

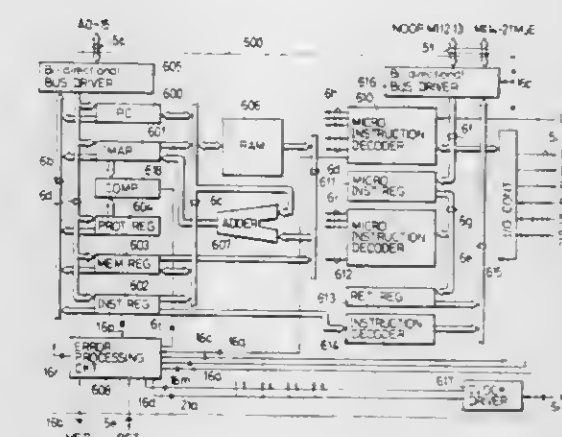
Filed May 9, 1979, Ser. No. 37,459

Claims priority, application Japan, May 12, 1978, 53-55601

Int. Cl.³ G06F 3/00, 11/00

U.S. Cl. 364—200

6 Claims



1. An LSI microprocessor comprising an instruction fetch portion and an instruction execute portion which conduct the fetch of an instruction and the execution of an instruction from a main memory disposed outside said LSI microprocessor and which store instructions and operands therein, independently of each other under a control of a microprogram stored in a microprogram memory, a pipeline control being made while synchronizing both of the portions, said instruction fetch portion comprising:

- a first bidirectional bus driver for delivering microprogram address information to a microprogram counter of said microprogram memory and receiving a micro instruction from said microprogram memory;
- a second bidirectional bus driver for delivering an address to said main memory and receiving an instruction word or operand from said main memory;
- a micro instruction decoder which is connected to said first bidirectional bus driver through a first input bus and which decodes the received micro instruction to obtain various control signals;
- an input/output controller which is connected to said first bidirectional bus driver through the first input bus and which makes a control with an input/output device including said main memory;
- a program counter, an internal memory address register, a protection register, a memory register and an instruction register which are connected to said second bidirectional bus driver through second input and output buses;
- a random access memory and an adder which are connected to the program counter, the internal memory address register, the memory register and the instruction register through a bidirectional bus and which are used for determining an operand address;
- an instruction decoder which decodes a content of said instruction register and which delivers a microprogram address pattern to said microprogram counter of said microprogram memory through said first bidirectional bus driver;
- a comparator which detects a memory protection error and which delivers a memory protection error signal by comparing the operand address being stored in the interval memory address register and a protection area stored in said protection register; and
- an error processing circuit which receives the memory

protection error signal and an externally detected memory error signal concerning said main memory, said error processing circuit including means for blocking the delivery of a clock to write to the registers connected to the bidirectional bus and means for delivering a reset signal to clear the microprogram counter and start an error processing microprogram in response to receiving one of said error signals.

4,317,172

ELECTRONIC CASH REGISTER

Shuji Nakano, Takatsuki, Japan, assignor to Omron Tateisi Electronics Co., Japan

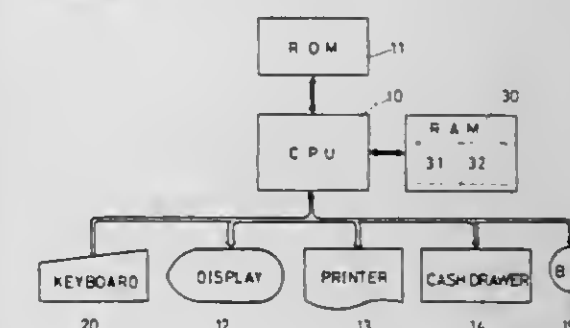
Filed Oct. 22, 1980, Ser. No. 199,650

Claims priority, application Japan, Oct. 24, 1979, 54-137919

Int. Cl.³ G06F 15/02, 15/20

U.S. Cl. 364—405

5 Claims



1. An electronic cash register having a first mode for entry of registering information and a second mode for withdrawal of said registering information, comprising:

- information entry means for entry of registering information including information concerning a price of a commodity being sold and a commodity department code representing a commodity department of said commodity being sold;
- mode selecting means for selecting either said first mode for entry of said registering information by means of said information entry means or said second mode for withdrawal of said registering information registered in said first mode;
- first storage means including a plurality of storing regions corresponding to a plurality of commodity department codes and responsive to said mode selecting means, for accumulating and storing, while in said first mode, in each of the respective storing regions the information concerning a total amount of the prices of the commodities for each of said commodity department codes obtained through accumulation of said information entered by said information entry means concerning the price of the commodity separately for each said commodity department code;
- second storage means including a plurality of storing regions corresponding to said plurality of commodity department codes, for storing in advance a desired outputting order of said information concerning a total amount of the prices of the commodities for each of said commodity department codes to be outputted, which is stored in each of said storing regions of said first storage means;
- representation means for visibly representing said information concerning said total amount for each of said commodity department codes stored in said first storage means; and
- output control means responsive to said mode selecting means for providing in succession in said second mode said information concerning said total amount for each of said commodity department codes stored in said first storage means to said representation means in said outputting order of the respective commodity department codes stored in said second storage means.

4,317,173

MULTIPLE WHEEL MEMORY SELECTION DEVICE FOR BRAKE CONTROL SYSTEM

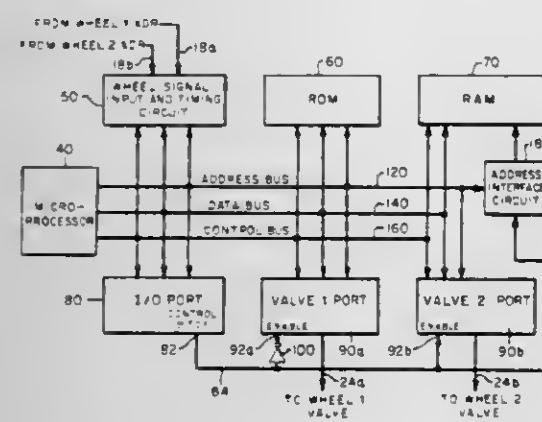
Thomas Skarvada, Woodland Hills, Calif., assignor to Crane Co., Chicago, Ill.

Filed May 7, 1980, Ser. No. 147,384

Int. Cl.³ G06F 15/20; B60T 8/00

U.S. Cl. 364-426

35 Claims



1. In a digital brake control system for a vehicle including first and second braked wheels, computer means for generating first and second brake control signals, and control means, responsive to the first and second control signals, for modifying the braking action applied to the first and second wheels, the improvement comprising:

a digital memory device having a plurality of address terminals including a first address terminal and a plurality of additional address terminals, said memory device including means for storing first and second blocks of parameters associated with the first and second wheels, respectively;

an address bus having a plurality of conductors, each of which extends between the computer means and a respective one of the plurality of additional address terminals; an output port coupled to the computer means, said port including a control bit which can be placed in one of two logic control states by the computer means; and means for connecting the control bit to the first address terminal such that the control bit can be used to control the logic state of the first address terminal, without affecting the state of the address bus, such that the computer means can select one of the first and second blocks of parameters for direct addressing via the address bus by placing the control bit in a respective one of the two logic control states.

4,317,174

RISER ANGLE POSITIONING SYSTEM AND PROCESS

Q. Wayne Dean, Simonton, Tex., assignor to The Offshore Company, Houston, Tex.

Filed Feb. 28, 1980, Ser. No. 125,804

Int. Cl.³ E21B 44/00; G06F 15/20

U.S. Cl. 364-432

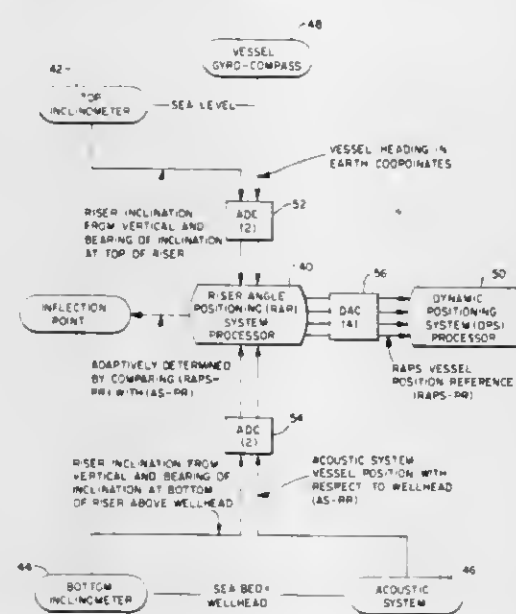
54 Claims

1. A riser angle positioning system for positioning a floating vessel having a riser extending to an ocean floor, said system comprising:

acoustic means on the ocean floor for generating acoustic signals; sensor means, one positioned at the top of said riser and one positioned at the bottom of said riser, for generating respective sensor signals indicating the respective angles of said riser at said top and bottom, respectively, of said riser; compass means for providing coordinate data; converting means for converting said acoustic signals to acoustic data; and processor means responsive to said acoustic data from said converting means, to said respective sensor signals from said sensor means, and to said coordinate data from said compass means for processing said acoustic data and said respective angles of said riser at the top and bottom, respectively, of said riser, and for deriving positioning data for positioning said floating vessel.

28. In a positioning system for positioning a floating vessel having a riser extending between said floating vessel and an ocean floor, wherein acoustic signals are generated from the ocean floor, a riser angle positioning method comprising the steps of:

receiving said acoustic signals; converting said acoustic signals to acoustic data; generating measurement signals corresponding to measurement of respective angles of the riser at the top and bottom, respectively, of the riser;



initially approximating an inflection point as being located midway between the top and bottom of the riser; determining, based on said acoustic data and in accordance with a two-axis X-Y coordinate system, the X and Y coordinates of the distance from the top of the riser to the inflection point, and the X and Y coordinates of the distance from the inflection point to the bottom of the riser; adding the respective X and Y coordinates to obtain respective sums indicating the total separation between the top and bottom of the riser; and applying said respective sums to said positioning system.

4,317,175

DYNAMIC RATE INTEGRATING DEMAND MONITOR

Thomas L. Sterling, Belmont, and James L. Kirtley, Jr., Brookline, both of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Nov. 13, 1979, Ser. No. 93,429

Int. Cl.³ G01R 11/57

U.S. Cl. 364-464

9 Claims

1. A dynamic rate integrating demand monitor that comprises, in combination: means for repeatedly measuring electric power to a customer load at successive time duration intervals short compared to the time interval during which power supply load conditions change so as to create an imbalanced supply system; means for accepting electrical communication of time-varying price determining data from a power utility to be used to determine a time-varying charge rate applied to the electric power measured at each duration interval of time; means to multiply the power at each duration interval of time with the charge rate at the corresponding duration

interval of time to produce an incremental expenditure rate for energy used; and



means to integrate said sequence of incremental expenditure rates to determine a customer charge.

4,317,176

MICROCOMPUTER CONTROLLED POWER TOOL

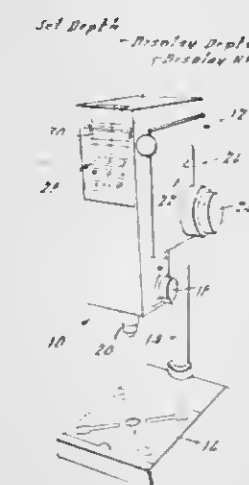
David A. Saar, Timonium, and Robert Bradus, Randallstown, both of Md., assignors to Black & Decker Inc., Newark, Del.

Filed Mar. 24, 1980, Ser. No. 133,464

Int. Cl.³ G06F 15/46; H02P 7/28

U.S. Cl. 364-474

5 Claims



1. In a drill press for cutting a workpiece including a motor drivingly coupled to a cutting implement and position control means for controlling the position of said cutting implement; the improvement comprising an electronic control circuit for controlling and monitoring the operation of the power tool including:

a speed sensor operatively associated with said motor for monitoring the rotational speed of said motor and producing a speed signal in accordance therewith; a position sensor operatively associated with said position control means for sensing a relative change in the position of said cutting implement relative to a reference position and producing a position signal in accordance therewith; a digital display for displaying information pertaining to the operating condition of the drill press including speed information and position information; a keyboard for selectably determining the information to be displayed on said digital display and for establishing said reference position; a microcomputer interfaced with said keyboard and said digital display and programmed to calculate the rotational speed of said motor from said speed signal, calculate from said position signal the position of said cutting implement

relative to said reference position, provide to said digital display the information designated via said keyboard, and monitor one or more predetermined operating parameters of said motor in accordance with information derived from said speed signal and provide predetermined code signals to said digital display for display thereon whenever one of said operating parameters exceed programmed limits; and

said microcomputer being programmed to monitor in accordance with information derived from said speed signal the speed, rate of deceleration, and temperature of said motor, and to produce code signals upon detection of a stall condition, an imminent kickback condition and an overload condition.

4,317,177

POWER PRIORITY CONTROL SYSTEM FOR AIRCRAFT AND TEST APPARATUS THEREFOR

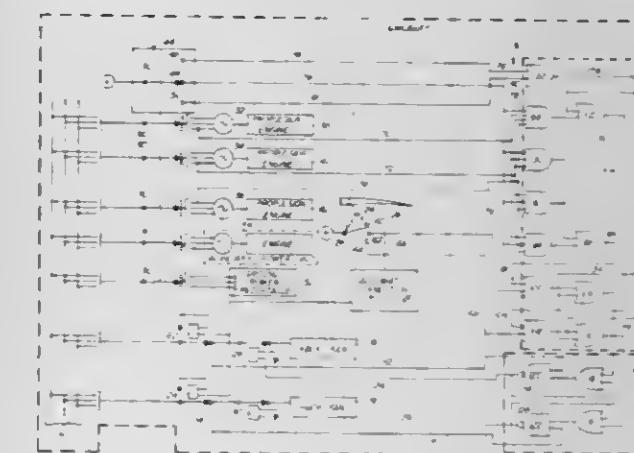
Donald O. Burnworth, Arvada, Colo., assignor to Martin P. Miller, Littleton, Colo., a part interest

Filed Jan. 14, 1980, Ser. No. 111,603

Int. Cl.³ G08B 21/00

U.S. Cl. 364-483

22 Claims



1. In an aircraft of the type comprising electrical power generating means connected to supply electrical power to an electrical supply bus within said aircraft and means for automatically connecting another electrical device of predetermined electrical load to said electrical supply bus in addition to other electrical devices previously connected to said supply bus upon positioning of a wing control surface of said aircraft in a predetermined position, an inventive system for automatically operatively disconnecting said additional electrical device from said electrical supply bus, comprising in combination:

first means operatively associated with said wing control surface for supplying a signal indicative of said wing control surface attaining said predetermined position, said signal supplied by said first means defining a wing surface signal; second means operatively associated with said electrical power generating means for supplying a signal representative of the maximum capability of said power generating means for supplying electrical power to said supply bus, said signal supplied by said second means defining a generator signal; logic means connected to receive the wing surface and generator signals respectively from said first and second means and for supplying a disconnect signal upon the wing control and generator signals attaining a predetermined relationship; and switching control means operatively connected with said additional electrical device and said logic means and operative upon receipt of the disconnect signal for disconnecting said additional electrical device from said electrical supply bus.

4,317,178

MULTIPLE VELOCITY TRAVERSE FLOW RATE MEASURING TECHNIQUE

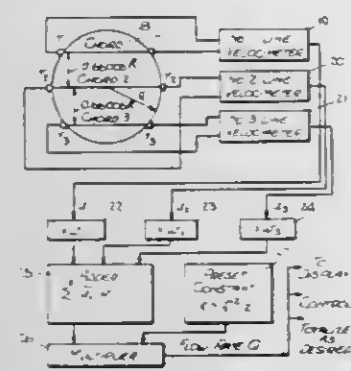
Victor P. Head, Hatboro, Pa., assignor to Fischer & Porter Company, Warminster, Pa.

Filed Mar. 1, 1979, Ser. No. 16,486

Int. Cl.³ G01F 1/00

U.S. Cl. 364—510

11 Claims



1. A system for measuring volumetric flowrate through a stream cross section of known shape and Area A comprising:

(a) means for measuring line-average velocity u_i on a plurality of n chords traversing said cross section so as to partition said area into predetermined fractional areas a_i ; said chords being positioned so as to partition said Area A into said predetermined fractional areas a_i as measured within said cross section between a reference line bisecting the Area A and each of said chords, the predetermined fractional areas being chosen to be predetermined fractions x_i of the semi-areas $A/2$; said predetermined area fractions x_i and weight factors w_i being chosen to be equal to the abscissas x_i and weight factors w_i of one of the following methods of numerical integration:

- (i) Gaussian Integration
- (ii) Chebyshev Integration
- (iii) Lobatto Integration

(b) data processing means coupled to said measuring means and yielding volumetric flowrate Q according to the computation

$$Q = (A/2) \sum_{i=1}^n u_i w_i$$

4,317,179

METHOD AND APPARATUS FOR PROCESSING A RADIOGRAPHIC IMAGE

Hisatoyo Kato, Masamitsu Ishida, and Seiji Matsumoto, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Tokyo, Japan

Filed Dec. 26, 1979, Ser. No. 106,734

Claims priority, application Japan, Dec. 26, 1978, 53-163575; Jul. 11, 1979, 54-87794; Nov. 22, 1979, 54-151395; Nov. 22, 1979, 54-151397; Nov. 22, 1979, 54-151399; Nov. 22, 1979, 54-151401

Int. Cl.³ H04N 1/40

U.S. Cl. 364—515

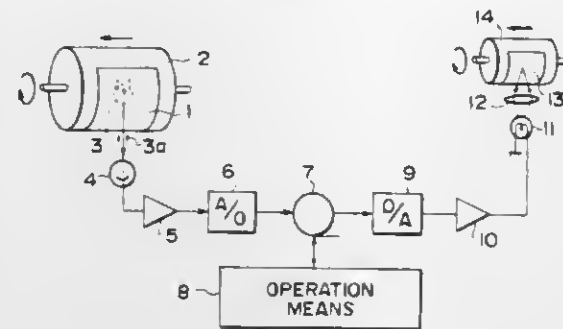
16 Claims

1. A method of copying a radiographic image in a radiographic image copying system comprising the steps of: scanning an original radiograph with a light beam; reading out and converting radiographic image information recorded on said original radiograph into an original image density; processing said original image density to produce an output density in accordance with

$$D' = D_{org} + \beta(D_{org} - D_{us})$$

where D_{org} is said original image density, β is an emphasis coefficient, D_{us} is an unsharp mask density corresponding to a predetermined super-low spatial frequency at every scanning

point, and D' is said output density whereby a frequency component above said predetermined super-low spatial frequency



is emphasized; and displaying a visual image in response to said output density.

4,317,180

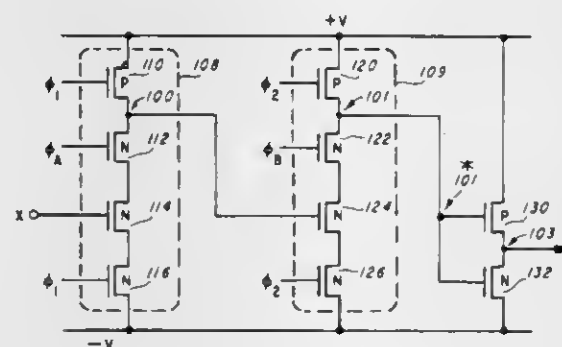
CLOCKED LOGIC LOW POWER STANDBY MODE
Kenneth A. Lies, Lubbock, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 26, 1979, Ser. No. 106,429

Int. Cl.³ G06F 1/04

U.S. Cl. 364—707

9 Claims



1. An electronic data processing system having an ON mode and an OFF mode comprising:

a state controller means including means for generating a clock output in an active cycling state when said electronic data processing system is in said ON mode, means for generating said clock output in an inactive predetermined steady state when said electronic data processing system is in said OFF mode, and means for generating a preset signal at a predetermined voltage when said electronic data processing system is in said OFF mode; and a plurality of circuit means, each coupled to said state controller means and each having an output terminal, each of said circuit means responsive to said active cycling state of said clock output for performing data processing functions in an active power mode, responsive to said steady state of said clock output for operating in a low power standby mode, and responsive to said predetermined voltage of said preset signal for generating a predetermined voltage at said output terminal.

4,317,181

FOUR MODE MICROCOMPUTER POWER SAVE OPERATION

Jeffrey R. Teza, Houston, and Kenneth A. Lies, Lubbock, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 26, 1979, Ser. No. 106,809

Int. Cl.³ G06F 1/04

U.S. Cl. 364—707

6 Claims

1. An electronic data processing system comprising:
(a) operator input means having means for generating an ON signal, an OFF signal and a plurality of operation signals; and

4,317,183

UNUSED PROGRAM NUMBER INDICATING SYSTEM FOR A SMALL PROGRAM TYPE ELECTRONIC CALCULATOR

Tomohiro Shimizu, Fussa, and Yoshinobu Muranaga, Higashikurume, both of Japan, assignors to Casio Computer Co., Ltd., Tokyo, Japan

Filed Dec. 11, 1979, Ser. No. 102,387

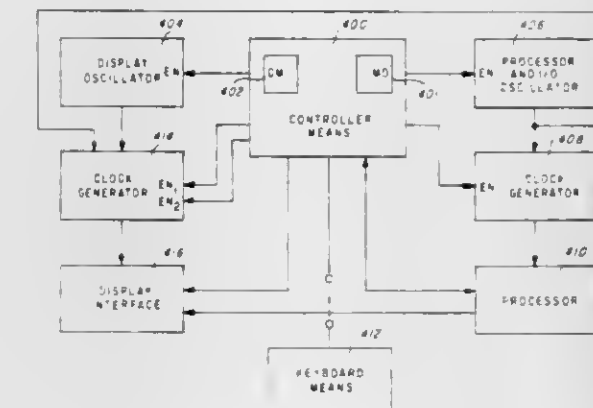
Int. Cl.³ G06F 13/00

U.S. Cl. 364—900

4 Claims

(b) electronic circuit means having first and second oscillator means and first and second sets of data processing operational circuits for performing data processing operations in accordance with said operation signals and for generating mode signals including:

(i) first clock pulse generator means controlled by said first oscillator means, responsive to predetermined signals from said operator input means and to first predetermined mode signals from other portions of said electronic circuit means selectively to operate in a standby, low power consumption mode, or to operate in an



active mode to supply first clock pulses to control operation of said first set of data processing operational circuits; and

(ii) second clock pulse generator means controlled by said second oscillator means, responsive to predetermined signals from said operator input means and to second predetermined mode signals from other portions of said electronic circuit means selectively to operate in a standby, low power consumption mode or to operate in an active mode to supply second clock pulses to control operation of said second set of data processing operational circuits.

4,317,182

SIGNAL AVERAGING DEVICE

Sadao Takase, Yokohama, and Takeshi Fujishiro, Yokosuka, both of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

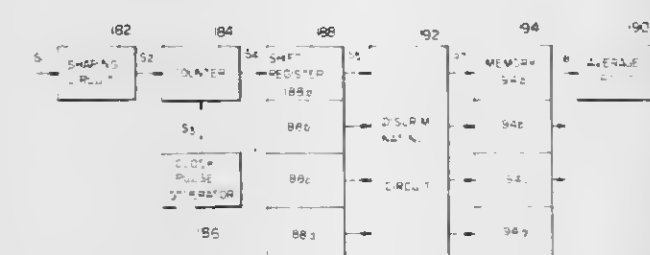
Filed Feb. 29, 1980, Ser. No. 125,791

Claims priority, application Japan, Mar. 1, 1979, 54-22565

Int. Cl.³ G06F 7/38, 15/20

U.S. Cl. 364—734

13 Claims



1. In a control system for an internal combustion engine, the combination comprising:

(a) a central processing unit for controlling various operating conditions of said engine; and

(b) input circuit means for receiving sensor output signals indicative of various operating parameters of said engine, processing said signals and passing processed output signals to said central processing unit, said input circuit means comprising:

- (i) means for storing a predetermined number of sequential values of one of said sensor output signals; and
- (ii) means for averaging selected ones of said sequential values and passing an averaged value to said central processing unit as one of said processed output signals.

4,317,184

DUAL SLOPE COMPENSATION APPARATUS
Nicholas G. Leszczynski, Tonawanda, N.Y., assignor to NP Industries, Inc., Tonawanda, N.Y.

Filed Oct. 23, 1980, Ser. No. 199,869

Int. Cl.³ G01S 15/02

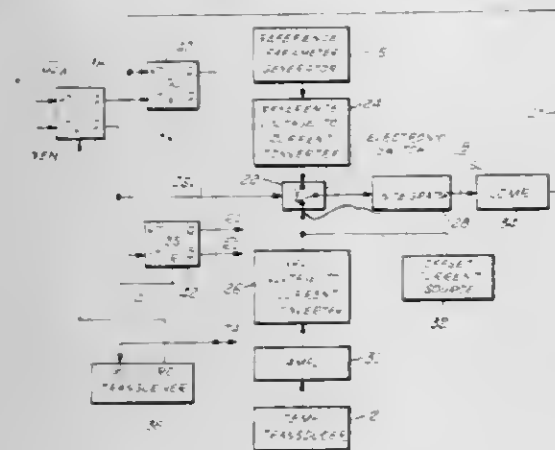
U.S. Cl. 367—13

15 Claims

1. For use in apparatus dependent upon the transmission of signals through a medium, compensation apparatus which comprises means responsive to a function affecting said transmission for generating a first output corresponding thereto, means for generating a compensating signal having dual adjacent slope portions, the slope of one of said portions depending upon said first output and the slope of the other of said portions being constant, means responsive to said signal for timing the occurrence of said slope portions, and means for compensating said signals in accordance with the duration of said dual slope compensating signal.

13. Echo sounding distance measuring apparatus comprising

means for transmitting in successive cycles sonic signals and receiving actual return signals after a time interval corresponding to the distance being measured, means responsive to the velocity of propagation of sound for providing a first control signal having an amplitude proportional thereto, means for generating a ramp signal having first and second portions of variable and constant slope which vary in amplitude in oppo-



site senses, means for varying the slope of said first portion in accordance with the amplitude of said first control signal, means responsive to said actual return signals for initiating said second portion of said ramp signal, and means for deriving from said second portion of said ramp signal a compensated return signal with the time interval between said actual return signals and said compensated return signals being proportional to the velocity of sound.

4,317,185

STREAMER CABLE TOWING LINK

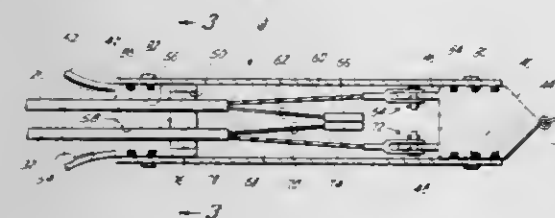
Ben B. Thigpen, Houston, and Richard Schiffman, Friendswood, both of Tex., assignors to Western Geophysical Co. of America, Houston, Tex.

Filed Jun. 6, 1980, Ser. No. 156,968

Int. Cl.³ G01V 1/38

U.S. Cl. 367-15

5 Claims



1. A towing link for a seismic streamer cable coupled to a terminator link, there being contained in said streamer cable a plurality of seismic sensors, a plurality of electrical conductors for transmitting signals from said sensors and at least one stress member, comprising:

- a headpiece for connection to a tow line including lugs;
- a tailpiece defining two bores, spaced apart from said headpiece;
- a slack-line lead-in cable including a plurality of electrical conductors and a stress member;
- means for sealingly anchoring the conductors and stress member of the terminator link through one of the bores of said tailpiece and means for sealingly anchoring an end of the lead-in cable through the other bore;
- means for releasably securing the stress members of said terminator link and of said lead-in cable to the lugs of said headpiece;
- means, positioned between said head and tailpieces, for releasably connecting the conductors of the terminator link with corresponding conductors of the lead-in cable; and
- means for watertightly enclosing said connecting means.

4,317,186 DEVICE FOR DETERMINING THE POSITION OF A SOUND SOURCE

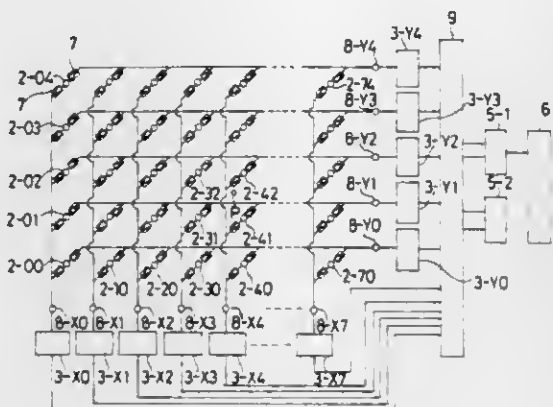
Isao Nishi, Osaka, and Hiroyasu Nakasa, Tokyo, both of Japan, assignors to Nihon Etl Kabushiki Kaisha, Osaka, Japan

Filed Nov. 28, 1979, Ser. No. 97,916

Claims priority, application Japan, Dec. 23, 1978, 53-159459 Int. Cl.³ G01S 7/52

U.S. Cl. 367-127

5 Claims



1. A device for detecting the position of a sound source comprising a plurality of sensors disposed on an object for which a source of sound is to be determined, a signal processing circuit which amplifies and carries out a designated output waveform generation process on detected signals produced by said sensors, and a means for identifying the order of detection by each sensor on the basis of the phase differences of said output waveform, said device being characterized in that: said plurality of sensors are organized in the form of a matrix with N rows and M columns, all of said sensors in a given row being connected in parallel to a corresponding common terminal through respective uni-directional transmission elements, and all of said sensors in a given column being connected in parallel to a corresponding common terminal through respective uni-directional transmission elements; said device further comprises a means for detecting among the outputs signals from said common terminal for each row and each column a signal with identical phase and a means for identifying the common terminal from which said identical phase signal was transmitted; and said device is capable of identifying a sensor which produces said detected signal from identification of the row and column which transmits said detected signal with identical phase; whereby the position of said sound source may be determined from the position of each of said sensors and said order of detection.

4,317,187 SYSTEM FOR MOUNTING THE COIL OF THE MOTOR IN AN ELECTRIC WATCH

Daniel Huot-Marchand, Montferriand le Chateau, and Fernand Zangiacom, Besancon, both of France, assignors to France Ebauches S.A., France

Filed Mar. 10, 1980, Ser. No. 128,391

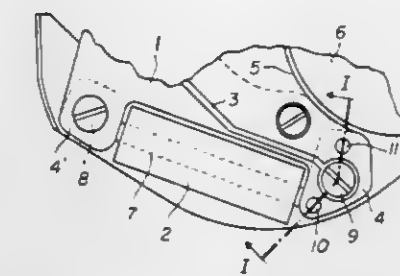
Claims priority, application France, Mar. 9, 1979, 79 06309 Int. Cl.³ G04C 23/02

U.S. Cl. 368-88

7 Claims

1. A system for mounting the coil of the motor in an electric watch wherein the electric watch includes an electric motor for driving the watch, the motor includes a coil on a core and the core has pole pieces, a support for the coil, the support having a respective recess defined therein for a respective extrusion of a pole piece, at least one of the pole pieces of the coil has at least one extrusion which protrudes with respect to the plane of said piece, and the extrusion is of a shape and of

dimensions complementary with respect to those of the respective corresponding recess in the support on which the coil is



intended to be mounted and the respective recess being placed such that the extrusion can be received in that recess.

4,317,188

MAGNETIC SHIELDING PLATE FOR A STEP MOTOR IN AN ELECTRONIC WRISTWATCH

Kenichi Ushikoshi, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

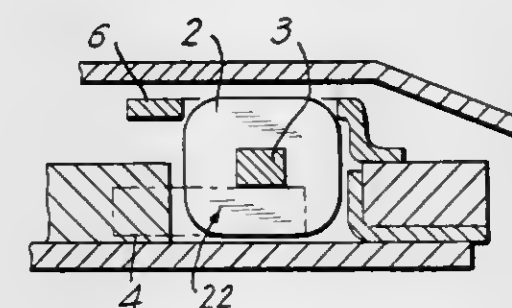
Continuation of Ser. No. 878,836, Feb. 17, 1978, abandoned.

This application Jun. 16, 1980, Ser. No. 159,536

Claims priority, application Japan, Feb. 17, 1977, 52-16486 Int. Cl.³ G04B 37/00; H02K 1/12

U.S. Cl. 368-293

7 Claims



1. In an electronic wristwatch including a step motor for receiving timekeeping signals and converting same into an incremental rotary motion, the improvement comprising a permanent magnet rotor, a magnetic permeable stator surrounding said rotor for incrementally rotating said rotor in response to changes in the magnetic orientation of said stator, and coil means including an elongated magnetic permeable coil core and a coil wrapped therearound, said coil being adapted to receive timekeeping signals and in response thereto change the magnetic orientation of said stator, and magnetic shield means extending the lengthwise extent of the coil, said shield means including a shield plate having an opening therein for permitting said coil to be disposed in the opening of said plate to thereby surround said coil and having minimum cross-sectional area transverse to the lengthwise extent of said magnetic permeable core, the ratio of said minimum cross-sectional area of the shielding plate in a direction transverse to the lengthwise extent of the coil core to the minimum cross-sectional area of the coil core taken transverse to the lengthwise extent of the coil core, is at least one and no greater than five to thereby provide a reduced dimensional shielding plate and hence a reduction in the thickness of the timepiece.

4,317,189 VOICE FREQUENCY SIGNAL ACTUATED TAPE RECORDER

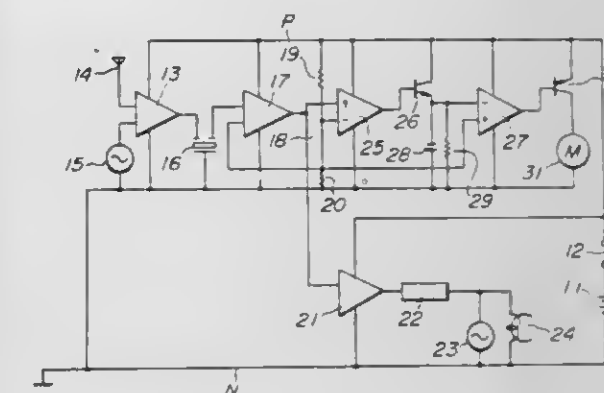
Norio Fukuoka, Hachioji, Japan, assignor to Olympus Optical Company Limited, Tokyo, Japan

Filed Dec. 10, 1979, Ser. No. 101,650

Claims priority, application Japan, Dec. 13, 1978, 53-154756 Int. Cl.³ G11B 31/00

U.S. Cl. 369-7

4 Claims



1. A starting device for a tape recorder by voice signal comprising an FM receiver section having an FM detector means coupled to the detector for detecting a modulated voice signal, a reference voltage source, a first comparator for generating an output signal by comparing the output FM signal of the FM receiver with a reference voltage preset by the reference voltage source, a switching element controlled and actuated by the output signal of the first comparator, a charging and discharging circuit connected to the element for holding the output signal of the first comparator for a predetermined time after termination of the voice signal, a second comparator connected to receive the terminal voltage of the charging and discharging circuit for controlling a motor, said reference voltage source being connected for supplying the preset reference voltage to the first and the second comparators.

4,317,190

PICKUP ARM MOVEMENT CONTROL SYSTEM FOR RECORD PLAYER

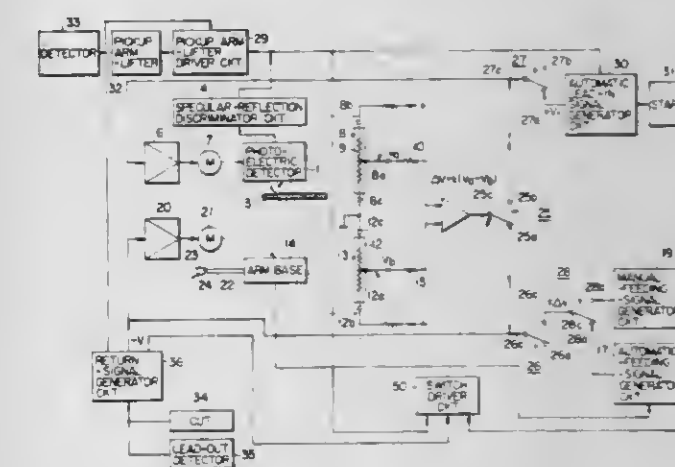
Motoi Iyeta, Hamakita, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan

Filed Nov. 23, 1979, Ser. No. 96,668

Claims priority, application Japan, Nov. 28, 1978, 53-146803 Int. Cl.³ G11B 17/06

U.S. Cl. 369-33

10 Claims



1. A system for controlling the movement of a pickup arm of a record player in a plane parallel a surface of a turntable on said record player, which comprises, in combination: first driving means for driving said pickup arm in a predetermined course of movement relative to a turntable of said record player;

photoelectric means for optically detecting unmodulated spaces of a surface of a record disk placed on said turntable;

second driving means for driving said photoelectric means in another predetermined course of movement relative to said turntable;

first position detecting means for detecting a position of said pickup arm relative to said turntable and producing a first signal representing the detected relative position of said pickup arm;

second position detecting means for detecting a position of said photoelectric means relative to said turntable and producing a second signal representing the detected position of said photoelectric means;

circuit means for receiving the first and second signals produced by said first and the second position detecting means and producing a third signal representing the difference between the first and second signals received;

pickup arm drive signal generating means for generating a first control signal for controlling said first driving means; photoelectric means drive signal generating means for generating a second control signal for controlling said second driving means;

first switching means for supplying the third signal produced by said circuit means to selected one of said first and second driving means;

second switching means for selectively applying said first control signal from said pickup arm drive signal generating means to said first driving means;

third switching means for selectively applying said second control signal from said photoelectric means drive signal generating means to said second driving means; and switching means driver for controlling said first, second and third switching means, said switching means driver being operative so that:

in a first state, said first switching means is controlled to supply said third signal to said first driving means, said second switching means is controlled to not supply said first control signal to said first driving means, and said third switching means is controlled to supply said second control signal to said second driving means, wherein movement of said pickup arm is controlled by said first driving means to assume a position with respect to said turntable corresponding to a position assumed by said photoelectric means; and

in a second state, said first switching means is controlled to supply said third signal to said second driving means, said second switching means is controlled to supply said first control signal to said first driving means, and said third switching means is controlled to not supply said second control signal to said second driving means, wherein movement of said photoelectric means is controlled by said second driving means to assume a position with respect to said turntable corresponding to a position assumed by said pickup arm.

4,317,191

MOVING COIL PICKUP CARTRIDGE

Shokichi Tatara, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Jan. 7, 1980, Ser. No. 109,995

Claims priority, application Japan, Jan. 17, 1979, 54-4293; May 24, 1979, 54-64179

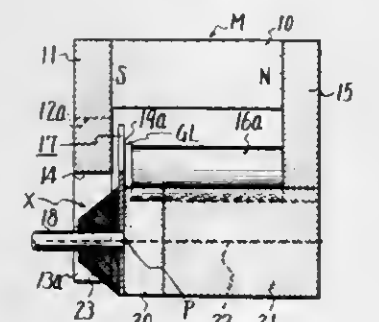
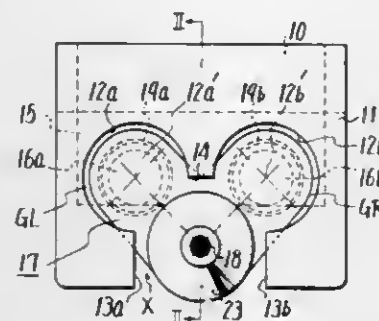
Int. Cl.³ H04R 9/04, 9/16

U.S. Cl. 369-147

8 Claims

1. A moving coil pickup cartridge comprising, a bar magnet with north and south poles, a first planar yoke member connected to one end of said bar magnet, a second planar yoke member connected to the opposite end of said bar magnet and formed with a pair of spaced openings, a pair of pole pieces of magnetic material attached to said first yoke member and extending toward said second yoke member and terminating adjacent said spaced openings and with at least the ends of said pole pieces generally rounded adjacent said openings so that a

conical shaped magnetic field exists between the ends of said pole pieces and said second planar yoke, an L-shaped coil base plate with a pair of arms extending into the air gaps between the ends of said pole pieces and openings in said second yoke to intercept said conical-shaped magnetic fields, a pickup pair



4,317,192

HEAD SUSPENSION VELOCITY CONTROL APPARATUS FOR ELECTROMECHANICAL RECORDER

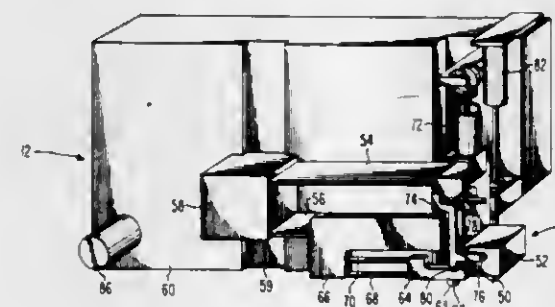
Richard M. Castle, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Dec. 26, 1979, Ser. No. 106,523

Int. Cl.³ G11B 17/00, 21/16, 11/00, 3/00

U.S. Cl. 369-244

3 Claims



1. In an apparatus for electromechanically recording information signals in a substrate, the apparatus comprising: a platform for supporting said substrate; a first means for mounting having a first projection; means for cutting undulations representative of information signals in a surface of said substrate; said cutting means being attached to said first mounting means; means for supporting said cutting means such that said cutting means cuts into said substrate surface to a given nominal depth; said supporting means being attached to said first mounting means; a second means for mounting; resilient means for coupling said first mounting means to said second mounting means; means for raising said first mounting means to a given position such that said cutting means and said supporting

means are retracted out of contact with said surface of said substrate supported on said platform; and means, attached to said second mounting means, for regulating the rate at which said first mounting means descends to said substrate surface from said given position; said regulating means includes:

a pin having second and third projections; said second projection in combination with said first projection attached to said first mounting means providing means for linking said first mounting means to said pin during the descent of said first mounting means; said third projection in combination with said first projection providing means for priming said regulating means when said first mounting means is returned to said given position.

4,317,193

TIME DIVISION NODAL SWITCHING NETWORK

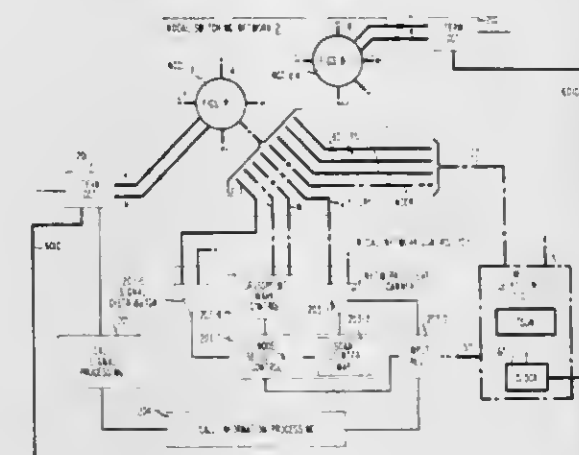
Amos E. Joel, Jr., South Orange, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Feb. 4, 1980, Ser. No. 117,830

Int. Cl.³ H04Q 11/04

U.S. Cl. 370-54

11 Claims



10. A nodal switching network comprising a plurality of link paths and nodal crosspoint configurations operable to interconnect said link paths, terminating circuits associated with said nodal configurations and means for establishing a plurality of independent time division connections through the least busy ones of said nodal configurations to link calling and called ones of said terminating circuits.

4,317,194

CARRIER FREQUENCY SPECTRUM GENERATOR USING LOGIC LEVEL INPUT PULSES

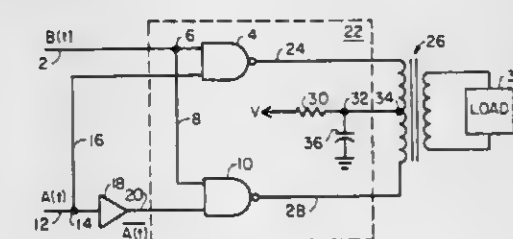
Lawrence E. Getgen, Redwood City, Calif., assignor to GTE Automatic Electric Laboratories, Inc., Northlake, Ill.

Filed Dec. 3, 1979, Ser. No. 99,379

Int. Cl.³ H04J 1/06

U.S. Cl. 370-121

6 Claims



1. Apparatus for deriving a plurality of carrier frequencies that are spaced from a first predetermined frequency by an amount equal to the fundamental frequency of a second predetermined frequency, and multiples thereof, which comprises: means for producing true and complementary logic level signals from said first predetermined frequency and making said true and complementary signals available, respec-

tively, at first and second output terminals, said producing means having an input terminal adapted to receive said first predetermined frequency;

switching means for alternately connecting the second predetermined frequency between third and fourth output terminals at a rate equal to the first predetermined frequency, said switching means having first and second input terminals adapted for connection to said first and second output terminals, respectively, of said producing means, and having a third input terminal adapted to receive the second predetermined frequency; and

coupling means for interconnecting said switching means with a utilization device, said coupling means having first and second input terminals connected to the third and fourth output terminals, respectively, of said switching means, and having first and second output terminals.

4,317,195

METHOD OF AND DEVICE FOR REDUCING SPEECH-REPRODUCTION IRREGULARITIES IN PACKET-SWITCHING TELECOMMUNICATION SYSTEMS

Giulio Barberis, and Daniele Pazzaglia, both of Turin, Italy, assignors to CSELT-Centro Studi e Laboratori Telecomunicazioni S.p.A., Turin, Italy

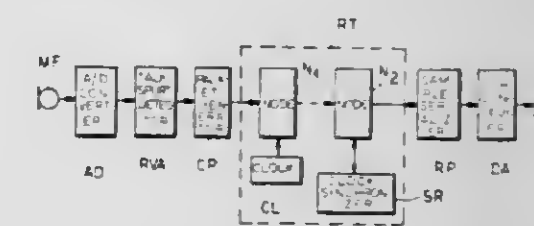
Filed Mar. 26, 1980, Ser. No. 134,269

Claims priority, application Italy, Mar. 27, 1979, 67628 A/79

Int. Cl.³ H04J 6/02

U.S. Cl. 370-94

8 Claims



1. A method of minimizing irregularities in the transmission of speech signals by packets of digitally coded voice samples originating at a first node and arriving at a second node of a routing network in a telecommunication system in which periods of coherent speech are translated into respective sequences of packets labeled with identification codes under the control of a transmission clock at the first node and are arrayed into an outgoing queue at the second node under the control of a reception clock independent of said transmission clock but operating at substantially the same rate, said packets of identical length and being subjected to variable delays in traveling from said first node to said second node,

comprising the steps of: determining at the second node, from labels carried by incoming packets, the time of departure of each packet from the first node as measured by said transmission clock; correlating the reading of said reception clock with that of said transmission clock at the beginning of voice communication between said nodes on the basis of said departure time and a minimum transit time established by substantially invariable network parameters; ascertaining from the departure time of an initial packet of a sequence thereafter arriving as part of said voice communication, and from the reading of the arrival time on the reception clock correlated with the transmission clock, an actual delay undergone by said initial packet; comparing said actual delay with a minimum overall delay obtained by adding a supplemental time lag to said minimum transit time; storing said initial packet at the second node for a limited time equal to the difference between said minimum overall delay and said actual delay upon the former exceeding the latter;

releasing the initial packet at the end of said limited time to the output queue of the second node; and passing each subsequent packet of the same sequence to said output queue immediately upon arrival at the second node.

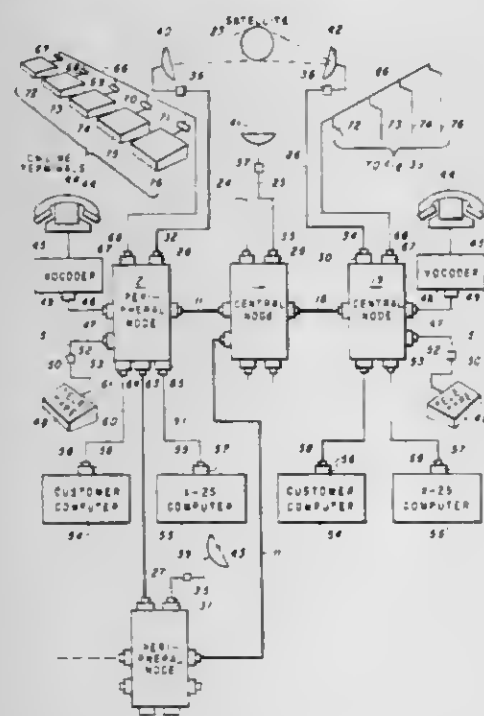
4,317,196 TRANSPARENT INTELLIGENT NETWORK FOR DATA AND VOICE

Mehmet E. Ulug, Ottawa, Canada, assignor to Texas Instruments Incorporated, Dallas, Tex.
Continuation of Ser. No. 912,115, Jun. 2, 1978, abandoned. This application May 15, 1980, Ser. No. 149,826

Int. Cl.³ H04J 6/00

U.S. Cl. 370-94

10 Claims



1. A communications network for data and voice having a first node, a second node, and a transmission link of predetermined channel capacity interconnecting said first node and said second node, said first node having a first plurality of customers connected thereto, said second node having a second plurality of customers connected thereto, a buffer in said first node to accept electrical signals received from said customers, means in said first node for distinguishing between first electrical signals indicative of the initial activation of customer connections and second electrical signals indicative of data received from said customers, FIFO and SFIFO queueing means in said first node, means responsive to receipt of said first signals for connecting into said SFIFO customers represented by said first electrical signals to serve initially activated customers according to an SFIFO order of priority, means for conditioning said FIFO queue to accept queued signals from said last mentioned customers, means effective upon the occurrence of otherwise unused channel capacity for accepting said queued signals from said FIFO to fill said channel capacity, and clocking means effective upon the expiration of a predetermined interval after acceptance of said queued signals by said FIFO queue to transmit said queued signals through the channel.

4,317,197 TRANSPARENT INTELLIGENT NETWORK FOR DATA AND VOICE

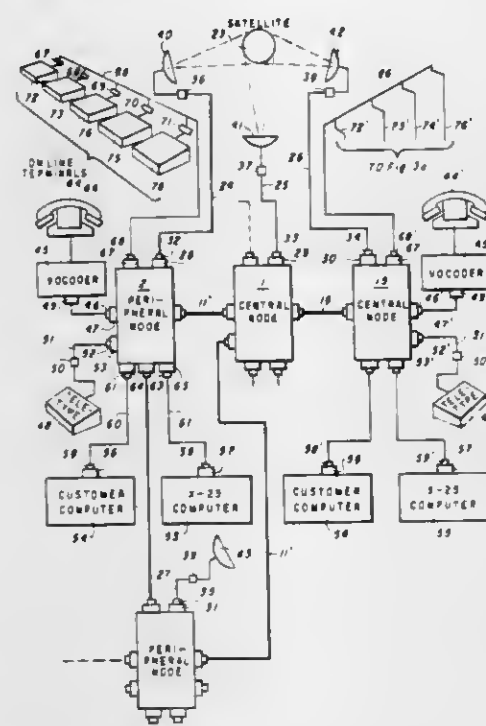
Mehmet E. Ulug, Ottawa, Canada, assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 912,117, Jun. 2, 1978, abandoned. This application May 15, 1980, Ser. No. 150,263

Int. Cl.³ H04J 6/00

U.S. Cl. 370-94

17 Claims



1. An integrated terrestrial/satellite communications network having a plurality of peripheral and central communications nodes, a first plurality of terrestrial communications links connecting said central nodes directly, a second plurality of terrestrial communications links individually connecting said peripheral nodes to said central nodes, a satellite, means establishing communications links via said satellite directly between each of said central nodes, means for inputting data from a plurality of customers into said network at one node and outputting said data from said network through at least one other node, means in said one node for identifying the location within said network of said at least one other node and for repetitively developing discrete groups of impulses, each group having interleaved data from a plurality of customers, and reservation means effective when said at least one other node is connected terrestrially to said one node through at least one intervening node for checking availability of communication capacity therebetween before transmitting said data.

4,317,198 RATE CONVERTING BIT STREAM DEMULTIPLEXER AND MULTIPLEXER

Raymond E. Johnson, Richardson, Tex., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Dec. 26, 1979, Ser. No. 106,564

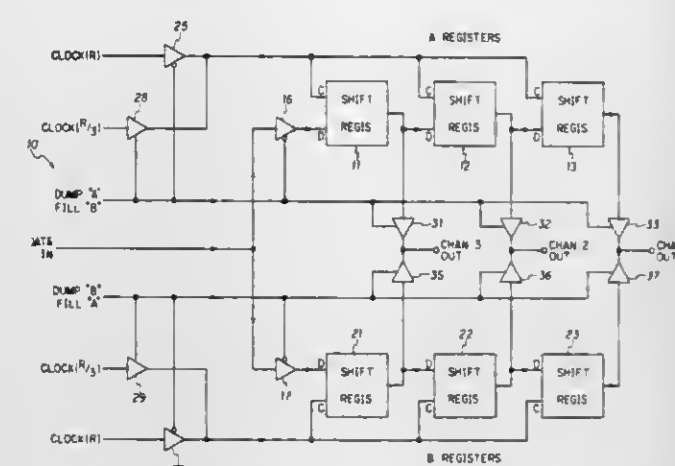
Int. Cl.³ H04J 3/02

U.S. Cl. 370-112

2 Claims

1. A bit stream demultiplexer comprising:
a rate converting first group of N cascaded shift registers, each register having a capacity for a segment of data M bits long;
a second group of N cascaded shift registers, each having a capacity for a segment of data M bits long;
means for serially entering, at a bit rate R, a first bit stream portion of N of said data segments, at an input of an initial register in said first group;
means for serially entering, at a bit rate R, a second bit stream portion of N data segments at an input of an initial register in said second group; and

means for serially reading M bits from each shift register in said first group at a rate of R/N, the reading from each



register beginning upon the initiation of said entering of the second bit stream portion in said second group.

4,317,199 DIAGNOSTIC EXTENDER TEST APPARATUS

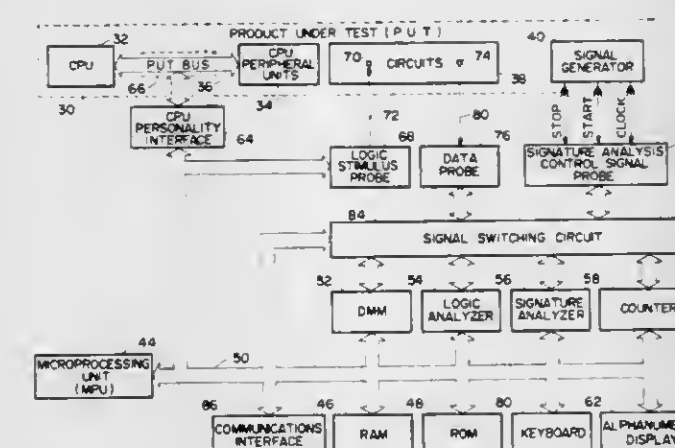
Alan K. Winslow, Hillsboro, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Filed Jan. 31, 1980, Ser. No. 117,327

Int. Cl.³ G06F 11/22

U.S. Cl. 371-16

7 Claims



1. A diagnostic extender test apparatus for use with a product under test (PUT) having a central processing system which includes stored diagnostic instructions and is capable of generating logic stimulus signals, comprising:
a communication port for interconnecting said test apparatus with the central processing system of said PUT;
means coupled to said communication port for receiving logic stimulus signals from said central processing system and applying said logic stimulus signals to predetermined signal injection points within the PUT;
analog and digital test and measurement means coupled to said communication port for receiving signals from selected test points within the PUT and producing test and measurement results in response thereto, said results being returned through said communication port to said central processing system.

4,317,200 METHOD AND DEVICE FOR TESTING A SEQUENTIAL CIRCUIT DIVIDED INTO A PLURALITY OF PARTITIONS

Nobuo Wakatsuki, and Osamu Itoh, both of Tokyo, Japan, assignors to VLSI Technology Research Association, Kawasaki, Japan

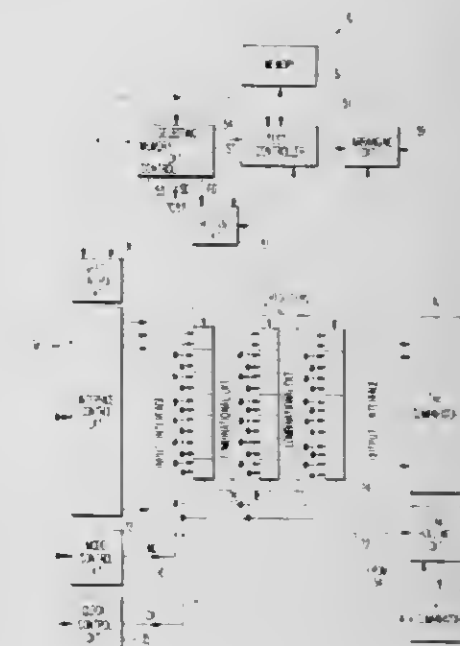
Filed Oct. 19, 1979, Ser. No. 86,613

Claims priority, application Japan, Oct. 20, 1978, 53-128538; Oct. 24, 1978, 53-129982

Int. Cl.³ G06F 11/26

U.S. Cl. 371-25

4 Claims



1. A method of testing a sequential circuit to detect a fault therein, said sequential circuit comprising a multiplicity of registers for storing information units, respectively, said registers being operable as normal registers in a normal mode and as a shift register with said registers connected in cascade in a shift mode, said sequential circuit being divisible into a succession of partitions each of which comprises a first and a second sequence of the registers of a first and a second predetermined number of registers, respectively, said method comprising the steps of:

preparing test patterns, predetermined for the respective partitions, and reference patterns for the respective test patterns, said test patterns each having a data length equal to the first predetermined number of registers in its respective partition, said reference patterns each having a data length equal to the second predetermined number of registers in its respective partition, each of said reference patterns checking said second sequence of said each partition; allotting serial addresses to the respective registers connected in cascade;
deriving a first and a second address from said serial addresses, said first and said second addresses being the addresses allotted to the leading ones of the registers of the first and second sequences in each partition, one partition after another in said succession of partitions;
selecting one of said test patterns that is predetermined for said each partition;
imparting, in said shift mode, said one test pattern to the respective registers of the first sequence of said each partition as the information units for said registers with reference to said first address;
making, in said normal mode, the registers of the second sequence in said each partition hold a set of status data, resulting from said one test pattern, as the information units stored in the registers of the second sequence in said each partition, said status data set having a data length equal to the second predetermined number of registers in said each partition;

deriving said status data set in said shift mode from the registers of the second sequence in said each partition; selecting one of said reference patterns prepared for said one test pattern; and comparing said status data set with the selected reference pattern to detect said fault when said status data is non-coincident with said reference pattern.

4,317,201

ERROR DETECTING AND CORRECTING RAM ASSEMBLY

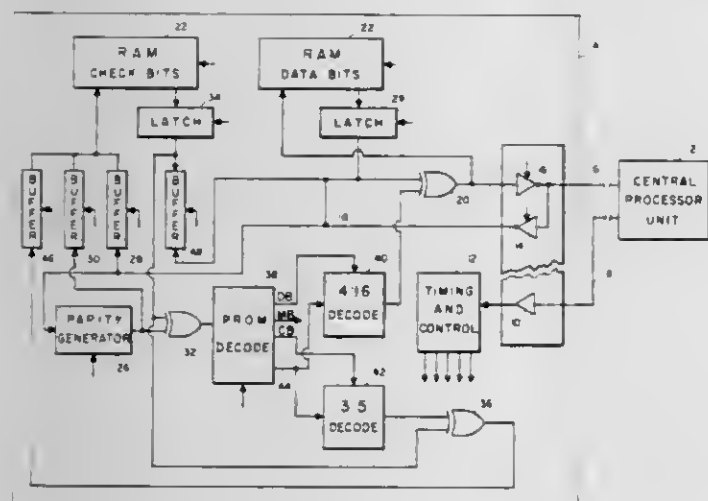
Patrick A. Sedalis, North Wales, Pa., assignor to Honeywell, Inc., Minneapolis, Minn.

Filed Apr. 1, 1980, Ser. No. 136,262

Int. Cl.³ G06F 11/10

U.S. Cl. 371—38

7 Claims



1. A memory assembly for a computer comprising: first memory means into which digital data words may be written for storage and from which digital data words may be read; check bit generating means connected to be responsive to said digital data words to produce a check bit code word corresponding to the content of each of said data words; second memory means into which said check bit code words may be written for storage and from which said check bit code words may be read, said check bit code word being generated by said generating means and written into said second memory means in response to and corresponding to digital data words being written into said first memory means; first means for reading a digital data word from said first memory means; said generating means being further connected to said first reading means for generating a further check bit code word in response to and corresponding to a digital data word read from said first memory means; second means for reading a check bit code word from said second memory means in response to and corresponding to a digital data word read from said first memory means; comparator means for comparing said check bit code word read from said second memory means with said further check bit code word to detect a difference therebetween as an indication of an error in the storage of said words; decoder means connected to be responsive to a detected difference output from said comparator means to produce a correction signal; correction means connected to be responsive to said correction signal to correct said words read out of said memory means; and means connected to said correction means to rewrite the corrected words into said memory means.

4,317,202 CIRCUIT ARRANGEMENT FOR CORRECTION OF DATA

Wernhard Markwitz, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

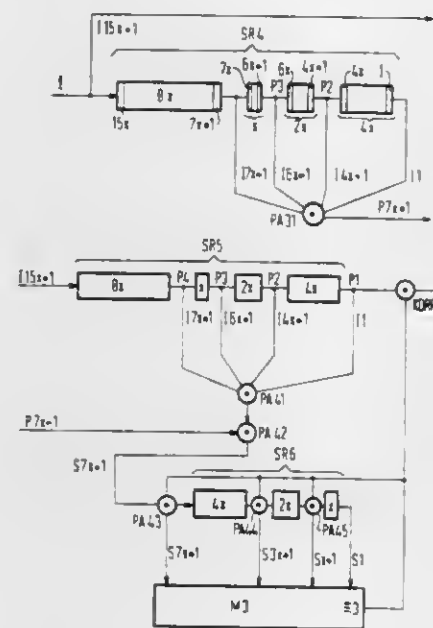
Filed Nov. 19, 1979, Ser. No. 95,221

Claims priority, application Fed. Rep. of Germany, Nov. 28, 1978, 2851436

Int. Cl.³ G06F 11/12

U.S. Cl. 371—43

6 Claims



1. A circuit for correcting x bits of data transmitted in a communication channel comprising, in combination, a first shift register located at the transmission side of said communication channel, said first shift register having a plurality of taps, a first parity stage having inputs connected to said taps for producing parity bits coded according to a recurrent code, a second shift register located at the receiving side of said communication channel, a second parity stage connected to receive signals from the taps of said second shift register whereby sequences of information bits and parity bits are transmitted from the transmission side to the receiving side of said communication channel, a syndrome shift register connected to said second shift register for storing a plurality of syndrome signals and for providing syndrome signals coincidentally at a plurality of taps, and a majority stage connected to receive input signals from the taps of said syndrome register for producing a correction signal for correcting said data, said first register being divided into two parts, a first part being defined by those cells which are disposed between the taps connected to said first parity stage, said first part being connected to said parity stage with four taps, the second part of said first shift register consisting of at least $8x$ cells, the taps of said first part being spaced by approximately x , $2x$, and $4x$, said second shift register also being divided into two parts each identical to said first shift register, said syndrome register consisting of at least $7x$ cells whose taps are disposed at the same intervals as in the first part of said first shift register, the taps being arranged in the inverted mirror image of said first shift register with respect to the transfer direction.

4,317,203

COLLATOR ERROR RECOVERY

Anthony J. Botte; James H. Hubbard, both of Boulder; Wayne E. Robbins, Longmont, all of Colo., and Paul R. Spivey, Clark County, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 19, 1979, Ser. No. 77,064

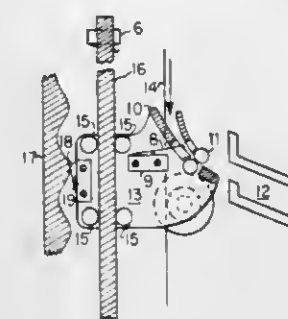
Int. Cl.³ G06F 11/00; B65H 29/60

U.S. Cl. 371—60

9 Claims

1. In sheet collator apparatus having a plurality of bin means

for receiving sheets and directing means for directing a sheet into one of said bin means, the improvement comprising: first switch means for supplying a first signal indicating that a sheet has entered one of said bin means;



second switch means coupled to said directing means for supplying a second signal indicating that said directing means is operably disposed at one of said bin means; and detector means responsive to said first and second signals for detecting an error in the operation sequence of said sheet collator apparatus.

4,317,204

SPREAD SPECTRUM CONFERRING COMMUNICATION SYSTEM

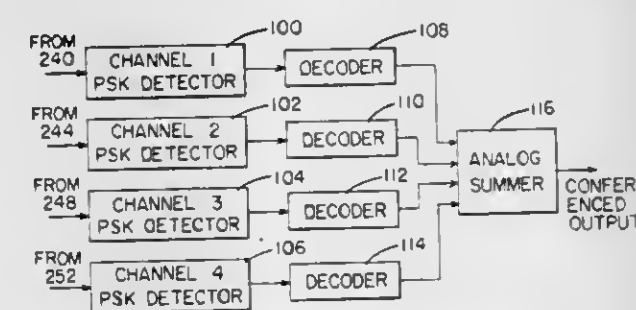
Robert S. Gordy, Largo; David E. Sanders, St. Petersburg, and Ramon P. Chambers, Clearwater, all of Fla., assignors to NCR Corporation, Dayton, Ohio

Filed Jun. 4, 1976, Ser. No. 693,036

Int. Cl.³ H04B 1/10

U.S. Cl. 375—1

15 Claims



1. A multiple subscriber random access spread spectrum conferring communication system comprising: means for receiving spread spectrum messages in a plurality of channels; means for detecting said messages and for generating a first signal in each channel in response thereto; correlation means associated with each channel for correlating said messages with a pseudonoise sequence and for generating a control signal in response thereto; multiplexing means for assigning a particular channel to said message when said first signal and said control signal in one channel are time coincident and for locking out said other channels not having said time coincidence from said message; and means associated with each of said channels for decoding said message.

4,317,205

WIDEBAND TRANSCEIVER WITH EMI SUPPRESSION

Tat C. Lam, Fremont, Calif., assignor to TCL, Inc., Santa Clara, Calif.

Filed Jun. 13, 1980, Ser. No. 159,364

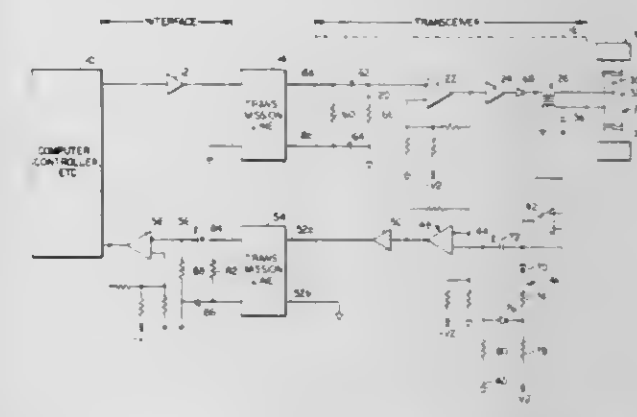
Int. Cl.³ H04B 1/38

U.S. Cl. 375—7

7 Claims

1. A data communication transceiver for transmitting signals to a communicating medium and receiving signals therefrom which are generated by another transceiver, the transceiver comprising

an input terminal, first short time constant differentiation means connected to the input terminal to differentiate signals applied thereto and produce a first differentiated output signal, Schmitt trigger means supplied with the differentiated output signal for producing a corresponding first square wave output signal, first driver means supplied with the square wave output for supplying it to the communicating medium, amplifying means for receiving signals from the communi-



cating medium and for producing an amplified output therefrom, second short time constant differentiation means supplied with the amplified output signal for differentiating it and for producing a second differentiated signal, second Schmitt trigger means supplied with the second differentiated signal for producing a corresponding second square wave signal, an output terminal, and second driver means supplied with the second square wave signal for supplying it to the output terminal.

4,317,206

ON LINE QUALITY MONITORING

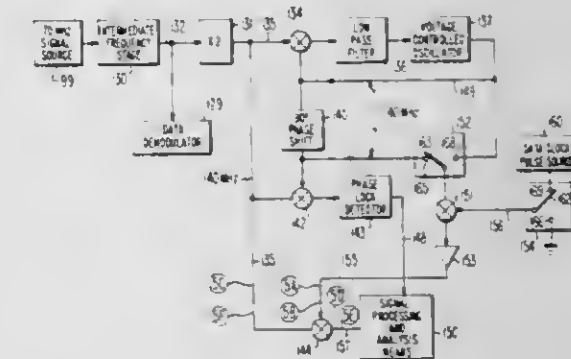
Edward J. Nossen, Cherry Hill, N.J., assignor to RCA Corporation, New York, N.Y.

Filed May 12, 1980, Ser. No. 148,994

Int. Cl.³ H03K 13/32; H04Q 1/20

U.S. Cl. 375—10

9 Claims



3. A system for on-line detection of distortion in a received digital signal which is phase modulated at a data rate f_d and which has a suppressed carrier signal of frequency f_c , without interrupting the signal, and comprising: first means for multiplying the digital signal by itself N times to produce a first signal comprising a reconstructed carrier signal of frequency Nf_c and phase ϕ_1 and distortion produced upper and lower sidebands; second means for generating a second signal of frequency Nf_c ; means for generating a clock signal of frequency f_d ; control means for mixing said second signal with said clock signal to produce a third signal; said control means further constructed to mix said second

signal and said third signal with said first signal to produce d.c. voltages defining said distortion.

4,317,207

DATA TRANSMISSION SYSTEM

Noriaki Fujimura, Tokyo; Tsuneo Kinoshita, Inagi; Tadashi Aono, Kawasaki; Takashi Kaku, Kawasaki, and Yasuya Tanaka, Kawasaki, all of Japan, assignors to Nippon Telegraph and Telephone Public Corporation, and Fujitsu Limited, both of Japan

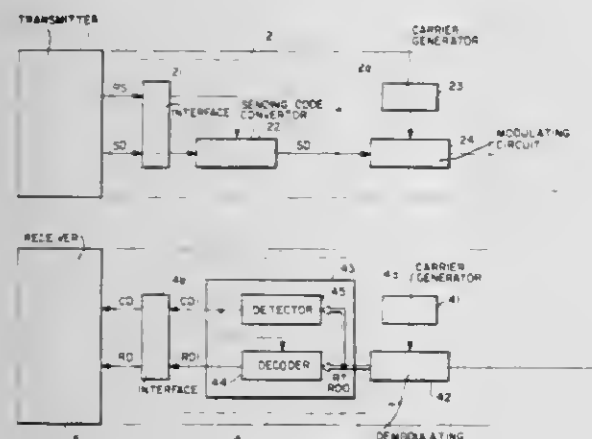
Filed Mar. 3, 1980, Ser. No. 126,527

Claims priority, application Japan, Mar. 2, 1979, 54-24257

Int. Cl.³ H04L 27/49

U.S. Cl. 375-19

14 Claims



1. A data transmission system comprising: a transmitter for generating a carrier signal and for generating a modulated carrier signal wherein said carrier signal is modulated in accordance with a sending data signal during a communication period; a transmission line, coupled to said transmitter, for providing said modulated carrier signal; a receiver, coupled to the transmission line, for demodulating said modulated carrier signal to provide a receiving data signal; said transmitter inverts specified bits of said sending data in accordance with a sending request signal and modulates the carrier signal with the sending data signal including the bit inverted data; said receiver regenerates the data in the sending data signal including said bit inverted data, detects that said bit inverted data exists, and decodes said bit inverted data if said bit inverted data is detected.

4,317,208

ADPCM SYSTEM FOR SPEECH OR LIKE SIGNALS
Takashi Araseki, and Kazuo Ochiai, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

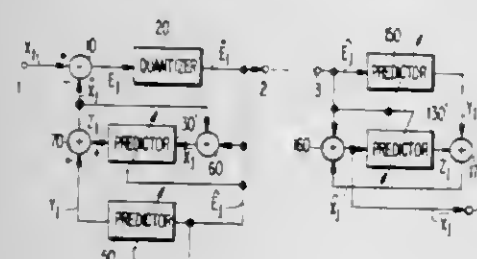
Filed Sep. 28, 1979, Ser. No. 79,724

Claims priority, application Japan, Oct. 5, 1978, 53-123255

Int. Cl.³ H04L 25/16

U.S. Cl. 375-27

12 Claims



3. A receiver for an ADPCM system including a receive decoder, said receive decoder comprising: receive prediction means, having no feedback loop, for

receiving output signals E_j from a quantizer in a transmitter and for generating therefrom receive predicted values X_j ; and an adder receiving as inputs said quantizer output signals and said receive predicted values and combining them to produce a reproduction signal X_j .

4,317,209

FSK TONE GENERATOR CIRCUIT

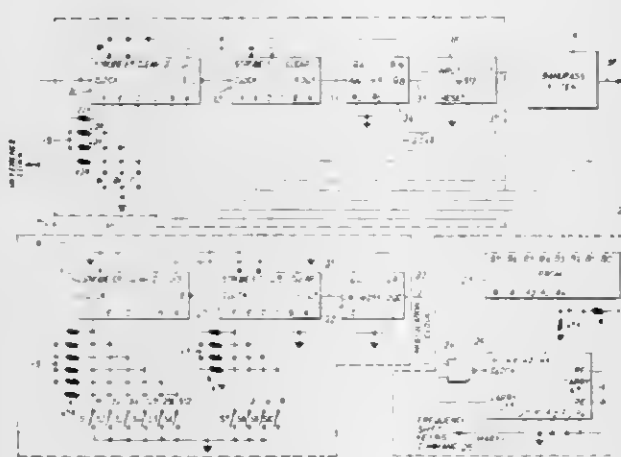
Julius A. Bartelme, Woodsboro, Md., assignor to Frederick Electronics Corp., Frederick, Md.

Filed Dec. 4, 1979, Ser. No. 100,057

Int. Cl.³ H04L 27/12; H04J 1/00

U.S. Cl. 375-62

28 Claims



21. A tone generator circuit for use in a frequency shift keying unit in which bits of data are transmitted as a series of marks and spaces, each bit transmitted during a predetermined bit time, and where the marks and spaces are represented by two different sinusoidal tone frequencies, said keying unit having a reference clock signal, the tone generator circuit generating a predetermined sequence of discrete intermediate tone frequencies during the frequency shifts for mark-to-space and space-to-mark transitions, the circuit comprising:

- (a) a frequency code generator, for generating a sequence of digital code words, each code word having a least significant bit (LSB), and each code word representing a tone frequency to be generated;
- (b) a multiplier responsive to the code words and the reference clock signal, for generating the tone frequencies, said multiplier cooperating with the sequence of code words to generate symmetrical sequences of discrete intermediate tone frequencies in the sequences of the markspace frequency shifts, and where changes in the intermediate frequencies are in increments of frequency with one increment equal in magnitude to the change in tone frequency resulting from a change in only the LSB of a code word; and
- (c) a filter, for converting the digital tone frequency signals into sinusoidal tone frequencies.

4,317,210

COHERENT RECEIVER FOR ANGLE-MODULATED DATA SIGNALS

Cornelis B. Dekker, Torrance, Calif., and Klaas M. Boschma, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 18, 1980, Ser. No. 141,543

Claims priority, application Netherlands, Feb. 13, 1980, 8000883

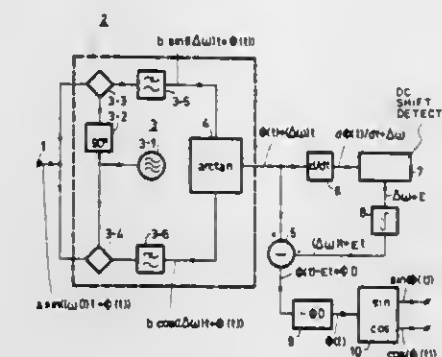
Int. Cl.³ H04L 25/10; H03D 3/20

U.S. Cl. 375-76

6 Claims

1. A receiver for angle-modulated data signals of the type $\sin((\omega)t + \phi(t))$, where ω represents the carrier frequency and $\phi(t)$ the data-dependent angle modulation of the carrier, comprising a demodulation channel having an output for a signal which is a function of the modulation signal $\phi(t)$, the demodulation channel comprising a frequency transposition stage for providing an output signal proportional to $\sin((\Delta\omega)t + \phi(t))$

comprising a local carrier oscillator having a frequency which may deviate by an amount $(\Delta\omega)$ from the carrier frequency of the angle-modulated signals applied to the demodulation channel, characterized in that the receiver comprises a frequency discriminator for providing, in response to the output signal of the frequency transposition stage, a signal proportional to



$[d\phi(t)/dt + \Delta\omega]$; a DC-shift detector for providing, in response to the output signal of the frequency discriminator, a signal proportional to $\Delta\omega$ and means for providing, in response to the output signal of the frequency transposition stage and the output signal of DC-shift detector, a signal which is proportional to $\phi(t)$.

4,317,211

MANCHESTER CODE DECODING APPARATUS

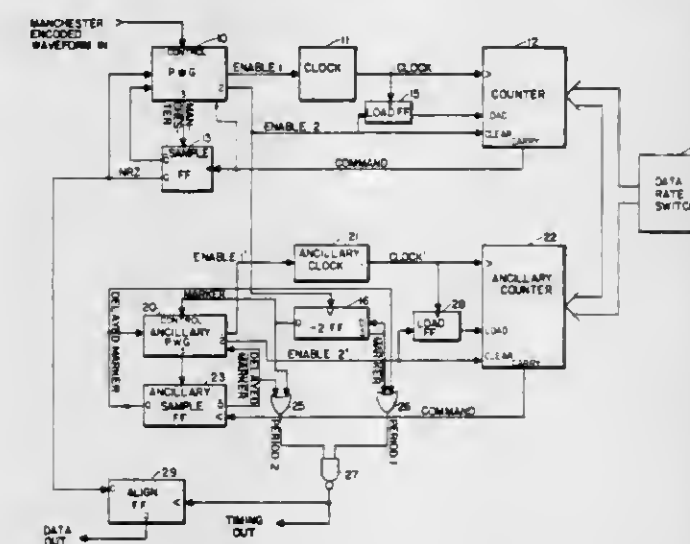
Harris A. Quesnell, Jr., San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jun. 2, 1980, Ser. No. 155,281

Int. Cl.³ H03K 13/175

U.S. Cl. 375-87

13 Claims



1. An apparatus for decoding a Manchester encoded waveform containing data and timing components, comprising: gating means responsive to the encoded waveform and coupled to receive a signal representing data decoded from the encoded waveform for providing, at each mid-cell transition in the encoded waveform, a first enabling signal and a second enabling signal, each enabling signal representing pulse widths contained in the encoded waveform; means coupled to receive the first enabling signal and responsive thereto for providing a primary clock signal having a frequency exceeding the frequency of the encoded waveform; means coupled to the clock means for counting clock oscillations and coupled to receive the second enabling signal and responsive thereto for producing a command signal upon reading a predetermined clock count magnitude; means coupled to receive the command signal and responsive thereto for sampling the state of the encoded wave-

form and for storing the sample to provide a signal representing data decoded from the encoded waveform.

4,317,212

ARRANGEMENT FOR CHECKING THE SYNCHRONIZATION OF A RECEIVER

Petrus J. Van Gerwen, and Wilfred A. M. Snijders, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

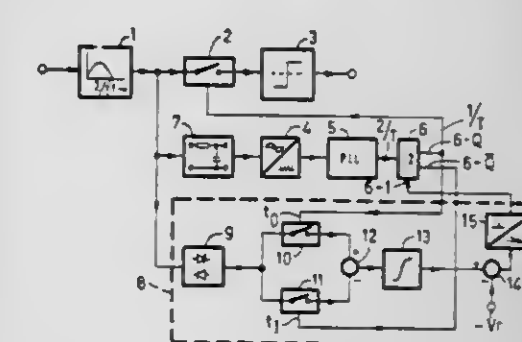
Filed Mar. 26, 1980, Ser. No. 134,035

Claims priority, application Netherlands, Apr. 20, 1979, 7903100

Int. Cl.³ H04L 7/06

U.S. Cl. 375-113

1 Claim



1. An arrangement for checking the synchronization of a receiver for data signals having a spectrum comprising two sidebands located on each side of a symbol frequency, characterized in that said arrangement comprises means for sampling the amplitude of the data signal at two synchronous instants during each symbol interval, said synchronous instants being separated by a half a symbol interval, an integrator, means for applying said sample data, taken at each of said synchronous instants, with opposite polarity, respectively, to said integrator, and means for deriving a check signal from said integrator output indicative of the synchronization of said receiver.

4,317,213

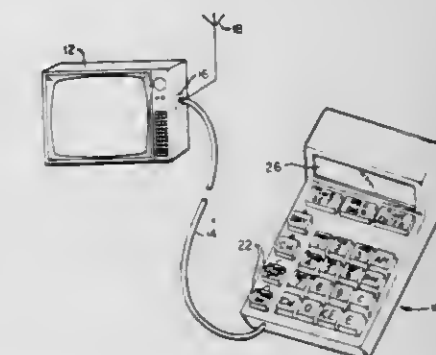
TELEVISION RECEPTION INTERFERING APPARATUS
Mark DiLorenzo, 5812 W. Moreland Cir., Westminster, Calif. 92683

Filed May 9, 1980, Ser. No. 148,113

Int. Cl.³ H04K 3/00

U.S. Cl. 455-1

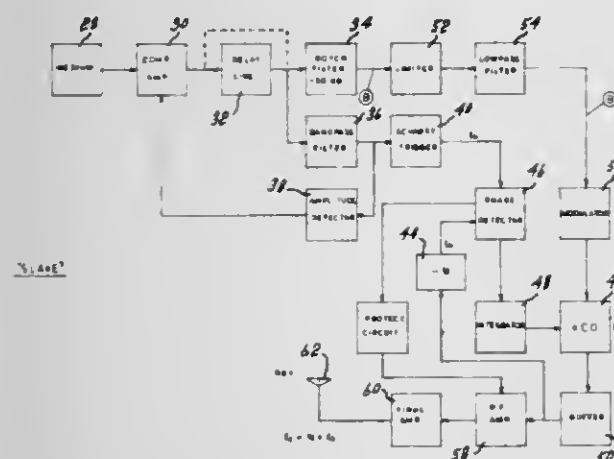
9 Claims



1. Apparatus for selectively interfering with reception of a radio frequency carrier signal by a receiver during predetermined time periods selectable by a user, each of said time periods commencing at a first predetermined time and terminating at a second predetermined time, the receiver being of the type having antenna input terminals for receiving said radio frequency carrier signal, the apparatus comprising: means coupled to the antenna input terminals for generating a radio frequency signal substantially equal to the radio frequency carrier signal; means presettable by the user for selecting and providing

generating a pilot frequency signal comprising a precision oscillator, a frequency divider connected to the output of said precision oscillator for generating said pilot frequency signal and a band pass filter for eliminating the harmonics of said pilot frequency signal, and wherein the means for generating said audio signal further comprises a compressor amplifier for limiting the amplitude and frequency band of said message signal within predetermined limits, a notch filter connected to the output of said compressor amplifier for withdrawing from said message signal all frequencies substantially equal to said pilot frequency signal thus creating a protected audio band slot, a mixer for inserting said pilot frequency signal into said protected audio band slot, and an output amplifier for testing the level of the audio signal depending on the medium it is transmitted through; and

(b) at least two slave stations adapted to receive the audio signal transmitted over said medium and each including a radio frequency generator of the phase locked loop type and means for isolating the pilot frequency signal from the audio signal and for synchronising the frequency of the radio frequency generator with said pilot frequency signal, wherein said last named means comprises a band pass filter for filtering said pilot frequency signal from the audio signal, a square wave generator connected to the output of said band pass filter for generating a square wave signal corresponding to the frequency of said pilot frequency signal and applying it to the phase locked loop



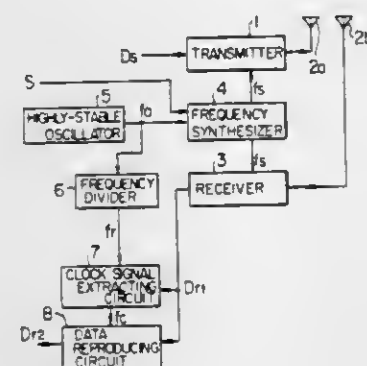
of the audio signal between the master station and each of the slave stations.

4,317,221
MOBILE DATA RECEIVING SYSTEM
Mitsuo Toya, Fujisawa, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Jan. 23, 1980, Ser. No. 114,689
Claims priority, application Japan, Jan. 24, 1979, 54-6089
Int. Cl.³ H04B 1/38

U.S. Cl. 455—76

6 Claims



1. In a transmitter/receiver using a frequency synthesizer coupled to a transmitter and a receiver, a mobile data receiving system comprising a highly-stable oscillator coupled to said frequency synthesizer for producing a fundamental frequency for said frequency synthesizer, a frequency divider coupled to said highly stable oscillator for dividing an output frequency of said oscillator, a clock signal extracting circuit coupled to outputs of said receiver and said frequency divider for extracting a clock signal from the outputs of said frequency divider and receiver, and a data reproducing circuit coupled to outputs of said receiver and said clock signal extracting circuit for reproducing a clock signal obtained by said clock signal extracting circuit and a data signal obtained by said receiver to thereby reproduce digital data received by said receiver.

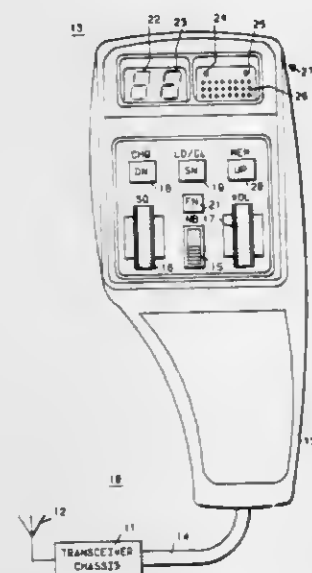
4,317,222 **TRANSCIVER/RECEIVER INFORMATION MULTIPLEXING SYSTEM**

Robert R. Bell, Libertyville, Ill., and Scott T. Christians, Seguin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 31, 1979, Ser. No. 108,433
Int. Cl.³ H04B 1/40

U.S. Cl. 455—77

14 Claims



1. A transceiver/receiver information multiplexing system comprising:
transceiver/receiver means having a main chassis and a

radio frequency generator, the latter comprising a voltage controlled oscillator generating a carrier frequency signal which is a predetermined multiple of said pilot frequency signal, a frequency divider connected to the output of said voltage controlled oscillator for providing an output signal corresponding to the frequency of said pilot frequency signal, a phase detector connected to said frequency divider and to said square wave generator for comparing the phase of the output signal of said frequency divider with that of said pilot frequency signal, an integrator connected to the output of said phase detector for generating a D.C. voltage corresponding to the phase difference between the output signal of the frequency divider and that of the pilot frequency signal and applying said voltage to said voltage controlled oscillator for reducing said phase difference to zero, a notch filter connected in parallel with said band pass filter for withdrawing the pilot frequency signal from the audio signal transmitted by the master station to recover the message signal, a limiter connected to the output of the notch filter for limiting the frequency variations of the message signal within prescribed limits, a low pass filter connected to the output of the limiter to eliminate all frequencies of the message signal higher than 3000 Hz, and a modulator interconnecting the low pass filter and the voltage controlled oscillator for modulating the carrier frequency signal with the message signal; and

(c) a delay line connected to the input of each slave station for compensating for the difference in propagation times

remotely located control unit coupled to the main chassis by a multiwire cable;
manually adjustable control means located on said remote control unit for adjusting the amplitude of an analog control signal for said transceiver/receiver to more than three possible amplitudes;

digital means for producing a multiple bit digital code representative of a quantity other than the amplitude of said analog control signal;

multiplexing means, including multiplexer switching circuits in each of said remote control unit and said main chassis, for periodically selectively coupling said manual control means and said digital means to said cable for serially and sequentially periodically transmitting said digital code and said analog signal amplitude on a single data conductor between said multiplexer switching circuits in said remote control unit and said main chassis; and

circuitry means located in said main chassis and coupled to said cable for periodically receiving said multiplexed analog control signal amplitude and in response thereto maintaining a fixed signal amplitude representative of the received amplitude of said analog control signal until the next periodic reception of said analog control signal amplitude, wherein said analog amplitude receiving and maintaining circuitry means in said main chassis comprises a high input impedance driving device having a control electrode coupled to a capacitor which is coupled to one of said multiplexer switching circuits and receives signals therefrom and stores an amplitude corresponding to the amplitude of said analog control signal, said fixed signal amplitude being obtained from an output terminal of said high input impedance device, said stored amplitude remaining fixed until the next reception of said analog control signal by said main chassis, whereby providing an analog to digital encoder at said remote control unit to translate said analog control signal into a digital code similar to the transmitted multiple bit digital code is avoided and a fixed signal amplitude is available for control purposes at said main chassis between periodic receptions of the multiplexed analog control signal by said main chassis.

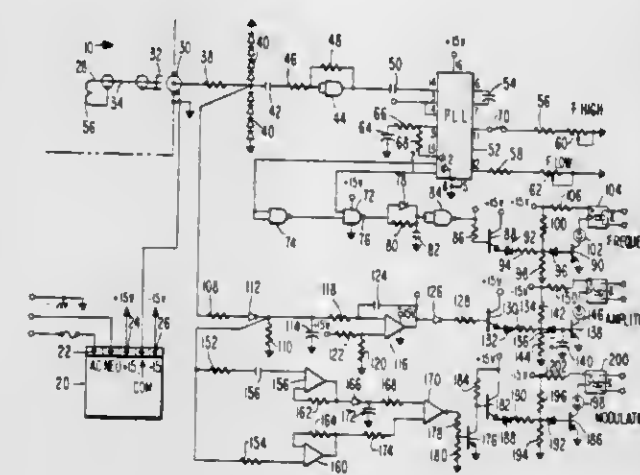
4,317,223
RF GENERATOR MONITOR CIRCUIT
Felta C. Farmer, Jr., Gas City, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Jul. 29, 1980, Ser. No. 173,413

Int. Cl.³ H04B 17/00

U.S. Cl. 455—115

7 Claims



1. An RF generator monitor circuit for checking for variation in frequency of an RF generator outside predetermined limits, said circuit including
means for sampling the output of an RF generator,
means for clamping the sampled R.F. signal to prevent damage to the circuit from an exceptionally strong signal,

means for converting the clamped sample signal to a positive going square wave and for amplifying the square wave, a phase locked loop integrated circuit having the amplified square wave as an input, said phase locked loop integrated circuit including a linear voltage-controlled oscillator and two different phase comparators, said phase locked loop integrated circuit including connections for comparing in both phase comparators, the input square wave signal with the voltage controlled oscillator output, for producing an error voltage proportional to phase differences in at least one of said phase comparators, and for using the at least one error voltage as a control for the voltage controlled oscillator,

whereby when the input square wave signal is within the predetermined frequency limits the at least one error voltage causes the voltage controlled oscillator to be adjusted to a frequency equal to that of the input signal and when said input signal is outside the predetermined limits said phase comparators providing error voltages as output signals indicative thereof.

4,317,224
OIL-COOLED RADAR TRANSMITTER APPARATUS
Karl Neher, Zürich, Switzerland, assignor to Siemens-Albis AG, Zürich, Switzerland

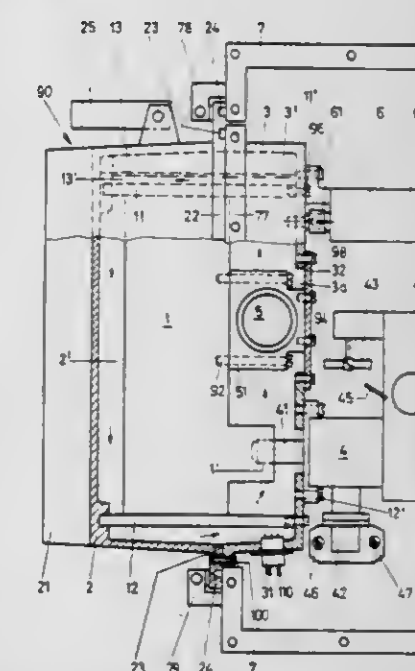
Filed Jul. 14, 1980, Ser. No. 168,584

Claims priority, application Switzerland, Aug. 7, 1979, 7228/79

Int. Cl.³ H04B 1/03

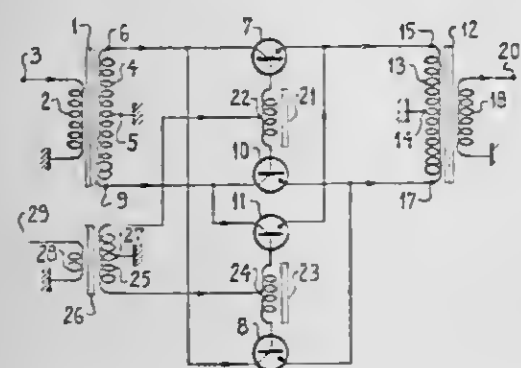
U.S. Cl. 455—128

6 Claims



1. A radar transmitter apparatus comprising:
a radar transmitter;
said radar transmitter containing:
a substantially trough-shaped housing filled with oil;
a modulator arranged within said oil-filled housing;
means for mounting said modulator within said housing so as to form therein an intermediate space for the convection flow of the oil;
a substantially trough-shaped cover member for closing said trough-shaped housing;
said housing and said cover member forming therein an internal chamber containing the oil;
a magnetron having a dome;
means for attaching said magnetron to said cover member;
means for securing said modulator at the dome of said magnetron;
said cover member having an opening; a thyatron;
means for mounting said thyatron directly below said opening at said cover member;

ing having first and second ends and a center-tap, the center-tap being coupled to circuit ground; first, second, third, and fourth transistors, the collectors of the first and the third transistors being connected to the first end of the secondary winding of the first transformer, the collectors of the second and the fourth transistors being connected to the second end of the secondary winding of the first transformer, the emitters of the first and the fourth transistors being connected to the first end of the primary winding of the second transformer, the emitters of the second and the third transistors being connected to the second end of the primary winding of the second transformer;



a symmetrical device for generating a local oscillating signal and having two outputs;
a first choke, having (a) a high coupling factor among the turns thereof, (b) a center tap coupled to one of the outputs of the symmetrical generating device and (c) two ends;
a second choke, having (a) a high coupling factor among the turns thereof, (b) a center-tap coupled to the other of the two outputs of the symmetrical generating device and (c) two ends; the two ends of the first choke supplying in phase the bases of the first and second transistors, respectively, the two ends of the second choke supplying in phase the bases of the third and fourth transistors, respectively.

4,317,231

MICROWAVE CIRCUIT FOR A PARAMETRIC UPPER SIDE BAND DOWN CONVERTER

Robert Maurer, Saarbrücken, and Walter Schau, Dudweiler, both of Fed. Rep. of Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Fed. Rep. of Germany

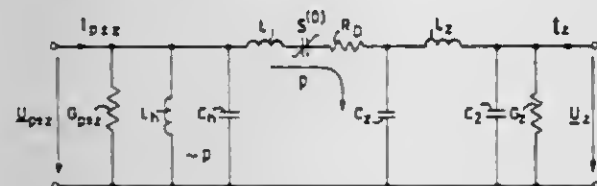
Filed Jan. 18, 1980, Ser. No. 113,265

Claims priority, application Fed. Rep. of Germany, Jan. 18, 1979, 2901782

Int. Cl.³ H04B 1/26; H03F 7/04

U.S. Cl. 455—330

6 Claims



1. In a microwave circuit for a parametric upper sideband down converter with real image frequency termination conductance, including a pump circuit supplying a pump signal, a parallel circuit at its input, an intermediate frequency circuit at its output, and a reactance diode coupling the parallel circuit and intermediate frequency circuit together, the improvement wherein said parallel circuit is tuned approximately to the frequency of said pump signal; said intermediate frequency circuit comprises a π filter composed of a series branch containing a first inductance connected in series between said diode and the output of said microwave circuit, a first shunt branch located between said diode and said inductance and

containing a first capacitance and a second shunt branch located between said inductance and the output of said microwave circuit and containing a second capacitance; said microwave circuit further comprises a second inductance connected in series with said reactance diode; and the portion of said microwave circuit constituted by said diode, said second inductance and said first capacitance is tuned to the frequency of said pump signal.

4,317,232

FIBER OPTIC SIGNAL CONDITIONING CIRCUIT

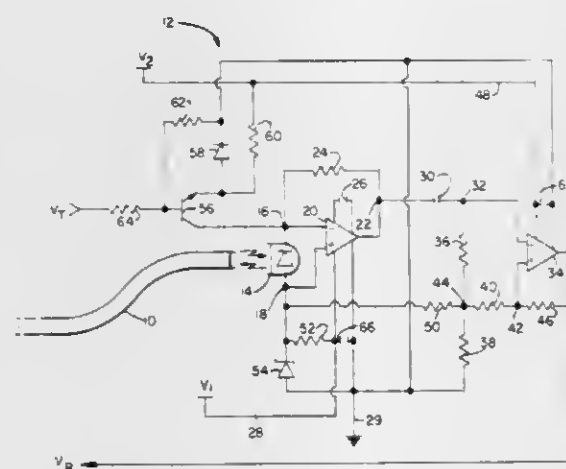
Terence D. Pickett, Waterloo, and Charles W. Formwalt, Jr., Cedar Falls, both of Iowa, assignors to Deere & Company, Moline, Ill.

Filed Jan. 12, 1979, Ser. No. 2,845

Int. Cl.³ H04B 9/00

U.S. Cl. 455—606

21 Claims



1. In a data transmission system capable of high speed data communication including a medium for transmitting signals in the form of light, a circuit selectively alternating between transmit and receive modes for receiving the light signals and converting them to electrical signals and for producing light signals from a source of electrical transmit signals and transmitting said light signals through the medium, the circuit comprising:

a single light emissive semiconductor element optically coupled to the medium and including a pair of terminals, the element producing a light output when a current of a first polarity is provided between the terminals and alternately producing an output current flow between the terminals when the light signals impinge upon the element; and

circuit means connected to the element terminals for producing the light transmission signals from the electrical transmit signals and, alternately, the electrical signals from the received light signals, said circuit means comprising: an amplifier having a pair of inputs connected to the respective terminals during both the transmit and receive modes of circuit operation and responsive to the output current flow during the receive mode to provide an output signal indicative of the light signals received from the medium; and

current means connected in series with the semiconductor element during both the transmit and receive modes of circuit operation and responsive to the presence of an electrical transmit signal from the source for automatically selecting the transmit mode of operation and providing the current between the terminals to produce the light signals to be transmitted, wherein in the absence of an electrical transmit signal from the source the receive mode of operation is automatically selected.

4,317,233

TELEPHONE SUBSCRIBER STATION

Gerhard Kunde, Munich; Siegfried Schoen, Starnberg, and Herwig Trimmel, Puchheim, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

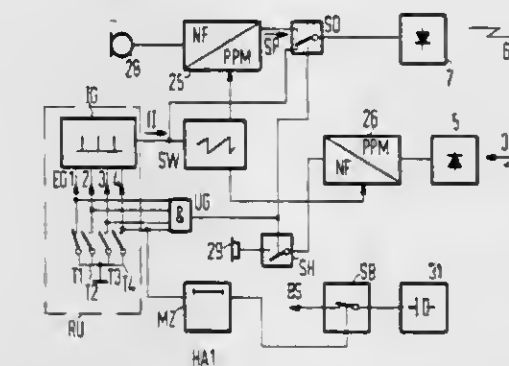
Filed Oct. 16, 1980, Ser. No. 197,561

Claims priority, application Fed. Rep. of Germany, Oct. 30, 1979, 2943867

Int. Cl.³ H04B 9/00

U.S. Cl. 455—606

11 Claims



1. In a telephone subscriber station of the type which has a cordless hand set and a base set for connection to a telephone network, a first transmission path including a first low frequency/pulse phase modulation converter and a first infrared transmitter in the base set connected via a first optical channel to a first infrared pulse receiver and a first pulse phase modulation/low frequency converter in the hand set, and a second transmission path including a second low frequency/pulse phase modulation converter and a second infrared transmitter in the hand set connected via a second optical channel to a second infrared receiver and a second pulse phase modulation/low frequency converter in the base set in which first and second sawtooth generators are provided in the base set and hand set, respectively connected to drive the two converters of the respective base and hand sets, in which a phase synchronization circuit is provided in the base set connected between the second pulse phase modulation/low frequency converter and the first sawtooth generator for phase synchronization, and in which a calling device is provided in the hand set connected to the second low frequency/pulse phase modulation converter, the improvement comprising:

a controllable pulse generator in the calling device operable to drive the second low frequency/pulse phase modulation converter and second infrared transmitter to produce a plurality of pulse frequencies, each representing a respective special character; and a frequency recognition circuit in the base set connected to the second infrared receiver, including a plurality of outputs, and operable to emit a signal on a respective output in response to the received pulse frequency.

4,317,234

TELEPHONE SUBSCRIBER STATION

Gerhard Kunde, Munich, and Siegfried Schoen, Starnberg, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Oct. 16, 1980, Ser. No. 197,562

Claims priority, application Fed. Rep. of Germany, Oct. 30, 1979, 2943866

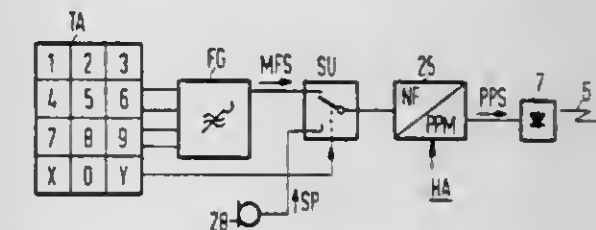
Int. Cl.³ H04B 9/00

U.S. Cl. 455—606

4 Claims

1. In a telephone subscriber station of the type in which a base set and a cordless hand set are coupled via first and second transmission paths, in which the first transmission path comprises a first low frequency/pulse phase modulation converter driving a first infrared transmitter in the base set, and a first infrared receiver coupled to the first infrared transmitter via a first optical channel and driving a first pulse phase modulation/low frequency converter in the hand set, in which the

second transmission path comprises a second low frequency/pulse phase modulation converter driving a second infrared transmitter in the hand set and a second infrared receiver coupled to said second infrared transmitter via a second optical channel and driving a second pulse phase modulation/low frequency converter in the base set, in which the base set and the hand set include respective sawtooth generators connected to their respective converters and the base set includes a synchronizing circuit connected between the second pulse phase modulation/low frequency converter and the respective sawtooth generator, and in which a signaling device is provided in



the hand set and connected to the second low frequency/pulse phase modulation converter, the improvement wherein: the signaling device comprises

a selection device operable to produce selection signals corresponding to calling characters and special function characters; and a frequency generator connected to said selection device and to said second low frequency/pulse responsive phase modulation converter and responsive to a selection signal to produce a corresponding multifrequency signal for conversion and transmission to the base set for reconversion by the second pulse phase modulation/low frequency converter.

4,317,235

SYSTEM FOR TRANSMITTING OPTICAL BINARY DATA SIGNALS THROUGH AN OPTICAL FIBER WITH PILOT PULSES INSERTED BETWEEN TWO WIDE SPACED SUCCESSIONS OF DATA SIGNALS

Kazumasa Tsukada, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed May 7, 1980, Ser. No. 147,685

Claims priority, application Japan, May 10, 1979, 54-57498

Int. Cl.³ H04B 9/00

U.S. Cl. 455—607

5 Claims



1. An optical data transmission system comprising a transmitter and a receiver, said transmitter and said receiver being coupled to an optical fiber, said transmitter being for transmitting data as an optical binary signal (D) to said receiver through said optical fiber;

said transmitter comprising: delay means for giving a predetermined delay (t_1) to an input binary signal (A) taking a first and a second level at a time depending on said data to produce a delayed binary signal (A') comprising a first and a second portion having a third and a fourth level and derived with said predetermined delay from those portions of said input binary signals which have said first and said second levels, respectively; pilot pulse generating means responsive to said input binary signal for generating a sequence (B) of pilot pulses at a preselected pulse interval (t_2), each pilot pulse having a preselected pulse width (t_3) not wider than a half of said pulse interval, a leading edge varying from one to the other of said third and said fourth levels, and a trailing

edge varying from said other to said one of the third and the fourth levels and being generated only when that portion of said input binary signal which has said first level lasts not shorter than a sum of said pulse interval and said pulse width after either of a leading edge of the last-mentioned portion or the trailing edge of a pilot pulse next preceding said each pilot pulse, said predetermined delay being shorter than a half of said pulse interval and longer than said pulse width;

logic circuit means for combining said pilot pulse sequence and said delayed binary signal to produce an electrical binary driving signal comprising said first and said second portions with a pilot pulse component superposed with said fourth level on the first portion lasting longer than said sum only during presence of each pilot pulse, said pilot pulse component disappearing when the pilot pulse coexists with said second portion; and

electrooptical converter means for converting said driving signal to said optical binary signal with said optical binary signal given a fifth level when said driving signal has said fourth level;

said receiver comprising:

optoelectrical converter means for converting the optical binary signal received through said optical fiber to a received electrical signal (E) given a sixth level substantially when the received optical binary signal has a seventh level corresponding to said fifth level;

shaping means for shaping said received electrical signal into a received binary signal (F) with reference to those portions of said received electrical signal which have said sixth level, said received binary signal comprising a data signal component and a received pilot pulse component resulting from the second portion and the pilot pulse component comprised by said electrical driving signal; and

received pilot pulse component removing means responsive

to said received binary signal for removing therefrom said received pilot pulse component to produce a reproduction (G) of said input binary signal.

4,317,236

LASER DIGITAL TRANSMITTER

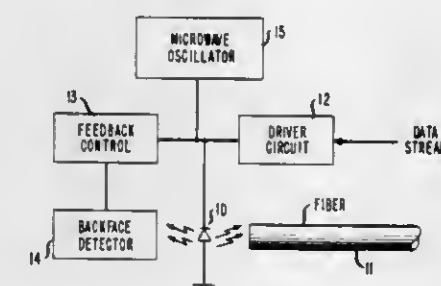
Fridolin L. Bosch, Bethlehem; Gay L. Dybwad, Emmaus, and Clarence B. Swan, Allentown, all of Pa., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Feb. 25, 1980, Ser. No. 123,953

Int. Cl.³ H01S 3/18

U.S. Cl. 455—608

14 Claims



1. A method for operating a single mode solid state injection laser to produce a digital light output in a fiber optic system comprising the step of applying to said laser a signal in the form of pulses including the desired digital information, characterized in that a microwave modulation current having a frequency at least five times the pulse rate of the digital signal is superimposed on said digital signal to essentially eliminate modal noise from the light output in the fiber.

DESIGN PATENTS

GRANTED FEB. 23, 1982

ERRATA

For	See
CLASS	PATENT NO.
D34-006	263,109
D34-014	263,126
D34-018	263,127
D34-031	263,128

DESIGNS

FEBRUARY 23, 1982

263,090

JUVENILE DRESS

Shirley H. Digiandomenico, 72 Barton Rd., Wellesley Hills, Mass. 02181; Mary P. S. Gilmore, deceased, late of Auburn-dale, Mass., and by Thomas L. Gilmore, administrator, Ja-maica Plain, Mass.

Filed Jun. 12, 1978, Ser. No. 914,567

Term of patent 14 years

Int. Cl. D2—02

U.S. Cl. D2—81



263,091

RACQUETBALL HELMET

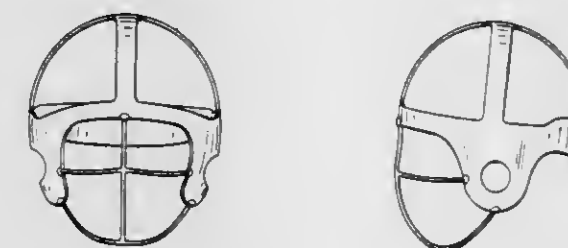
Richard C. Booth, P.O. Box 12639, Tallahassee, Fla. 32308

Filed Jan. 26, 1979, Ser. No. 6,600

Term of patent 14 years

Int. Cl. D2—03

U.S. Cl. D2—231



263,092

VISORED HEADGEAR

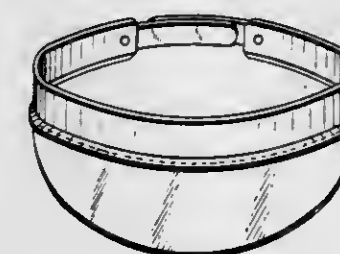
William L. Fay, Wellesley Hills, Mass., assignor to Visor-Trac, Inc., Rockville Center, N.Y.

Filed Mar. 6, 1978, Ser. No. 884,023

Term of patent 14 years

Int. Cl. D2—03

U.S. Cl. D2—241



263,093

SUPPORT FOR AN EAR PROTECTOR

Bo G. Lönnstedt, Almvägen 5, S-191 41 Sollentuna, Sweden

Filed Sep. 24, 1979, Ser. No. 78,024

Claims priority, application Sweden, Apr. 5, 1979, 79-0876

Term of patent 14 years

Int. Cl. D2—03

U.S. Cl. D2—259



263,094

HEEL FOR LADIES' SHOE

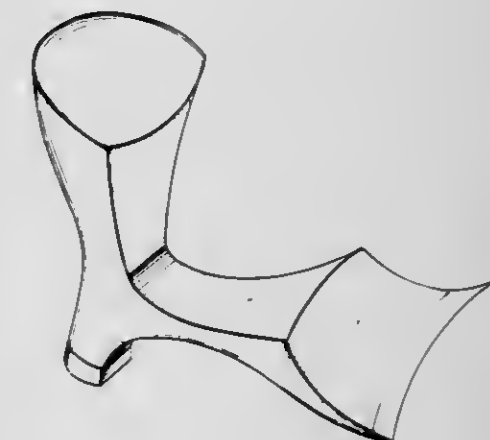
Jean Mazabras, Romans, France, assignor to Societe des Chaussures Seducta Charles Jourdan & Fils, Romans, France

Filed Aug. 30, 1979, Ser. No. 71,410

Term of patent 14 years

Int. Cl. D2—04

U.S. Cl. D2—324



263,095

CARRYING CASE FOR DOCUMENTS OR THE LIKE

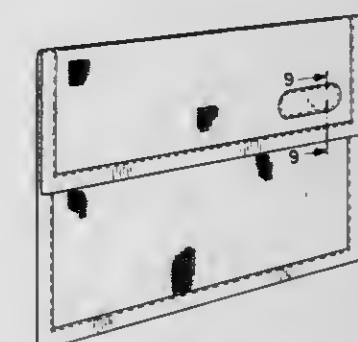
Michel Wajs, and Helene Wajs, both of Rue de Fiennes 61, 1070 Bruxelles, Belgium

Filed Jun. 18, 1979, Ser. No. 49,479

Term of patent 14 years

Int. Cl. D3—01

U.S. Cl. D3—52



263,096
HAIR BRUSH

Jean L. Wachtel, Selestat, France, assignor to Celluloid S.A., France

Filed Nov. 14, 1979, Ser. No. 94,324

Claims priority, application France, May 15, 1979, 79 174

Term of patent 14 years

Int. Cl. D4—02

U.S. Cl. D4—35



263,098
ARMCHAIR OR SIMILAR ARTICLE

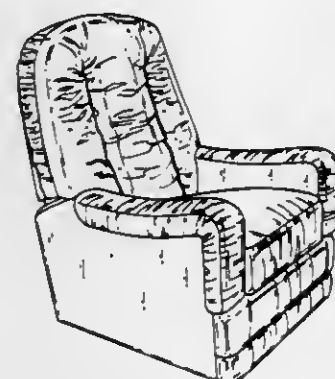
Stapleton Long, Morristown, Tenn., assignor to The Berkline Corporation, Morristown, Tenn.

Division of Ser. No. 17,363, Mar. 5, 1979. This application Oct. 20, 1980, Ser. No. 199,073

Term of patent 14 years

Int. Cl. D6—01

U.S. Cl. D6—37



263,099
TOWEL RACK

Bruce R. Thompson, Tranmere, Australia, assignor to UPL Group Limited, Brisbane, Australia

Filed Feb. 22, 1980, Ser. No. 123,556

Term of patent 14 years

Int. Cl. D23—02

U.S. Cl. D6—99



263,100
LOCKABLE DRAWER UNIT

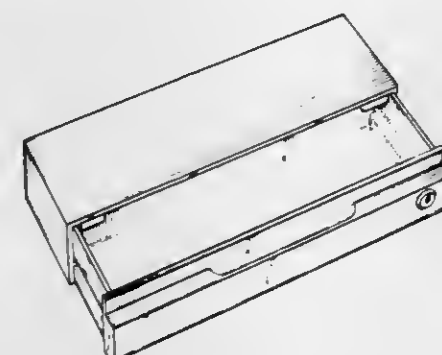
Bruce R. Thompson, Tranmere, Australia, assignor to UPL Group Limited, Brisbane, Australia

Filed Feb. 13, 1980, Ser. No. 121,240

Term of patent 14 years

Int. Cl. D6—04

U.S. Cl. D6—129



263,097

COMBINED TABLE AND OTTOMAN

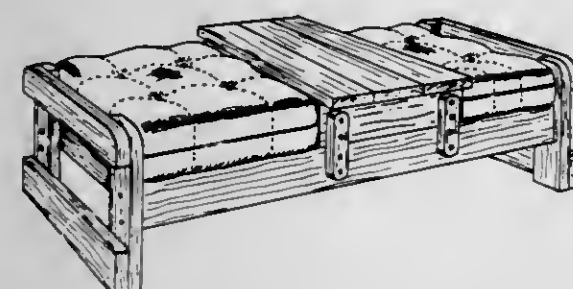
Benjamin C. Poole, Florence, Ala., assignor to Ajax Industries, Inc., Florence, Ala.

Filed Jun. 28, 1979, Ser. No. 53,058

Term of patent 14 years

Int. Cl. D6—05

U.S. Cl. D6—4



263,101
COMBINED TELEPHONE BOOTH AND ADVERTISING DISPLAY UNIT

J. Rembrandt George, 91 Pine St., Garden City, N.Y. 11530, and William L. Schuyler, Rte. 1, Box 208, Denton, Md. 21629

Filed Aug. 9, 1979, Ser. No. 65,140

Term of patent 14 years

Int. Cl. D25—03; D20—02; D26—03

U.S. Cl. D6—157



263,103
COLLAPSIBLE FLORAL BASKET SUPPORT

Stanley E. Williams, McLeansboro, Ill., assignor to George Koch Sons, Inc., Evansville, Ind.

Filed Sep. 19, 1979, Ser. No. 77,127

Term of patent 14 years

Int. Cl. D6—06

U.S. Cl. D6—183



263,104
FOAM MATTRESS CORE

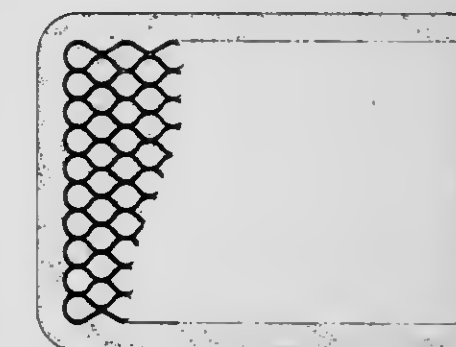
Robert J. Stalter, Sr., Bowling Green, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Sep. 22, 1977, Ser. No. 835,552

Term of patent 14 years

Int. Cl. D6—09

U.S. Cl. D6—201



263,102
COMBINED TELEPHONE BOOTH AND ADVERTISING DISPLAY UNIT

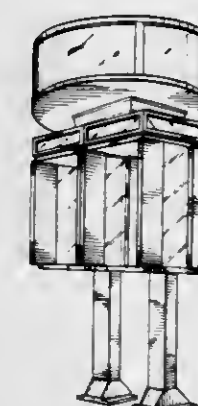
J. Rembrandt George, 91 Pine St., Garden City, N.Y. 11530, and William L. Schuyler, Rte. 1, Box 208, Denton, Md. 21629

Filed Aug. 9, 1979, Ser. No. 65,141

Term of patent 14 years

Int. Cl. D25—03; D20—02; D26—03

U.S. Cl. D6—157



263,105
ELECTRIC BEVERAGE MAKER

Yasukichi Okazaki, and Tatsuo Okazaki, both of Kamifukuoka, Japan, assignors to Kabushikigaisha OMCO, Saltama, Japan

Filed Nov. 28, 1978, Ser. No. 964,425

Claims priority, application Japan, Jan. 10, 1978, 53-389

Term of patent 14 years

Int. Cl. D7—02

U.S. Cl. D7—62



263,106

SHIELDED NUTCRACKER

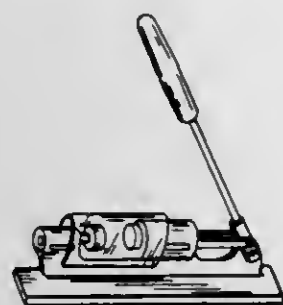
Robert D. Norton, Jonesboro, Ark., assignor to Handy Andy Industries, Inc., Jonesboro, Ark.

Filed Feb. 7, 1980, Ser. No. 119,412

Term of patent 14 years

Int. Cl. D7—06

U.S. Cl. D7—98



263,107

SYRINGE

Peter C. R. Hildebrand, Newcastle, Ireland, assignor to Arthur Guinness Son & Company (Dublin) Limited, Dublin, Ireland

Filed Dec. 31, 1979, Ser. No. 108,693

Claims priority, application United Kingdom, Jul. 13, 1979, 990690/79

Term of patent 14 years

Int. Cl. D7—04

U.S. Cl. D7—99



263,108

COOKING UTENSIL SUPPORT FOR A GAS RANGE

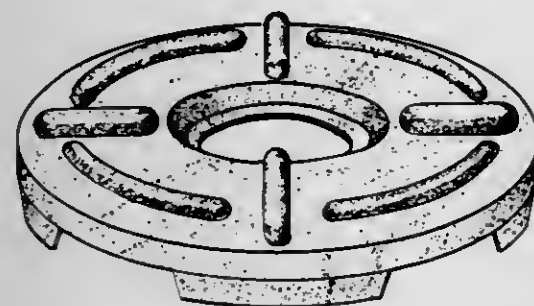
Charles A. Juracsik, 4 Pearl Dr., Toms River, N.J. 08753

Filed Dec. 28, 1979, Ser. No. 107,929

Term of patent 14 years

Int. Cl. D7—02

U.S. Cl. D7—136



263,109

BAG HOLDER

Thomas D. Peterson, c/o Grain Elevator Construction Materials Ltd., 469-471 Jarvis Ave., Winnipeg, Manitoba, Canada (R2W 3A8)

Filed Mar. 31, 1980, Ser. No. 135,592

Claims priority, application Canada, Feb. 25, 1980, 25-02-80-4

Term of patent 14 years

Int. Cl. D7—05

U.S. Cl. D34—6



263,110

COMBINED WIRE AND BOLT PLIERS

Alfred Z. Boyajian, P.O. Box 811, Manhattan Beach, Calif. 90268

Filed Dec. 10, 1979, Ser. No. 101,886

Term of patent 14 years

Int. Cl. D8—05

U.S. Cl. D8—52



263,111

CHAIN-TYPE PIPE CUTTER

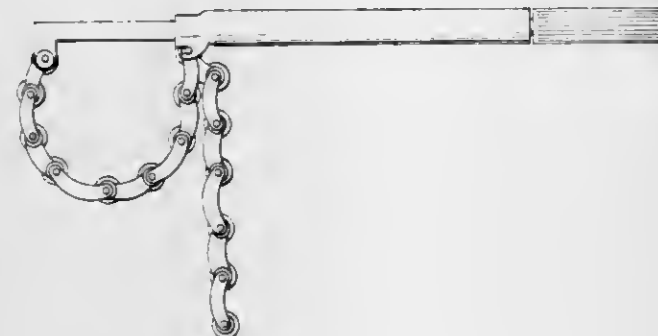
Alex Besenbruch, Isabella, P.R., assignor to CTA Manufacturing Corporation, New York, N.Y.

Filed Nov. 29, 1979, Ser. No. 98,482

Term of patent 14 years

Int. Cl. D8—05

U.S. Cl. D8—60



263,112

THROWING HAWK

Arthur J. Ressel, St. Louis County, Mo.

Filed Sep. 24, 1979, Ser. No. 78,150

Term of patent 14 years

Int. Cl. D8—05

U.S. Cl. D8—81



263,114

ADJUSTABLE SHELF SUPPORT

Edward F. Sette, 400 S. 18th St., Sparks, Nev. 89431

Filed Nov. 2, 1979, Ser. No. 90,737

Term of patent 14 years

Int. Cl. D8—06; D6—06

U.S. Cl. D8—381



263,115

BOTTLE OR THE LIKE

Shigeshi Ohmori, Kobe, Japan, assignor to Suntory Limited, Osaka, Japan

Filed Mar. 15, 1978, Ser. No. 886,929

Term of patent 14 years

Int. Cl. D9—01

U.S. Cl. D9—320



263,113

FLY TYING VISE

George E. Gehrke, Drawer 1204, Salida, Colo. 81201

Filed Oct. 1, 1979, Ser. No. 80,578

Term of patent 14 years

Int. Cl. D8—05

U.S. Cl. D8—74



263,116

PACKAGING CONTAINER

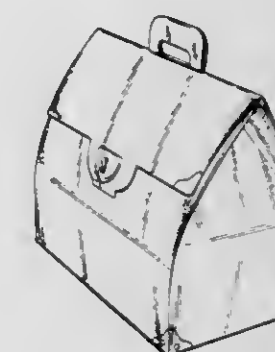
Jason S. Cain, 104 Crosby Ct., Walnut Creek, Calif. 94598

Filed Nov. 13, 1979, Ser. No. 93,262

Term of patent 3 1/2 years

Int. Cl. D9—03

U.S. Cl. D9—327



263,117

COMBINED BOTTLE AND SQUEEGEE PACKAGE

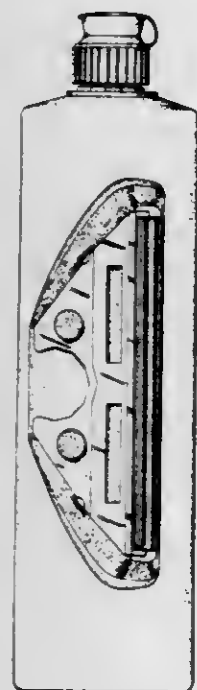
Frank J. Mack, Kinnelon, N.J., assignor to American Home Products Corporation, New York, N.Y.

Filed Mar. 9, 1979, Ser. No. 19,192

Term of patent 14 years

Int. Cl. D9-01

U.S. Cl. D9-337



263,119

COMBINED BOTTLE AND CAP

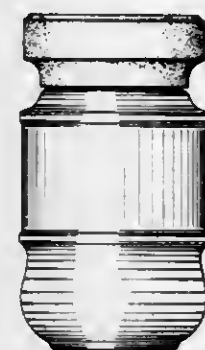
Koji Oshita, Tokyo, Japan, assignor to Societe d' Assistance Technique pour Produits Nestle S.A., Lausanne, Switzerland

Filed Aug. 6, 1979, Ser. No. 63,944

Term of patent 14 years

Int. Cl. D9-01

U.S. Cl. D9-352



263,120

POWDER DISPENSER

Gregory Fossella, Boston; Michael J. Mercandante, North Quincy, and John B. MacDonald, Boston, all of Mass., assignors to Certified Chemicals, Inc., Cinnaminson, N.J.

Filed Aug. 13, 1979, Ser. No. 66,345

Term of patent 14 years

Int. Cl. D9-01

U.S. Cl. D9-366



263,118

DUAL COMPARTMENT BOTTLE

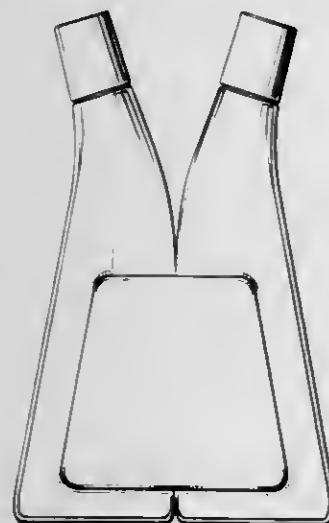
Richard L. Weckman, Perrysburg, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Jan. 18, 1980, Ser. No. 113,864

Term of patent 14 years

Int. Cl. D9-01

U.S. Cl. D9-341



263,121

DISPLAY BOX

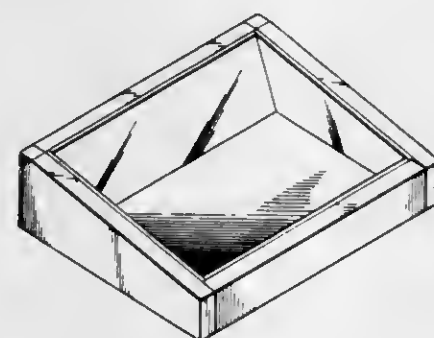
Wilma J. Lowry, 1221 S. Wheeling Way, Aurora, Colo. 80012

Filed Dec. 5, 1979, Ser. No. 100,512

Term of patent 14 years

Int. Cl. D9-03

U.S. Cl. D9-432



263,122

CARTON BLANK

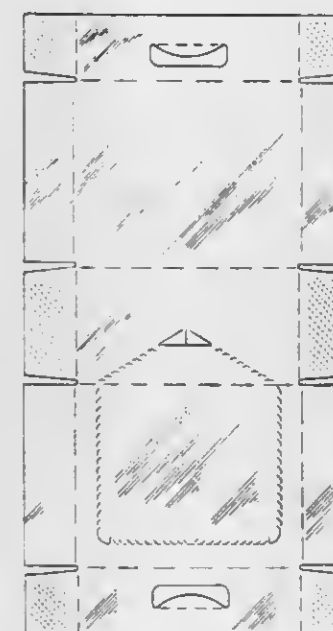
Bruno C. Bonczyk, East Alton, Ill., assignor to Alton Box Board Company, Alton, Ill.

Filed Jun. 4, 1979, Ser. No. 45,071

Term of patent 14 years

Int. Cl. D9-03

U.S. Cl. D9-433



263,124

DIGITAL CLOCK CASE

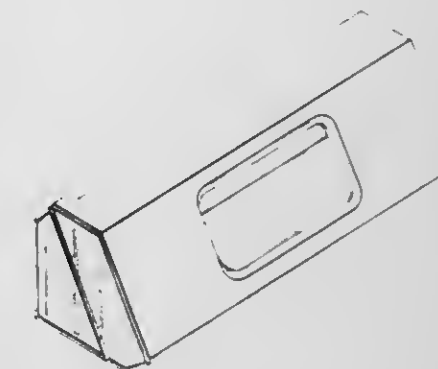
Richard E. Dennis, 4250 Williams Rd., San Jose, Calif. 95129

Filed Dec. 26, 1979, Ser. No. 106,944

Term of patent 14 years

Int. Cl. D10-01

U.S. Cl. D10-1



263,125

HOUSING FOR A PRESSURE DETECTING PROBE HAVING A DIGITAL READOUT

Julian S. Taylor, 8300 SW. 8, Oklahoma City, Okla. 73108

Filed Sep. 24, 1979, Ser. No. 78,128

Term of patent 14 years

Int. Cl. D10-04

U.S. Cl. D10-85



263,126

MOBILE SERVING UNIT

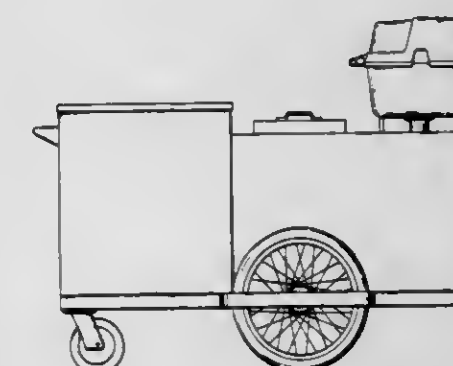
Daniel P. Mauzy, 6928 Glades, St. Louis, Mo. 63139

Filed Mar. 12, 1979, Ser. No. 19,860

Term of patent 14 years

Int. Cl. D12-02

U.S. Cl. D34-14



263,123

CAP FOR A CONTAINER

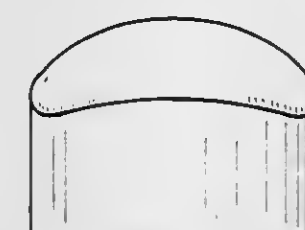
Frederick B. Hadtke, New Providence, and John A. Grip, Madison Township, Middlesex County, both of N.J., assignors to American Cyanamid Company, Stamford, Conn.

Filed Nov. 13, 1979, Ser. No. 93,580

Term of patent 14 years

Int. Cl. D9-07

U.S. Cl. D9-445



263,127

LUGGAGE CART WITH ADULT SEAT

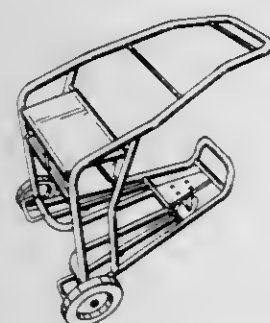
James M. Mueller, White Bear Lake, Minn., assignor to Smarte Carte, Inc., White Bear Lake, Minn.

Filed May 4, 1979, Ser. No. 36,212

Term of patent 14 years

Int. Cl. D12-02

U.S. Cl. D34-18



263,129

TIRE

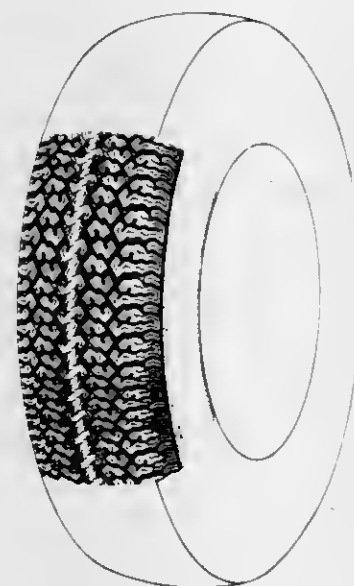
Ronald L. Loeffler, Akron; Michael A. Kolowski, Mogadore; Chester J. Gasowski, Uniontown; Daniel J. Lindner, Canal Fulton; John C. Smithkey, North Canton, all of Ohio, and Harold D. Fetty, Birmingham, Mich., assignors to The Good-year Tire & Rubber Company, Akron, Ohio

Filed Feb. 11, 1980, Ser. No. 120,586

Term of patent 14 years

Int. Cl. D12-15

U.S. Cl. D12-146



263,128

FLOOR JACK

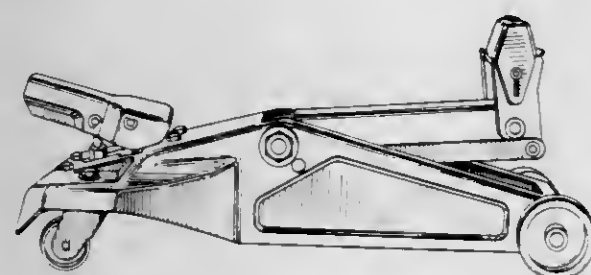
Donald W. Glover, Jr., Feasterville, and Edward J. Dadura, Sr., Churchville, both of Pa., assignors to Philmont Steel Products, Inc., Huntingdon Valley, Pa.

Filed Oct. 25, 1979, Ser. No. 88,236

Term of patent 14 years

Int. Cl. D12-05

U.S. Cl. D34-31



263,130

REAR VIEW MIRROR

Alberto Vitaloni, Turin, Italy, assignor to Vitaloni S.p.A., Beinascio, Italy

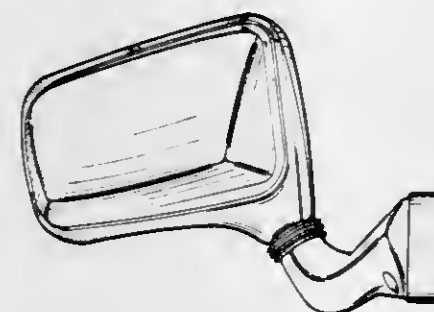
Filed Sep. 28, 1979, Ser. No. 79,917

Claims priority, application Italy, Apr. 30, 1979, 53224 B/79

Term of patent 14 years

Int. Cl. D12-16

U.S. Cl. D12-187



263,131

PORTABLE DETACHABLE STEP FOR MOUNTING ON BUMPERS OF VEHICLES

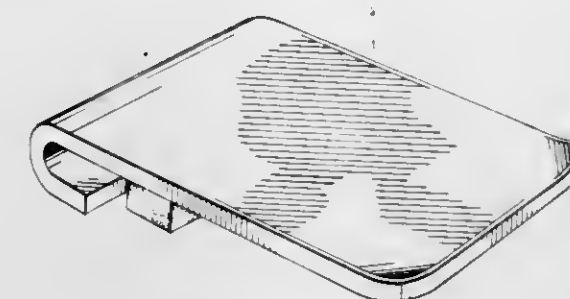
Mark T. Mitchell, Scottsdale, Ariz., assignor to Marco Mfg., Inc., Scottsdale, Ariz.

Filed Feb. 7, 1980, Ser. No. 119,589

Term of patent 14 years

Int. Cl. D12-16

U.S. Cl. D12-203



263,134

MOTOR BOAT

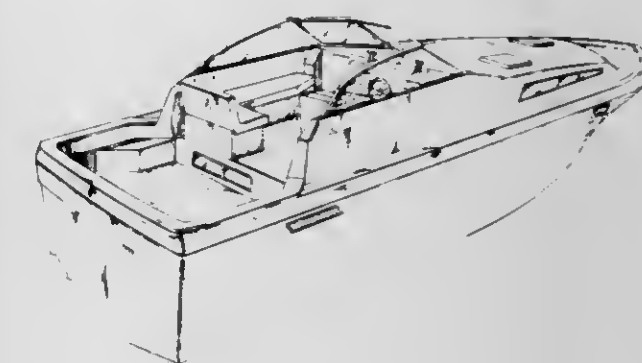
Daryl G. Watson, Stanwood, Wash., assignor to Bayliner Marine Corporation, Arlington, Wash.

Filed Aug. 2, 1979, Ser. No. 63,196

Term of patent 14 years

Int. Cl. D12-06

U.S. Cl. D12-314



263,132

PORTABLE DETACHABLE STEP FOR CONNECTING TO THE FRONT BUMPER OF A VEHICLE

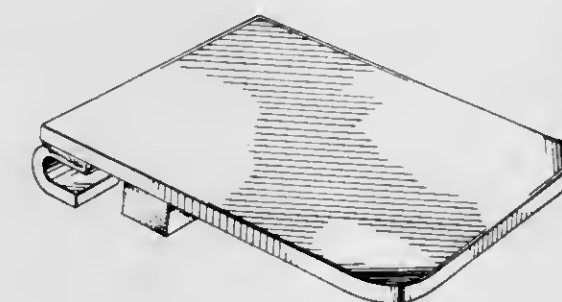
Mark T. Mitchell, Scottsdale, Ariz., assignor to Marco Mfg., Inc., Scottsdale, Ariz.

Filed Feb. 7, 1980, Ser. No. 119,590

Term of patent 14 years

Int. Cl. D12-16

U.S. Cl. D12-203



263,135

AIRPLANE

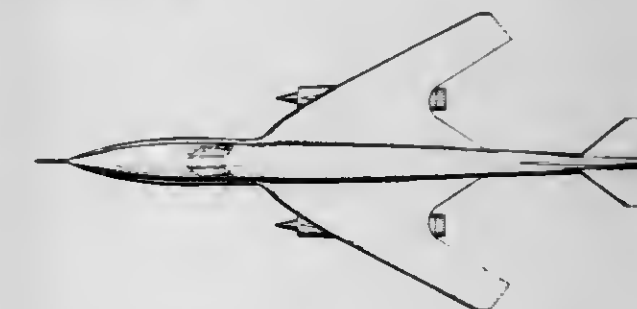
Gottfried O. Friebe, Bellevue, and Robert M. Kulfan, Kirkland, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Aug. 13, 1979, Ser. No. 65,794

Term of patent 14 years

Int. Cl. D12-07

U.S. Cl. D12-341



263,133

MOTOR BOAT

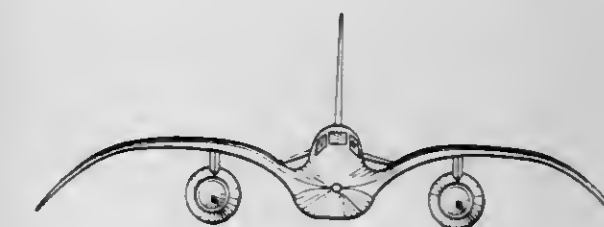
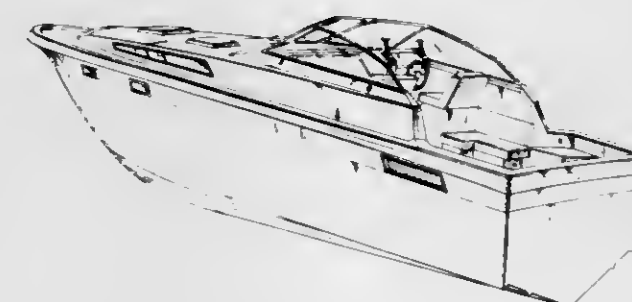
Daryl G. Watson, Stanwood, Wash., assignor to Bayliner Marine Corporation, Arlington, Wash.

Filed Aug. 2, 1979, Ser. No. 63,195

Term of patent 14 years

Int. Cl. D12-06

U.S. Cl. D12-315



263,136

EQUIPMENT CONSOLE

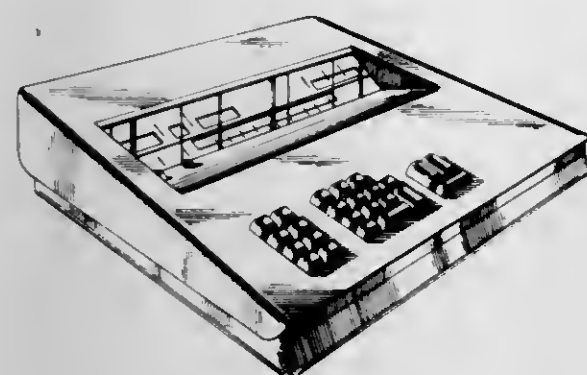
Fred Gore, Dallas, Tex., assignor to Jatex, Inc., Dallas, Tex.

Filed Sep. 7, 1979, Ser. No. 73,363

Term of patent 14 years

Int. Cl. D14-02

U.S. Cl. D14-1



263,137

VIDEODISC PLAYER

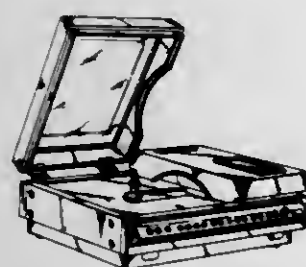
Takayuki Hiraki, Yokohama, Japan, assignor to Universal Pioneer Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 9, 1979, Ser. No. 92,896

Term of patent 7 years

Int. Cl. D14-01

U.S. Cl. D14-1



263,138

DISK PLAYER FOR VIDEO/AUDIO PRE-RECORDED CARTRIDGES, OR SIMILAR ARTICLE

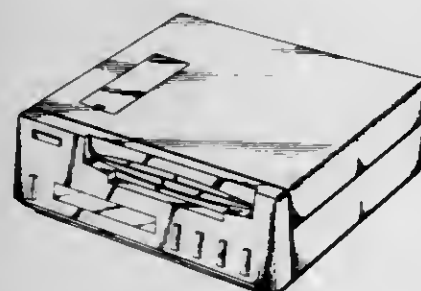
Rikio Uchiyama, Yokohama, Japan, assignor to Victor Company of Japan, Limited, Yokohama, Japan

Filed Mar. 17, 1980, Ser. No. 131,388

Term of patent 14 years

Int. Cl. D14-01

U.S. Cl. D14-1



263,139

COMBINED RADIO TRANSMITTER AND CASSETTE PLAYER FOR A ONE-WAY PRIVATE CHANNEL COMMUNICATIONS SYSTEM

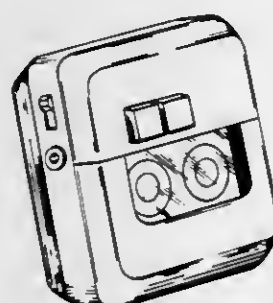
Ross J. Petrie, Fort Lauderdale, Fla., assignor to Doris J. Leeds, Miami Beach, Fla.

Filed Jan. 23, 1980, Ser. No. 114,727

Term of patent 14 years

Int. Cl. D14-03, 01

U.S. Cl. D14-5



263,140

COMBINED RECORD PLAYER, TUNER AND AMPLIFIER

Ngar S. Lee, Hong Kong, Hong Kong, assignor to Tat Ming Electronics Limited, Chai Wan, Hong Kong

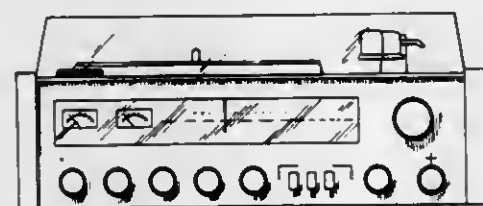
Filed May 30, 1978, Ser. No. 910,747

Claims priority, application United Kingdom, Feb. 21, 1978, 983435/78

Term of patent 14 years

Int. Cl. D14-01, 03

U.S. Cl. D14-20



263,141

RACK FOR MOUNTING SOUND REINFORCEMENT SYSTEMS OR THE LIKE

Tom Konopka, 6109 Thornton Dr., Parma, Ohio 44129

Filed Mar. 7, 1979, Ser. No. 18,160

Term of patent 14 years

Int. Cl. D14-99

U.S. Cl. D14-38



263,143

PAGING RADIO RECEIVER

Robert R. Huntington, Lynchburg, Va., and Hans J. Vendelso, Lyngby, Denmark, assignors to General Electric Company, Lynchburg, Va.

Filed Oct. 5, 1979, Ser. No. 82,129

Term of patent 14 years

Int. Cl. D14-03

U.S. Cl. D14-95



263,144

PORTABLE POWER DRIVE

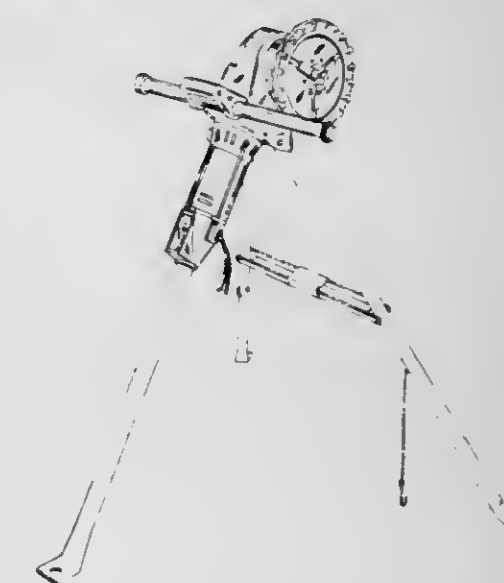
Richard J. Martin, Lorain County, and Richard J. Mittendorf, Erie County, both of Ohio, assignors to Emerson Electric Co., St. Louis, Mo.

Filed Oct. 4, 1979, Ser. No. 81,877

Term of patent 14 years

Int. Cl. D15-09

U.S. Cl. D15-127



263,142

PRINTER HOUSING

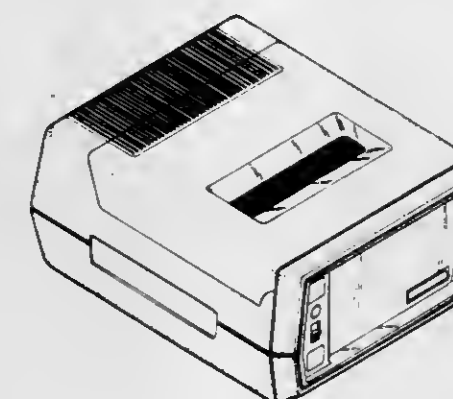
Roy Nishi, and Russell W. Farnell, both of San Jose, Calif., assignors to Atari, Inc., Sunnyvale, Calif.

Filed Apr. 2, 1979, Ser. No. 26,155

Term of patent 14 years

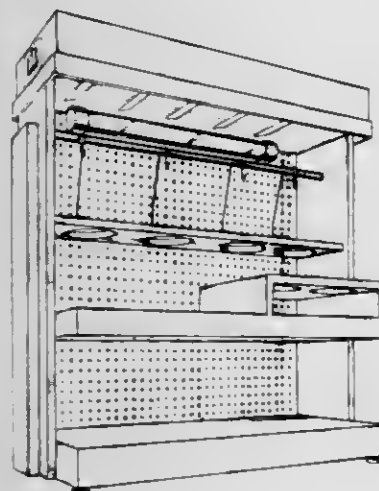
Int. Cl. D14-02

U.S. Cl. D14-111

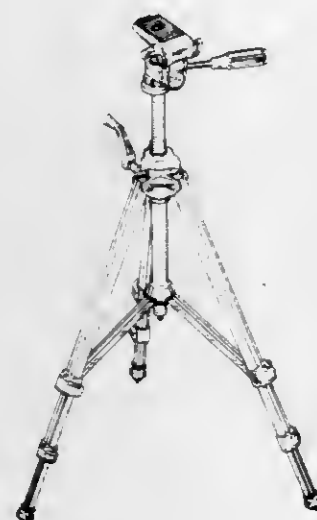


263,145

SUPPORT UNIT FOR CLEANING AND ELECTROPLATING EQUIPMENT OR THE LIKE
 Richard S. Cercone, 200 Donbey Dr., Allison Park, Pa. 15237
 Filed Jan. 12, 1979, Ser. No. 3,002
 Term of patent 14 years
 Int. Cl. D15-09; D6-06
 U.S. Cl. D15-141

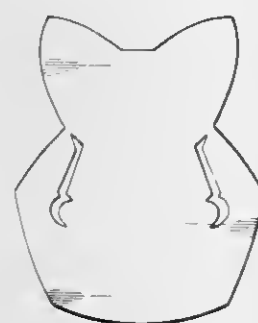
263,147
TRIPOD

Osamu Iwasaki, Tokorozawa, Japan, assignor to Slik Tripod Co., Ltd., Saitama, Japan
 Filed Dec. 13, 1979, Ser. No. 103,039
 Claims priority, application Japan, Jun. 19, 1979, 54-25208; Jun. 29, 1979, 54-26869
 Term of patent 14 years
 Int. Cl. D16-05
 U.S. Cl. D16-45



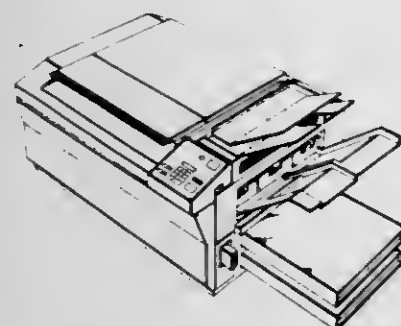
263,148

GUITAR BODY
 Lloyd M. Adams, 1545-225 Sonora Dr., Chula Vista, Calif. 92011
 Filed Feb. 1, 1979, Ser. No. 3,656
 Term of patent 14 years
 Int. Cl. D17-03
 U.S. Cl. D17-20



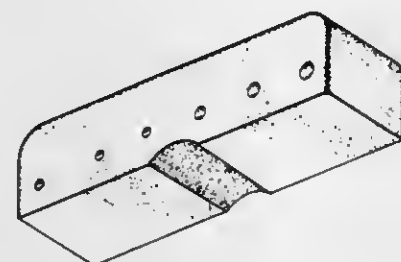
263,146

ELECTROSTATIC COPIER
 Toshio Yamamoto, Yokohama, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan
 Filed Jan. 2, 1980, Ser. No. 109,060
 Claims priority, application Japan, Jul. 13, 1979, 54-29241
 Term of patent 7 years
 Int. Cl. D16-03
 U.S. Cl. D16-31



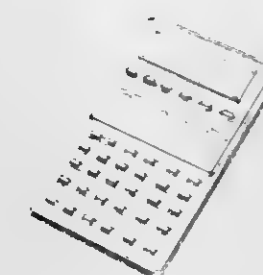
263,149

NUT FOR GUITARS
 Gregg Wilson, Placentia, Calif., assignor to CBS Inc., New York, N.Y.
 Filed Sep. 20, 1979, Ser. No. 77,277
 Term of patent 14 years
 Int. Cl. D17-03
 U.S. Cl. D17-20



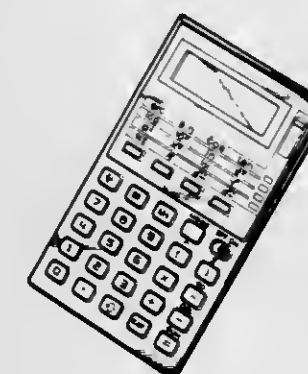
263,150

DESK TOP ELECTRONIC CALCULATOR
 Shiro Anzai, Yamato, and Kaname Suwa, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
 Filed Feb. 28, 1980, Ser. No. 125,687
 Claims priority, application Japan, Aug. 31, 1979, 54-36545
 Term of patent 14 years
 Int. Cl. D18-01
 U.S. Cl. D18-7



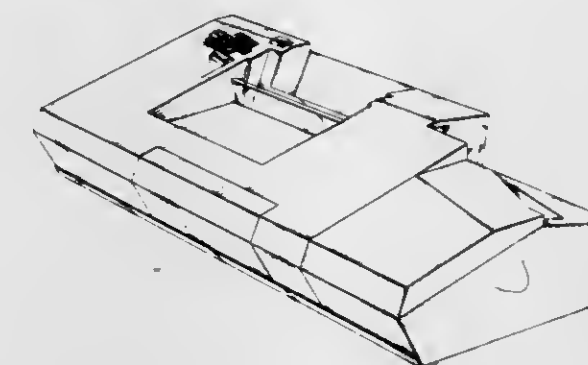
263,151

DESK TOP ELECTRONIC CALCULATOR
 Takashi Hirata; Takashi Yomo, both of Yokohama, and Junichi Motoyoshi, Funabashi, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
 Filed Mar. 3, 1980, Ser. No. 126,354
 Claims priority, application Japan, Sep. 4, 1979, 54-36987
 Term of patent 14 years
 Int. Cl. D18-01
 U.S. Cl. D18-7



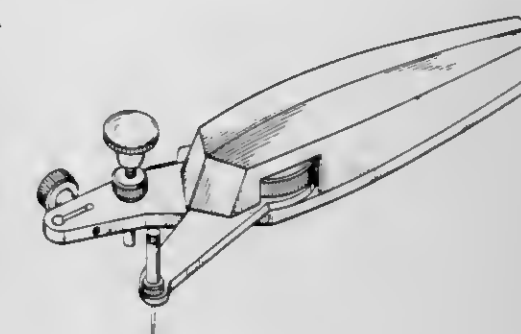
263,152

POSTAL CODING MACHINE
 Jean-Marcel Bergerioux, Presles, France, assignor to Hotchkiss-Brandt Sogeme H.B.S. (Societe Anonyme), Paris, France
 Filed Aug. 7, 1979, Ser. No. 64,619
 Claims priority, application France, Feb. 12, 1979, 79 77293
 Term of patent 14 years
 Int. Cl. D18-02
 U.S. Cl. D18-13



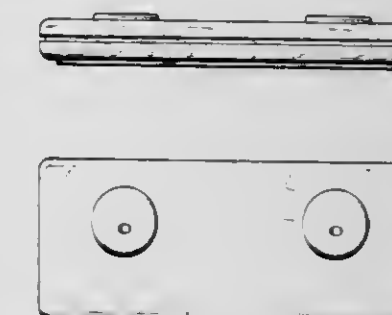
263,153

CONTROLLED LETTERING SCRIBER
 Allister L. Baker, Denville, N.J., assignor to Keuffel & Esser Company, Morristown, N.J.
 Filed May 23, 1980, Ser. No. 152,931
 Term of patent 14 years
 Int. Cl. D19-06
 U.S. Cl. D19-41



263,154

BASE FOR A DESK SET
 Clayton A. Laughlin, Minneapolis, Minn., assignor to Ketcham & McDougall, Inc., Roseland, N.J.
 Filed Jul. 25, 1979, Ser. No. 60,521
 Term of patent 14 years
 Int. Cl. D19-02
 U.S. Cl. D19-84



263,155

BASE FOR A DESK SET
 William Macowski, Caldwell, N.J., assignor to Ketcham & McDougall, Inc., Roseland, N.J.
 Filed Jul. 18, 1979, Ser. No. 58,998
 Term of patent 14 years
 Int. Cl. D19-99
 U.S. Cl. D19-99



263,156

ELECTRONIC GAME HOUSING

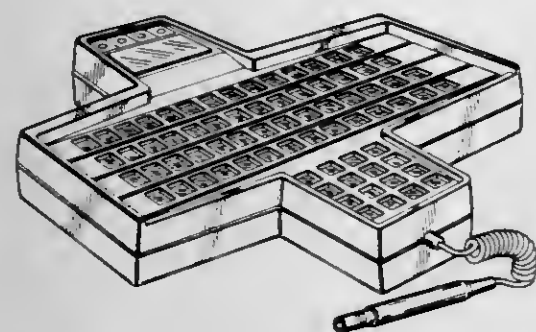
Paul J. Ishikawa, Hermosa Beach, Calif., assignor to California R & D Center, Culver City, Calif.

Filed Feb. 19, 1980, Ser. No. 122,368

Term of patent 14 years

Int. Cl. D21—01

U.S. Cl. D21—13



263,157

ELECTRONIC GAME HOUSING

Masao Takagi, Tokyo, Japan, assignor to Takatoku Toys Company, Limited, Tokyo, Japan

Filed May 5, 1980, Ser. No. 146,822

Claims priority, application Japan, Nov. 22, 1979, 54-49056

Term of patent 14 years

Int. Cl. D21—01

U.S. Cl. D21—13



263,158

EDUCATIONAL TOY DESK

Peter M. Craig, Stamford, England, assignor to Peter Pan Playthings Limited, Peterborough, England

Filed Feb. 14, 1979, Ser. No. 11,974

Claims priority, application United Kingdom, Aug. 22, 1978, 986033

Term of patent 14 years

Int. Cl. D21—01

U.S. Cl. D21—59



263,159

PUSHING TOY VEHICLE

Shinroku Nakao, Yokohama; Yoshiyasu Isbil, Tokyo; Taira Hanashima, Tokyo, and Yukio Ishige, Tokyo, all of Japan, assignors to Combi Co., Ltd., Tokyo, Japan

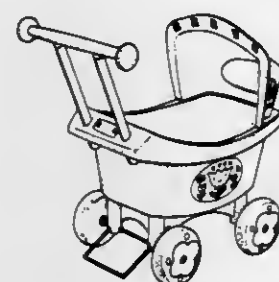
Filed Jan. 5, 1979, Ser. No. 1,089

Claims priority, application Japan, Aug. 9, 1978, 53-33662

Term of patent 14 years

Int. Cl. D21—01

U.S. Cl. D21—134



263,160

PHYSICAL EXERCISER

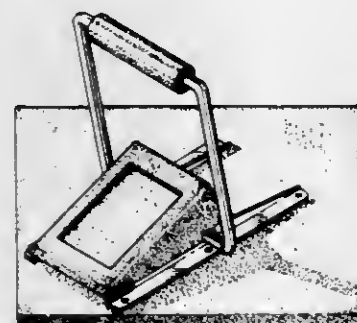
Charles V. Blackmon, P.O. Box 13311, Wichita, Kans. 67213

Filed Sep. 24, 1979, Ser. No. 77,944

Term of patent 14 years

Int. Cl. D21—02

U.S. Cl. D21—195



263,161

BASKETBALL BACKBOARD

Jose L. Quinones, 2314 Scranton Rd., Cleveland, Ohio 44113

Filed Mar. 20, 1979, Ser. No. 22,230

Term of patent 14 years

Int. Cl. D21—02

U.S. Cl. D21—201



263,162

ARCHERY BOW HANDLE

William R. Stewart, Gainesville, Fla., assignor to Victor United, Inc., Chicago, Ill.

Filed Dec. 12, 1979, Ser. No. 102,879

Term of patent 14 years

Int. Cl. D22—02

U.S. Cl. D22—5



263,164

STOVE

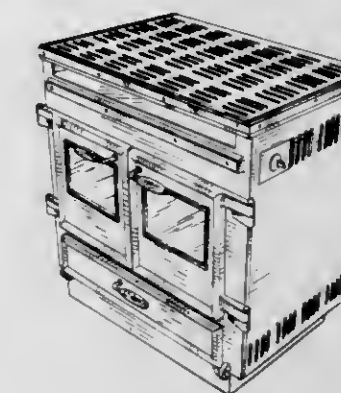
Thomas Barnett, Carleton Place, Canada, assignor to Findlay Products Division of Rexcorp Management Ltd., Kitchener, Canada

Filed Sep. 24, 1979, Ser. No. 78,471

Term of patent 14 years

Int. Cl. D23—03

U.S. Cl. D23—97



263,165

FIREPLACE INSERT ASH CAN

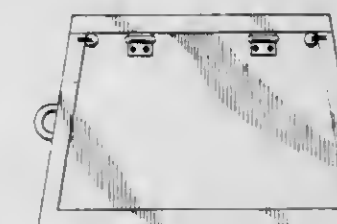
Gary H. Day, 5701-27th Ave., Sacramento, Calif. 95820

Filed Dec. 28, 1979, Ser. No. 108,094

Term of patent 14 years

Int. Cl. D23—03

U.S. Cl. D23—131



263,163

OUTLET FITTING FOR A PIPE

Jarl R. Olde, Laduvägen 4, Uppsala, Sweden

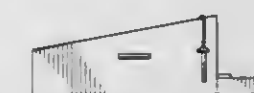
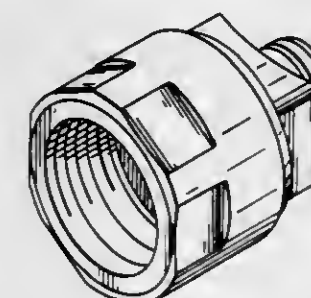
Filed Oct. 18, 1978, Ser. No. 952,327

Claims priority, application Sweden, Apr. 19, 1978, 1100

Term of patent 14 years

Int. Cl. D23—01

U.S. Cl. D23—40



263,166

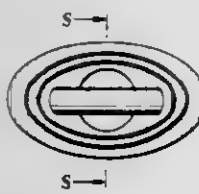
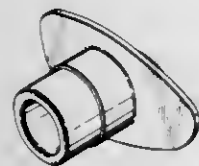
MOUTHPIECE

John A. Bushman, London, England, assignor to Ferraris Development and Engineering Company Limited, London, England
Filed Apr. 30, 1979, Ser. No. 34,537

Claims priority, application United Kingdom, Oct. 30, 1978, 987051/78

Term of patent 14 years
Int. Cl. D24—02

U.S. Cl. D24—17



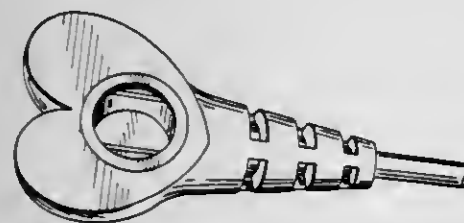
263,167

ELECTROCARDIOGRAM LEAD TERMINAL

Robert D. Stone, 3050 S. Bristol #8N, Santa Ana, Calif. 92704
Filed Mar. 14, 1979, Ser. No. 20,272

Term of patent 14 years
Int. Cl. D24—02

U.S. Cl. D24—29



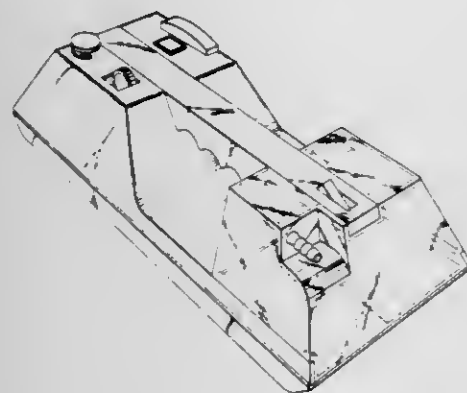
263,168

PORTABLE DRAINAGE DEVICE

Leonard D. Kurtz, Woodmere, and Robert E. Bidwell, Melville, both of N.Y.

Filed Sep. 12, 1979, Ser. No. 74,756
Term of patent 14 years
Int. Cl. D24—04

U.S. Cl. D24—51



263,169

INCONTINENCE PAD FOR MEN

Christina I. E. Larko, Hovas, Sweden, assignor to Molnlycke AB, Goteborg, Sweden

Filed Sep. 18, 1979, Ser. No. 76,744

Term of patent 14 years
Int. Cl. D24—04

U.S. Cl. D24—51



263,170

FLASHLIGHT

Anthony Maglica, 219 Armsley Sq., Ontario, Calif. 91762

Filed Nov. 26, 1979, Ser. No. 97,527

Term of patent 14 years
Int. Cl. D26—02

U.S. Cl. D26—49



263,171

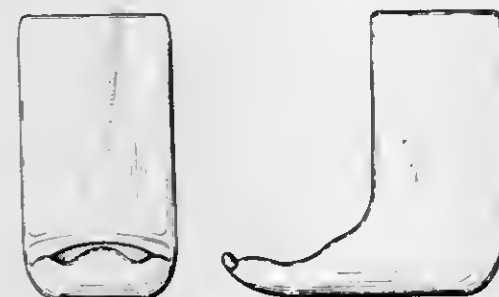
FILTER ASH TRAY

Connie M. Lee, 12811 E. 13th Pl., Tulsa, Okla. 74128

Filed Dec. 13, 1979, Ser. No. 103,184

Term of patent 14 years
Int. Cl. D27—03

U.S. Cl. D27—16



263,172

PHARMACEUTICAL TABLET

Kenneth J. Payne, Greenwich, Conn., assignor to Pfizer Inc., New York, N.Y.

Filed Sep. 18, 1979, Ser. No. 76,589

Term of patent 14 years
Int. Cl. D28—01

U.S. Cl. D28—2



263,173

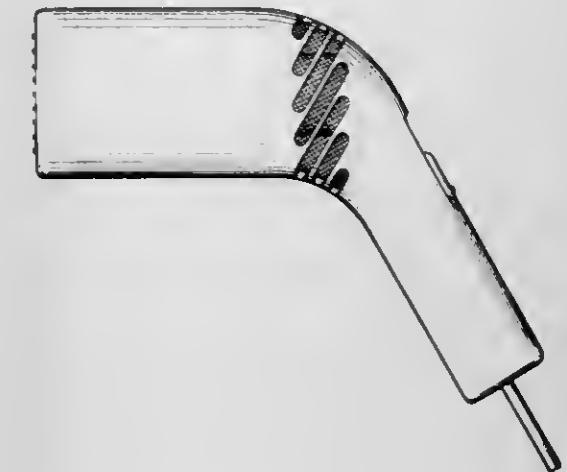
HAIR DRYER

John Wistrand, New Canaan, Conn., assignor to Clairol Incorporated, New York, N.Y.

Filed Jan. 25, 1980, Ser. No. 115,431

Term of patent 14 years
Int. Cl. D28—03

U.S. Cl. D28—13



263,174

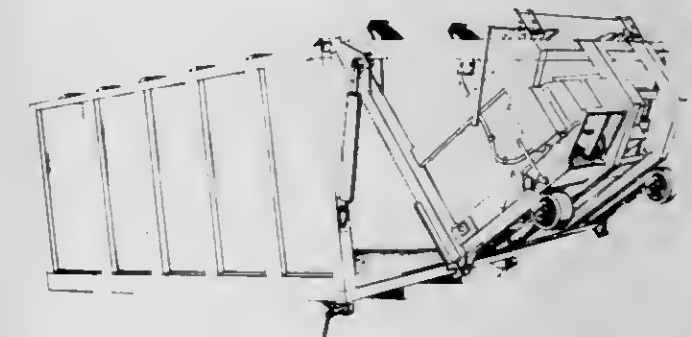
FRONT DUMP REFUSE COMPACTOR

Darryl G. Bettencourt, Lodi, and Charles F. Dietz, Rio Vista, both of Calif., assignors to Blackwelders, Rio Vista, Calif.

Filed Dec. 26, 1979, Ser. No. 107,071

Term of patent 14 years
Int. Cl. D15—09

U.S. Cl. D34—3



LIST OF PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 23RD DAY OF FEBRUARY, 1982

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- A/S Akers Mek. Verksted: *See—*
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- Abbott, Bernard J.; and Berry, Dennis R., to Eli Lilly and Company. Enzymatic deesterification of cephalosporin methyl esters. 4,316,955, Cl. 435-47.000.
- Abbott Laboratories: *See—*
Genese, Joseph N.; and Muetterties, Andrew J., 4,316,460, Cl. 128-214.00R.
- Nara, Takashi; Okachi, Ryo; Kawamoto, Isao; Sato, Tomoyasu; and Oka, Tetsuo, 4,316,957, Cl. 435-119.000.
- Abe, Hiroshi: *See—*
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- Acebo, William F.: *See—*
Wolf, Irving W.; Stafford, Michael K.; Kahan, Hillard M.; Acebo, William F.; Scott, Lawrence M.; and Lee, Yu C., 4,316,738, Cl. 75-0.5BA.
- Acker, William F., to Honeywell Inc. Signal monitor system. 4,317,080, Cl. 328-151.000.
- Ackerman, Morris, to Singer Company, The. Maintenance training device. 4,316,720, Cl. 434-224.000.
- Adamek, Radomil: *See—*
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- Adamer, Siegfried, to Societe d'Assistance Technique pour Produits Nestle S.A. Treatment of a coffee extract. 4,316,916, Cl. 426-329.000.
- Adams, Joan M.; Shoaf, Myron B.; Bochmann, Carl E.; and Basile, Peter A., to General Foods Corporation. Carbonated beverage container. 4,316,409, Cl. 99-275.000.
- Adams, John T.; Kompelien, Arlon D.; Nelson, Marvin D.; and Pinckars, B. Hubert, to Honeywell Inc. Energy saving thermostat. 4,316,577, Cl. 236-46.00R.
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Alam, Abu S.; and Eichel, Herman J., 4,316,884, Cl. 424-19.000.
- Aesculap-Werke Aktiengesellschaft, vormalis Jetter & Scheerer: *See—*
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- Agence Nationale de Valorisation de la Recherche: *See—*
Charpak, Georges, 4,317,038, Cl. 250-385.000.
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Atlani, Martial; Loutaty, Roben; Wakselman, Claude; and Yacono, Charles, 4,316,796, Cl. 208-313.000.
- Fruman, Daniel; and Tulin, Marshall, 4,316,383, Cl. 73-55.000.
- Agency of Industrial Science and Technology, The: *See—*
Kudo, Bosshi; and Yoshioka, Masamichi, 4,316,764, Cl. 156-617.00H.
- AGFA-Gevaert Aktiengesellschaft: *See—*
Gernert, Herbert, 4,316,953, Cl. 430-569.000.
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Verbeek, John M., 4,316,536, Cl. 198-699.000.
- Aiello, Samuel, Jr., to Ilo Engineering, Inc. Combined battery holder and switch. 4,317,161, Cl. 362-103.000.
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- Air Products and Chemicals, Inc.: *See—*
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Lindqvist, Rolf E., 4,316,507, Cl. 172-225.000.
- Akune, Mikio; and Kinoshita, Yoshiaki, to Nittetu Chemical Engineering Ltd. Method for the combustive treatment of waste fluids containing nitrogen compounds. 4,316,878, Cl. 423-235.000.
- Akutsu, Yoji: *See—*
Kita, Hisanao; Karatsu, Yoshinori; Nakazaki, Takamitsu; and Akutsu, Yoji, 4,317,022, Cl. 219-121.0EU.
- Alam, Abu S.; and Eichel, Herman J., to Adria Laboratories, Inc. Sustained release pharmaceutical formulation. 4,316,884, Cl. 424-19.000.
- Alan J. Gerald Corporation: *See—*
Kahn, Harvey, 4,316,340, Cl. 42-66.000.
- Albenberger, Johann: *See—*
Lenz, Wolfgang; Albenberger, Johann; and Knell, Karl, 4,316,631, Cl. 297-284.000.
- Alberts, Steven L., to GTE Products Corporation. Voltage monitoring and indicating circuit. 4,317,056, Cl. 307-350.000.
- Albright, Jane: *See—*
Gerlock, John L.; Braslaw, Jacob; and Albright, Jane, 4,316,992, Cl. 568-621.000.
- Aleinikov, Nikolai A.: *See—*
Zelenov, Petr I.; Usachev, Petr A.; Davydov, Jury V.; Lyakhov, Vyacheslav P.; Zelenova, Irina M.; Aleinikov, Nikolai A.; Sladkovich, Vladlen F.; and Titov, Viktor I., 4,316,542, Cl. 209-39.000.
- Alexeev, Boris N. Artificial crystalline lens. 4,316,292, Cl. 3-13.000.
- Allen, Charles B. Eyeglass frame with pocket clip. 4,316,654, Cl. 351-155.000.
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Allen, J. Dewayne, 4,316,715, Cl. 425-456.000.
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- Allied Corporation: *See—*
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- Tunick, Allen A.; Largman, Theodore; and Sifniades, Stylianos, 4,316,877, Cl. 423-10.000.
- Vermeer, Dick C.; and Biron, Raymond J., 4,316,312, Cl. 28-255.000.
- Alstad, Sven O.: *See—*
Pettersson, Stefan; and Alstad, Sven O., 4,316,709, Cl. 425-174.80E.
- Altenschulte, Raymond A., to RCA Corporation. A.C. Power line assembly. 4,317,152, Cl. 361-104.000.
- Alvarez, Luis W.; and Schwemin, Arnold J., to Schwem Instruments. Stabilized zoom binocular. 4,316,649, Cl. 350-16.000.
- Alvarez, Luis W. Stand alone collision avoidance system. 4,317,119, Cl. 343-112.0CA.
- Amacker, Inc.: *See—*
Amacker, Joseph A., 4,316,526, Cl. 182-135.000.
- Amacker, Joseph A., to Amacker, Inc. Apparatus for and method of climbing an upright columnar member. 4,316,526, Cl. 182-135.000.
- Ambrose, Richard J.: *See—*
Hergenrother, William L.; Schwarz, Richard A.; Ambrose, Richard J.; and Hayes, Robert A., 4,316,967, Cl. 525-111.000.
- Amerace Corporation: *See—*
Siebens, Larry N., 4,316,646, Cl. 339-7.000.
- American Cyanamid Company: *See—*
Pfeiffer, Ronald E.; and DeMaria, Francesco, 4,316,714, Cl. 425-382.200.
- American Electronics, Inc.: *See—*
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- American Hospital Supply Corporation: *See—*
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- American Sterilizer Company: *See—*
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- AMF Incorporated: *See—*
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- Lundberg, Duane R., 4,316,608, Cl. 272-117.000.
- AMP Incorporated: *See—*
Mosser, Benjamin H., III, 4,317,006, Cl. 178-46.000.
- Ampex Corporation: *See—*
Monforte, Frank R.; and Argentina, Giltan M., 4,316,923, Cl. 428-68.000.
- Wolf, Irving W.; Stafford, Michael K.; Kahan, Hillard M.; Acebo, William F.; Scott, Lawrence M.; and Lee, Yu C., 4,316,738, Cl. 75-0.5BA.
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- Anthony Manufacturing Company: *See—*
Ray, Charles A.; and Kent, John L., 4,316,579, Cl. 239-123.000.
- Antoskiw, Thomas; Cannalonga, Marco A.; and Guerin, Frank, to Hoffman-La Roche Inc. Stable carotenoid solutions. 4,316,917, Cl. 426-540.000.

Aono, Tadashi: See—
Fujimura, Noriaki; Kinoshita, Tsuneo; Aono, Tadashi; Kaku, Takashi; and Tanaka, Yasuya, 4,317,207, Cl. 375-19,000.

Aoto, Teruaki: See—
Suzuki, Shunichi; Koba, Yoshinori; Yamada, Yoshiaki; Aoto, Teruaki; Kuno, Yoriyoshi; and Yokota, Masanobu, 4,316,758, Cl. 156-351,000.

Apache Powder Company: See—
Baker, James J., 4,316,415, Cl. 102-275,800.

Araki, Kunio: See—
Hosoi, Fumio; Sasaki, Takashi; Hagiwara, Miyuki; Kasai, Noboru; Araki, Kunio; and Hirano, Takayuki, 4,316,783, Cl. 204-159,180.

Araseki, Takashi; and Ochiai, Kazuo, to Nippon Electric Co., Ltd. ADPCM System for speech or like signals, 4,317,208, Cl. 375-27,000.

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Sele, Thorleif, 4,316,788, Cl. 204-243,00M.

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Argentina, Giltan M.: See—
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Arleth, Norman; and Dieterlen, Paul E., to R. A. Jones & Co. Inc. Apparatus for registration and control for a moving web, 4,316,566, Cl. 226-2,000.

Arndt, Otto; and Tronich, Wolfgang, to Hoechst Aktiengesellschaft. N-Nitroaryl-N-halosulfonyl ureas, 4,316,861, Cl. 260-543,00F.

Arwood, Phillip C.: See—
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Asahi Glass Company Ltd.: See—
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Astes Components, Ltd.: See—
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Atlani, Marial; Loutaty, Roben; Wakselman, Claude; and Yacono, Charles, to Compagnie Francaise de Raffinage; and Agence Nationale de Valorisation de la Recherche (ANVAR). Process for the separation of dienic and/or aromatic hydrocarbons present in hydrocarbon fractions, 4,316,796, Cl. 208-313,000.

Atlantic Richfield Company: See—
Evans, Hugh W., 4,316,682, Cl. 406-187,000.

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Atlas Copco AB: See—
Jysky, Goran H., 4,316,514, Cl. 175-66,000.

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Auer, John H., Jr.; and Birnbaum, David, to General Signal Corporation. Phantom eliminator for signal lights, 4,316,652, Cl. 350-276,00R.

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Baker, James J., to Apache Powder Company. Detonating cord with flash-suppressing coating, 4,316,415, Cl. 102-275,800.

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Baker, Randy S.; and Eckmann, Gerald C., to BJ-Hughes Inc. Check-relief valve for an inflatable packer system, 4,316,504, Cl. 166-53,000.

Baldi, Giuliano: See—
Manini, Benito; Furia, Edoardo; Stefani, Eugenio; Baldi, Giuliano; Barracchia, Pasquale; Cacciapuoti, Beniamino; and Mattei, Bruno, 4,316,488, Cl. 139-13,00R.

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Barabas, Eva: See—
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Battelle Memorial Institute: See—
Spinosa, Emilio D.; and Ensminger, Dale, 4,316,734, Cl. 65-135,000.

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Baxter, Donald J.; and Kolin, George J., to Columbia Machine, Inc. Variable array can palletizer, 4,316,693, Cl. 414-59,000.

Baxter Travenol Laboratories, Inc.: See—
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Wieder, Wolfgang; and Witte, Josef, 4,316,820, Cl. 252-431,00N.

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Idel, Karsten; Serini, Volker; Freitag, Dieter; and Fengler, Gerd, 4,316,980, Cl. 528-199,000.

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Huber, Manfred, 4,317,106, Cl. 340-52,00F.

Bayers, Jon H. Flexible intraocular lens, 4,316,293, Cl. 3-13,000.

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BBC Brown, Boveri & Company Limited: See—
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Markwell, Roger E., 4,316,899, Cl. 424-250,000.

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Beier, Stefan; and Gmeinder, Hermann, to Kaltenbach & Voigt GmbH & Co. Arrangement for determining the removal of work tools and/or drive elements from receiving locations, particularly for a dental treatment location, 4,317,112, Cl. 340-568,000.

Beigel, Michael L.: See—
Tavel, Donald L.; and Beigel, Michael L., 4,316,401, Cl. 84-1,010.

Belart, Juan, to ITT Industries, Inc. Control device for hydraulic brake systems incorporating antiskid control apparatus, 4,316,642, Cl. 303-116,000.

Belisomi, Pietro, to Indesit Industria Elettrodomestici Italiana S.p.A. Circuit arrangement for tuning into one of a number of radioelectric signals, 4,317,226, Cl. 455-174,000.

Bell, Donald: See—
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Tallent, Othar K.; Mailen, James C.; Bell, Jimmy T.; and Arwood, Phillip C., 4,316,776, Cl. 204-1,500.

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Thiel, Ferdinand A., 4,316,765, Cl. 156-626,000.

Yahalom, Joseph, 4,316,779, Cl. 204-29,000.

Young, Ernst H., Jr., 4,317,051, Cl. 307-246,000.

Bellasio, Aldo; and Brusa, Giulio, to Industrie Pirelli Societa per Azioni. Extrusion press with method and apparatus for removing unused metal from extruder piston, 4,316,378, Cl. 72-268,000.

Beloit Corporation: See—
Dahl, Carl B., 4,316,769, Cl. 162-360,00R.

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Ben-Dov, Oded, to RCA Corporation. Duopyramid circularly polarized broadcast antenna, 4,317,122, Cl. 343-798,000.

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Benoun, Samie; and Lacy, Charles R., to Sunkist Growers, Inc. Beverage dispenser with removable tank connection means, 4,316,557, Cl. 222-129,100.

Bentley, W. Ferrel; Luedtke, Arthur; and Scott, James E., to United States of America, Federal Communications Commission. Sector scan ADF system, 4,317,120, Cl. 343-120,000.

Berghell, Robin C. Mailing package for facilitating automatic sorting of mail, 4,317,030, Cl. 235-489,000.

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Bertoia, Val O. Fluid-driven turbine with speed regulation, 4,316,698, Cl. 416-11,000.

Bertrand, Bernard, to Automobiles Peugeot. Acceleration controlling device for an automobile vehicle, 4,316,437, Cl. 123-90,180.

Beskin, Gerald S., to Therapac Division, Krellitz Industries, Inc. Portable blood sample temperature control system, 4,316,473, Cl. 128-763,000.

Besson, Raymond, to Etat Francais. Acceleration and temperature compensated piezoelectric bi-resonator, 4,317,059, Cl. 310-361,000.

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Corwin, Richard R.; and Moorman, Stephen L., 4,316,670, Cl. 356-349,000.

Bi-Modal Corporation: See—
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Hindin, Eugene; Cripe, Alan R.; and Cripe, Christopher A., 4,316,418, Cl. 105-215,00C.

Binzer, Norbert: See—
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Biomedics, Inc.: See—
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Biron, Raymond J.: See—
Vermeer, Dick C.; and Biron, Raymond J., 4,316,312, Cl. 28-255,000.

BJ-Hughes Inc.: See—
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Blachford, John, to H. L. Blachford, Limited. Manufacture of metallic soaps, 4,316,852, Cl. 260-414,000.

Black & Decker Inc.: See—
George, William A., 4,316,685, Cl. 409-182,000.

Saar, David A.; and Bradus, Robert, 4,317,176, Cl. 364-474,000.

Blackshaw, Andrew L.: See—
Sanborn, David M.; and Blackshaw, Andrew L., 4,316,502, Cl. 165-140,000.

Blair, Charles M., Jr., to Magna Corporation. Method for breaking petroleum emulsions and the like using micellar solutions of thin film spreading agents comprising an acylated polyether polyol, 4,316,808, Cl. 252-8,55D.

Blais, Marcel H.: See—
Corna, John F.; and Blais, Marcel H., 4,316,571, Cl. 228-173,00C.

Blalock, Sherman S., to Cook, Troy L.; Swisher, William C.; and Tiger, Mose. Electro-magnetic reciprocating engine, 4,317,058, Cl. 310-24,000.

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Schenk, Wolfgang; Blank, Heinz U.; Hagedorn, Ferdinand; and Evertz, Werner, 4,316,862, Cl. 260-543,00R.

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Blasinachim S.p.A.: See—
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Blaskowski, Henry. Windshield wiper control system, 4,317,073, Cl. 318-483,000.

Blickensderfer, John R.: See—
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Blount, David H. Process for the production of cellulose-silicate products, 4,316,745, Cl. 106-287,340.

Bocard, Christian; Delacour, Jacques; and Renault, Philippe, to Institut Francais du Petrole. Method and system for the continuous cleaning of underwater beds, 4,316,804, Cl. 210-671,000.

Bochmann, Carl E.: See—
Adams, Joan M.; Shoaf, Myron B.; Bochmann, Carl E.; and Basile, Peter A., 4,316,409, Cl. 99-275,000.

Bock, Jan: See—
Makowski, Henry S.; Lundberg, Robert D.; and Bock, Jan, 4,316,828, Cl. 260-23,50A.

Bodai, Conrad A., to Sontek Industries, Inc. Apparatus for fragmenting fluid fuel to enhance exothermic reactions, 4,316,580, Cl. 239-466,000.

Boehringer Ingelheim KG: See—
Wetzel, Bernd; Waitun, Eberhard; Maier, Roland; Rueter, Wolfgang; Lechner, Uwe; and Goeth, Hans, 4,316,898, Cl. 424-246,000.

Boeing Company, The: See—
Scarpatti, Thomas S.; and Ford, Robert J., 4,316,701, Cl. 416-226,000.

Bohlen, Peter: See—
Guillemin, Roger C. L.; Ling, Nicholas C.; Esch, Fred S.; Bohlen, Peter; and Brazeau, Paul E., Jr., 4,316,891, Cl. 424-177,000.

Boivin, Bernard. Self-propelling and steering attachment for a wheel-chair, 4,316,616, Cl. 280-289,00C.

Bollag, Werner; and Wyss, Pierre-Charles, to Hoffmann-La Roche Inc. Neoplastic compounds: sugar esters and glycosides, 4,316,983, Cl. 536-4,000.

Bolt Associates, Inc.: See—
Chelminski, Stephen V., 4,316,521, Cl. 181-114,000.

Bolton, Theodore S.; and Lang, Richard D., to Carrier Corporation. Damper assembly for use with an air conditioning system, 4,316,408, Cl. 98-41,00R.

Bonaldi, Antonio; and Molinari, Egidio, to Blasinachim S.p.A. Process for the purification of ursodeoxycholic acid, 4,316,848, Cl. 260-397,100.

Bonaldi, Antonio; and Molinari, Egidio, to Blasinachim S.p.A. Process for preparing a crystalline polymorphous type of chenodeoxycholic acid, 4,316,849, Cl. 260-397,100.

Bonczek, Wolfgang: See—
Bergmann, Eduard; and Bonczek, Wolfgang, 4,317,104, Cl. 338-330,000.

Boretta, Napoleon P. Silencer for gas discharge devices, 4,316,523, Cl. 181-226,000.

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Borrod, Guy: See—
Guigues, Francois; Peris Y Saborit, Gilles; and Borrod, Guy, 4,316,737, Cl. 71-88,000.

Borsody, Laszlo: See—
Somos, Andras; Turi, Istvan; Zatyko, Ferenc; Gyuros, Janos; and Borsody, Laszlo, 4,316,450, Cl. 126-432,000.

Bosch, Fridolin L.; Dybwad, Gay L.; and Swan, Clarence B., to Bell Telephone Laboratories, Incorporated. Laser digital transmitter, 4,317,236, Cl. 455-608,000.

Boschma, Klaas M.: See—
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Bosso, Joseph F.: See—
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Botte, Anthony J.; Hubbard, James H.; Robbins, Wayne E.; and Spivey, Paul R., to International Business Machines Corporation. Collator error recovery, 4,317,203, Cl. 371-60,000.

Boubouleix, Albert, to Thomson-CSF. Broad-band passive ring mixer, 4,317,230, Cl. 455-319,000.

Boulanger, Henry J.; and Gouin, Philip R., to Texas Instruments Incorporated. Readily mountable thermostat. 4,317,100, Cl. 337-347.000.

Bouquet, Francois: See—
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Bout, Willem J. F., to U.S. Philips Corporation. Luminaire for an electric lamp. 4,317,163, Cl. 362-362.000.

Bouvet, Jean M.; Berthou, Claude; and Jallas, Michel, to Regie Nationale des Usines Renault. Servo-control valve. 4,316,599, Cl. 251-129.000.

Bova, Anthony J.: See—
Price, William A., 4,316,489, Cl. 141-1.000.

Bowden, Donald R.; and Novell, Bruce J., to Solar Unlimited, Inc. Heat exchanger with leakage collector. 4,316,501, Cl. 165-70.000.

Bowen, Robert F., to Raytheon Company. Microwave steamer. 4,317,017, Cl. 219-10.55E.

Boyd, William M., to RCA Corporation. Bias adjustment responsive to signal power. 4,317,083, Cl. 330-296.000.

Boys, John T.: See—
Kibblewhite, Ian E.; Boys, John T.; and Tambini, Angelo L., 4,316,512, Cl. 173-12.000.

Bozon, Alfred; Koberstein, Edgar; Pletka, Hans-Dieter; and Voelker, Herbert, to Degussa Aktiengesellschaft. Method of manufacturing a monolithic metallic matrix coated with a catalysis promoting metal oxide. 4,316,823, Cl. 252-465.000.

Bradford, Faurey S.: See—
Stokes, W. Fred; Bradford, Faurey S.; and Strobel, Nancy S., 4,316,611, Cl. 273-85.00D.

Bradshaw, John: See—
Oxford, Alexander W.; Bradshaw, John; and Coates, Ian H., 4,316,907, Cl. 424-275.000.

Bradus, Robert: See—
Saar, David A.; and Bradus, Robert, 4,317,176, Cl. 364-474.000.

Bramwell, John S., to American Standard Inc. Method and apparatus for slip casting toilet bowls. 4,316,864, Cl. 264-86.000.

Branch, Geoffrey H.: See—
Hodgkinson, Joseph B.; and Branch, Geoffrey H., 4,316,565, Cl. 225-99.000.

Brand, Derek A.; and Brand, Derek R. Spur track accessory operation. 4,316,346, Cl. 46-212.000.

Brand, Derek R.: See—
Brand, Derek A.; and Brand, Derek R., 4,316,346, Cl. 46-212.000.

Brandes, Wilhelm: See—
Grotkopp, Detlef; Wedemeyer, Karlfried; Brandes, Wilhelm; Scheinplugg, Hans; and Roessler, Peter, 4,316,912, Cl. 424-300.000.

Kranz, Eckart; Kramer, Wolfgang; Buchel, Karl H.; Brandes, Wilhelm; and Frohberger, Paul-Ernst, 4,316,932, Cl. 424-269.000.

Braslaw, Jacob: See—
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Braun, Karl; and Wintermantel, Erich, to Aesculap-Werke Aktiengesellschaft, vormals Jetter & Scheerer. Approximator for anastomotic surgery. 4,316,470, Cl. 128-346.000.

Brauning, Egon, to Protoned BV. Ergonomic chair. 4,316,632, Cl. 297-291.000.

Brave Trading Limited: See—
Chatelain, Michel, 4,316,308, Cl. 24-335.000.

Braverman, Milton; and Zink, Leonard, to Medi-Dose, Inc. Moisture impervious cover sheet for unit dose packaging. 4,316,541, Cl. 206-532.000.

Bray, Michael R.: See—
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Brazdil, James F.: See—
Grasselli, Robert K.; Suresh, Dev D.; Brazdil, James F.; and Ratka, Frances I., 4,316,855, Cl. 260-465.300.

Brazeau, Paul E., Jr.: See—
Guillemin, Roger C. L.; Ling, Nicholas C.; Esch, Fred S.; Bohlen, Peter; and Brazeau, Paul E., Jr., 4,316,891, Cl. 424-177.000.

Brazell, James: See—
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Brems, John H.; and Graham, James T., to F. Jos. Lamb Company. Workpiece storage system. 4,316,535, Cl. 198-473.000.

Brenner, Walter: See—
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British Steel Corporation: See—
Spenceley, Gene D., 4,316,496, Cl. 164-477.000.

Broadhurst, Michael J.; Hassall, Cedric H.; and Thomas, Gareth J., to Hoffmann-La Roche Inc. Cyclic compounds. 4,316,985, Cl. 549-39.000.

Brooks, Ronald E.: See—
Slusarczyk, George M. J.; and Brooks, Ronald E., 4,316,938, Cl. 428-403.000.

Brown, Daniel P., to Motorola, Inc. Narrow band television transmission system. 4,317,130, Cl. 358-108.000.

Brown, Derek. Control apparatus for drive transmissions. 4,316,395, Cl. 74-866.000.

Brown, Harvey A., to Minnesota Mining and Manufacturing Company. Thermolabile acutance dyes. 4,316,984, Cl. 546-165.000.

Brown, John D.: See—
Mac Lean, John P.; Cantwell, J. Edward; Brown, John D.; and Hoy, Harold D., 4,316,729, Cl. 55-459.00R.

Brown, John F.; and Stanton, Robert M., to Bell Telephone Laboratories, Incorporated. Thick film resistor circuits. 4,316,920, Cl. 427-96.000.

Brown, Richard E.; and Unangst, Paul C. Indolopyrone tetrazoles and carboxamidotetrazoles having antiallergic activity. 4,316,904, Cl. 424-269.000.

Brucker, William S. Weed cutting apparatus. 4,316,325, Cl. 30-276.000.

Bruckman, Katarzyna, to Tioxide Group Limited. Method for the production of catalysts. 4,316,821, Cl. 252-461.000.

Brunelle, Daniel J., to General Electric Company. Polycarbonate transesterification. 4,316,981, Cl. 528-199.000.

Brusa, Giulio: See—
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Bryan, T. James; Hartman, George W.; and Wilson, Arthur G., to Exxon Research & Engineering Co. Method and apparatus for facsimile sheet handling. 4,317,138, Cl. 358-291.000.

Bryksi, Jan: See—
Winkler, Jiri; Cibulka, Josef; Bryksi, Jan; Jelinek, Richard; Krtek, Jan; Mickal, Vladimir; Hlousek, Jaroslav; and Kondr, Milan, 4,317,166, Cl. 363-138.000.

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Buchwalter, Stephen L.; Bosso, Joseph F.; and Christenson, Roger M., to PPG Industries, Inc. Process for electrodeposition of Michael adducts of polymeric materials. 4,316,784, Cl. 204-181.00C.

Buckley, Jim, to McHenry Systems, Inc. Sealed prism assembly. 4,316,650, Cl. 350-67.000.

Bundschuh, John J.; and Kosarko, Gerald J., to Eastman Kodak Company. Camera for close-up and normal range photography. 4,316,658, Cl. 354-27.000.

Bunes, Leonard A., to Dynapol. Products including edibles colored with polymeric red colors. 4,316,918, Cl. 426-540.000.

Burgess, David E. Means and method for controlling lumen output and power consumption of phosphor excitable lamps. 4,317,069, Cl. 315-227.00R.

Burk, Michael D.; Hipsher, Gary L.; and Nicoles, Gregory M., to General Tire & Rubber Co., The. Vehicle suspension bushing. 4,316,643, Cl. 308-26.000.

Burnham, John W., to Halliburton Company. Gelled oil base compositions and methods of preparation and use of same. 4,316,810, Cl. 252-8.55R.

Burnham, Robert D.; Scifres, Donald R.; and Streifer, William, to Xerox Corporation. Channeled mesa laser. 4,317,085, Cl. 372-50.000.

Burns, Edward J.; and Hatfield, James R., to InterNorth, Inc. Dust suppressant. 4,316,811, Cl. 252-88.000.

Burnworth, Donald O., to Miller, Martin P., a part interest. Power priority control system for aircraft and test apparatus therefor. 4,317,177, Cl. 364-483.000.

Burroughs Corporation: See—
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Zachry, Clyde L.; and McCutchen, William C., 4,316,605, Cl. 269-43.000.

Buttner, Horace J.; and Nordstrom, Arnold B., to Buttner, Horace J. Multi-circuit switch assembly. 4,317,015, Cl. 200-153.00J.

Buy, Henri; and Carisey, Camille, to Societe Anonyme dite: Transacompagnie pour le Developpement des Transactions Automatiques. Apparatus for separating and extracting stacked sheets one by one. 4,316,606, Cl. 271-10.000.

C. van der Lely, N.V.: See—
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Caesar, Michael B., to Occidental Research Corporation. Entrainment separator. 4,316,728, Cl. 55-226.000.

Calgon Corporation: See—
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Canadian General Electric Company Limited: See—
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Canadian Patents & Development Limited: See—
Zwarts, Cornelis M. G., 4,317,077, Cl. 324-179.000.

Canevari, Gerard P., to Exxon Research & Engineering Co. Method and demulsifier composition. 4,316,806, Cl. 210-708.000.

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Antoshkiw, Thomas; Cannalunga, Marco A.; and Guerin, Frank, 4,316,917, Cl. 426-540.000.

Canning, Everett J., Jr., to Western Electric Co., Incorporated. Copper refining. 4,316,742, Cl. 75-76.000.

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Cantwell, J. Edward: See—
Mac Lean, John P.; Cantwell, J. Edward; Brown, John D.; and Hoy, Harold D., 4,316,729, Cl. 55-459.00R.

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Carlsen, Carl E. Roach trap. 4,316,344, Cl. 43-114.000.

Carney, Richard W. J.; and deStevens, George, to Ciba-Geigy Corporation. Tertiary aminoacids. 4,316,850, Cl. 260-326.100.

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Carstab Corporation: See—
Molt, Kenneth R.; and Zestermann, Mary J., 4,316,837, Cl. 260-45.80N.

Carter, Richard T. Paint can dispensing ring attachment. 4,316,560, Cl. 222-567.000.

Caruolo, Antonio B.: See—
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Caruso, Michael J.; Hildebrand, David B.; and Ohri, Kul B., to Mostek Corporation. Bandgap voltage reference employing sub-surface current using a standard CMOS process. 4,317,054, Cl. 307-297.000.

Casio Computer Co., Ltd.: See—
Shimizu, Tomohiro; and Muranaga, Yoshinobu, 4,317,183, Cl. 364-900.000.

Castle, Richard M., to RCA Corporation. Head suspension velocity control apparatus for electromechanical recorder. 4,317,192, Cl. 369-244.000.

Castner, Kenneth F.: See—
Kennedy, Joseph P.; and Castner, Kenneth F., 4,316,978, Cl. 526-348.700.

Ceelen, Theodor M., to Xerox Corporation. Apparatus for transferring a toner image. 4,316,666, Cl. 355-3.0TR.

Celotex Corporation, The: See—
Moss, Ernest K., 4,316,935, Cl. 428-304.400.

Cepirini, Mario Q.; and Warren, Marvin, to TennecoChemicals, Inc. Partial (2,2,4-trimethylpentane-1,3-diol monoisobutylate) esters of polycarboxylic acids and water-soluble salts of said partial esters. 4,316,987, Cl. 560-199.000.

Cesas, Romas: See—
Gavlin, Gilbert; and Cesas, Romas, 4,316,846, Cl. 260-326.450.

Chambers, Ramon P.: See—
Gordy, Robert S.; Sanders, David E.; and Chambers, Ramon P., 4,317,204, Cl. 375-1.000.

Champion International Corporation: See—
Lepisto, J. George, 4,316,574, Cl. 229-62.500.

Chang, Augustine W.: See—
Anantha, Narasipur G.; and Chang, Augustine W., 4,316,319, Cl. 29-577.00C.

Chaparral Marine Products, Inc.: See—
Walthall, Bobby K.; and Harris, Sammy E., 4,316,588, Cl. 242-129.620.

Charles Stark Draper Laboratory, The: See—
Watson, Paul C., 4,316,329, Cl. 33-169.00C.

Charpak, Georges, to Agence Nationale de Valorisation de la Recherche. Device for determining the spatial distribution of radiation. 4,317,038, Cl. 250-385.000.

Chasek, Norman E. Cross correlated doppler radar/infrared velocity and presence sensor. 4,317,117, Cl. 343-6.0ND.

Chatelain, Michel, to Brave Trading Limited. Retaining and stretching element for a film supporting framework. 4,316,308, Cl. 24-335.000.

Chauvette, Robert R., to Eli Lilly and Company. Penicillin intermediates. 4,316,842, Cl. 260-245.20R.

Chauvin, Yves: See—
Le Pennec, Dominique; Commereuc, Dominique; and Chauvin, Yves, 4,316,851, Cl. 260-408.000.

Chelminski, Stephen V., to Bolt Associates, Inc. Pivoted elevator mounting for mobile land seismic energy source. 4,316,521, Cl. 181-114.000.

Chemische Werke Huls Aktiengesellschaft: See—
Gude, Fritz; Haferkorn, Herbert; and Schulde, Felix, 4,316,977, Cl. 526-272.000.

Cheng, Dah Y.; and Wiersma, Steve J. Composite membrane for a membrane distillation system. 4,316,772, Cl. 202-163.000.

Cherukuri, Subraman R.: See—
Friello, Dominick R.; Parker, Ellery; Mackay, Donald A. M.; and Cherukuri, Subraman R., 4,316,915, Cl. 426-5.000.

Chevron Research: See—
Feffer, Philip C., 4,316,311, Cl. 28-248.000.

Chi, Chao S., to Sperry Corporation. Transducer for perpendicular magnetic recording. 4,317,148, Cl. 360-119.000.

Chicago Decal Company: See—
Mazurk, Louis R., 4,317,011, Cl. 200-5.00A.

Childress, David L.: See—
Skach, Allen G.; Childress, David L.; and Hayes, William V., 4,316,708, Cl. 425-73.000.

Christen, Werner; and Muller, Helmut, to Draiswerke GmbH. Apparatus for continuous mixing of solids and liquids. 4,316,671, Cl. 366-192.000.

Christenson, Roger M.: See—
Buchwalter, Stephen L.; Bosso, Joseph F.; and Christenson, Roger M., 4,316,784, Cl. 204-181.00C.

Christians, Scott T.: See—
Bell, Robert R.; and Christians, Scott T., 4,317,222, Cl. 455-77.000.

Christiansen, Gerald E.; and Politz, William E., to Stephen A. Young Corporation. Single handle mixing valve with improved seat. 4,316,485, Cl. 137-625.400.

Ciavatta, Armand. Tubular shank device. 4,316,677, Cl. 405-259.000.

Ciba-Geigy Corporation: See—
Carney, Richard W. J., and deStevens, George, 4,316,850, Cl. 260-326.100.

Kamber, Bruno; Rink, Hans; and Sieber, Peter, 4,316,890, Cl. 424-177.000.

Kristiansen, Odd; and Drabek, Jozef, 4,316,908, Cl. 424-277.000.

Kunz, Walter; Eckhardt, Wolfgang; and Hubele, Adolf, 4,316,909, Cl. 424-279.000.

Ledouble, Jean-Pierre; and Muller, Klaus, 4,316,854, Cl. 260-453.100.

Marky, Michael, 4,316,860, Cl. 260-513.700.

Petitpierre, Jean C., 4,316,621, Cl. 282-27.500.

Wasley, Jan W. F., 4,316,900, Cl. 424-250.000.

Cibulka, Josef: See—
Winkler, Jiri; Cibulka, Josef; Bryksi, Jan; Jelinek, Richard; Krtek, Jan; Mickal, Vladimir; Hlousek, Jaroslav; and Kondr, Milan, 4,317,166, Cl. 363-138.000.

Cincotta, Louis; and Foley, James W., to Polaroid Corporation. Novel xanthene compounds and photographic products and processes employing the same. 4,316,950, Cl. 430-221.000.

CKD Praha, oborovy podnik: See—
Winkler, Jiri; Cibulka, Josef; Bryksi, Jan; Jelinek, Richard; Krtek, Jan; Mickal, Vladimir; Hlousek, Jaroslav; and Kondr, Milan, 4,317,166, Cl. 363-138.000.

Clark, Ronald M. Trowel. 4,316,302, Cl. 15-235.400.

Clinton, Albert J., deceased (by Plimpton, Thomas L., administrator); and O'Doherty, George O. P., to Eli Lilly and Company. N-Alkylidiphenylamines. 4,316,988, Cl. 364-433.000.

Clopton, Robert T., to Eaton Corporation. Holding chuck. 4,316,614, Cl. 279-1.00G.

Coates, Ian H.: See—
Oxford, Alexander W.; Bradshaw, John; and Coates, Ian H., 4,316,907, Cl. 424-275.000.

Coca-Cola Company, The: See—
Hughes, Robert D.; and Brazell, James, 4,316,533, Cl. 194-4.00C.

Cochran, Rex H. Auxiliary slitting blade for a cutting instrument. 4,316,324, Cl. 30-162.000.

Cocking, Glyn: See—
Pearce, Michael J.; and Cocking, Glyn, 4,316,482, Cl. 137-315.000.

Coe, Charles D.; Bell, Donald; and Bray, Michael R., to Land Combustion Limited. Flame monitoring apparatus and method. 4,317,045, Cl. 250-554.000.

Coffee, Ronald A.; Young, Brian W.; and Middleton, Michael R., to Imperial Chemical Industries Limited. Electrostatically sprayable insecticidal formulations. 4,316,914, Cl. 424-305.000.

Cohen, Abraham B.; and Fan, Roxy N., to Du Pont de Nemours, E. I., and Company. Multilayer photosensitive element with solvent-soluble layer. 4,316,951, Cl. 430-253.000.

Cohen, Richard L.; and Meek, Ronald L., to Western Electric; and Bell Telephone Laboratories, Incorporated. Gold monitoring procedure. 4,317,035, Cl. 250-272.000.

Cohn, Jona: See—
Davidson, Allen L.; and Cohn, Jona, 4,317,217, Cl. 455-24.000.

Colavecchio, Robert, to Elmwood Sensors, Inc. Grounded thermostat switch. 4,317,098, Cl. 337-113.000.

Coleman, Paul E.: See—
Pommer, Dennis L.; and Coleman, Paul E., 4,316,384, Cl. 73-76.000.

Collonge, Jacques H.; and Widmer, Hans, to Goodyear Tire & Rubber Company, The. Discoloration prevention of phenolic antioxidants. 4,316,996, Cl. 568-784.000.

Columbia Machine, Inc.: See—
Baxter, Donald J.; and Kolin, George J., 4,316,693, Cl. 414-59.000.

Combustion Electromagnetics, Inc.: See—
Ward, Michael A. V.; and Wu, Tai T., 4,317,068, Cl. 315-209.00C.

Combustion Engineering, Inc.: See—
Kochey, Edward L., 4,316,420, Cl. 110-347.000.

Comfort Products, Inc.: See—
Giese, Erik O.; and Gross, Alexander L., 4,316,332, Cl. 36-28.000.

Giese, Erik O.; and Gross, Alexander L., 4,316,335, Cl. 36-129.000.

Commereuc, Dominique: See—
Le Pennec, Dominique; Commereuc, Dominique; and Chauvin, Yves, 4,316,851, Cl. 260-408.000.

Compagnie Francaise de Raffinage: See—
Atlani, Martial; Loutaty, Roben; Wakselman, Claude; and Yacono, Charles, 4,316,796, Cl. 208-313.000.

Compagnie Neerlandaise de l'Azote: See—
Van Hijfte, Willy H. P.; and Goethals, Rafael A. J., 4,316,736, Cl. 71-59.000.

Connell, Neville: See—
Scifres, Donald R.; Connell, Neville; and Streifer, William, 4,317,086, Cl. 372-49.000.

Coocoo Inc.: See—
Wingrave, James A., 4,316,976, Cl. 526-200.000.

Container Corporation of America: See—
Turner, Gerald D.; and Wischoff, Donald F., 4,316,563, Cl. 225-41.000.

Cook, Troy L.: See—
Blalock, Sherman S., 4,317,058, Cl. 310-24.000.

Cooper, Roydon B., to Pall Corporation. Filter assembly with jacked filter cannister. 4,316,801, Cl. 210-90.000.

Copolymer Rubber & Chemical Corp.: See—
Wirth, Kenneth H., 4,316,825, Cl. 260-5.000.

Coratomic, Inc.: See—
Shipko, Frederick J.; and Norman, Robert D., 4,316,471, Cl. 128-419.00P.

Coren, Gerald. Clip-on protector. 4,317,153, Cl. 361-119.000.

Corna, John F.; and Blais, Marcel H. Wall construction method for swimming pools. 4,316,571, Cl. 228-173.00C.

Corwin, Richard R.; and Moorman, Stephen L., to Beta Industries, Inc. Apparatus and method for determining the configuration of a reflective surface. 4,316,670, Cl. 356-349.000.

Corzine, Robert G.; and Winkler, Guenter H., to United States of America, Navy. Symmetrical beam-forming network. 4,317,118, Cl. 343-100.00R.

Cottrell, Don J.; and Cottrell, Don M. Automobile tie down assembly for vehicle carriers. 4,316,686, Cl. 410-12.000.

Cottrell, Don M.: See—
Cottrell, Don J.; and Cottrell, Don M., 4,316,686, Cl. 410-12.000.

Craig, Timothy P.; Stumple, James R.; and Erickson, Paul M., to Motorola, Inc. Sector antenna receiving system. 4,317,229, Cl. 455-277.000.

Crane Co.: See—
Skarvada, Thomas, 4,317,173, Cl. 364-426.000.

Cremer, Michael M. Prelooped fishing lure. 4,316,343, Cl. 43-42.240.

Cripe, Alan R.: See—
Hindin, Eugene; Cripe, Alan R.; and Cripe, Christopher A., 4,316,418, Cl. 105-215.00C.

Cripe, Christopher A., to Bi-Modal Corporation. Electro pneumatic brake system for railway car. 4,316,640, Cl. 303-20.000.

Cripe, Christopher A.: See—
Hindin, Eugene; Cripe, Alan R.; and Cripe, Christopher A., 4,316,418, Cl. 105-215.00C.

Crommeo Inc.: See—
Walker, James T., 4,317,114, Cl. 340-721.000.

Crooke, Michael D. Variable displacement vane pump with non-fluctuating flow. 4,316,706, Cl. 418-16.000.

Crouse, John C.: See—
Degeneff, Robert C.; and Crouse, John C., 4,317,096, Cl. 336-70.000.

Crown Metal Mfg. Co.: See—
Varon, David S.; and Silverman, Irving, 4,316,546, Cl. 211-105.100.

Varon, David S., 4,316,547, Cl. 211-105.100.

CSELT-Centro Studi e Laboratori Telecomunicazioni S.p.A.: See—
Barberis, Giulio; and Pazzaglia, Daniele, 4,317,195, Cl. 370-94.000.

CTS Corporation: See—
Kuo, Charles C. Y., 4,316,942, Cl. 428-432.000.

Cullis, Herbert M.; and Gutierrez, Luiz F., to Baxter Travenol Laboratories, Inc. Method and chamber for separating granulocytes from whole blood. 4,316,576, Cl. 233-26.000.

Cummins, Donald L., to AMF Incorporated. Pan indexing apparatus. 4,316,534, Cl. 198-345.000.

Cupido, Ernst P., to Wavin, B.V. Plastics pallet. 4,316,419, Cl. 108-56.100.

Cusano, Dominic A.; Swank, Robert K.; and White, Philip J., to General Electric Company. Index-matched phosphor scintillator structures. 4,316,817, Cl. 252-301.180.

Cuscurida, Michael: See—
Speranza, George P.; Cuscurida, Michael; and Zimmerman, Robert L., 4,316,991, Cl. 368-609.000.

Custom Organics, Inc.: See—
Gavlin, Gilbert; and Cesas, Romas, 4,316,846, Cl. 260-326.450.

Da Costa, Daniel D. Illuminated display assembly. 4,316,337, Cl. 40-564.000.

Dahl, Carl B., to Beloit Corporation. Centrifugally cast chilled iron roll. 4,316,769, Cl. 162-360.00R.

Dahlberg, Reinhard, to Licentia Patent-Verwaltungs-G.m.b.H. Negative semiconductor resistance. 4,317,091, Cl. 331-107.00R.

Dahlstrom, James A.: See—
Franz, Rudolph J.; DeVera, Dennis; and Dahlstrom, James A., 4,316,479, Cl. 137-85.000.

D'Alelio, Gaetano F.; and Waitkus, Phillip A., to Plastics Engineering Company. Polyimide derivatives having terminal acetylenic groups. 4,316,845, Cl. 260-326.00S.

D'Alelio, Gaetano F.: See—
Waitkus, Phillip A.; and D'Alelio, Gaetano F., 4,316,843, Cl. 260-326.00S.

Waitkus, Phillip A.; and D'Alelio, Gaetano F., 4,316,844, Cl. 260-326.00S.

Dalidovich, Alexandr S.: See—
Ragoza, Igor V.; Dalidovich, Alexandr S.; Begunov, Petr M.; Vasiljuk, Petr J.; Tonikian, Robert T.; Tonikian, Dina N.; and Makarenko, Alexandr V., 4,316,369, Cl. 66-81.000.

Danfoss A/S: See—
Hansen, Gunnar L.; and Hansen, Christian B., 4,316,707, Cl. 418-60.000.

Tandrup, Niels; and Petersen, Alex, 4,316,486, Cl. 137-625.640.

Daniels, Steven D., to Eastman Kodak Company. Infrared filter exposure compensation apparatus. 4,316,659, Cl. 354-42.000.

Daughenbaugh, Gerald A.; Koob, Philip W.; Moxley, Arthur E.; and Wallace, Joseph E., to International Business Machines Corporation. Sandwich type magnetoresistive read head. 4,317,147, Cl. 360-113.000.

Davidson, Allen L.; and Cohn, Jona, to Motorola, Inc. Tag generator for a same-frequency repeater. 4,317,217, Cl. 455-24.000.

Davidson, Donald R.; and Peterson, Wesley R., to Singer Company. The Button attaching tool. 4,316,562, Cl. 223-102.000.

Davis, Charles M., Jr. Compact can crusher. 4,316,410, Cl. 100-48.000.

Davison, John A.: See—
Rim, Yong S.; Davison, John A.; and Nudenberg, Walter, 4,316,971, Cl. 525-310.000.

Davlin, Irwin H. Access union. 4,316,624, Cl. 285-158.000.

Davydov, Jury V.: See—
Zelenov, Petr I.; Usachev, Petr A.; Davydov, Jury V.; Lyakhov, Vyacheslav P.; Zelenova, Irina M.; Aleinikov, Nikolai A.; Sladkovich, Vladen F.; and Titov, Viktor I., 4,316,542, Cl. 209-39.000.

Dayron Corporation: See—
Hermanson, Gerald P., 4,316,414, Cl. 102-247.000.

de Almada, Fernando F. Energy harnessing apparatus. 4,317,047, Cl. 290-53.000.

Dean, Q. Wayne, to Offshore Company. The. Riser angle positioning system and process. 4,317,174, Cl. 364-432.000.

de Bruyne, Pieter. Position-determining system. 4,317,005, Cl. 178-19.000.

Dechantsreiter, Max J., to Harnischfeger Corporation. Mechanism for latching connecting telescoping members. 4,316,528, Cl. 187-9.00E.

Decker, Werner, to Windmoller & Holscher. Method and apparatus for severing tube sections from tubular webs and transporting same. 4,316,723, Cl. 493-419.000.

DeCristofaro, Nicholas J.; and Henschel, Claude, to Allied Corporation. Homogeneous brazing foils of copper based metallic glasses. 4,316,573, Cl. 228-263.00R.

DeCristofaro, Nicholas J.: See—
Sexton, Peter; and DeCristofaro, Nicholas J., 4,316,572, Cl. 228-263.00R.

Deere & Company: See—
Pickett, Terence D.; and Formwalt, Charles W., Jr., 4,317,232, Cl. 455-606.000.

De Fraites, Emanuel G. Refuse disinfection device. 4,316,871, Cl. 422-26.000.

De Frees, Joseph H. Liquid level valve. 4,316,484, Cl. 137-389.000.

DeGeeter, Melvin J.; and McCall, John M., to Upjohn Company, The. Animal feed and process. 4,316,901, Cl. 424-251.000.

Degeneff, Robert C.; and Crouse, John C., to General Electric Company. Electrostatic shielding of nonsequential disc windings in transformers. 4,317,096, Cl. 336-70.000.

Degussa Aktiengesellschaft: See—
Bozon, Alfred; Koberstein, Edgar; Pletka, Hans-Dieter; and Voelker, Herbert, 4,316,823, Cl. 252-465.000.

Dekker, Cornelis B.; and Boschma, Klaas M., to U.S. Philips Corporation. Coherent receiver for angle-modulated data signals. 4,317,210, Cl. 375-76.000.

Delacour, Jacques: See—
Bocard, Christian; Delacour, Jacques; and Renault, Philippe, 4,316,804, Cl. 210-671.000.

Delmonte, John. Fiber reinforced cementitious castings. 4,316,925, Cl. 428-105.000.

Del Nero, Claude, to Fichet-Bauche. High safety bolt control devices. 4,316,371, Cl. 70-417.000.

DeMaria, Francesco: See—
Pfeiffer, Ronald E.; and DeMaria, Francesco, 4,316,714, Cl. 425-382.200.

de Mesmaeker, Ivan; and Muller, Peter, to BBC Brown, Boveri & Company Limited. Apparatus for fault direction-comparison protection. 4,317,151, Cl. 361-69.000.

Denham, Daniel S.: See—
Griffith, Thomas D.; and Denham, Daniel S., 4,316,809, Cl. 252-8.55D.

De Niet, Edmond; and Rijckaert, Albert M. A., to U.S. Philips Corporation. Azimuth correction of head gaps. 4,317,144, Cl. 360-76.000.

Denny, Richard W.; and Diddens, Paul A., to Honeywell, Inc. Fail safe control circuit. 4,317,018, Cl. 219-216.000.

Denoor, Gaston; and Thillet, Georges, to Neyrpic. Tubular obturator for use with a hollow body. 4,316,487, Cl. 138-89.000.

Densmore, Richard M.: See—
Klieman, Charles H.; and Densmore, Richard M., 4,316,468, Cl. 128-325.000.

Dequasie, Andrew, to Sprague Electric Company. AC Capacitor. 4,317,158, Cl. 361-272.000.

Dequasie, Andrew, to Sprague Electric Company. AC Capacitor and impregnant therefor. 4,317,159, Cl. 361-318.000.

des Etablissement Public de Diffusion Dit "Telediffusion de France": See—
Guinet, Yves M., 4,317,132, Cl. 358-142.000.

de Schrijver, Marc, to Solco Basel AG. Radioactive composition. 4,316,883, Cl. 424-1.000.

Desplats, Andre, to Tractel S.A. Device for pressing a cable against the bottom of a pulley groove. 4,316,602, Cl. 254-270.000.

deStevens, George: See—
Carney, Richard W. J.; and deStevens, George, 4,316,850, Cl. 260-326.100.

DeVera, Dennis: See—
Franz, Rudolph J.; DeVera, Dennis; and Dahlstrom, James A., 4,316,479, Cl. 137-85.000.

DeVries, Robert C.; and Tuft, Roy E., to General Electric Company. Fingerprinting crystals. 4,316,385, Cl. 73-104.000.

de Winter, Koen M. M., to Mepalservice B.V. Canister closure. 4,316,550, Cl. 215-360.000.

Dey, Arabinda N., to Duracell International Inc. Rechargeable non-aqueous silver alloy anode cell. 4,316,777, Cl. 204-2.100.

Diamond Shamrock Industrial Chemicals Limited: See—
Walkden, David J., 4,316,832, Cl. 260-31.80N.

Diddens, Paul A.: See—
Denny, Richard W.; and Diddens, Paul A., 4,317,018, Cl. 219-216.000.

Diehl GmbH & Co.: See—
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Diesel Kiki Company, Ltd.: See—
Sakuranaka, Toru; Kobayashi, Masayoshi; and Nakagawa, Sachio, 4,316,441, Cl. 123-502.000.

Dieterlen, Paul E.: See—
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Dietz, Richard E.: See—
Welch, Melvin B.; and Dietz, Richard E., 4,316,818, Cl. 252-429.00B.

Dijkman, Eise C.; and van de Plassche, Rudy J., to U.S. Philips Corporation. Two transistor switch. 4,317,128, Cl. 357-46.000.

DiLorenzo, Mark. Television reception interfering apparatus. 4,317,213, Cl. 455-1.000.

Dinegar, Robert H.; and Kirkham, John, to United States of America, Energy. Low voltage nonprimary explosive detonator. 4,316,412, Cl. 102-202.500.

Diversified Products Corporation: See—
Silberman, Ira J., 4,316,609, Cl. 272-118.000.

Dixon, Kenneth W.: See—
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Dodge, Robert J., to Pennwalt Corporation. Solar energy concentrator system. 4,316,448, Cl. 126-424.000.

Dohogne, James R., to Sperry Corporation. Magnetically suspended free rotor gyroscope. 4,316,394, Cl. 74-5.460.

Dolan, Daniel F.: See—
Liu, Benjamin Y. H.; Kittelson, David B.; Dolan, Daniel F.; and Pui, David Y. H., 4,316,360, Cl. 60-275.000.

Donald L. Morton & Associates: See—
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Dorina Nahmaschinen GmbH: See—
Meier, Willi, 4,316,422, Cl. 112-258.000.

Dotson, Robert S., Jr. Ophthalmic handpiece with pneumatically operated cutter. 4,316,465, Cl. 128-276.000.

Dougherty, Lawrence W., to Zenith Radio Corporation. Shadow mask suspension system. 4,317,064, Cl. 313-406.000.

Dow Chemical Company, The: See—
Perine, Donald R.; and Lucas, Peter A., 4,316,922, Cl. 428-35.000.

Skach, Allen G.; Childress, David L.; and Hayes, William V., 4,316,708, Cl. 425-73.000.

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Dragerwerk Aktiengesellschaft: See—
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Draiswerke GmbH: See—
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Dravo Corporation: See—
Leonhardt, Alexander, 4,316,543, Cl. 209-673.000.

Dresser Industries, Inc.: See—
Klimowicz, Richard F., 4,316,549, Cl. 213-127.000.

Martin, Albert E., 4,316,417, Cl. 105-197.0DB.

Randall, Russel R., 4,317,034, Cl. 250-262.000.

Drugge, Roland, to Luossavaara - Kiirunavaara Aktiebolag. Heating or heat-treatment plant. 4,316,718, Cl. 432-58.000.

Duggan, William R.; and Heath, John M., to Micro-Precision, Inc. Annular power tool. 4,316,328, Cl. 30-389.000.

Dunn, Michael A.: See—
Mason, Neil E.; Dunn, Michael A.; and Mannor, James E., 4,316,338, Cl. 42-1.00G.

Du Pont de Nemours, E. I., and Company: See—
Auldermarsh, Carl A., Jr., 4,316,836, Cl. 260-42.210.

Bergna, Horacio E., 4,316,744, Cl. 106-38.350.

Cohen, Abraham B.; and Fan, Roxy N., 4,316,951, Cl. 430-253.000.

England, David C.; Kraft, Robert L.; and Krespan, Carl G., 4,316,986, Cl. 560-184.000.

Holyoke, Caleb W., Jr., 4,316,911, Cl. 424-298.000.

Thornley, Glenn D., 4,316,940, Cl. 428-413.000.

Wellborn, James L., 4,316,711, Cl. 425-198.000.

Duracell International Inc.: See—
Dey, Arabinda N., 4,316,777, Cl. 204-2.100.

Dyachkov, Vasily M.: See—
Shlykov, Gennady N.; Zhestkov, Vitaly I.; Tikhonov, Valentin N.; Dyachkov, Vasily M.; and Kudelin, Alexandr K., 4,316,314, Cl. 29-123.000.

Dybas, Richard A.: See—
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Dybwad, Gay L.: See—
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Dynamics Corporation of America: See—
Valbona, Bruno M., 4,316,584, Cl. 241-38.000.

Dynaplot: See—
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E. R. Squibb & Sons, Inc.: See—
Krapcho, John, 4,316,905, Cl. 424-274.000.

Ondetti, Miguel A.; and Krapcho, John, 4,316,906, Cl. 424-274.000.

E-Tech, Inc.: See—
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Eastman Kodak Company: See—
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Henry, James W., 4,316,867, Cl. 264-169.000.

McIntire, John M.; Hawkins, James M.; and Vachon, Raymond N., 4,316,929, Cl. 428-262.000.

Morris, Don L., 4,316,990, Cl. 568-461.000.

Petrak, Karel L., 4,316,972, Cl. 525-336.000.

Snoke, Roy E.; and Esders, Theodore W., 4,316,954, Cl. 435-4.000.

Woo, Nea-Yea; and Lee, Teh-Hsuang, 4,317,134, Cl. 358-213.000.

Eaton Corporation: See—
Clopton, Robert T., 4,316,614, Cl. 279-1.00G.

Franz, Rudolph J.; DeVera, Dennis; and Dahlstrom, James A., 4,316,479, Cl. 137-85.000.

Eckhardt, Wolfgang: See—
Kunz, Walter; Eckhardt, Wolfgang; and Hubele, Adolf, 4,316,909, Cl. 424-279.000.

Eckloff, Martin. Locking device for utility locks with a key signal transmitter and a key signal receiver. 4,317,157, Cl. 361-172.000.

Eckmann, Gerald C.: See—
Baker, Randy S.; and Eckmann, Gerald C., 4,316,504, Cl. 166-53.000.

Edwards, Earl G.; Robinson, Jerry T.; and Wilzbach, Bernard L., to International Business Machines Corporation. Copier and recirculating document feeder. 4,316,667, Cl. 355-3.0SII.

Eguchi, Tsukasa; and Morozumi, Mituharu, to Asahi Glass Company Ltd.; and Kashima Kagaku, Co. Rubber stopper for sealing. 4,316,941, Cl. 428-421.000.

Eibl, Hansjorg, to Max Planck-Gesellschaft. Filter for the removal of apolar organic substances from gases. 4,316,730, Cl. 55-524.000.

Eichel, Herman J.: See—
Alam, Abu S.; and Eichel, Herman J., 4,316,884, Cl. 424-19.000.

Eisminger, Larry D., to Sweet Home Stove Works, Inc. Combustion air intake system for wood-burning stove. 4,316,445, Cl. 126-77.000.

El Paso Products Company: See—
Nash, William D., 4,316,775, Cl. 203-43.000.

Elbe, Hans-Ludwig: See—
Stetter, Jorg; Homeyer, Bernhard; Hammann, Ingeborg; and Elbe, Hans-Ludwig, 4,316,910, Cl. 424-298.000.

Electric Electronic Service Jens Spethmann, Firma: See—
Spethmann, Jens, 4,316,474, Cl. 128-804.000.

Electronic Systems Division, Geosource, Inc.: See—
Kiowski, John W.; and Rolando, John V., 4,316,702, Cl. 417-12.000.

Eli Lilly and Company: See—
Abbott, Bernard J.; and Berry, Dennis R., 4,316,955, Cl. 435-47.000.

Chauvette, Robert R., 4,316,842, Cl. 260-245.20R.

Clinton, Albert J.; deceased; and O'Doherty, George O. P., 4,316,988, Cl. 564-433.000.

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Ellis, Howard F.; and Kresge, James S., to General Electric Company. Stable high voltage DC varistor. 4,317,101, Cl. 338-21.000.

Elmwood Sensors, Inc.: See—
Colavecchio, Robert, 4,317,098, Cl. 337-113.000.

Elsasser, Horst A.: See—
Rieger, Werner; and Elsasser, Horst A., 4,316,537, Cl. 198-731.000.

Elser, Karl H.; and Kerl, Russell R., to International Business Machines Corporation. Magnetic head having static discharge means. 4,317,149, Cl. 360-126.000.

Emerson Electric Co.: See—
Karaktin, Vincent M., 4,317,164, Cl. 362-432.000.

Engelhard Minerals & Chemicals Corp.: See—
Voss, Kenneth E., 4,316,813, Cl. 252-189.000.

Engelhart, John E.: See—
Giltitz, Melvin H.; Engelhart, John E.; and Russo, David A., 4,316,853, Cl. 260-429.700.

Engira, Ram M.: See—
Weed, Herman R.; and Engira, Ram M., 4,317,078, Cl. 324-208.000.

England, David C.; Kraft, Robert L.; and Krespan, Carl G., to Du Pont de Nemours, E. I., and Company. Preparation of difluoromalonyl fluoride. 4,316,986, Cl. 560-184.000.

English Clays Lovering Pochin & Company Ltd.: See—
Jepson, Walter B.; Riley, Peter W.; and Hocking, David, 4,316,798, Cl. 209-223.00R.

Enomoto, Youichi: See—
Suzuki, Minoru; Murakami, Toshiaki; Inamura, Takahiro; Inukai, Takashi; and Enomoto, Youichi, 4,316,785, Cl. 204-192.00S.

Ensminger, Dale: See—
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Erickson, Paul M.: See—
Craig, Timothy P.; Stimple, James R.; and Erickson, Paul M., 4,317,229, Cl. 455-277.000.

Erth, Richard A., to Borg-Warner Corporation. Inverter-motor system with different control characteristics for inverter voltage and frequency. 4,317,074, Cl. 318-808.000.

Esch, Fred S.: See—
Guillemin, Roger C. L.; Ling, Nicholas C.; Esch, Fred S.; Bohlen, Peter; and Brazeau, Paul E., Jr., 4,316,891, Cl. 424-177.000.

Esders, Theodore W.: See—
Snoke, Roy E.; and Esders, Theodore W., 4,316,954, Cl. 435-4.000.

Esposito, Christopher, to Four Seasons Solar Products Corporation. Greenhouse and solarium structures and related method. 4,316,405, Cl. 98-33.00R.

Esposito, Robert A.; Valego, Frederick F., Jr.; and Hoagland, John C., to Monsanto Company. Extruding colored thermoplastic resin sheets. 4,316,868, Cl. 264-171.000.

Essette Pendaflex Corporation: See—
Becker, Werner; and Schwobel, Richard, 4,316,759, Cl. 156-387.000.

Etat Francais: See—
Besson, Raymond, 4,317,059, Cl. 310-361.000.

Euram Italia S.p.A.: See—
Felicetti, Luigi, 4,316,564, Cl. 225-77.000.

Evans, Hugh W., to Atlantic Richfield Company, a part interest. Ore carrier, 4,316,682, Cl. 406-187.000.

Evans, Jack L. Vehicle wind deflectors, 4,316,630, Cl. 296-1.00S.

Evans, John W.; and Young, Gary C., to Stauffer Chemical Company. Production of USP quality lactose, 4,316,749, Cl. 127-55.000.

Evans, Joseph H.: See—
Middleman, Lee M.; and Evans, Joseph H., 4,317,027, Cl. 219-553.000.

Evertz, Werner: See—
Schenk, Wolfgang; Blank, Heinz U.; Hagedorn, Ferdinand; and Evertz, Werner, 4,316,862, Cl. 260-543.00R.

Exxon Research & Engineering Co.: See—
Bryan, T. James; Hartman, George W.; and Wilson, Arthur G., 4,317,138, Cl. 358-291.000.

Canevari, Gerard P., 4,316,806, Cl. 210-708.000.

Makowski, Henry S.; Lundberg, Robert D.; and Bock, Jan, 4,316,828, Cl. 260-23.50A.

Nelson, Richard L., 4,317,139, Cl. 358-300.000.

F. Jos. Lamb Company: See—
Brems, John H.; and Graham, James T., 4,316,535, Cl. 198-473.000.

Fan, Roxy N.: See—
Cohen, Abraham B.; and Fan, Roxy N., 4,316,951, Cl. 430-253.000.

Farley, Richard T.: See—
Harrington, William S.; and Farley, Richard T., 4,316,352, Cl. 52-656.000.

Farmer, Felta C., Jr., to RCA Corporation. RF Generator monitor circuit, 4,317,223, Cl. 455-115.000.

Farmer, Rodney C.; Goldsmith, Hugh A.; and Proudlove, Michael J., to Nuclear Power Company Limited. Suction pads for supporting loads, 4,316,628, Cl. 294-64.00R.

Faunce and Associates, Inc.: See—
Faust, Elbert R.; and Faunce, Stuart F., 4,316,805, Cl. 210-693.000.

Faunce, Stuart F.: See—
Faust, Elbert R.; and Faunce, Stuart F., 4,316,805, Cl. 210-693.000.

Faust, Elbert R.; and Faunce, Stuart F., to Faunce and Associates, Inc. Oil separation and recovery process and apparatus, 4,316,805, Cl. 210-693.000.

Favreau, Michel, to Thomson CSF. Apparatus for the digitization of videofrequency television signals, 4,317,129, Cl. 358-13.000.

Featherspring International Corporation: See—
Rothschild, Harvey, 4,316,333, Cl. 36-50.000.

Federal Paper Board Company, Inc.: See—
Manizza, Guelfo A., 4,316,538, Cl. 206-216.000.

Feffer, Philip C., to Chevron Research. Bounce crimping apparatus, 4,316,311, Cl. 28-248.000.

Felicetti, Luigi, to Euram Italia S.p.A. Dispenser for tinfoil and the like, 4,316,564, Cl. 225-77.000.

Fencl, Vernon R.; and Javorik, Laszlo, to Grottes Metalforming Systems, Inc. Roll forging machine, 4,316,377, Cl. 72-189.000.

Fengler, Gerd: See—
Idel, Karsten; Serini, Volker; Freitag, Dieter; and Fengler, Gerd, 4,316,980, Cl. 528-199.000.

Fenton, Dennis M.: See—
Kita, Donald A.; and Fenton, Dennis M., 4,316,960, Cl. 435-137.000.

Ferer, Kenneth M., to United States of America, Navy. Contrahelically laid torque balanced benthic cable, 4,317,000, Cl. 174-70.00R.

Fernsler, Ronald E.; and Willis, Donald H., to RCA Corporation. Two-loop horizontal AFPC system, 4,317,133, Cl. 358-158.000.

Ferrari, Mario. Flexible container and expeller, 4,316,556, Cl. 222-95.000.

F'Geppert, Erwin, to United States of America, Army. Means for securing two elements against relative axial movement, 4,316,678, Cl. 403-259.000.

Fialkov, Jury A.; and Shelyazhenko, Svetlana V. Process for preparing difluoromethoxy derivatives of aromatic aldehydes, 4,316,989, Cl. 568-433.000.

Fichet-Bauche: See—
Del Nero, Claude, 4,316,371, Cl. 70-417.000.

Fillman, Russell L., to Woodford Manufacturing Company. Wall hydrant, 4,316,481, Cl. 137-302.000.

Fillot, Jean-Jacques Y. Remote monitoring system for remote locating and gain regulating of amplification circuits in data transmission line, 4,317,010, Cl. 179-175.31R.

Findell, Max. Central focus solar energy system, 4,317,031, Cl. 250-203.00R.

Finley, Joseph H.: See—
Pinsky, Michael L.; Finley, Joseph H.; and Lutz, Charles W., 4,316,879, Cl. 423-265.000.

Firestone Tire & Rubber Company, The: See—
Hergenrother, William L.; Schwarz, Richard A.; Ambrose, Richard J.; and Hayes, Robert A., 4,316,967, Cl. 525-111.000.

Fischer & Porter Company: See—
Head, Victor P., 4,317,178, Cl. 364-510.000.

Fischer, Warren G. X-ray film processor with switching heaters, 4,316,663, Cl. 354-299.000.

Fitzgerald, John; and Kessler, Jan A. H., to U.S. Philips Corporation. Bowl mirrored lamp, 4,317,060, Cl. 313-113.000.

Fitzsimmons, William A.; and Rosocha, Louis A. Dielectric surface electrical discharge device, 4,317,067, Cl. 315-150.000.

Fives-Cail Babcock: See—
Guzik, Didier, 4,316,585, Cl. 241-211.000.

Fladby, Tron-Halvard: See—
Hovind, Leif; and Fladby, Tron-Halvard, 4,316,725, Cl. 55-41.000.

Flaugh, Ronald C. Vehicle towing apparatus, 4,316,617, Cl. 280-402.000.

Flaum, Stephen S.; and Zielinski, Jozef Z., to S&S Corrugated Paper Machinery Co., Inc. Fluid metering device, 4,316,428, Cl. 118-203.000.

Flaum, Stephen S.; and Leff, Martin J., to S&S Corrugated Paper Machinery Co., Inc. Adhesive metering device for corrugating processes, 4,316,755, Cl. 156-205.000.

FMC Corporation: See—
Pinsky, Michael L.; Finley, Joseph H.; and Lutz, Charles W., 4,316,879, Cl. 423-265.000.

Fodor, Joseph E. Solar heater, 4,316,449, Cl. 126-429.000.

Foley, James W.: See—
Cincotta, Louis; and Foley, James W., 4,316,950, Cl. 430-221.000.

Foller, Peter C.; and Tobias, Charles W., to University of California, Regents of the. Electrolytic process for the production of ozone, 4,316,782, Cl. 204-129.000.

Ford, Michael E.; and Johnson, Thomas A., to Air Products and Chemicals, Inc. Reforming linear polyamines, 4,316,840, Cl. 260-239.0BC.

Ford, Michael E.; and Johnson, Thomas A., to Air Products and Chemicals, Inc. Reforming linear polyamines, 4,316,841, Cl. 260-239.0BC.

Ford Motor Company: See—
Gerlock, John L.; Braslaw, Jacob; and Albright, Jane, 4,316,992, Cl. 568-621.000.

Ford, Robert J.: See—
Scarpatti, Thomas S.; and Ford, Robert J., 4,316,701, Cl. 416-226.000.

Foreman, Dave O. Steam cooking apparatus, 4,316,447, Cl. 126-369.000.

Forenade Fabriksverken: See—
Ritzling, Bertil, 4,316,317, Cl. 29-468.000.

Formwalt, Charles W., Jr.: See—
Pickett, Terence D.; and Formwalt, Charles W., Jr., 4,317,232, Cl. 455-606.000.

Forsyth, James M.: See—
Rosenbluth, Alan E.; and Forsyth, James M., 4,317,043, Cl. 250-510.000.

Fottinger, Walter: See—
Tischer, Kurt; Tecl, Bohuslav; and Fottinger, Walter, 4,316,931, Cl. 428-267.000.

Four Seasons Solar Products Corporation: See—
Esposito, Christopher, 4,316,405, Cl. 98-33.00R.

France Ebauches S.A.: See—
Huot-Marchand, Daniel; and Zangiacomi, Fernand, 4,317,187, Cl. 368-88.000.

Frankland, Roger A., to Beckman Instruments, Inc. Valve means and mercury reservoir for gas discharge display, 4,317,062, Cl. 313-175.000.

Franks, Arnold: See—
Levin, Julian; and Franks, Arnold, 4,316,766, Cl. 156-631.000.

Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H.: See—
Theurer, Josef; and Oellerer, Friedrich, 4,316,416, Cl. 104-2.000.

Franz, Rudolph J.; De Vera, Dennis; and Dahlstrom, James A., to Eaton Corporation. Vacuum modulator valve and subassembly therefor, 4,316,479, Cl. 137-85.000.

Fraser, Ian E. B. Tape for use as the warp and weft of woven fabrics particularly useful for packaging, 4,316,933, Cl. 428-294.000.

Frederick Electronics Corp.: See—
Barthelme, Julius A., 4,317,209, Cl. 375-62.000.

Freitag, Dieter: See—
Idel, Karsten; Serini, Volker; Freitag, Dieter; and Fengler, Gerd, 4,316,980, Cl. 528-199.000.

Friedman, Naomi P. Fitted bed covering, 4,316,299, Cl. 5-485.000.

Friello, Dominick R.; Parker, Ellery; Mackay, Donald A. M.; and Cherukuri, Subraman R., to Life Savers, Inc. Center-filled chewing gums, 4,316,915, Cl. 426-5.000.

Frohberger, Paul-Ernst: See—
Kranz, Eckart; Kramer, Wolfgang; Buchel, Karl H.; Brandes, Wilhelm; and Frohberger, Paul-Ernst, 4,316,932, Cl. 424-269.000.

Fruman, Daniel; and Tulin, Marshall, to Agence Nationale de Valorisation de la Recherche (ANVAR). Apparatus for measuring the representative parameters of rheological properties of viscoelastic fluids, 4,316,383, Cl. 73-55.000.

Fuchs, Rainer; Hammann, Ingeborg; and Stendel, Wilhelm, to Bayer Aktiengesellschaft. Arthropodically active styrylcyclopropanecarboxylic acid esters, 4,316,913, Cl. 424-304.000.

Fuchs, Rainer; Maurer, Fritz; Priesnitz, Uwe; and Riebel, Hans-Jochem, to Bayer Aktiengesellschaft. Preparation of 4-fluoro-3-phenoxy-toluene, 4,316,994, Cl. 568-639.000.

Fuji Photo Film Co., Ltd.: See—
Kato, Hisatoye; Ishida, Masamitsu; and Matsumoto, Seiji, 4,317,179, Cl. 364-515.000.

Namiki, Tomizo; Seshimoto, Osamu; Shinozaki, Fumiaki; Nahara, Akira; and Ikeda, Tomoaki, 4,317,123, Cl. 346-135.100.

Fujii, Shigeru: See—
Tanaka, Hiroyoshi; Fujii, Shigeru; and Suzuki, Mitsuo, 4,316,937, Cl. 428-376.000.

Fujimura, Noriaki; Kinoshita, Tsuneo; Aono, Tadashi; Kaku, Takashi; and Tanaka, Yasuya, to Nippon Telegraph and Telephone Public

Corporation; and Fujitsu Limited, JPX. Data transmission system, 4,317,207, Cl. 375-19.000.

Fujise, Masayuki: See—
Yamamura, Kazuomi; Fukui, Takasuke; Iwamoto, Yoshinao; Shirasaki, Yuichi; and Fujise, Masayuki, 4,317,079, Cl. 324-326.000.

Fujishiro, Takeshi: See—
Takase, Sadao; and Fujishiro, Takeshi, 4,317,182, Cl. 364-734.000.

Fujita, Takashi: See—
Kawai, Mituo; Fujita, Takashi; Shirai, Hideo; Nakagawa, Masatoshi; and Abe, Hiroshi, 4,316,743, Cl. 75-124.000.

Fujitani, Yoshiyasu; Muraki, Hideaki; Kondoh, Shiroh; Tomita, Makoto; Yokota, Kouji; Sobukawa, Hideo; and Nakamura, Tamotsu, to Kabushiki Kaisha Toyota Chuo Kenkyusho. Catalyst for purifying exhaust gases, 4,316,822, Cl. 252-462.000.

Fujitsu Limited: See—
Fujimura, Noriaki; Kinoshita, Tsuneo; Aono, Tadashi; Kaku, Takashi; and Tanaka, Yasuya, 4,317,207, Cl. 375-19.000.

Fujiyama, Hikaru: See—
Kasama, Tsuneo; Fujiyama, Hikaru; Nagaoka, Tadahiko; and Katoh, Masayoshi, 4,316,874, Cl. 422-126.000.

Fukui, Takasuke: See—
Yamamura, Kazuomi; Fukui, Takasuke; Iwamoto, Yoshinao; Shirasaki, Yuichi; and Fujise, Masayuki, 4,317,079, Cl. 324-326.000.

Fukuoka, Norio, to Olympus Optical Company Limited. Voice frequency signal actuated tape recorder, 4,317,189, Cl. 369-7.000.

Furia, Edoardo: See—
Manini, Benito; Furia, Edoardo; Stefani, Eugenio; Baldi, Giuliano; Barracchia, Pasquale; Cacciapuoti, Beniamino; and Mattei, Bruno, 4,316,488, Cl. 139-13.00R.

Furukawa, Takashi: See—
Kaneko, Kunishige; Tashiro, Mamoru; Takemoto, Nagayasu; Imabayashi, Itaru; and Furukawa, Takashi, 4,316,753, Cl. 148-12.00F.

G. D. Searle & Co.: See—
Jones, David A., 4,316,892, Cl. 424-177.000.

Gardner, Hugh C., to Union Carbide Corporation. Polyester resin compositions, 4,316,835, Cl. 260-40.00R.

Gauthier, Jean, to Astin-France Assistance Technique Industrielle. Device for regulating the tension of a travelling web, 4,316,587, Cl. 242-75.530.

Gavlin, Gilbert; and Cesas, Romas, to Custom Organics, Inc. Recovery of aprotic amides, 4,316,846, Cl. 260-326.450.

Gehlbach Engineering Ltd.: See—
Gehlbach, Roger D., 4,316,525, Cl. 182-106.000.

Gehlbach, Roger D., to Gehlbach Engineering Ltd. Ladder for play structure, 4,316,525, Cl. 182-106.000.

Gehlen, Jakob; and Wortmann, Hans, to ITT Industries, Inc. Floating caliper disc brake, 4,316,530, Cl. 188-73.390.

Geist, John K., to Nissen Corporation. Tumbling floor, 4,316,297, Cl. 5-420.000.

General Dynamics, Pomona Division: See—
Speer, Spencer J., 4,316,673, Cl. 366-337.000.

General Electric Company: See—
Brunelle, Daniel J., 4,316,981, Cl. 528-199.000.

Cusano, Dominic A.; Swank, Robert K.; and White, Philip J., 4,316,817, Cl. 252-301.180.

Degenoff, Robert C.; and Crouse, John C., 4,317,096, Cl. 336-70.000.

DeVries, Robert C.; and Tuft, Roy E., 4,316,385, Cl. 73-104.000.

Ellis, Howard F.; and Kresge, James S., 4,317,101, Cl. 338-21.000.

Kirkpatrick, Robert G.; Snyder, Ronald R.; and Sibley, Lincoln L., Jr., 4,316,403, Cl. 89-12.000.

Nagamatsu, Brian H.; and Rolsma, Barney, 4,316,435, Cl. 122-235.00F.

Perry, Fred G., 4,317,218, Cl. 455-54.000.

Slusarczyk, George M. J.; and Brooks, Ronald E., 4,316,938, Cl. 428-403.000.

Tillson, Robert S.; Olashaw, William F.; and Postlethwait, James H., 4,317,160, Cl. 361-339.000.

General Foods Corporation: See—
Adams, Joan M.; Shoaf, Myron B.; Bochmann, Carl E.; and Basile, Peter A., 4,316,409, Cl. 99-275.000.

General Mills, Inc.: See—
Pommer, Dennis L.; and Coleman, Paul E., 4,316,384, Cl. 73-76.000.

General Signal Corporation: See—
Auer, John H., Jr.; and Birnbaum, David, 4,316,652, Cl. 350-276.00R.

General Tire & Rubber Co., The: See—
Burk, Michael D.; Hipsher, Gary L.; and Nicoles, Gregory M., 4,316,643, Cl. 308-26.000.

Genese, Joseph N.; and Muetterties, Andrew J., to Abbott Laboratories. Gravitational flow system for the sequential administration of medical liquids, 4,316,460, Cl. 128-214.00R.

Gengler, Robert H., to Western Electric Company, Inc. Apparatus and method for cleaning a flux station of a soldering system, 4,316,750, Cl. 134-18.000.

Gentile, Joseph P., to Vamco Machine and Tool, Inc. Oscillating cam feed apparatus for a press, 4,316,569, Cl. 226-158.000.

Gentry, Charles B.; and Scanlon, Robert M., to Granco Equipment, Inc. Ceramic heat exchanger with hot adjustment face seals, 4,316,500, Cl. 165-9.000.

George, William A., to Black & Decker Inc. Plunge type router, 4,316,685, Cl. 409-182.000.

Gerecke, Max; Haefely, Willy; Hunkeler, Walter; Kyburz, Emilio; Mohler, Hanns; Pieri, Lorenzo; and Polc, Petar, to Hoffman-La Roche Inc. Imidazodiazepine derivatives, 4,316,839, Cl. 260-239.30T.

Gerlock, John L.; Braslaw, Jacob; and Albright, Jane, to Ford Motor Company. Process for polyol recovery from polyurethane foam comprising alcohol and steam hydrolysis, 4,316,992, Cl. 568-621.000.

Gernert, Herbert, to AGFA-Gevaert Aktiengesellschaft. Photographic emulsion containing a stabilizer, a process for its production and photographic materials, 4,316,953, Cl. 430-569.000.

Gervais, William J., to Micropolis Corporation. Compact magnetic disk storage system, 4,317,146, Cl. 360-98.000.

Gesellschaft fur Strahlen-und Umweltforschung mbH: See—
Uerpmann, Ernst-Peter, 4,316,814, Cl. 252-633.000.

Getgen, Lawrence E., to GTE Automatic Electric Laboratories, Inc. Carrier frequency spectrum generator using logic level input pulses, 4,317,194, Cl. 370-121.000.

GFF, Inc.: See—
Wilson, Robert J., 4,316,756, Cl. 156-227.000.

Ghosh, Sambhunath: See—
Klass, Donald L.; and Ghosh, Sambhunath, 4,316,961, Cl. 435-167.000.

Giacomo, Pack. Bow string release aid, 4,316,443, Cl. 124-35.00A.

Gibson, Duane M.: See—
Scott, Lewis A.; and Gibson, Duane M., 4,316,327, Cl. 30-386.000.

Giese, Erik O.; and Gross, Alexander L., to Comfort Products, Inc. Athletic shoe construction having shock absorbing elements, 4,316,332, Cl. 36-28.000.

Giese, Erik O.; and Gross, Alexander L., to Comfort Products, Inc. Athletic shoe construction, 4,316,335, Cl. 36-129.000.

Gilbert, Arthur H., to Imperial Chemical Industries Limited. Dimerization process, 4,316,857, Cl. 260-465.80D.

Girgis, Mikhail M., to PPG Industries, Inc. Modified phenolic aldehyde resin to produce an improved adhesive coating and method of making same, 4,316,968, Cl. 525-135.000.

Gillitz, Melvin H.; Engelhart, John E.; and Russo, David A., to M&T Chemicals Inc. Insecticidal tetraorganotin compounds, 4,316,853, Cl. 260-429.700.

Glaxo Group Limited: See—
Oxford, Alexander W.; Bradshaw, John; and Coates, Ian H., 4,316,907, Cl. 424-275.000.

Gmeinder, Hermann: See—
Beier, Stefan; and Gmeinder, Hermann, 4,317,112, Cl. 340-568.000.

Goddard, Denis A., to Beloit Corporation. Pulse free stock screen and combination pump, 4,316,768, Cl. 162-336.000.

Goeth, Hans: See—
Wetzel, Bernd; Waitun, Eberhard; Maier, Roland; Rueter, Wolfgang; Lechner, Uwe; and Goeth, Hans, 4,316,898, Cl. 424-246.000.

Goethals, Rafael A. J.: See—
Van Hijfte, Willy H. P.; and Goethals, Rafael A. J., 4,316,736, Cl. 71-59.000.

Gold, Louis. Coal reactor conservation of blast furnace coke, 4,316,740, Cl. 75-42.000.

Goldberg, Gershon M.: See—
Masters, Joseph I.; Goldberg, Gershon M.; and Lavine, Jerome M., 4,316,946, Cl. 430-9.000.

Goldner, Richard. Adjustable end pin for the violoncello and the string bass, 4,316,402, Cl. 84-280.000.

Goldsmith, Hugh A.: See—
Farmer, Rodney C.; Goldsmith, Hugh A.; and Proudlove, Michael J., 4,316,628, Cl. 294-64.00R.

Goldstein, Irv. Inclined bicycle storage rack employing channel with midpoint frame shackle, 4,316,544, Cl. 211-5.000.

Gongwer, Calvin A., to Innerspace Corporation. Fluid control valve, 4,316,478, Cl. 137-14.000.

Goodman, Robert B.; and Seger, Charles C., to United Technologies Corporation. Compact valve actuator, 4,316,597, Cl. 251-58.000.

Goodyear Tire & Rubber Company, The: See—
Collonge, Jacques H.; and Widmer, Hans, 4,316,996, Cl. 568-784.000.

Greenwood, Alan, 4,316,710, Cl. 425-186.000.

Lin, Leroy C., 4,316,716, Cl. 425-72.00S.

Goof, Sven K. L.; and Hansen, Jens S. Electric motor with rotational speed regulation, 4,317,072, Cl. 318-138.000.

Goon, Harry; and Spector, George. Vehicular salt dispenser, 4,316,625, Cl. 291-1.000.

Gordy, Robert S.; Sanders, David E.; and Chambers, Ramon P., to NCR Corporation. Spread spectrum conferencing communication system, 4,317,204, Cl. 375-1.000.

Gottfried Bischoff Bau Kompl. Gasreinigungs- und Wasserruckkühlanlagen GmbH & Co. KG: See—
Hegemann, Karl-Rudolf; Kautz, Johannes W.; and Weissert, Helmut, 4,316,727, Cl. 55-107.000.

Gouin, Philip R.: See—
Boulanger, Henry J.; and Gouin, Philip R., 4,317,100, Cl. 337-347.000.

Gower, Gerald: See—
Whitney, Thomas M.; and Gower, Gerald, 4,316,295, Cl. 4-612.000.

Gragg, John E., Jr., to Motorola, Inc. Silicon pressure sensor, 4,317,126, Cl. 357-26.000.

Graham, James T.: See—
Brems, John H.; and Graham, James T., 4,316,535, Cl. 198-473.000.

Granco Equipment, Inc.: See—
Gentry, Charles B.; and Scanlon, Robert M., 4,316,500, Cl. 165-9.000.

Grant, David C., Jr.; and Hutchings, Thomas J., to Litton Systems, Inc. Ring laser. 4,317,089, Cl. 372-94.000.

Grant, Frederic F.; and Sarkisian, Nancy L., to Bell & Howell Company. Methods and apparatus for guiding tape. 4,316,568, Cl. 226-118.000.

Grasselli, Robert K.; Suresh, Dev D.; Brazdil, James F.; and Ratka, Frances I., to Standard Oil Co., The. Multiply promoted Sn-Sb oxide catalysts. 4,316,855, Cl. 260-465.300.

Grasselli, Robert K.: See—
Guttmann, Andrew T.; and Grasselli, Robert K., 4,316,856, Cl. 260-465.300.

Grasso's Koninklijke Machinefabrieken, N.V.: See—
Van Pelt, Willem; and Roodenrijs, Jacques P., 4,316,368, Cl. 62-542.000.

Gray, Stanley J. High tensile multiple sheath cable. 4,317,003, Cl. 174-106.00R.

Grear, Horace S.; and Leno, Theodore M., to Teletype Corporation. Tractor for engaging and advancing a web of paper. 4,316,567, Cl. 226-74.000.

Greenwood, Alan, to Goodyear Tire & Rubber Company, The. Duplex extruder head. 4,316,710, Cl. 425-186.000.

Grier, Nathaniel; Dybas, Richard A.; and Witzel, Bruce E., to Merck & Co., Inc. Anti-microbial piperidino buten-2-ones. 4,316,903, Cl. 424-267.000.

Griffith, Thomas D.; and Denham, Daniel S., to Standard Oil Company (Indiana). Micellar fluid for low and high hardness crude oil displacement. 4,316,809, Cl. 252-8.55D.

Griggs, Jay P. Recoil absorber and redirector mechanism for gun stock. 4,316,342, Cl. 42-74.000.

Grosko, John A., to United States Steel Corporation. Pour tube latching apparatus. 4,316,561, Cl. 222-606.000.

Gross, Alexander L.: See—
Giese, Erik O.; and Gross, Alexander L., 4,316,332, Cl. 36-28.000.
Giese, Erik O.; and Gross, Alexander L., 4,316,335, Cl. 36-129.000.

Gross, William H., to National Semiconductor Corporation. Current mirror circuit. 4,317,082, Cl. 330-288.000.

Grotkopp, Detlef; Wedemeyer, Karlfried; Brandes, Wilhelm; Scheinpfug, Hans; and Roessler, Peter, to Bayer Aktiengesellschaft. Combating pests with 1,1-dimethyl-indan-4-yl N-alkyl-carbamate acid esters. 4,316,912, Cl. 424-300.000.

Grottes Metalforming Systems, Inc.: See—
Fencl, Vernon R.; and Javorik, Laszlo, 4,316,377, Cl. 72-189.000.

Groves, Stanley E.: See—
Shaw, Penn; and Groves, Stanley E., 4,317,053, Cl. 307-269.000.

Gruss, Edward G.; and Tietze, Armin R., to International Business Machines Corporation. Foil recording disk structures. 4,317,150, Cl. 360-135.000.

Gryskiewicz, Gregory A., to UOP Inc. Method of making slotted well screen. 4,317,023, Cl. 219-121.0LN.

GTE Automatic Electric Laboratories, Inc.: See—
Getgen, Lawrence E., 4,317,194, Cl. 370-121.000.

GTE Products Corporation: See—
Alberts, Steven L., 4,317,056, Cl. 307-350.000.

GTE Sylvania Canada Limited: See—
Nattel, William, 4,316,999, Cl. 174-65.00R.

Gude, Fritz; Haferkorn, Herbert; and Schulde, Felix, to Chemische Werke Huls Aktiengesellschaft. Copolymer of maleic anhydride, dicyclopentadiene and vinylcyclohexene and its use as anionic paper surface sizing material. 4,316,977, Cl. 526-272.000.

Guerbet, Francois. Device for transforming an alternating current to a direct current, and application thereof to the charging of storage batteries. 4,317,075, Cl. 320-53.000.

Guerin, Frank: See—
Antoshkiw, Thomas; Cannalonga, Marco A.; and Guerin, Frank, 4,316,917, Cl. 426-540.000.

Guido, Jurgen; and Binzer, Norbert. Lifting keel for sporting sail boats. 4,316,425, Cl. 114-141.000.

Guignies, Francois; Peris Y Saborit, Gilles; and Borrod, Guy, to Philagro. 2-Phenyl-5,6-dihydro-4-pyrone derivatives and herbicidal compositions in which they are present. 4,316,737, Cl. 71-88.000.

Guillemin, Roger C. L.; Ling, Nicholas C.; Esch, Fred S.; Bohlen, Peter; and Brazeau, Paul E., Jr., to Salk Institute for Biological Studies, The. Extended N-terminal somatostatin. 4,316,891, Cl. 424-177.000.

Guinet, Yves M., to L'Etat Francais, Represente par le Secretaire d'Etat aux Postes et Telecommunications et a la Telediffusion (Centre National d'Etudes des Telecommunication); and des Etablissement Public de Diffusion Dit "Telediffusion de France". System for the diffusion of data. 4,317,132, Cl. 358-142.000.

Gullickson, Russell C. Stove construction. 4,316,444, Cl. 126-77.000.

Gulliksen, John E.: See—
Richards, Raymond R.; and Gulliksen, John E., 4,317,162, Cl. 362-106.000.

Gunderson, Norman R., to American Electronics, Inc. Adjustable automatic surveillance camera. 4,316,655, Cl. 352-166.000.

Gutierrez, Luiz F.: See—
Cullis, Herbert M.; and Gutierrez, Luiz F., 4,316,576, Cl. 233-26.000.

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Guyomard, Daniel, to Helic Van Cauwenberghe. Process for the application of an anti-corrosive coating upon metallic objects, especially bottles for liquefied gas. 4,316,939, Cl. 428-413.000.

Guzik, Didier, to Fives-Cail Babcock. Gyrotory crusher. 4,316,585, Cl. 241-211.000.

Gyuros, Janos: See—
Somos, Andras; Turi, Istvan; Zatyko, Ferenc; Gyuros, Janos; and Borsody, Laszlo, 4,316,450, Cl. 126-432.000.

H. L. Blachford, Limited: See—
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H. R. Electronics Company: See—
Levasseur, Joseph L., 4,316,532, Cl. 194-1.00N.

Haefely, Willy: See—
Gerecke, Max; Haefely, Willy; Hunkeler, Walter; Kyburz, Emilio; Mohler, Hanns; Pieri, Lorenzo; and Polc, Petar, 4,316,839, Cl. 260-239.30T.

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Hagedorn, Ferdinand: See—
Schenk, Wolfgang; Blank, Heinz U.; Hagedorn, Ferdinand; and Evertz, Werner, 4,316,862, Cl. 260-543.00R.

Hagiwara, Miyuki: See—
Hosoi, Fumio; Sasaki, Takashi; Hagiwara, Miyuki; Kasai, Noboru; Araki, Kunio; and Hirano, Takayuki, 4,316,783, Cl. 204-159.180.

Hallgren, Leif: See—
Lundmark, Signar; and Hallgren, Leif, 4,316,679, Cl. 405-303.000.

Halliburton Company: See—
Burnham, John W., 4,316,810, Cl. 252-8.55R.

Hallum, Morris M. Agricultural vehicle for forming water rings. 4,316,509, Cl. 172-297.000.

Hammann, Ingeborg: See—
Fuchs, Rainer; Hammann, Ingeborg; and Stendel, Wilhelm, 4,316,913, Cl. 424-304.000.

Stetter, Jorg; Homeyer, Bernhard; Hammann, Ingeborg; and Elbe, Hans-Ludwig, 4,316,910, Cl. 424-298.000.

Hammerton-Fraser, Allan M., to National Research Development Corporation. Patient ventilators. 4,316,458, Cl. 128-205.240.

Hammond, Thomas J.; and Northrup, Karl A., to Xerox Corporation. Gaseous discharge lamp having novel electrode mountings. 4,317,066, Cl. 313-493.000.

Hancock, Roger L.; and Morrison, Kathleen M., to Imperial Chemical Industries Limited. Detergent composition. 4,316,812, Cl. 252-99.000.

Hansen, Christian B.: See—
Hansen, Gunnar L.; and Hansen, Christian B., 4,316,707, Cl. 418-60.000.

Hansen, Gunnar L.; and Hansen, Christian B., to Danfoss A/S. Gerotor with valve plate attached to rotor. 4,316,707, Cl. 418-60.000.

Hansen, Jens S.: See—
Goof, Sven K. L.; and Hansen, Jens S., 4,317,072, Cl. 318-138.000.

Hanus, Helfried; Winkler, Uwe; and Kemmel, Patrice J., to Pfaff Haushaltsmaschinen GmbH. Pulse generator for variable-speed drives. 4,317,032, Cl. 250-231.0SE.

Hara, Toshitami: See—
Shirato, Yoshiaki; Takatori, Yasushi; Hara, Toshitami; Nishimura, Yukuo; and Takahashi, Michiko, 4,317,124, Cl. 346-140.00R.

Harada, Mikio; Tachibana, Kan-ichi; Uchida, Akio; and Saitoh, Takashi. Surge absorber. 4,317,155, Cl. 361-120.000.

Harder, Kenneth J. Educational algebra board game. 4,316,612, Cl. 273-272.000.

Hardman, Michael P.: See—
Lammiman, Steven A.; and Hardman, Michael P., 4,316,505, Cl. 166-293.000.

Harnischfeger Corporation: See—
Dechantreiter, Max J., 4,316,528, Cl. 187-9.00E.

Harpster, Anthony B. Clutch lockout latch. 4,316,531, Cl. 192-114.00R.

Harrington, William S.; and Farley, Richard T. Window frame and method of assembly thereof. 4,316,352, Cl. 52-656.000.

Harris Corporation: See—
Tompkins, Elliot N., 4,317,137, Cl. 358-286.000.

Harris, Dwight. Nail driving impact hammer. 4,316,513, Cl. 173-91.000.

Harris, Elbert E.: See—
Thorsett, Eugene D.; Patchett, Arthur A.; Harris, Elbert E.; and Maycock, Alan L., 4,316,896, Cl. 424-200.000.

Harris, Sammy E.: See—
Walthall, Bobby K.; and Harris, Sammy E., 4,316,588, Cl. 242-129.620.

Harris, Virgil W. Skill marble game. 4,316,613, Cl. 273-401.000.

Harrison, John M., to Small World Exchange, Inc. Telephone conferencing method and apparatus with monitor-only access. 4,317,007, Cl. 179-18.0BC.

Harrison, William H., to Donald L. Morton & Associates. Portable body electrode. 4,316,453, Cl. 128-1.300.

Hartig, Alfred; and Beckermann, Harald, to Ruhrtal Elektrizitats-Gesellschaft Hartig GmbH & Co. Circuit arrangement for the processing of information. 4,317,167, Cl. 364-185.000.

Hartman, George W.: See—
Bryan, T. James; Hartman, George W.; and Wilson, Arthur G., 4,317,138, Cl. 358-291.000.

Hartnell, Dale A. Hanging tool tray. 4,316,545, Cl. 211-60.00T.

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Hashimoto, Teiji: See—
Tosaka, Yoichi; Hashimoto, Teiji; and Tezuka, Nobuo, 4,316,662, Cl. 354-241.000.

Hashimoto, Yukio: See—
Hirata, Tadashi; Hashimoto, Yukio; Ogasa, Takehiro; Kobayashi, Shigeru; Matsukuma, Ikuro; and Kimura, Kazuo, 4,316,958, Cl. 435-119.000.

Hassall, Cedric H.: See—
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Hattori, Tadashi: See—
Yamaguchi, Hiroaki; Hattori, Tadashi; and Ootsuka, Yoshinori, 4,316,440, Cl. 123-428.000.

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McIntire, John M.; Hawkins, James M.; and Vachon, Raymond N., 4,316,929, Cl. 428-262.000.

Hayashi, Masaharu; and Ueda, Kouichi, to Kabushiki Kaisha Tomoku. Paperboard feeding apparatus. 4,316,607, Cl. 271-151.000.

Hayes, Jess W. Magnifying device for use with a triangular rule. 4,316,330, Cl. 33-488.000.

Hayes, Robert A.: See—
Hergenrother, William L.; Schwarz, Richard A.; Ambrose, Richard J.; and Hayes, Robert A., 4,316,967, Cl. 525-111.000.

Hayes, William V.: See—
Skach, Allen G.; Childress, David L.; and Hayes, William V., 4,316,708, Cl. 425-73.000.

Head, Victor P., to Fischer & Porter Company. Multiple velocity traverse flow rate measuring technique. 4,317,178, Cl. 364-510.000.

Heath, John M.: See—
Duggan, William R.; and Heath, John M., 4,316,328, Cl. 30-389.000.

Hebert, Kenneth B. Animal washing stand. 4,316,433, Cl. 119-158.000.

Hecker, Eric: See—
Heim, Ulrich; and Hecker, Eric, 4,316,380, Cl. 73-23.000.

Hegemann, Karl-Rudolf; Kautz, Johannes W.; and Weissert, Helmut, to Gottfried Bischoff Bau Kompl. Gasreinigungs- und Wasserruckkulanlagen GmbH & Co. KG. Annular-gap washer including electrode means. 4,316,727, Cl. 55-107.000.

Heidt, Peter C. Floating power generation assemblies and methods. 4,316,704, Cl. 417-100.000.

Heim, Ulrich; and Hecker, Eric, to Dragerwerk Aktiengesellschaft. Method for determining the alcohol content in breathing air. 4,316,380, Cl. 73-23.000.

Helic Van Cauwenberghe: See—
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Helm, Percy R.; and Morrow, James G., Sr., to Manitowoc Company, Inc., The. Concentric ring segment supported lift crane. 4,316,548, Cl. 212-196.000.

Henderson, John G. N.; and Wine, Charles M., to RCA Corporation. Channel identification apparatus useful in a sweep type tuning system. 4,317,225, Cl. 455-158.000.

Hendrickson, Melvin C., to Zenith Radio Corporation. Television receiver having multiplexed phase lock loop tuning system. 4,317,228, Cl. 455-183.000.

Hengartner, Urs O.: See—
Batcho, Andrew D.; Hengartner, Urs O.; Leimgruber, Willy; Scott, John W.; and Valentine, Donald, Jr., 4,316,847, Cl. 260-326.460.

Henrickson, Mary J. Invertible outerwear garment. 4,316,288, Cl. 2-88.000.

Henry, James W., to Eastman Kodak Company. Process for removing impurities from polymer solutions. 4,316,867, Cl. 264-169.000.

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DeCristofaro, Nicholas J.; and Henschel, Claude, 4,316,573, Cl. 228-263.00R.

Hensway, Inc.: See—
Hurley, George L., III, 4,316,552, Cl. 220-19.000.

Herbstman, Sheldon, to Texaco Inc. Gasoline and alcohol blends. 4,316,724, Cl. 44-56.000.

Hergenrother, William L.; Schwarz, Richard A.; Ambrose, Richard J.; and Hayes, Robert A., to Firestone Tire & Rubber Company, The. Amine terminated polymers and the formation of block copolymers. 4,316,967, Cl. 525-111.000.

Hermann Berstorff Maschinenbau GmbH: See—
Koch, Klaus, 4,316,873, Cl. 422-112.000.

Hermanson, Gerald P., to Dayron Corporation. Fuze. 4,316,414, Cl. 102-247.000.

Herriott, Ray G. Handgun having interchangeable barrels. 4,316,339, Cl. 42-59.000.

Herron, John R.: See—
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Hewlett-Packard Company: See—
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Woodruff, Terry A., 4,316,381, Cl. 73-27.00R.

Woodruff, Terry A., 4,316,382, Cl. 73-27.00R.

Hexcel Corporation: See—
Liegeois, Jean Marie C. G., 4,316,457, Cl. 128-156.000.

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Hi-Mark Industries, Inc.: See—
Turner, Charles E., 4,316,676, Cl. 403-260.000.

Hicks, Vernal C. Solar energy collector. 4,316,451, Cl. 126-440.000.

Hild, Melvin O. Sun shield for a hard hat. 4,316,289, Cl. 2-191.000.

Hildebrand, David B.: See—
Caruso, Michael J.; Hildebrand, David B.; and Ohri, Kul B., 4,317,054, Cl. 307-297.000.

Hilscher-Clarke Electric Co.: See—
Price, Arthur L., 4,317,076, Cl. 323-210.000.

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Hinchcliffe, Dennis; Heybourn, Frank; and Luddington, Eric A., to Molins Limited. Handling rod-like articles. 4,316,754, Cl. 198-347.000.

Hindin, Eugene; Cripe, Alan R.; and Cripe, Christopher A., to Bi-Modal Corporation. Convertible rail highway semi-trailer air controlled suspension shifting system. 4,316,418, Cl. 105-215.00C.

Hinds, Robert S. Segmented elastic cable exerciser bar. 4,316,610, Cl. 272-137.000.

Hing, Peter, to Thorn Electrical Industries Limited. Sealing of ceramic and cermet parts, sealing material therefor and ceramic seal obtained. 4,316,936, Cl. 428-325.000.

Hipsher, Gary L.: See—
Burk, Michael D.; Hipsher, Gary L.; and Nicoles, Gregory M., 4,316,643, Cl. 308-26.000.

Hirakawa, Tadashi; Sasashige, Hiroaki; Takenaka, Hiroyuki; and Katayama, Keiichi, to Mitsubishi Jukogyo Kabushiki Kaisha. Single facer. 4,316,761, Cl. 156-472.000.

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Hirano, Takayuki: See—
Hosoi, Fumio; Sasaki, Takashi; Hagiwara, Miyuki; Kasai, Noboru; Araki, Kunio; and Hirano, Takayuki, 4,316,783, Cl. 204-159.180.

Hirata, Tadashi; Hashimoto, Yukio; Ogasa, Takehiro; Kobayashi, Shigeru; Matsukuma, Ikuro; and Kimura, Kazuo, to Kyowa Hakko Kogyo Co., Ltd. Process for producing optically active cephalosporin analogs. 4,316,958, Cl. 435-119.000.

Hirschorn, Martin, to Industrial Acoustics Company, Inc. Acoustic filter silencer. 4,316,522, Cl. 181-224.000.

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Ninomiya, Satoshi; Yamachi, Yasuhiro; Hisano, Katsukuni; Arie, Ryosuke; Kashiwahara, Katsuo; and Kuwashima, Hidesumi, 4,316,362, Cl. 60-646.000.

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Hitachi, Ltd.: See—
Kawakami, Hideaki; Kitajima, Masaaki; Izaki, Naoyuki; and Nagae, Yoshiharu, 4,317,115, Cl. 340-784.000.

Kita, Hisanao; Karatsu, Yoshinori; Nakazaki, Takamitsu; and Akutsu, Yoji, 4,317,022, Cl. 219-121.0EU.

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Hoar, Russell A. Water supported wind actuated power generating assembly. 4,316,361, Cl. 60-398.000.

Hochiki Corporation: See—
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Hocking, David: See—
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Hoechst Aktiengesellschaft: See—
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Holst, Arno; and Perplies, Eberhard, 4,316,982, Cl. 536-88.000.

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Paszthory, Emmerich; Seifert, Karl G.; Zimmermann, Vincenz; and Nestler, Hans J., 4,316,993, Cl. 568-637.000.

Hoehn, Marvin M.: See—
Michel, Karl H.; and Hoehn, Marvin M., 4,316,959, Cl. 435-122.000.

Hoff, Stephen J., to Hoffco, Inc. Combined fly-wheel and clutch mechanism for lawn mower blade. 4,316,355, Cl. 56-11.300.

Hoffco, Inc.: See—
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Hoffman-La Roche Inc.: See—
Antoshkiw, Thomas; Cannalonga, Marco A.; and Guerin, Frank, 4,316,917, Cl. 426-540.000.

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Batcho, Andrew D.; Hengartner, Urs O.; Leimgruber, Willy; Scott, John W.; and Valentine, Donald, Jr., 4,316,847, Cl. 260-326.460.

Bollag, Werner; and Wyss, Pierre-Charles, 4,316,983, Cl. 536-4.000.

Broadhurst, Michael J.; Hassall, Cedric H.; and Thomas, Gareth J., 4,316,985, Cl. 549-39.000.

Loiz, Wolfgang, 4,316,897, Cl. 424-244.000.

Rahm, Juerg; and Schulz, Peter, 4,316,872, Cl. 422-102.000.

Hofsass, Peter. Heat switch. 4,317,097, Cl. 337-89.000.

Hohman, Charles M.: See—
Propster, Mark A.; and Hohman, Charles M., 4,316,732, Cl. 65-27.000.

Holmberg, Richard. Energy producing apparatus and method. 4,317,046, Cl. 290-1.00R.

Holst, Arno; and Perplies, Eberhard, to Hoechst Aktiengesellschaft. Process for reducing the viscosity of cellulose ethers by means of ozone and application thereof. 4,316,982, Cl. 536-88.000.

Holyoke, Caleb W., Jr., to Du Pont de Nemours, E. I., and Company. Ureidosulfonyl carbamate nematocides. 4,316,911, Cl. 424-298.000.

Homeyer, Bernhard: See—
Stetter, Jorg; Homeyer, Bernhard; Hammann, Ingeborg; and Elbe, Hans-Ludwig, 4,316,910, Cl. 424-298.000.

Hommel, Richard O.; and Klimas, David, to D. Hommel Company, The. Leadless glaze composition made with alkaline earth molybdenate. 4,316,963, Cl. 501-14.000.

Honda Giken Kogyo Kabushiki Kaisha: See—
Nagatsuma, Nobuyoshi, 4,316,374, Cl. 72-91.000.
Yamamoto, Hitoshi; Watanabe, Masaki; and Koizumi, Shinichi, 4,316,520, Cl. 180-215.000.

Honeywell Inc.: See—
Acker, William F., 4,317,080, Cl. 328-151.000.
Adams, John T.; Kampelen, Arlon D.; Nelson, Marvin D.; and Pinckaers, B. Hubert, 4,316,577, Cl. 236-46.00R.
Denny, Richard W.; and Diddens, Paul A., 4,317,018, Cl. 219-216.000.
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Honeywell Information Systems Inc.: See—
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Honma, Hiroshi, to Hochiki Corporation. Photoelectric smoke sensor. 4,317,113, Cl. 340-630.000.

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Hopper, James A., to American Sterilizer Company. Method and apparatus for processing fluids. 4,316,726, Cl. 55-89.000.

Horton, Robert A., to Precision Metalsmiths, Inc. Investment shell molding materials and processes. 4,316,498, Cl. 164-519.000.

Hosken, Donald H. Reflector assembly with enhanced visibility. 4,316,651, Cl. 350-99.000.

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Hoyerman, William H. Mechanism for transferring certified weights from and into a vehicle. 4,316,696, Cl. 414-542.000.

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Hughes, Patrick M., to Shell Oil Company. Blends of butene-1-ethylene copolymer and polypropylene. 4,316,970, Cl. 525-240.000.

Hughes, Peter S. Transducer and method for passively measuring thermal radiation fluence. 4,316,387, Cl. 73-190.00H.

Hughes, Richard H., to RCA Corporation. Color picture tube having an improved electron gun with expanded lenses. 4,317,065, Cl. 313-414.000.

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Hughes Tool Company: See—
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Hunkeler, Walter: See—
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Hunt, Helen M. Athletic shoe including stiffening means for supporting the rear portion of the first metatarsal bone. 4,316,334, Cl. 36-91.000.

Huot-Marchand, Daniel; and Zangiacomi, Fernand, to France Ebauches S.A. System for mounting the coil of the motor in an electric watch. 4,317,187, Cl. 368-88.000.

Hurley, George L., III, to Hensway, Inc. Wire egg case. 4,316,552, Cl. 220-19.000.

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Jonath, Eberhard, to Mettler Instrumente AG. Automatic zero correction apparatus for weighing balances. 4,316,518, Cl. 177-25.000.

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Keyt, F. Gene; and Ilik, Donald J., to Pitney Bowes Inc. Facsimile system, 4,317,136, Cl. 358-256.000.

Kibblewhite, Ian E.; Boys, John T.; and Tambini, Angelo L., to SPS Technologies, Inc. Impact wrench, 4,316,512, Cl. 173-12.000.

Kikuchi, Mitsuo: See—
Seita, Toru; Satoh, Takao; and Kikuchi, Mitsuo, 4,316,781, Cl. 204-98.000.

Kimball, Charles D.; and Houch, John C. Endorphins having placental or pancreatic origin, 4,316,895, Cl. 424-177.000.

Kime, Wellesley R. Energy farm, 4,317,048, Cl. 290-53.000.

Kimura, Kazuo: See—
Hirata, Tadashi; Hashimoto, Yukio; Ogasa, Takehiro; Kobayashi, Shigeru; Matsukuma, Ikuo; and Kimura, Kazuo, 4,316,958, Cl. 435-119.000.

Kimura, Kenji: See—
Satoh, Ken; Saitou, Sinichi; Kato, Toshikazu; Watanabe, Seizo; Nishiyama, Toyoo; Shimoda, Misao; Shibata, Tutomu; and Kimura, Kenji, 4,316,590, Cl. 242-199.000.

Kimura, Koichi. Artificial fish-gathering underwater reef, 4,316,431, Cl. 119-3.000.

Kimura, Shigeo; and Yamada, Toshihiko, to Sony Corporation. Magnetic recording medium, 4,316,927, Cl. 428-216.000.

Kimura, Takeo: See—
Ohmura, Kaoru; Shibasaki, Ichiro; and Kimura, Takeo, 4,316,974, Cl. 525-422.000.

Kinoshita, Tsuneo: See—
Fujimura, Noriaki; Kinoshita, Tsuneo; Aono, Tadashi; Kaku, Takashi; and Tanaka, Yasuya, 4,317,207, Cl. 375-19.000.

Kinoshita, Yoshiaki: See—
Akune, Mikio; and Kinoshita, Yoshiaki, 4,316,878, Cl. 423-235.000.

Kiowski, John W.; and Rolando, John V., to Electronic Systems Division, Geosource, Inc. Oil well control circuit, 4,316,702, Cl. 417-12.000.

Kirk, Norbert A. Blade housing for cast cutting tool, 4,316,323, Cl. 30-124.000.

Kirkham, John: See—
Dinegar, Robert H.; and Kirkham, John, 4,316,412, Cl. 102-202.500.

Kirkpatrick, Robert G.; Snyder, Ronald R.; and Sibley, Lincoln L., Jr., to General Electric Company. Gun bolt for a high rate of fire revolving battery gun, 4,316,403, Cl. 89-12.000.

Kirtley, James L., Jr.: See—
Sterling, Thomas L.; and Kirtley, James L., Jr., 4,317,175, Cl. 364-464.000.

Kishimoto, Kazuo: See—
Iijima, Tokuzo; Samejima, Yasushi; Kishimoto, Kazuo; Komabashiri, Takamichi; and Kano, Toshiji, 4,316,789, Cl. 204-296.000.

Iijima, Tokuzo; Samejima, Yasushi; Kishimoto, Kazuo; Komabashiri, Takamichi; and Kano, Toshiji, 4,316,790, Cl. 204-296.000.

Kita, Donald A.; and Fenton, Dennis M., to Pfizer Inc. Preparation of 2,5-diketogluconic acid, 4,316,960, Cl. 435-137.000.

Kita, Hisanao; Karatsu, Yoshinori; Nakazaki, Takamitsu; and Akutsu, Yoji, to Hitachi, Ltd. Electron beam welding machine, 4,317,022, Cl. 219-121.0EU.

Kitajima, Masaaki: See—
Kawakami, Hideaki; Kitajima, Masaaki; Izaki, Naoyuki; and Nagae, Yoshiharu, 4,317,115, Cl. 340-784.000.

Kitano, Shigeru: See—
Onishi, Soichi; and Kitano, Shigeru, 4,317,141, Cl. 360-60.000.

Kittelton, David B.: See—
Liu, Benjamin Y. H.; Kittelson, David B.; Dolan, Daniel F.; and Pui, David Y. H., 4,316,360, Cl. 60-275.000.

Klass, Donald L.; and Ghosh, Sambhunath, to United Gas Pipe Line Company. Methane production by anaerobic digestion of plant material and organic waste, 4,316,961, Cl. 435-167.000.

Klaus, Kaspar; and Treppesch, Franz. Apparatus for the parking of vehicles on mobile platforms, 4,316,527, Cl. 187-8.710.

Klein, John M. Bulletproof protective plate assembly, 4,316,286, Cl. 2-2.500.

Klieman, Charles H.; and Densmore, Richard M., to Klieman, Charles H. Surgical stapler, 4,316,468, Cl. 128-325.000.

Klimas, David: See—
Hommel, Richard O.; and Klimas, David, 4,316,963, Cl. 501-14.000.

Klimowicz, Richard F., to Dresser Industries, Inc. Railway car coupler, 4,316,549, Cl. 213-127.000.

Kloeber, Peter; and Schroeter, Heinz, to Siemens Aktiengesellschaft. Mobile radio system, 4,317,219, Cl. 455-56.000.

Knell, Karl: See—
Lenz, Wolfgang; Albenberger, Johann; and Knell, Karl, 4,316,631, Cl. 297-284.000.

Knight, John W., Sr. Garbage compaction truck, 4,316,695, Cl. 414-517.000.

Koba, Yoshinori: See—
Suzuki, Shunichi; Koba, Yoshinori; Yamada, Yoshiaki; Aoto, Teruaki; Kuno, Yoriyoshi; and Yokota, Masanobu, 4,316,758, Cl. 156-351.000.

Kobayashi, Masayoshi: See—
Sakuranaka, Toru; Kobayashi, Masayoshi; and Nakagawa, Sachio, 4,316,441, Cl. 123-502.000.

Kobayashi, Nobuo; and Kako, Hiroyoshi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Device for painting by electrostatic powder spraying, 4,316,582, Cl. 239-692.000.

Kobayashi, Shigeru: See—
Hirata, Tadashi; Hashimoto, Yukio; Ogasa, Takehiro; Kobayashi, Shigeru; Matsukuma, Ikuo; and Kimura, Kazuo, 4,316,958, Cl. 435-119.000.

Kobayashi, Toshio, to Nippon Electric Co., Ltd. Single-ended push-pull power amplifier having improved high frequency characteristics, 4,317,081, Cl. 330-268.000.

Kobayashi, Tsukasa: See—
Minemura, Norihiro; Toyao, Manabu; Kobayashi, Tsukasa; and Tashiro, Mikio, 4,316,924, Cl. 428-89.000.

Koberstein, Edgar: See—
Bozon, Alfred; Koberstein, Edgar; Pletka, Hans-Dieter; and Voelker, Herbert, 4,316,823, Cl. 252-465.000.

Koblo, Jochen; and von dem Bussche, Gotz, to Hoechst Aktiengesellschaft. Developing chamber, 4,317,026, Cl. 219-216.000.

Koch, Klaus, to Hermann Berstorff Maschinenbau GmbH. Apparatus for converting coal to hydrocarbons by hydrogenation, 4,316,873, Cl. 422-112.000.

Kochey, Edward L., to Combustion Engineering, Inc. Furnace heat absorption control, 4,316,420, Cl. 110-347.000.

Kockums Industri AB: See—
Pettersson, Stefan; and Alstad, Sven O., 4,316,709, Cl. 425-174.80E.

Koehler Manufacturing Co.: See—
Richards, Raymond R.; and Gulliksen, John E., 4,317,162, Cl. 362-106.000.

Kogan, Lawrence: See—
Peloso, Turiddu A.; and Kogan, Lawrence, 4,316,919, Cl. 426-603.000.

Kohno, Hideki: See—
Suzuki, Atsushi; Urabe, Koichi; Yamada, Hiromichi; and Kohno, Hideki, 4,317,037, Cl. 250-367.000.

Koizumi, Shinichi: See—
Yamamoto, Hitoshi; Watanabe, Masaki; and Koizumi, Shinichi, 4,316,520, Cl. 180-215.000.

Kokusai Denjin Denwa Co. Ltd.: See—
Yamamura, Kazuomi; Fukui, Takasuke; Iwamoto, Yoshinao; Shirasaki, Yuichi; and Fujise, Masayuki, 4,317,079, Cl. 324-326.000.

Kolin, George J.: See—
Baxter, Donald J.; and Kolin, George J., 4,316,693, Cl. 414-59.000.

Komabashiri, Takamichi: See—
Iijima, Tokuzo; Samejima, Yasushi; Kishimoto, Kazuo; Komabashiri, Takamichi; and Kano, Toshiji, 4,316,789, Cl. 204-296.000.

Iijima, Tokuzo; Samejima, Yasushi; Kishimoto, Kazuo; Komabashiri, Takamichi; and Kano, Toshiji, 4,316,790, Cl. 204-296.000.

Kompelien, Arlon D.: See—
Adams, John T.; Kompelien, Arlon D.; Nelson, Marvin D.; and Pinckaers, B. Hubert, 4,316,577, Cl. 236-46.00R.

Kondoh, Shiroh: See—
Fujitani, Yoshiyasu; Muraki, Hideaki; Kondoh, Shiroh; Tomita, Makoto; Yokota, Kouji; Sobukawa, Hideo; and Nakamura, Tamotsu, 4,316,822, Cl. 252-462.000.

Kondr, Milan: See—
Winkler, Jiri; Cibulka, Josef; Bryksi, Jan; Jelinek, Richard; Krtek, Jan; Mickal, Vladimir; Hlousek, Jaroslav; and Kondr, Milan, 4,317,166, Cl. 363-138.000.

Kongsildel Koncernselskab A/S: See—
Andersen, Helge H., 4,316,511, Cl. 172-776.000.

Koob, Philip W.: See—
Daughenbaugh, Gerald A.; Koob, Philip W.; Moxley, Arthur E.; and Wallace, Joseph E., 4,317,147, Cl. 360-113.000.

Korwin, Richard M. Piller-proof precious metal filings collection box, 4,316,645, Cl. 312-212.000.

Kosarko, Gerald J.: See—
Bundschuh, John J.; and Kosarko, Gerald J., 4,316,658, Cl. 354-27.000.

Kovbasjuk, Valentin I.: See—
Bazarov, Georgy P.; Kovbasjuk, Valentin I.; Kufa, Emma N.; and Medin, Stanislav A., 4,317,057, Cl. 310-11.000.

Koyama, Hiroaki; Shimizu, Shigeo; and Sekiya, Mituru, to Nippon Kynol Incorporated. Cured novolak fiber-reinforced, chlorinated rubber molded articles having excellent flame-proofness, and process for the preparation thereof, 4,316,969, Cl. 525-145.000.

Kraft, Robert L.: See—
England, David C.; Kraft, Robert L.; and Krespan, Carl G., 4,316,986, Cl. 560-184.000.

Kramer, Wolfgang: See—
Kranz, Eckart; Kramer, Wolfgang; Buchel, Karl H.; Brandes, Wilhelm; and Frohberger, Paul-Ernst, 4,316,932, Cl. 424-269.000.

Kranz, Eckart; Kramer, Wolfgang; Buchel, Karl H.; Brandes, Wilhelm; and Frohberger, Paul-Ernst, to Bayer Aktiengesellschaft. Combating fungi with α -azolyl-keto derivatives, 4,316,932, Cl. 424-269.000.

Krapcho, John, to E. R. Squibb & Sons, Inc. Mercaptoacyl derivatives of various α -substituted prolines, 4,316,905, Cl. 424-274.000.

Krapcho, John: See—
Ondetti, Miguel A.; and Krapcho, John, 4,316,906, Cl. 424-274.000.

Kresge, James S.: See—
Ellis, Howard F.; and Kresge, James S., 4,317,101, Cl. 338-21.000.

Krespan, Carl G.: See—
England, David C.; Kraft, Robert L.; and Krespan, Carl G., 4,316,986, Cl. 560-184.000.

Kretz, Carl, to Kretztechnik Gesellschaft m.b.H. Method and equipment for plotting section images of objects subjected to ultrasonic examination, 4,316,390, Cl. 73-620.000.

Kretztechnik Gesellschaft m.b.H.: See—
Kretz, Carl, 4,316,390, Cl. 73-620.000.

Kristiansen, Odd; and Drabek, Jozef, to Ciba-Geigy Corporation. Pesticidal sulfinylamides, 4,316,908, Cl. 424-277.000.

Krober, Hubert D.; and Kelly, Thomas. Power actuated valve, 4,316,596, Cl. 251-58.000.

Kronstein, Max, to International Lead Zinc Research Organization, Inc. Oxalic acid treatment of carbon steel, galvanized steel and aluminum surfaces, 4,316,752, Cl. 148-6.160.

Krtek, Jan: See—
Winkler, Jiri; Cibulka, Josef; Bryksi, Jan; Jelinek, Richard; Krtek, Jan; Mickal, Vladimir; Hlousek, Jaroslav; and Kondr, Milan, 4,317,166, Cl. 363-138.000.

Krupp-Koppers GmbH: See—
Wetzel, Rolf, 4,316,741, Cl. 75-42.000.

Kubiak, Robert J. Apparatus for pipetting diluent into a sealed medical container, 4,316,558, Cl. 222-181.000.

Kucera, Joseph B., to Lowell, Rudolph L., a part interest. Round bale handling attachment for a tractor, 4,316,691, Cl. 414-24.500.

Kudelin, Alexandr K.: See—
Shlykov, Gennady N.; Zhestkov, Vitaly I.; Tikhonov, Valentin N.; Dyachkov, Vasily M.; and Kudelin, Alexandr K., 4,316,314, Cl. 29-123.000.

Kudo, Bosshi; and Yoshioka, Masamichi, to Agency of Industrial Science and Technology, The. Method for horizontal ribbon crystal growth, 4,316,764, Cl. 156-617.00H.

Kufa, Emma N.: See—
Bazarov, Georgy P.; Kovbasjuk, Valentin I.; Kufa, Emma N.; and Medin, Stanislav A., 4,317,057, Cl. 310-11.000.

Kuhlmann, Josef H. Battery cage arrangement for laying hens, 4,316,432, Cl. 119-22.000.

Kunde, Gerhard; Schoen, Siegfried; and Trimmel, Herwig, to Siemens Aktiengesellschaft. Telephone subscriber station, 4,317,233, Cl. 455-606.000.

Kunde, Gerhard; and Schoen, Siegfried, to Siemens Aktiengesellschaft. Telephone subscriber station, 4,317,234, Cl. 455-606.000.

Kuno, Yoriyoshi: See—
Suzuki, Shunichi; Koba, Yoshinori; Yamada, Yoshiaki; Aoto, Teruaki; Kuno, Yoriyoshi; and Yokota, Masanobu, 4,316,758, Cl. 156-351.000.

Kunz, Walter; Eckhardt, Wolfgang; and Hubele, Adolf, to Ciba-Geigy Corporation. Fungicidal compositions, 4,316,909, Cl. 424-279.000.

Kunzelman, Richard D. Gas compressor, 4,316,703, Cl. 417-66.000.

Kuo, Charles C. Y., to CTS Corporation. Thick film copper conductor circuits, 4,316,942, Cl. 428-432.000.

Kupf, Lubomir; Adamek, Radomil; and Mursec, Mirko, to Statni vyzkumny ustav materialu. Filter support of plates for filter presses, 4,316,803, Cl. 210-455.000.

Kupper, Walter, to Mettler Instrumente AG. Weighing balance with automatic zero correction, 4,316,516, Cl. 177-25.000.

Kurachi, Shogo; Tamura, Masami; and Ueda, Akio, to Nippondenso Co., Ltd. Solderless heat exchanger, 4,316,503, Cl. 165-175.000.

Kurita, Tokio: See—
Yanagawa, Ichiro; Kurita, Tokio; and Nakasu, Kei, 4,316,529, Cl. 188-1.110.

Kuster, Howard L., to B. F. Goodrich Company, The. Apparatus for feeding strips of rubber compositions simultaneously into an extruder, 4,316,570, Cl. 226-176.000.

Kutz, Heinrich: See—
Zilges, Franz-Josef; and Kutz, Heinrich, 4,316,373, Cl. 72-45.000.

Kuwashima, Hidesumi: See—
Ninomiyama, Satoshi; Yamachi, Yasuhiro; Hisano, Katsukuni; Arie, Ryosuke; Kashiwahara, Katsuto; and Kuwashima, Hidesumi, 4,316,362, Cl. 60-646.000.

Kuwazuru, Yasumitsu: See—
Ueda, Hiroshi; Shimazaki, Masao; and Kuwazuru, Yasumitsu, 4,316,834, Cl. 260-38.000.

Kyburz, Emilio: See—
Gerecke, Max; Haefely, Willy; Hunkeler, Walter; Kyburz, Emilio; Mohler, Hanns; Pieri, Lorenzo; and Polc, Petar, 4,316,839, Cl. 260-239.30T.

Kyowa Hakko Kogyo Co., Ltd.: See—
Hirata, Tadashi; Hashimoto, Yukio; Ogasa, Takehiro; Kobayashi, Shigeru; Matsukuma, Ikuo; and Kimura, Kazuo, 4,316,958, Cl. 435-119.000.

L. Schuler GmbH: See—
Veil, Martin, 4,316,372, Cl. 72-4.000.

LaBate, Micheal D. Material for treating coke oven doors and jams to prevent the build up of tar thereon, 4,316,831, Cl. 260-29.60S.

Lacy, Charles R.: See—
Benoun, Samie; and Lacy, Charles R., 4,316,557, Cl. 222-129.100.

Laitram Corporation, The: See—
Lapeyre, James M., 4,316,524, Cl. 182-93.000.

Lam, Tai C., to TCL, Inc. Wideband transceiver with EMI suppression, 4,317,205, Cl. 375-7.000.

Lambert, Robert R., to Air Factors West. Jet pair weir gate, 4,316,407, Cl. 98-40.00D.

Lammiman, Steven A.; and Hardman, Michael P. Pumping of aqueous slurries, 4,316,505, Cl. 166-293.000.

Land Combustion Limited: See—
Coe, Charles D.; Bell, Donald; and Bray, Michael R., 4,317,045, Cl. 250-554.000.

Landes Manufacturing Company: See—
Johnson, Jerry L., 4,316,644, Cl. 312-108.000.

Landry, Archie C., to North American Manufacturing Corp. Firing mechanism for single action firearm. 4,316,341, Cl. 42-70.00F.

Landsman, Douglas A.; and Luczak, Francis J., to United Technologies Corporation. Noble metal-chromium alloy catalysts and electrochemical cell. 4,316,944, Cl. 429-44.000.

Lang, Richard D.: See—
Bolton, Theodore S.; and Lang, Richard D., 4,316,408, Cl. 98-41.00R.

Langanke, Rolf, to Stabilus GmbH. Gas spring. 4,317,014, Cl. 200-61.620.

Lange, Frederick F., to Rockwell International Corporation. Al_2O_3 - ZrO_2 ceramic. 4,316,964, Cl. 501-105.000.

Langer, Alois A.: See—
Mirowski, Mieczyslaw; Mower, Morton M.; and Langer, Alois A., 4,316,472, Cl. 128-419.00D.

Lapeyre, James M., to Laitram Corporation. The. Two-speed ladder. 4,316,524, Cl. 182-93.000.

Lapham, Sidney D. Nesting or stacking box. 4,316,540, Cl. 206-507.000.

Laquerbe, Michel; and Tatar, Francois. Clay and cement mortars, methods of preparing them. 4,316,826, Cl. 260-15.000.

Largman, Theodore: See—
Tunick, Allen A.; Largman, Theodore; and Sifniades, Stylianos, 4,316,877, Cl. 423-10.000.

Larson, Willis A., to Oak Industries, Inc. Membrane switch with universal spacer means. 4,317,013, Cl. 200-5.00A.

Lavine, Jerome M.: See—
Masters, Joseph I.; Goldberg, Gershon M.; and Lavine, Jerome M., 4,316,946, Cl. 430-9.000.

Lawhon, Robert A.; and Yigdall, Jeffrey S., to PPG Industries, Inc. Apparatus and method for attenuating glass ribbon. 4,316,733, Cl. 65-99.00A.

Le Materiel Telephonique Thomson-CSF: See—
Athenes, Claude; Meresse, Jean L. J.; and Salle, Jacques E., 4,317,008, Cl. 179-18.00C.

LeBegue, Maurice K.; and Michael, Earl C., to National Mine Service Company. Extensible and retractable rotor arm cutting assembly. 4,316,635, Cl. 299-80.000.

Leber, Dieter, to VDO Adolf Schindling AG. Flowmeter having a rotary body and means for calibration. 4,316,392, Cl. 73-861.830.

Le Chatelier, Jacques, to Societe Alsacienne de Constructions Mechaniques. Method and device for winding yarn onto bobbins in the form of cones in spinning frames. 4,316,357, Cl. 57-95.000.

Lechner, Uwe: See—
Wetzel, Bernd; Waitun, Eberhard; Maier, Roland; Rueter, Wolfgang; Lechner, Uwe; and Goeth, Hans, 4,316,898, Cl. 424-246.000.

Ledouble, Jean-Pierre; and Muller, Klaus, to Ciba-Geigy Corporation. Process for the production of bis-[O-(1-alkylthioethylimino)-N-methylcarbamyl]-N,N-sulfides. 4,316,854, Cl. 260-453.100.

Lee, Harry W., Jr., to Reynolds Metals Company. Apparatus for corrugating can body flanges. 4,316,375, Cl. 72-105.000.

Lee, Harvey R., to Canadian General Electric Company Limited. Nuclear fuel stress corrosion prevention. 4,316,771, Cl. 376-415.000.

Lee, Teh-Hsuang: See—
Woo, Nea-Yea; and Lee, Teh-Hsuang, 4,317,134, Cl. 358-213.000.

Lee, Yu C.: See—
Wolf, Irving W.; Stafford, Michael K.; Kahan, Hillard M.; Acebo, William F.; Scott, Lawrence M.; and Lee, Yu C., 4,316,738, Cl. 75-0.5BA.

Leff, Martin J.: See—
Flaum, Stephen S.; and Leff, Martin J., 4,316,755, Cl. 156-205.000.

Leimgruber, Willy: See—
Batcho, Andrew D.; Hengartner, Urs O.; Leimgruber, Willy; Scott, John W.; and Valentine, Donald, Jr., 4,316,847, Cl. 260-326.460.

Leno, Theodore M.: See—
Grear, Horace S.; and Leno, Theodore M., 4,316,567, Cl. 226-74.000.

Lenz, Wolfgang; Albenberger, Johann; and Knell, Karl, to Steyr-Daimler-Puch Aktiengesellschaft. Backrest. 4,316,631, Cl. 297-284.000.

Leonhardt, Alexander, to Dravo Corporation. Sieving roller conveyor for green pellets. 4,316,543, Cl. 209-673.000.

Leopold Kostal, Firma: See—
Bergmann, Eduard; and Bonczek, Wolfgang, 4,317,104, Cl. 338-330.000.

Le Pennec, Dominique; Commereuc, Dominique; and Chauvin, Yves, to Institut Francais du Pétrole. Nickel compounds. 4,316,851, Cl. 260-408.000.

Lepisto, J. George, to Champion International Corporation. Sleeve valve for flexible bags. 4,316,574, Cl. 229-62.500.

Leszczynski, Nicholas G., to NP Industries, Inc. Dual slope compensation apparatus. 4,317,184, Cl. 367-13.000.

L'Etat Francais. Represente par le Secrétaire d'Etat aux Postes et Telecommunications et a la Telediffusion (Cennre National d'Etudes des Telecommunication): See—
Guinet, Yves M., 4,317,132, Cl. 358-142.000.

Leva, Max. Tower packing elements. 4,316,863, Cl. 261-98.000.

Levasseur, Joseph L., to H. R. Electronics Company. Versatile pricing means. 4,316,532, Cl. 194-1.00N.

Levin, Julian; and Franks, Arnold. Article identification method. 4,316,766, Cl. 156-631.000.

Levine, Bernard B. Compositions for testing to predict and/or diagnose allergy to penicillins. 4,316,882, Cl. 424-9.000.

Levine, Philip, to Thomassen U.S., Inc. Solar collector. 4,316,452, Cl. 126-450.000.

Lewis, W. Denison. Swim paddles. 4,316,300, Cl. 9-307.000.

Licentia Patent-Verwaltungs-G.m.b.H.: See—
Dahlberg, Reinhard, 4,317,091, Cl. 331-107.00R.

Maurer, Robert; and Schau, Walter, 4,317,231, Cl. 455-330.000.

Liegeois, Jean Marie C. G., to Hexcel Corporation. Process for producing orthopedic structures and a thermoplastic linear polyurethane for use in such process. 4,316,457, Cl. 128-156.000.

Lien, Larry A.: See—
Petrellis, Pano C.; Lien, Larry A.; and Zarr, Wesley E., 4,316,949, Cl. 430-159.000.

Lies, Kenneth A., to Texas Instruments Incorporated. Clocked logic low power standby mode. 4,317,180, Cl. 364-707.000.

Lies, Kenneth A.: See—
Teza, Jeffrey R.; and Lies, Kenneth A., 4,317,181, Cl. 364-707.000.

Life Savers, Inc.: See—
Friello, Dominick R.; Parker, Ellery; Mackay, Donald A. M.; and Cherukuri, Subraman R., 4,316,915, Cl. 426-5.000.

Lin, David C. K.; and Huey, Larry J., to Owens-Corning Fiberglass Corporation. Method and apparatus for producing fibers. 4,316,731, Cl. 65-5.000.

Lin, Leroy C., to Goodyear Tire & Rubber Company. The. Apparatus for producing large diameter spun filaments. 4,316,716, Cl. 425-72.00S.

Lind, Leif I. Flow-distributing device and an air-intake screen provided with such a device. 4,316,406, Cl. 98-40.00R.

Linden-Alimak AB: See—
Lundmark, Signar; and Hallgren, Leif, 4,316,679, Cl. 405-303.000.

Lindqvist, Rolf E., to Aktiebolaget Overums Bruk. Reversible plow. 4,316,507, Cl. 172-225.000.

Lindskog, Kjell. Load carrying device. 4,316,687, Cl. 410-92.000.

Lindstrom, Olle B.; and Lindstrom, Rikard O. Methods for mechanically dewatering peat. 4,316,331, Cl. 34-17.000.

Lindstrom, Rikard O.: See—
Lindstrom, Olle B.; and Lindstrom, Rikard O., 4,316,331, Cl. 34-17.000.

Ling, Nicholas C.: See—
Guillemin, Roger C. L.; Ling, Nicholas C.; Esch, Fred S.; Bohlen, Peter; and Brazeau, Paul E., Jr., 4,316,891, Cl. 424-177.000.

Link, Helmut F.; and Waiblinger, Paul, to Index-Werke KG Hahn & Tessky. Loading and/or unloading device for machine tools, particularly automatic lathes. 4,316,398, Cl. 82-2.700.

Lissack, Selwyn L. By-directional brushless motor scanner. 4,316,648, Cl. 350-6.600.

Litton Systems, Inc.: See—
Grant, David C., Jr.; and Hutchings, Thomas J., 4,317,089, Cl. 372-94.000.

Liu, Benjamin Y. H.; Kittelson, David B.; Dolan, Daniel F.; and Pui, David Y. H., to University of Minn., The Regents of the. Apparatus for recycling collected exhaust particles. 4,316,360, Cl. 60-275.000.

Lizzy Emergency Systems, Inc.: See—
Poole, Douglas, 4,316,506, Cl. 169-69.000.

Lloyd, William R. J., to Pacific Paper Products, Inc. Aerial marker launcher. 4,316,554, Cl. 221-232.000.

Lockheed Corporation: See—
Allen, William P., Jr.; and Zieg, Benjamin S., 4,317,121, Cl. 343-712.000.

Loewenthal, Horst, to SIG-Schweizerische Industrie-Gesellschaft. Apparatus for grouping and inserting objects into containers. 4,316,354, Cl. 53-538.000.

Loitz, Wolfgang, to Hoffmann-La Roche Inc. Method of lowering serum prolactin. 4,316,897, Cl. 424-244.000.

Loutaty, Roben: See—
Atlani, Martial; Loutaty, Roben; Wakselman, Claude; and Yacono, Charles, 4,316,796, Cl. 208-313.000.

Lowell, Rudolph L.: See—
Kucera, Joseph B., 4,316,691, Cl. 414-24.500.

Lubin, Vincent M. Wash basin attached shelf. 4,316,296, Cl. 4-630.000.

Lucas, Peter A.: See—
Perine, Donald R.; and Lucas, Peter A., 4,316,922, Cl. 428-35.000.

Luczak, Francis J.: See—
Landsman, Douglas A.; and Luczak, Francis J., 4,316,944, Cl. 429-44.000.

Luddington, Eric A.: See—
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Bentley, W. Ferrel; Luedtke, Arthur; and Scott, James E., 4,317,120, Cl. 343-120.000.

Lukac, Rudolf G.: See—
Silver, David A.; Lukac, Rudolf G.; and Rubinstein, Solomon, 4,317,001, Cl. 174-102.00C.

Lumms Company, The: See—
Sze, Morgan C.; and Schindler, Harvey D., 4,316,792, Cl. 208-10.000.

Sze, Morgan C., 4,316,793, Cl. 208-10.000.

Lundberg, Duane R., to AMF Incorporated. Leg and hip sled exerciser. 4,316,608, Cl. 272-117.000.

Lundberg, Robert D.: See—
Makowski, Henry S.; Lundberg, Robert D.; and Bock, Jan, 4,316,828, Cl. 260-23.50A.

Lundmark, Signar; and Hallgren, Leif, to Linden-Alimak AB. Ground stabilization equipment. 4,316,679, Cl. 405-303.000.

Lungo, Antonio. Electric filter and method of manufacture. 4,317,093, Cl. 333-187.000.

Luossavaara - Kiirunavaara Aktiebolag: See—
Drugge, Roland, 4,316,718, Cl. 432-58.000.

Lutz, Charles W.: See—
Pinsky, Michael L.; Finley, Joseph H.; and Lutz, Charles W., 4,316,879, Cl. 423-265.000.

Lutzen, Niels W., to Novo Industri A/S. Fermentation process. 4,316,956, Cl. 435-96.000.

Lyakhov, Vyacheslav P.: See—
Zelenov, Petr I.; Usachev, Petr A.; Davydov, Jury V.; Lyakhov, Vyacheslav P.; Zelenova, Irina M.; Aleinikov, Nikolai A.; Sladkovich, Vladimir F.; and Titov, Viktor I., 4,316,542, Cl. 209-39.000.

M&T Chemicals Inc.: See—
Gitlitz, Melvin H.; Engelhart, John E.; and Russo, David A., 4,316,853, Cl. 260-429.700.

Macho, Franz, to VEGA Vertrieb und Fertigung Elektronischer Geräte und Apparate Grieshaber KG. Arrangement for the generation of a signal in proportion to a capacity. 4,317,116, Cl. 340-870.390.

Mackay, Donald A. M.: See—
Friello, Dominick R.; Parker, Ellery; Mackay, Donald A. M.; and Cherukuri, Subraman R., 4,316,915, Cl. 426-5.000.

Mac Lean, John P.; Cantwell, J. Edward; Brown, John D.; and Hoy, Harold D., to Texaco Inc. Highly efficient cyclone separator. 4,316,729, Cl. 55-459.00R.

Maejima, Hideo; and Ohnuma, Kunihiro, to Hitachi, Ltd. LSI Microprocessor having an error processing circuit. 4,317,171, Cl. 364-200.000.

Maggio, Robert L., to Vapor Corporation. Balanced relief valve with novel seal. 4,316,598, Cl. 251-63.000.

Magna Corporation: See—
Blair, Charles M., Jr., 4,316,808, Cl. 252-8.55D.

Magnetic Peripherals Inc.: See—
Wickham, Thomas J., 4,316,321, Cl. 29-845.000.

Maier, Leonhard; and Pip, Wolfgang, to Rohm GmbH. Method for making laminates comprising a hard foam layer and a fiber-reinforced synthetic resin layer. 4,316,934, Cl. 428-308.400.

Maier, Roland: See—
Wetzel, Bernd; Waitun, Eberhard; Maier, Roland; Rueter, Wolfgang; Lechner, Uwe; and Goeth, Hans, 4,316,898, Cl. 424-246.000.

Mailen, James C.: See—
Tallent, Othar K.; Mailen, James C.; Bell, Jimmy T.; and Arwood, Phillip C., 4,316,776, Cl. 204-1.500.

Makarenko, Alexandr V.: See—
Ragoza, Igor V.; Dalidovich, Alexandr S.; Begunov, Petr M.; Vasiljuk, Petr J.; Tonikian, Robert T.; Tonikian, Dina N.; and Makarenko, Alexandr V., 4,316,369, Cl. 66-81.000.

Makita, Naoki, to Tokico Ltd. Vehicle height adjusting device. 4,316,604, Cl. 267-64.190.

Makowski, Henry S.; Lundberg, Robert D.; and Bock, Jan, to Exxon Research & Engineering Co. Bulk neutralization. 4,316,828, Cl. 260-23.50A.

Mallon, Charles B., to Union Carbide Corporation. Surfactant free process for production of pressure sensitive adhesive latexes. 4,316,830, Cl. 260-29.6M0.

Manini, Benito; Furia, Edoardo; Stefani, Eugenio; Baldi, Giuliano; Barracchia, Pasquale; Cacciapuoti, Beniamino; and Mattei, Bruno, to Mopfean S.p.A. High speed circular loom for the production of tubular fabrics starting from threads, straps and the like made of synthetic and natural substances. 4,316,488, Cl. 139-13.00R.

Manitowoc Company, Inc.: See—
Helm, Percy R.; and Morrow, James G., Sr., 4,316,548, Cl. 212-196.000.

Manizza, Gelfo A., to Federal Paper Board Company, Inc. Bottle package with promotional card insert. 4,316,538, Cl. 206-216.000.

Manning, John D., to Carrier Corporation. Method and apparatus for integrating components of a refrigeration system. 4,316,366, Cl. 62-200.000.

Mannor, James E.: See—
Mason, Neil E.; Dunn, Michael A.; and Mannor, James E., 4,316,338, Cl. 42-1.00G.

Marais, Henri J.; and Morrison, Kevin M. Intravenous vascular stabilizer. 4,316,461, Cl. 128-214.00R.

Marans, Nelson S.: See—
McDaniel, Carl V.; and Marans, Nelson S., 4,316,807, Cl. 252-8.50A.

Marcham, Douglas H.; and Reichter, Kenneth A., to Varta Limited. Button cell electrode and method of manufacture. 4,316,945, Cl. 429-222.000.

Markwell, Roger E., to Beecham Group Limited. Chromanone derivatives, a process for their preparation and compositions containing them. 4,316,899, Cl. 424-250.000.

Markwitz, Wernhard, to Siemens Aktiengesellschaft. Circuit arrangement for correction of data. 4,317,202, Cl. 371-43.000.

Marky, Michael, to Ciba-Geigy Corporation. Phosphonium compounds, a process for their preparation and a process for the preparation of asymmetrically substituted stilbene fluorescent brightening agents. 4,316,860, Cl. 260-513.700.

Marschner, Friedemann: See—
Jockel, Heinz; Marschner, Friedemann; Moller, Friedrich W.; and Moriel, Hans-Gunter, 4,316,880, Cl. 423-415.00A.

Marshall and Williams Company: See—
Richter, Hans H., 4,316,309, Cl. 26-93.000.

Martin, Albert E., to Dresser Industries, Inc. Welded side frame column wear plate. 4,316,417, Cl. 105-197.00B.

Martin, Albert R., to R. Martin & Associates. Process and apparatus involving a cutting wire spooling system for cutting brick and tile. 4,316,866, Cl. 264-157.000.

Martin, Andre. Simulcast transmission system. 4,317,220, Cl. 455-58.000.

Martin, C. Edward. Label applicator. 4,316,762, Cl. 156-488.000.

Martin, Melvin S. Wide-mouth article unloading. 4,316,694, Cl. 414-120.000.

Marvin Glass & Associates: See—
Rivette, Denni F.; Morrison, Howard J.; and Montague, Douglas P., 4,316,345, Cl. 46-1.00R.

Masaki, Susumu: See—
Mineshima, Hideo; Sato, Nobuo; and Masaki, Susumu, 4,316,966, Cl. 525-53.000.

Mashimo, Yukio: See—
Tokuda, Ryuji; Mashimo, Yukio; and Uchidoi, Masanori, 4,317,070, Cl. 315-241.00P.

Masoero, Roberto, to Ing. C. Olivetti & C., S.p.A. Digital device for synchronizing and decoding coded signals. 4,317,111, Cl. 340-347.00D.

Mason, Neil E.; Dunn, Michael A.; and Mannor, James E. Handheld firearm adapted for dispensing debilitating chemical repellants. 4,316,338, Cl. 42-1.00G.

Massachusetts Institute of Technology: See—
Schweppe, Fred C., 4,317,049, Cl. 307-39.000.

Senturia, Stephen D.; and Togashi, Kou, 4,317,084, Cl. 331-57.000.

Sterling, Thomas L.; and Kirtley, James L., Jr., 4,317,175, Cl. 364-464.000.

Masters, Joseph I.; Goldberg, Gershon M.; and Lavine, Jerome M., to Ionomet Company, Inc. Surface sensitized chalcogenide product and process for making and using the same. 4,316,946, Cl. 430-9.000.

Masuda, Isao: See—
Odaka, Kazumi; and Masuda, Isao, 4,317,109, Cl. 340-146.3AC.

Masui, Takeshi; Masui, Yoshiro; Hiramatsu, Teruo; and Yamada, Tomisaburo, to Sumitomo Metal Industries, Ltd. Method for preventing wandering of strip under roller leveling in hot rolling line. 4,316,376, Cl. 72-161.000.

Masui, Yoshiro: See—
Masui, Takeshi; Masui, Yoshiro; Hiramatsu, Teruo; and Yamada, Tomisaburo, 4,316,376, Cl. 72-161.000.

Matsuhisa, Tadaaki: See—
Oda, Isao; and Matsuhisa, Tadaaki, 4,316,965, Cl. 501-112.000.

Matsui, Yoshiya: See—
Mochizuki, Noritaka; Minami, Setsuo; Matsui, Yoshiya; Midorikawa, Koyo; Tsunoda, Atsuo; Murase, Hidetoshi; Suzuta, Mikio; and Moriawaki, Masazumi, 4,316,665, Cl. 355-1.000.

Matsukuma, Ikuo: See—
Hirata, Tadashi; Hashimoto, Yukio; Ogasa, Takehiro; Kobayashi, Shigeru; Matsukuma, Ikuo; and Kimura, Kazuo, 4,316,958, Cl. 435-119.000.

Matsumoto, Seiji: See—
Kato, Hisato; Ishida, Masamitsu; and Matsumoto, Seiji, 4,317,179, Cl. 364-515.000.

Matsushita Electric Industrial Co., Ltd.: See—
Nogawa, Kenji; Takemura, Katsuyoshi; and Okada, Yoshifumi, 4,316,320, Cl. 29-839.000.

Mattei, Bruno: See—
Manini, Benito; Furia, Edoardo; Stefani, Eugenio; Baldi, Giuliano; Barracchia, Pasquale; Cacciapuoti, Beniamino; and Mattei, Bruno, 4,316,488, Cl. 139-13.00R.

Maun, Lorenzo P.: See—
Muckerheide, Myron C., 4,316,467, Cl. 128-303.100.

Maurer, Fritz: See—
Fuchs, Rainer; Maurer, Fritz; Priesnitz, Uwe; and Riebel, Hans-Jochem, 4,316,994, Cl. 568-639.000.

Maurer, Robert; and Schau, Walter, to Licentia Patent-Verwaltungs-G.m.b.H. Microwave circuit for a parametric upper sideband down converter. 4,317,231, Cl. 455-330.000.

Max Planck-Gesellschaft: See—
Eibl, Hansjorg, 4,316,730, Cl. 55-524.000.

Mayborg, Charles C.; and Teel, Delbert L., II, to International Business Machines Corporation. Keylever pawl tube spring and keyboard utilizing a keylever pawl tube spring. 4,316,674, Cl. 400-478.000.

Maycock, Alan L.: See—
Thorsett, Eugene D.; Patchett, Arthur A.; Harris, Elbert E.; and Maycock, Alan L., 4,316,896, Cl. 424-200.000.

Mayer, Walter P.: See—
Barth, Bruce P.; Johnson, Robert N.; Mayer, Walter P.; and Pinkston, Bruce H. W., 4,316,875, Cl. 422-133.000.

Mayo, George L., to Pyle, Stoddard H.; and Roberts, Wayne R. Wood member cutting apparatus. 4,316,400, Cl. 83-425.200.

Mazurk, Louis R., to Chicago Decal Company. Membrane touch switch. 4,317,011, Cl. 200-5.00A.

McAlister, Roy E. Heat exchanger. 4,316,436, Cl. 122-451.00S.

McCall, John M.: See—
DeGeeter, Melvin J.; and McCall, John M., 4,316,901, Cl. 424-251.000.

McCutchen, William C.: See—
Zachry, Clyde L.; and McCutchen, William C., 4,316,605, Cl. 269-43.000.

McDaniel, Carl V.; and Marans, Nelson S., to W. R. Grace & Co. Viscosifying agent. 4,316,807, Cl. 252-8.50A.

McDonnell Douglas Corporation: See—
Jerome, Jonathan A., 4,317,131, Cl. 358-128.500.

McGinnis, George P. Inlet manifold preheating device. 4,316,442, Cl. 123-546.000.

McGroarty, Bryan M. Waterproofing material containing bentonite. 4,316,833, Cl. 260-33.6PQ.

McHenry Systems, Inc.: See—
Buckley, Jim, 4,316,650, Cl. 350-67.000.

McIntire, John M.; Hawkins, James M.; and Vachon, Raymond N., to Eastman Kodak Company. Hot melt sizing compositions comprising an acrylic acid-alkyl (meth)acrylate terpolymer. 4,316,929, Cl. 428-262.000.

McKenna, Quentin M. Wind propelled craft. 4,316,424, Cl. 114-39.000.

McKirdy, Ian D. Temperature control system. 4,316,363, Cl. 62-89.000.

McLemore, Jerry R., to Phillips Petroleum Company. Rotary solids feeder. 4,316,559, Cl. 222-225.000.

Meacham Marine Products, Inc.: See—
Kafka, Charles F.; and Kafka, Robert S., 4,316,626, Cl. 292-285.000.

Medendorp, Roger L. Press and actuator therefor. 4,316,712, Cl. 425-292.000.

Medi-Dose, Inc.: See—
Braverman, Milton; and Zink, Leonard, 4,316,541, Cl. 206-532.000.

Medin, Stanislav A.: See—
Bazarov, Georgy P.; Kovbasjuk, Valentin I.; Kufa, Emma N.; and Medin, Stanislav A., 4,317,057, Cl. 310-11.000.

Medlin, Richard C. Lightweight armored vehicle and method of making same. 4,316,404, Cl. 89-36.00H.

Meek, Ronald L.: See—
Cohen, Richard L.; and Meek, Ronald L., 4,317,035, Cl. 250-272.000.

Meeusen, Pieter. Structure for the mooring of yachts and similar craft. 4,316,426, Cl. 114-263.000.

Meier, Willi, to Dorina Nahmaschinen GmbH. Combined sewing machine housing and clamping jig. 4,316,422, Cl. 112-258.000.

Meiji Seika Kaisha, Ltd.: See—
Omoto, Shoji; Itoh, Jiro; Niwa, Tomizo; Shomura, Takashi; Nizato, Tetsutaro; and Inouye, Shigeharu, 4,316,894, Cl. 424-116.000.

Meinan Machinery Works, Inc.: See—
Suzuki, Shunichi; Koba, Yoshinori; Yamada, Yoshiaki; Aoto, Teruaki; Kuno, Yoriyoshi; and Yokota, Masanobu, 4,316,758, Cl. 156-351.000.

Melique, Gaston E. E., to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation, "S.N.E.C.M.A.". Device for fastening stud bolts. 4,316,675, Cl. 403-22.000.

Mendelsohn, Charles, to United Technologies Corporation. Pressure compensating device for a plasma display panel. 4,317,061, Cl. 313-174.000.

Mepalservice B.V.: See—
de Winter, Koen M. M., 4,316,550, Cl. 215-360.000.

Mercer, Alec V.; and Paver, Roger, to Sandoz Ltd. Bis-triazolyl and bis-pyrazolyl stilbene compounds. 4,316,815, Cl. 252-301.220.

Merck & Co., Inc.: See—
Grier, Nathaniel; Dybas, Richard A.; and Witzel, Bruce E., 4,316,903, Cl. 424-267.000.

Thorsett, Eugene D.; Patchett, Arthur A.; Harris, Elbert E.; and Maycock, Alan L., 4,316,896, Cl. 424-200.000.

Meresse, Jean L. J.: See—
Athenes, Claude; Meresse, Jean L. J.; and Salle, Jacques E., 4,317,008, Cl. 179-18.00C.

Merges, Heinz: See—
Merges, Marco, 4,316,476, Cl. 132-40.000.

Merges, Marco, to Merges, Heinz. Flat curler to curl or undulate hair. 4,316,476, Cl. 132-40.000.

Messina, Benedicto U.; and Silkman, William D., to International Business Machines Corporation. Cache organization enabling concurrent line castout and line fetch transfers with main storage. 4,317,168, Cl. 364-200.000.

Metallgesellschaft, Aktiengesellschaft: See—
Jockel, Heinz; Marschner, Friedemann; Moller, Friedrich W.; and Mortel, Hans-Gunter, 4,316,880, Cl. 423-415.00A.

Mettler Instrumente AG: See—
Jonath, Eberhard, 4,316,517, Cl. 177-25.000.

Jonath, Eberhard, 4,316,518, Cl. 177-25.000.

Kupper, Walter, 4,316,516, Cl. 177-25.000.

Meyer, Jerome K. Ice cream making and packaging system and method. 4,316,490, Cl. 141-9.000.

Michael, Earl C.: See—
LeBegue, Maurice K.; and Michael, Earl C., 4,316,635, Cl. 299-80.000.

Michel, Karl H.; and Hoehn, Marvin M., to Eli Lilly and Company. Process for production of antibiotic from streptomycetes. 4,316,959, Cl. 435-122.000.

Mickal, Vladimir: See—
Winkler, Jiri; Cibulka, Josef; Bryksi, Jan; Jelinek, Richard; Krtak, Jan; Mickal, Vladimir; Hlousek, Jaroslav; and Kondr, Milan, 4,317,166, Cl. 363-138.000.

Micro-Precision, Inc.: See—
Duggan, William R.; and Heath, John M., 4,316,328, Cl. 30-389.000.

Micropolis Corporation: See—
Gervais, William J., 4,317,146, Cl. 360-98.000.

Middleman, Lee M.; and Evans, Joseph H., to Raychem Corporation. Circuit protection devices. 4,317,027, Cl. 219-553.000.

Middleton, Michael R.: See—
Coffee, Ronald A.; Young, Brian W.; and Middleton, Michael R., 4,316,914, Cl. 424-305.000.

Midland-Ross Corporation: See—
Thome, William L., 4,316,717, Cl. 432-8.000.

Midorikawa, Koyo: See—
Mochizuki, Noritaka; Minami, Setsuo; Matsui, Yoshiya; Midorikawa, Koyo; Tsunoda, Atsuo; Murase, Hidetoshi; Suzuta, Mikio; and Moriawaki, Masazumi, 4,316,665, Cl. 355-1.000.

Midrex Corporation: See—
Beggs, Donald; and Scarlett, John C., 4,316,739, Cl. 75-40.000.

Miller, Martin P.: See—
Burnworth, Donald O., 4,317,177, Cl. 364-483.000.

Miller, Robert C.; and Ryan, Frederick M., to Westinghouse Electric Corp. Temperature detection using the refractive indices of light guides. 4,316,388, Cl. 73-356.000.

Miller, William G., to Xerox Corporation. Image reduction servo system. 4,316,668, Cl. 355-55.000.

Milliken Research Corporation: See—
Otto, Wolfgang K. F., 4,316,928, Cl. 428-229.000.

Mills, King L.; and Johnson, Paul H., to Phillips Petroleum Company. Apparatus for producing carbon black. 4,316,876, Cl. 422-151.000.

Minami, Setsuo: See—
Mochizuki, Noritaka; Minami, Setsuo; Matsui, Yoshiya; Midorikawa, Koyo; Tsunoda, Atsuo; Murase, Hidetoshi; Suzuta, Mikio; and Moriawaki, Masazumi, 4,316,665, Cl. 355-1.000.

Minatome Corp.: See—
Stana, Regis R.; and Tiepel, Erich W., 4,316,800, Cl. 210-651.000.

Minemura, Norihiro; Toyao, Manabu; Kobayashi, Tsukasa; and Tashiro, Mikio, to Teijin Limited. Synthetic fur and process for preparation thereof. 4,316,924, Cl. 428-89.000.

Mineo, Kijio, to Yamato Iron Works Co., Ltd. Method of mounting mouthpiece device of drums and like containers. 4,316,318, Cl. 29-512.000.

Miner, Kevin S.; and Trachtenberg, Abraham. Combination connecting plate. 4,316,593, Cl. 248-250.000.

Mineshima, Hideo; Sato, Nobuo; and Masaki, Susumu, to Mitsui Petrochemical Industries Ltd. Process for producing chemically blended propylene resin composition. 4,316,966, Cl. 525-53.000.

Minnesota Mining and Manufacturing Company: See—
Brown, Harvey A., 4,316,984, Cl. 546-165.000.

Petrellis, Pano C.; Lien, Larry A.; and Zarr, Wesley E., 4,316,949, Cl. 430-159.000.

Wendling, Larry A., 4,316,952, Cl. 430-285.000.

Mirowski, Mieczyslaw; Mower, Morton M.; and Langer, Alois A., to Mirowski, Mieczyslaw. Cardioverting device with stored energy selecting means and discharge initiating means, and related method. 4,316,472, Cl. 128-419.00D.

Mita Industrial Company Limited: See—
Motomura, Minoru; Shibata, Kiyoshi; and Watanabe, Toshio, 4,316,719, Cl. 432-60.000.

Mitsubishi Adetate Co.: See—
Suzuki, Migaku; and Sakai, Takashi, 4,316,475, Cl. 131-340.000.

Mitsubishi Denki Kabushiki Kaisha: See—
Itoh, Teturoh, 4,317,019, Cl. 219-69.00M.

Nagai, Akio; Nagai, Haruhiko; and Hishii, Masao, 4,317,090, Cl. 372-58.000.

Mitsubishi Jukogyo Kabushiki Kaisha: See—
Hirakawa, Tadashi; Sasashige, Hiroaki; Takenaka, Hiroyuki; and Katayama, Keiichi, 4,316,761, Cl. 156-472.000.

Mitsubishi Rayon Co.: See—
Suzuki, Migaku; and Sakai, Takashi, 4,316,475, Cl. 131-340.000.

Mitsui Petrochemical Industries Ltd.: See—
Mineshima, Hideo; Sato, Nobuo; and Masaki, Susumu, 4,316,966, Cl. 525-53.000.

Mitsui Toatsu Chemicals Incorporated: See—
Saida, Toyoyasu; Shimokawa, Takatatsu; Yanagisawa, Yuzuru; Nagahama, Takashi; and Ishida, Koji, 4,316,767, Cl. 159-47.0UA.

Miu, Ming T.: See—
Panepinto, William, Jr.; Miu, Ming T.; Nibby, Chester M., Jr.; and Shen, Jian-Kuo, 4,317,169, Cl. 364-200.000.

Miyashita, Teruo: See—
Yoshida, Kohichi; Miyashita, Teruo; and Sano, Hiroshi, 4,316,780, Cl. 204-35.00N.

Mobil Oil Corporation: See—
Schoenagel, Hans J., 4,316,794, Cl. 208-111.000.

Mocco, Henri A. Process for winding, on a take-up shaft, a sheet material fed from a supply source. 4,316,586, Cl. 242-65.000.

Mochizuki, Noritaka; Minami, Setsuo; Matsui, Yoshiya; Midorikawa, Koyo; Tsunoda, Atsuo; Murase, Hidetoshi; Suzuta, Mikio; and Moriawaki, Masazumi, to Canon Kabushiki Kaisha. Projection device. 4,316,665, Cl. 355-1.000.

Mohler, Hanns: See—
Gerecke, Max; Haefely, Willy; Hunkeler, Walter; Kyburz, Emilio; Mohler, Hanns; Pieri, Lorenzo; and Polc, Petar, 4,316,839, Cl. 260-239.30T.

Molinari, Egidio: See—
Bonaldi, Antonio; and Molinari, Egidio, 4,316,848, Cl. 260-397.100.

Bonaldi, Antonio; and Molinari, Egidio, 4,316,849, Cl. 260-397.100.

Molins Limited: See—
Hinchcliffe, Dennis; Heybourn, Frank; and Luddington, Eric A., 4,316,754, Cl. 198-347.000.

Moller, Friedrich W.: See—
Jockel, Heinz; Marschner, Friedemann; Moller, Friedrich W.; and Mortel, Hans-Gunter, 4,316,880, Cl. 423-415.00A.

Molt, Kenneth R.; and Zestermann, Mary J., to Carstab Corporation. Polyalkylated 4-aminopiperidine derivatives as stabilizers for synthetic polymers. 4,316,837, Cl. 260-45.80N.

Monforte, Frank R.; and Argentina, Giltan M., to Ampex Corporation. Precision dielectric filled ferrite toroid for use in microwave devices. 4,316,923, Cl. 428-68.000.

Monsanto Company: See—
Esposito, Robert A.; Valego, Frederick F., Jr.; and Hoagland, John C., 4,316,868, Cl. 264-171.000.

Walsh, Robert J., 4,316,757, Cl. 156-286.000.

Montague, Douglas P.: See—
Rivette, Danni F.; Morrison, Howard J.; and Montague, Douglas P., 4,316,345, Cl. 46-1.00R.

Montedison S.P.A.: See—
Rustioni, Massimo; and Balducci, Luigi, 4,316,746, Cl. 106-288.00B.

Montesi, Edward N., to Norton Company. Ear muff accessory for safety hard hat. 4,316,290, Cl. 2-423.000.

Mool, John, to Atlantic Richfield Company. Hydrocarbon conversion process with reduced sulfur oxide emissions. 4,316,795, Cl. 208-120.000.

Moorman, Stephen L.: See—
Corwin, Richard R.; and Moorman, Stephen L., 4,316,670, Cl. 356-349.000.

Moplefan S.p.A.: See—
Manini, Benito; Furia, Edoardo; Stefani, Eugenio; Baldi, Giuliano; Barracchia, Pasquale; Cacciapuoti, Beniamino; and Mattei, Bruno, 4,316,488, Cl. 139-13.00R.

Moriwaki, Masazumi: See—
Mochizuki, Noritaka; Minami, Setsuo; Matsui, Yoshiya; Midorikawa, Koyo; Tsunoda, Atsuo; Murase, Hidetoshi; Suzuta, Mikio; and Moriawaki, Masazumi, 4,316,665, Cl. 355-1.000.

Morozumi, Mituharu: See—
Eguchi, Tsukasa; and Morozumi, Mituharu, 4,316,941, Cl. 428-421.000.

Morris, Darryl C., to Northern Telecom, Inc. Apparatus for converting an A.C. input signal to a rectified and smoothed D.C. signal. 4,317,052, Cl. 307-261.000.

Morris, Don L., to Eastman Kodak Company. Preparation of α -aldehydes by aldol condensation. 4,316,990, Cl. 568-461.000.

Morrison, Howard J.: See—
Rivette, Danni F.; Morrison, Howard J.; and Montague, Douglas P., 4,316,345, Cl. 46-1.00R.

Morrison, Kathleen M.: See—
Hancock, Roger I.; and Morrison, Kathleen M., 4,316,812, Cl. 252-99.000.

Morrison, Kevin M.: See—
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Mosser, Benjamin H., III, to AMP Incorporated. Load coil. 4,317,006, Cl. 178-46.000.

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Motomura, Minoru; Shibata, Kiyoshi; and Watanabe, Toshio, to Mita Industrial Company Limited. Fixing and heating device for electrostatic copying apparatus. 4,316,719, Cl. 432-60.000.

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Murad, Peter S. E. Computerized illumination system. 4,317,071, Cl. 315-312.000.

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Nakano, Shuji, to Omron Tateisi Electronics Co. Electronic cash register. 4,317,172, Cl. 364-405.000.

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Nakasu, Kei: See—
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Nara, Takashi; Okachi, Ryo; Kawamoto, Isao; Sato, Tomoyasu; and Oka, Tetsuo, to Abbott Laboratories. Process for the production of 7-deazaadenosine and 7-deazainosine. 4,316,957, Cl. 435-119.000.

Nash, William D., to El Paso Products Company. Treatment of waste stream from adipic acid production. 4,316,775, Cl. 203-43.000.

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National Research Development Corporation: See—
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National Semiconductor Corporation: See—
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- Reece, John W., 4,317,004, Cl. 178-15.000.
- Neher, Karl, to Siemens-Albis AG. Oil-cooled radar transmitter apparatus. 4,317,224, Cl. 455-128.000.
- Nelson, Eric L., to Nelson Research & Development Co. Method and composition of reducing pain. 4,316,888, Cl. 424-127.000.
- Nelson, Harold E. Portable abrasive belt finishing machine. 4,316,349, Cl. 51-135.00R.
- Nelson, John F., to Illinois Tool Works Inc. Accumulator filter and conduit clamp assembly. 4,316,622, Cl. 285-119.000.
- Nelson, Marvin D.: See—
Adams, John T.; Kompelien, Arlon D.; Nelson, Marvin D.; and Pinckaers, B. Hubert, 4,316,577, Cl. 236-46.00R.
- Nelson Research & Development Co.: See—
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- Nelson, Richard L., to Exxon Research & Engineering Co. Facsimile apparatus and method of operation. 4,317,139, Cl. 358-300.000.
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- Ninomiya, Satoshi; Yamachi, Yasuhiro; Hisano, Katsukuni; Arie, Ryo-suke; Kashiwahara, Katsuo; and Kuwashima, Hidesumi, to Hitachi, Ltd. Method and apparatus for operating a cross-compound turbine generator plant. 4,316,362, Cl. 60-646.000.
- Nippon Electric Co., Ltd.: See—
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- Nippon Gakki Seizo Kabushiki Kaisha: See—
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- Nippon Kogaku K.K.: See—
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- Nippon Kynol Incorporated: See—
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- Nippon Oil & Fats Co., Ltd.: See—
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- Nippon Soken, Inc.: See—
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- Nippon Telegraph and Telephone Public Corporation: See—
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- Nippondenso Co., Ltd.: See—
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- Nishigaki, Yuji; Kasai, Masanao; and Okano, Kazumi, to Canon Kabushiki Kaisha. Photoconductive CdS powder material for electrophotography. 4,316,948, Cl. 430-94.000.
- Nishimoto, Kanichi, to Noritsu Koki Co., Ltd. Conveyance system incorporated in photographic treatment apparatus for long length photosensitive material. 4,316,664, Cl. 354-321.000.
- Nishimura, Yukuo: See—
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- Nishiyama, Toyoo: See—
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- Nishizawa, Jun-ichi, to Zaidan Hojin Handotai Kenkyu Shinkokai. Static induction transistor and integrated circuit utilizing same. 4,317,127, Cl. 357-42.000.
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- Nittetu Chemical Engineering Ltd.: See—
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- Niwa, Tomizo: See—
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- Oak Industries, Inc.: See—
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- Oda Gosen Kogyo Kabushiki Kaisha: See—
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- Oda, Isao; and Matsuhisa, Tadaaki, to NGK Insulators Ltd. Low-expansion ceramics and method of producing the same. 4,316,965, Cl. 501-112.000.
- Odaka, Kazumi; and Masuda, Isao, to Nippon Telegraph & Telephone Public Corp. Pattern recognition system for hand-written characters operating on an on-line real-time basis. 4,317,109, Cl. 340-146.3AC.
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- Ogasa, Takehiro: See—
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- Ogawa, Hisashi: See—
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- Omoto, Shoji; Itoh, Jiro; Niwa, Tomizo; Shomura, Takashi; Niizato, Tetsutaro; and Inouye, Shigeharu, to Meiji Seika Kaisha, Ltd. Antibiotic SF-1130-x3 substance and production and use thereof. 4,316,894, Cl. 424-116.000.
- Omnicon Electronics Co.: See—
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- Ondetti, Miguel A.; and Krapcho, John, to E. R. Squibb & Sons, Inc. Mercaptoacyl derivatives of substituted prolines. 4,316,906, Cl. 424-274.000.
- Onishi, Soichi; and Kitano, Shigeru, to Sharp Kabushiki Kaisha. Data processor for recording and reading out check data and true data in a cassette tape. 4,317,141, Cl. 360-60.000.
- Onoda Cement Company, Ltd.: See—
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- Ootsuka, Yoshinori: See—
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- Osana, Akira, to Olympus Optical Co., Ltd. Tape recorder. 4,317,143, Cl. 360-74.100.
- Osana, Akira, to Olympus Optical Co., Ltd. Cassette tape recorder with an engagement mechanism for locking a movable chassis. 4,317,145, Cl. 360-96.600.
- Osawa Precision Industries, Ltd.: See—
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- Osborne, Donald L.; and Shriver, Joe E., to Sperry Corporation. Quick-adjusting jackstand apparatus. 4,316,601, Cl. 254-86.00R.
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- Owens-Corning Fiberglass Corporation: See—
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- Roberts, Michael G., 4,316,829, Cl. 260-28.5AS.
- Owens-Illinois, Inc.: See—
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- Oxford, Alexander W.; Bradshaw, John; and Coates, Ian H., to Glaxo Group Limited. Heterocyclic compounds, processes for their preparation and their use. 4,316,907, Cl. 424-275.000.
- Pacala, Luba A.; and Blickensderfer, John R., to Union Carbide Corporation. Rubber modified phenolic friction particles. 4,316,827, Cl. 260-17.200.
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Lloyd, William R. J., 4,316,554, Cl. 221-232.000.
- Packham, Jackie F. Rag rug loom. 4,316,310, Cl. 28-149.000.
- Paczkowski, John P.: See—
Jolly, Stuart T.; and Paczkowski, John P., 4,316,430, Cl. 118-725.000.
- Pall Corporation: See—
Cooper, Roydon B., 4,316,801, Cl. 210-90.000.
- Pancheri, Eugene J., to Procter & Gamble Company. The. Liquid detergent composition containing alkyl sulfate and alkyl ethoxylated sulfate. 4,316,824, Cl. 252-551.000.
- Panenka, Jaroslav R.; Pavlik, Bohuslav; and Olson, Daniel P., to Kenting Earth Sciences Limited; and Hudson's Bay Oil and Gas Company Limited. Gamma ray prospecting system. 4,317,033, Cl. 250-253.000.
- Panepinto, William, Jr.; Miu, Ming T.; Nibby, Chester M., Jr.; and Shen, Jian-Kuo, to Honeywell Information Systems Inc. Data processing system having centralized memory refresh. 4,317,169, Cl. 364-200.000.
- Parise, Carl; and Schulz, Rainer R., to Parise & Sons, Inc. Double disconnect, waterproof electrical connector assembly for electrified vacuum hose for wet/dry vacuum cleaner. 4,316,304, Cl. 15-339.000.
- Parise, Carl; and Schulz, Rainer R., to Parise & Sons, Inc. Fast acting, nonrepairable plastic on/off valve. 4,316,600, Cl. 251-245.000.
- Parise & Sons, Inc.: See—
Parise, Carl; and Schulz, Rainer R., 4,316,304, Cl. 15-339.000.
Parise, Carl; and Schulz, Rainer R., 4,316,600, Cl. 251-245.000.
- Parker, Ellery: See—
Friello, Dominick R.; Parker, Ellery; Mackay, Donald A. M.; and Cherukuri, Subraman R., 4,316,915, Cl. 426-5.000.
- Parlman, Robert M., to Phillips Petroleum Company. Flotation agent and process. 4,316,797, Cl. 209-166.000.
- Passarella, Thomas M. Communication circuit protector. 4,317,154, Cl. 361-119.000.
- Paszhory, Emmerich; Seifert, Karl G.; Zimmermann, Vincenz; and Nestler, Hans J., to Hoechst Aktiengesellschaft. Process for the preparation of 4-phenoxy-phenols. 4,316,993, Cl. 568-637.000.
- Patchett, Arthur A.: See—
Thorsett, Eugene D.; Patchett, Arthur A.; Harris, Elbert E.; and Maycock, Alan L., 4,316,896, Cl. 424-200.000.
- Paul, Henry N., 3rd, to Thiokol Corporation. Insulating glass sealant and related compositions. 4,316,979, Cl. 528-109.000.
- Paver, Roger: See—
Mercer, Alec V.; and Paver, Roger, 4,316,815, Cl. 252-301.220.
- Pavlik, Bohuslav: See—
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- Pazzaglia, Daniele: See—
Barberis, Giulio; and Pazzaglia, Daniele, 4,317,195, Cl. 370-94.000.
- Pearce, Michael I.; and Cocking, Glyn, to Saunders Valve Company Limited. Diaphragm valves. 4,316,482, Cl. 137-315.000.
- Pedder, David J.; and Warner, David J., to Plessey Handel und Investments AG. Pyroelectric detectors. 4,317,063, Cl. 313-388.000.
- Pelloso, Turiddu A.; and Kogan, Lawrence, to Nabisco Brands, Inc. Sunflower-oil-based edible fat product. 4,316,919, Cl. 426-603.000.
- Penn, Silas. Auxiliary windshield and window wiper. 4,316,303, Cl. 15-250.300.
- Pennwalt Corporation: See—
Dodge, Robert J., 4,316,448, Cl. 126-424.000.
Wuerlein, Don E., 4,317,040, Cl. 250-421.000.
- Peri-Werk Artur-Schworer KG: See—
Schworer, Artur, 4,316,594, Cl. 249-18.000.
- Perine, Donald R.; and Lucas, Peter A., to Dow Chemical Company. The. Aqueous epoxy phosphate dispersions comprising n-butanol, n-hexanol and ethylene glycol monobutyl ether. 4,316,922, Cl. 428-35.000.
- Peris Y Saborit, Gilles: See—
Guigues, Francois; Peris Y Saborit, Gilles; and Borrod, Guy, 4,316,737, Cl. 71-88.000.
- Perka, Francis A. Therapeutic positioning device. 4,316,454, Cl. 128-77.000.
- Perplies, Eberhard: See—
Holst, Arno; and Perplies, Eberhard, 4,316,982, Cl. 536-88.000.
- Perry, Fred G., to General Electric Company. Arrangement for remote control of repeater stations. 4,317,218, Cl. 455-54.000.
- Persson, Frans-Erik. Automatic lottery ticket vending machine. 4,316,553, Cl. 221-167.000.
- Pessier, Rudolph C. O., to Hughes Tool Company. Shaft drill bit with improved cutter bearing and seal arrangement and cutter insert arrangement. 4,316,515, Cl. 175-372.000.
- Petersen, Alex: See—
Tandrup, Niels; and Petersen, Alex, 4,316,486, Cl. 137-625.640.
- Petersen, Fred: See—
Weiss, Friedrich; and Petersen, Fred, 4,316,721, Cl. 440-47.000.
- Peterson, Robert W., to Texas Instruments Incorporated. Remotely controlled circuit breaker system. 4,317,094, Cl. 335-13.000.
- Peterson, Walter L., to Select Laboratories, Inc. Poultry vaccination system. 4,316,464, Cl. 128-253.000.
- Peterson, Wesley R.: See—
Davidson, Donald R.; and Peterson, Wesley R., 4,316,562, Cl. 223-102.000.
- Petersson, Stefan; and Alstad, Sven O., to Kockums Industri AB. Continuous belt press with capacitive heating means. 4,316,709, Cl. 425-174.80E.
- Petitpierre, Jean C., to Ciba-Geigy Corporation. Pressure-sensitive or heat-sensitive recording material. 4,316,621, Cl. 282-27.500.
- Petrak, Karel L., to Eastman Kodak Company. Polymers from nitrogen heterocyclic compounds. 4,316,972, Cl. 525-336.000.
- Petrellis, Pano C.; Lien, Larry A.; and Zarr, Wesley E., to Minnesota Mining and Manufacturing Company. Photoreactive oligomer composition and printing plate. 4,316,949, Cl. 430-159.000.

Pfaff Haushaltmaschinen GmbH: See—
Hanus, Helfried; Winkler, Uwe; and Kemmel, Patrice J., 4,317,032, Cl. 250-231.05E.

Pfeiffer, Ronald E.; and DeMaria, Francesco, to American Cyanamid Company. Apparatus for preparing open structure fibers. 4,316,714, Cl. 425-382.200.

Pfizer Inc.: See—
Kita, Donald A.; and Fenton, Dennis M., 4,316,960, Cl. 425-137.000.

Philagro: See—
Guigues, Francois; Peris Y Saborit, Gilles; and Borrod, Guy, 4,316,737, Cl. 71-88.000.

Philipenko, Harry. Soil sampler and mounting arrangement. 4,316,393, Cl. 73-864.450.

Phillips Petroleum Company: See—
McLemore, Jerry R., 4,316,559, Cl. 222-225.000.
Mills, King L.; and Johnson, Paul H., 4,316,876, Cl. 422-151.000.
Parlman, Robert M., 4,316,797, Cl. 209-166.000.
Van Pool, Joe, 4,316,998, Cl. 585-712.000.
Welch, Melvin B.; and Dietz, Richard E., 4,316,818, Cl. 252-429.00B.

Phipps, Peter; and Spector, George. Air-assisted hydraulic re-circulatory buoyancy pump. 4,316,680, Cl. 406-49.000.

Photis, James M., to Stauffer Chemical Company. Preparation of aryl-phosphinic acids. 4,316,859, Cl. 260-502.40R.

Pickett, Terence D.; and Formwalt, Charles W., Jr., to Deere & Company. Fiber optic signal conditioning circuit. 4,317,232, Cl. 455-606.000.

Pieri, Lorenzo: See—
Gerecke, Max; Haefely, Willy; Hunkeler, Walter; Kyburz, Emilio; Mohler, Hanns; Pieri, Lorenzo; and Polc, Petar, 4,316,839, Cl. 260-239.30T.

Pierrel, Michel, to Pont-a-Mousson S.A. Method and installation for centrifugal casting. 4,316,495, Cl. 164-457.000.

Pilkington Brothers Limited: See—
Hodgkinson, Joseph B.; and Branch, Geoffrey H., 4,316,565, Cl. 225-99.000.

Pinckaers, B. Hubert: See—
Adams, John T.; Kompelien, Arlon D.; Nelson, Marvin D.; and Pinckaers, B. Hubert, 4,316,577, Cl. 236-46.00R.

Pinkston, Bruce H. W.: See—
Barth, Bruce P.; Johnson, Robert N.; Mayer, Walter P.; and Pinkston, Bruce H. W., 4,316,875, Cl. 422-133.000.

Pinsky, Michael L.; Finley, Joseph H.; and Lutz, Charles W., to FMC Corporation. Stabilized sodium carbonate peroxide preparation method. 4,316,879, Cl. 423-265.000.

Pioneer Electronic Corporation: See—
Kawasaki, Atsushi; and Munakata, Yukio, 4,317,103, Cl. 338-160.000.

Tabata, Toshio; and Uemura, Hiroki, 4,317,215, Cl. 455-5.000.

Pip, Wolfgang: See—
Maier, Leonhard; and Pip, Wolfgang, 4,316,934, Cl. 428-308.400.

Pirelli Cable Corp.: See—
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Pitney Bowes Inc.: See—
Keyt, F. Gene; and Illk, Donald J., 4,317,136, Cl. 358-256.000.

Pitruzzello, Michael C., to United States of America. Army. Focus detection circuitry. 4,317,135, Cl. 358-227.000.

Pittet, Alan O.; and Muralidhara, Ranya, to International Flavors & Fragrances Inc. Process for preparing vinyl phenol. 4,316,995, Cl. 568-780.000.

Planeta, Eugene J. Lawn mower for cutting on an inclined surface. 4,316,356, Cl. 56-16.200.

Plastics Engineering Company: See—
D'Alelio, Gaetano F.; and Waitkus, Phillip A., 4,316,845, Cl. 260-326.00S.

Waitkus, Phillip A.; and D'Alelio, Gaetano F., 4,316,843, Cl. 260-326.00S.

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Pletka, Hans-Dieter: See—
Bozon, Alfred; Koberstein, Edgar; Pletka, Hans-Dieter; and Voelker, Herbert, 4,316,823, Cl. 252-465.000.

Plimpton, Thomas L., administrator: See—
Clinton, Albert J., deceased; and O'Doherty, George D. P., 4,316,988, Cl. 564-433.000.

Plough, Stephan E.; and Swartzendruber, David L., to Plough, Stephan E. Waller with badge holder. 4,316,492, Cl. 150-35.000.

Pobst, David F., Jr.; and Bailey, Jesse M., Jr., to Sid Richardson Carbon & Gasoline Co. Carbon black process utilizing an improved burner. 4,316,881, Cl. 423-456.000.

Polaroid Corporation: See—
Cincotta, Louis; and Foley, James W., 4,316,950, Cl. 430-221.000.
Wray, William R., 4,317,142, Cl. 360-67.000.

Polc, Petar: See—
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Politz, William E.: See—
Christiansen, Gerald E.; and Politz, William E., 4,316,485, Cl. 137-625.400.

Pommer, Dennis L.; and Coleman, Paul E., to General Mills, Inc. Digital moisture meter and method for determining percent weight loss. 4,316,384, Cl. 73-76.000.

Pont-a-Mousson S.A.: See—
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Postlethwait, James H.: See—
Tillson, Robert S.; Olashaw, William F.; and Postlethwait, James H., 4,317,160, Cl. 361-339.000.

Potter, Ronald W., to Hewlett-Packard Company. Recursive low pass digital filter. 4,317,092, Cl. 333-165.000.

PPG Industries, Inc.: See—
Buchwalter, Stephen L.; Bosso, Joseph F.; and Christenson, Roger M., 4,316,784, Cl. 204-181.00C.

Girgis, Mikhail M., 4,316,968, Cl. 525-135.000.

Lawhon, Robert A.; and Yigdall, Jeffrey S., 4,316,733, Cl. 65-99.00A.

Schultz, Stephen J.; Zito, Ronald R.; Wehner, George O.; and Newcamp, George C., 4,316,735, Cl. 65-164.000.

Precision Metalsmiths, Inc.: See—
Horton, Robert A., 4,316,498, Cl. 164-519.000.

Prescott, Thomas J.; and Wetzel, Raymond L., to Hooker Chemicals & Plastics Corp. Electrical resistance coating for steel. 4,316,751, Cl. 148-6.15Z.

Preussag Aktiengesellschaft: See—
Kerekes, Ferenc, 4,316,386, Cl. 73-151.000.

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Price, William A., to Bova, Anthony J. Method and device for eliminating air from water bed mattresses. 4,316,489, Cl. 141-1.000.

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Fuchs, Rainer; Maurer, Fritz; Priesnitz, Uwe; and Riebel, Hans-Jochem, 4,316,994, Cl. 568-639.000.

Procter & Gamble Company, The: See—
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Propster, Mark A.; and Hohman, Charles M., to Owens-Corning Fiberglass Corporation. Bypass wedge for drying and preheating glass batch agglomerates. 4,316,732, Cl. 65-27.000.

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Proudlove, Michael J.: See—
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Pui, David Y. H.: See—
Liu, Benjamin Y. H.; Kittelson, David B.; Dolan, Daniel F.; and Pui, David Y. H., 4,316,360, Cl. 60-275.000.

Pyle, Stoddard H.: See—
Mayo, George L., 4,316,400, Cl. 83-425.200.

Quesnell, Harris A., Jr., to United States of America. Navy. Manchester code decoding apparatus. 4,317,211, Cl. 375-87.000.

Quigley, Richard J.: See—
Reynolds, Clarke; and Quigley, Richard J., 4,316,578, Cl. 238-283.000.

R. A. Jones & Co. Inc.: See—
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R. Martin & Associates: See—
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Ragoza, Igor V.; Dalidovich, Alexandr S.; Begunov, Petr M.; Vasiljuk, Petr J.; Tonikyan, Robert T.; Tonikyan, Dina N.; and Makarenko, Alexandr V. Circular warp knitting machine. 4,316,369, Cl. 66-81.000.

Rahm, Juerg; and Schulz, Peter, to Hoffmann-La Roche Inc. Ring of cells for analytical devices. 4,316,872, Cl. 422-102.000.

Rajadhyaksha, Vithal J., to Nelson Research & Development Co. Vehicle composition containing 1-substituted azacycloalkan-2-ones. 4,316,893, Cl. 424-180.000.

Rakhit, Sumanas; to Ayerst, McKenna and Harrison, Inc. Acyl derivatives of rapamycin. 4,316,885, Cl. 424-122.000.

Randall, Russel R., to Dresser Industries, Inc. Method and apparatus for measuring neutron characteristics of material surrounding a borehole. 4,317,034, Cl. 250-262.000.

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Grasselli, Robert K.; Suresh, Dev D.; Brazdil, James F.; and Ratka, Frances I., 4,316,855, Cl. 260-465.300.

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Raychem Corporation: See—
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RCA Corporation: See—
Altenschulte, Raymond A., 4,317,152, Cl. 361-104.000.
Ben-Dov, Oded, 4,317,122, Cl. 343-798.000.
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Farmer, Felta C., Jr., 4,317,223, Cl. 455-115.000.
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Hsu, Sheng T., 4,317,110, Cl. 340-825.910.
Hughes, Richard H., 4,317,065, Cl. 313-414.000.

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Nossen, Edward J., 4,317,206, Cl. 375-10.000.

Royce, Martin R.; and Shaffer, Donnavon D., 4,316,816, Cl. 252-301.60S.

Torrington, Leslie A., 4,316,539, Cl. 206-307.000.

Warren, Henry R., 4,317,140, Cl. 360-10.000.

Whitehurst, Marshal L., 4,316,778, Cl. 204-5.000.

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Recognition Equipment Incorporated: See—
Warthan, Jerry G., 4,317,029, Cl. 235-454.000.

Reece, John W., to NCR Corporation. Imaging and scanning system. 4,317,004, Cl. 178-15.000.

Regie Nationale des Usines Renault: See—
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Reichter, Kenneth A.: See—
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Reynolds, Clarke; and Quigley, Richard J. Direct fixation rail fastener utilizing a pad of elastomer. 4,316,578, Cl. 238-283.000.

Reynolds, J. Louis; and O'Brien, Paul R., to Reynolds Metals Company. Multi-styled aluminum wheel. 4,316,637, Cl. 301-37.00R.

Reynolds Metals Company: See—
Lee, Harry W., Jr., 4,316,375, Cl. 72-105.000.
Reynolds, J. Louis; and O'Brien, Paul R., 4,316,637, Cl. 301-37.00R.

Richards, Raymond R.; and Gulliksen, John E., to Koehler Manufacturing Co. Battery operated luminaire with emergency switching means. 4,317,162, Cl. 262-93.000.

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Bajusz, Sándor; Szell nee Hasenohrl, Erzsebet; Barabas, Eva; and Bagdy, Daniel, 4,316,889, Cl. 424-177.000.

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Fuchs, Rainer; Maurer, Fritz; Priesnitz, Uwe; and Riebel, Hans-Jochem, 4,316,994, Cl. 568-639.000.

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De Niet, Edmond; and Rijckaert, Albert M. A., 4,317,144, Cl. 360-76.000.

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Rim, Yong S.; Davison, John A.; and Nudenberg, Walter, to Uniroyal, Inc. Modified monolefin copolymer elastomer with improved heat and oil resistance. 4,316,971, Cl. 525-310.000.

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Ritzling, Bertil, to Forenade Fabriksverken. Method and apparatus for adjusting roller rings on a shaft. 4,316,317, Cl. 29-468.000.

Rivette, Denni F.; Morrison, Howard J.; and Montague, Douglas P., to Marvin Glass & Associates. Toy decorative curtain/door. 4,316,345, Cl. 46-1.00R.

Robbins, Wayne E.: See—
Botte, Anthony J.; Hubbard, James H.; Robbins, Wayne E.; and Spivey, Paul R., 4,317,203, Cl. 371-60.000.

Robert Dougan Construction Co.: See—
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Roberts, Michael G., to Owens-Corning Fiberglass Corporation. Modified asphalt compositions. 4,316,829, Cl. 260-28.5AS.

Roberts, Thomas G., to United States of America. Army. Capillary waveguide laser with cooled porous walls. 4,317,088, Cl. 372-92.000.

Roberts, Wayne R.: See—
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Robinson, Jerry T.: See—
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Rockwell International Corporation: See—
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Rohm GmbH: See—
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Rolando, John V.: See—
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Rolsma, Barney: See—
Nagamatsu, Brian H.; and Rolsma, Barney, 4,316,435, Cl. 122-235.00F.

Romandi, Denes, to Siemens Aktiengesellschaft. X-ray diagnostic generator. 4,317,039, Cl. 250-418.000.

Roodenrijs, Jacques P.: See—
Van Pelt, Willem; and Roodenrijs, Jacques P., 4,316,368, Cl. 62-442.000.

Rosenbluth, Alan E.; and Forsyth, James M., to University of Rochester. The Normal incidence x-ray reflectors and resonant cavities for supporting laser action using the same. 4,317,043, Cl. 250-510.000.

Roskelley, Milton. Reinforcing removable post pocket tie-down. 4,316,688, Cl. 410-102.000.

Rosocha, Louis A.: See—
Fitzsimmons, William A.; and Rosocha, Louis A., 4,317,067, Cl. 315-150.000.

Rothen, Johann: See—
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Rothschild, Harvey, to Featherspring International Corporation. Separable fastener for removable foot supports. 4,316,333, Cl. 36-50.000.

Rowley, William W. Plastic tube, coupling, and method of forming same. 4,316,870, Cl. 264-296.000.

Royce, Martin R.; and Shaffer, Donnavon D., to RCA Corporation. Method for preparing copper-aluminum-gold-activated zinc-sulfide phosphors. 4,316,816, Cl. 252-301.60S.

Rubinstein, Solomon: See—
Silver, David A.; Lukac, Rudolf G.; and Rubinstein, Solomon, 4,317,001, Cl. 174-102.05C.

Rueter, Wolfgang: See—
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Rugg, Barry A.; and Brenner, Walter, to New York University. Process for the chemical conversion of cellulose waste to glucose. 4,316,747, Cl. 127-37.000.

Rugg, Barry A.; and Stanton, Robert, to New York University. Process for the acid hydrolysis of waste cellulose to glucose. 4,316,748, Cl. 127-37.000.

Ruhralt Elektrizitäts-Gesellschaft Hartig GmbH & Co.: See—
Hartig, Alfred; and Beckermann, Harald, 4,317,167, Cl. 364-185.000.

Rule, Barbara A. Child's lounging garment. 4,316,287, Cl. 2-69.500.

Ruminsky, Robert T.: See—
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Russo, David A.: See—
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Russo, Joseph L.; and Sonder, Richard, to Thonet Industries, Inc. Composite mattress system. 4,316,298, Cl. 5-465.000.

Russo Manufacturing Corp.: See—
Russo, Richard A., 4,316,446, Cl. 126-200.000.

Russo, Richard A., to Russo Manufacturing Corp. Woodburning heater with protected viewing window. 4,316,446, Cl. 126-200.000.

Rustioni, Massimo; and Balducci, Luigi, to Montedison S.P.A. Molybdenum or tungsten containing bismuth vanadate yellow pigments and process for preparing same. 4,316,746, Cl. 106-288.00B.

Ryan, Frederick M.: See—
Miller, Robert C.; and Ryan, Frederick M., 4,316,388, Cl. 73-356.000.

S&C Electric Company: See—
Sabis, Richard J., 4,317,099, Cl. 337-170.000.

S&S Corrugated Paper Machinery Co., Inc.: See—
Flaum, Stephen S.; and Zielinski, Jozef Z., 4,316,428, Cl. 118-203.000.

Flaum, Stephen S.; and Leff, Martin J., 4,316,755, Cl. 156-205.000.

Saar, David A.; and Bradus, Robert, to Black & Decker Inc. Microcomputer controlled power tool. 4,317,176, Cl. 364-474.000.

Sabis, Richard J., to S&C Electric Company. Fuse link. 4,317,099, Cl. 337-170.000.

Sachs-Systemtechnik GmbH: See—
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Saida, Toyoyasu; Shimokawa, Takatsugu; Yanagisawa, Yuzuru; Nagahama, Takashi; and Ishida, Koji, to Toyo Engineering Corporation; and Mitsui Toatsu Chemicals Incorporated. Process for concentrating aqueous urea solutions. 4,316,767, Cl. 159-47.0UA.

Saint-Gobain Industries: See—
Battigelli, Jean A.; and Bouquet, Francois, 4,316,865, Cl. 264-109.000.

Saito, Syuichiro, to Canon Kabushiki Kaisha. Electromagnetically operated shutter. 4,316,661, Cl. 354-234.000.

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Harada, Mikio; Tachibana, Kan-ichi; Uchida, Akio; and Saitoh, Takashi, 4,317,155, Cl. 361-120.000.

Saitou, Sinichi: See—
Sato, Ken; Saitou, Sinichi; Kato, Toshikazu; Watanabe, Seizo; Nishiyama, Toyoo; Shimoda, Misao; Shibata, Tutomu; and Kimura, Kenji, 4,316,590, Cl. 242-199.000.

Sakai, Takashi: See—
Suzuki, Mikagou; and Sakai, Takashi, 4,316,475, Cl. 131-340.000.

Sakuranaka, Toru; Kobayashi, Masayoshi; and Nakagawa, Sachio, to Diesel Kiki Company, Ltd. Fuel injection advance angle control apparatus. 4,316,441, Cl. 123-502.000.

Salemink, Willard L., to Assemblers, Inc. Drive mechanism for sand, etc., dredging apparatus. 4,316,336, Cl. 37-67.000.

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Guillemin, Roger C. L.; Ling, Nicholas C.; Esch, Fred S.; Bohlen, Peter; and Brazeau, Paul E., Jr., 4,316,891, Cl. 424-177.000.

Salle, Jacques E.: See—
Athenes, Claude; Meresse, Jean L. J.; and Salle, Jacques E., 4,317,008, Cl. 179-18.0FC.

Samejima, Yasushi: See—
Iijima, Tokuzo; Samejima, Yasushi; Kishimoto, Kazuo; Komabashiri, Takamichi; and Kano, Toshiiji, 4,316,789, Cl. 204-296.000.

Iijima, Tokuzo; Samejima, Yasushi; Kishimoto, Kazuo; Komabashiri, Takamichi; and Kano, Toshiiji, 4,316,790, Cl. 204-296.000.

Sampson, Eric A. Non-exposed ski binding. 4,316,618, Cl. 280-613.000.

Sanborn, David M.; and Blackshaw, Andrew L., to E-Tech, Inc. Helically flighted heat exchanger. 4,316,502, Cl. 165-140.000.

Sanchez Velasco, Vicente. Anchorage system of the elements to be supported on the completed structure. 4,316,689, Cl. 411-57.000.

Sand, Robert H., to Vulcan Radiator Company, The. Depletion indicating mechanism for a storage bin. 4,316,427, Cl. 116-215.000.

Sander, Robert K.; Balog, George; and Seegmiller, Emma T., to United States of America, Energy. Apparatus for improving the working time of the XeBr laser. 4,317,087, Cl. 372-57.000.

Sanders, David E.: See—
Gordy, Robert S.; Sanders, David E.; and Chambers, Ramon P., 4,317,204, Cl. 375-1.000.

Sandoz Ltd.: See—
Mercer, Alec V.; and Paver, Roger, 4,316,815, Cl. 252-301.220.

Sano, Hiroshi: See—
Yoshida, Kohichi; Miyashita, Teruo; and Sano, Hiroshi, 4,316,780, Cl. 204-35.00N.

Sansho Kabushiki Kaisha: See—
Sida, Shozo, 4,316,681, Cl. 406-162.000.

Sarkisian, Nancy L.: See—
Grant, Frederic F.; and Sarkisian, Nancy L., 4,316,568, Cl. 226-118.000.

Sasaki, Takashi: See—
Hosoi, Fumio; Sasaki, Takashi; Hagiwara, Miyuki; Kasai, Noboru; Araki, Kunio; and Hirano, Takayuki, 4,316,783, Cl. 204-159.180.

Sasashige, Hiroaki: See—
Hirakawa, Tadashi; Sasashige, Hiroaki; Takenaka, Hiroyuki; and Katayama, Keiichi, 4,316,761, Cl. 156-472.000.

Satake Engineering Company, Ltd.: See—
Satake, Toshihiko, 4,316,799, Cl. 209-504.000.

Satake, Toshihiko, to Satake Engineering Company, Ltd. Automatic control apparatus for an oscillating grain separator. 4,316,799, Cl. 209-504.000.

Sato, Nobuo: See—
Mineshima, Hideo; Sato, Nobuo; and Masaki, Susumu, 4,316,966, Cl. 525-53.000.

Sato, Tomoyasu: See—
Nara, Takashi; Okachi, Ryo; Kawamoto, Isao; Sato, Tomoyasu; and Oka, Tetsuo, 4,316,957, Cl. 435-119.000.

Sato, Ken; Saitou, Sinichi; Kato, Toshikazu; Watanabe, Seizo; Nishiyama, Toyoo; Shimoda, Misao; Shibata, Tutomu; and Kimura, Kenji, to Olympus Optical Co., Ltd. Tape cassette. 4,316,590, Cl. 242-199.000.

Sato, Takao: See—
Seita, Toru; Sato, Takao; and Kikuchi, Mitsuo, 4,316,781, Cl. 204-98.000.

Satomi, Hirosi, to Nichiban Kabushiki Kaisha. Binding machine. 4,316,760, Cl. 156-468.000.

Saunders Valve Company Limited: See—
Pearce, Michael I.; and Cocking, Glyn, 4,316,482, Cl. 137-315.000.

Sayles, David C., to United States of America, Army. Method of imparting hypergolicity to non-hypergolic rocket propellants. 4,316,359, Cl. 60-212.000.

Scanlon, Robert M.: See—
Gentry, Charles B.; and Scanlon, Robert M., 4,316,500, Cl. 165-9.000.

Scaramella, Gianni Q.: See—
Kearnes, Roger M.; and Scaramella, Gianni Q., 4,316,491, Cl. 144-39.000.

Scarlett, John C.: See—
Beggs, Donald; and Scarlett, John C., 4,316,739, Cl. 75-40.000.

Scarpati, Thomas S.; and Ford, Robert J., to Boeing Company, The. Composite aerodynamic rotor blade assembly. 4,316,701, Cl. 416-226.000.

Schafer, Ernst D., to ITT Industries, Inc. Braking force control device. 4,316,639, Cl. 303-6.00C.

Schau, Walter: See—
Maurer, Robert; and Schau, Walter, 4,317,231, Cl. 455-330.000.

Scheinpflug, Hans: See—
Grotkopp, Detlef; Wedemeyer, Karlfried; Brandes, Wilhelm; Scheinpflug, Hans; and Roessler, Peter, 4,316,912, Cl. 424-300.000.

Schenck, Gunther O. Multichamber photoreactor. 4,317,041, Cl. 250-435.000.

Schenk, Wolfgang; Blank, Heinz U.; Hagedorn, Ferdinand; and Evertz, Werner, to Bayer Aktiengesellschaft. Process for the preparation of sulphonic acid chlorides. 4,316,862, Cl. 260-543.00R.

Scheurecker, Werner, to Voest-Alpine Aktiengesellschaft. Supporting and guiding stand arrangement to be used in a bow-type continuous casting plant. 4,316,494, Cl. 164-448.000.

Schiffman, Richard: See—
Thigpen, Ben B.; and Schiffman, Richard, 4,317,185, Cl. 367-15.000.

Schindler, Harvey D.: See—
Sze, Morgan C.; and Schindler, Harvey D., 4,316,792, Cl. 208-10.000.

Schlageter, Werner, to Svenska Rotor Maskiner Aktiebolag. Rotary, regenerative heat exchanger having floating sealing rings. 4,316,499, Cl. 165-9.000.

Schmitz, John B.: See—
Schmitz, William L.; and Schmitz, John B., 4,316,463, Cl. 128-218.00F.

Schmitz, William L.; and Schmitz, John B., to Vac-O-Cast, Inc. Corrosive protected hypodermic module. 4,316,463, Cl. 128-218.00F.

Schoen, Siegfried: See—
Kunde, Gerhard; Schoen, Siegfried; and Trimmel, Herwig, 4,317,233, Cl. 455-606.000.

Kunde, Gerhard; and Schoen, Siegfried, 4,317,234, Cl. 455-606.000.

Schoenagel, Hans J., to Mobil Oil Corporation. Direct conversion of residual oils. 4,316,794, Cl. 208-111.000.

Schott, Lawrence A., to Schott, Roger A., a part interest. Semi-circular thread tap. 4,316,683, Cl. 408-219.000.

Schott, Lawrence A.; and Schott, Roger A. Windmill structure and power generator. 4,316,699, Cl. 416-139.000.

Schott, Roger A.: See—
Schott, Lawrence A., 4,316,683, Cl. 408-219.000.

Schott, Lawrence A.; and Schott, Roger A., 4,316,699, Cl. 416-139.000.

Schramm, Burford J. Unitary, bonded-together helicopter rotorblade. 4,316,700, Cl. 416-226.000.

Schroeter, Heinz: See—
Kloeber, Peter; and Schroeter, Heinz, 4,317,219, Cl. 455-56.000.

Schulde, Felix: See—
Gude, Fritz; Haferkorn, Herbert; and Schulde, Felix, 4,316,977, Cl. 526-272.000.

Schultz, Stephen J.; Zito, Ronald R.; Wehner, George O.; and Newcamp, George C., to PPG Industries, Inc. Position adjustment mechanism for flat glass forming wheel. 4,316,735, Cl. 65-164.000.

Schulz, Peter: See—
Rahm, Juerg; and Schulz, Peter, 4,316,872, Cl. 422-102.000.

Schulz, Rainer R.: See—
Parise, Carl; and Schulz, Rainer R., 4,316,304, Cl. 15-339.000.

Parise, Carl; and Schulz, Rainer R., 4,316,600, Cl. 251-245.000.

Schwab, Rolf, to Siemens Aktiengesellschaft. Spreading device for lamination stacks. 4,316,692, Cl. 414-27.000.

Schwartz, Jerome; and Infante, George J., to Taylor Lock Company. Vehicle theft prevention device. 4,317,108, Cl. 340-64.000.

Schwarz, Richard A.: See—
Hergenrother, William L.; Schwarz, Richard A.; Ambrose, Richard J.; and Hayes, Robert A., 4,316,967, Cl. 525-111.000.

Schwem Instruments: See—
Alvarez, Luis W.; and Schwemin, Arnold J., 4,316,649, Cl. 350-16.000.

Schwemin, Arnold J.: See—
Alvarez, Luis W.; and Schwemin, Arnold J., 4,316,649, Cl. 350-16.000.

Schweppe, Fred C., to Massachusetts Institute of Technology. Frequency adaptive, power-energy re-scheduler. 4,317,049, Cl. 307-39.000.

Schwobel, Richard: See—
Becker, Werner; and Schwobel, Richard, 4,316,759, Cl. 156-387.000.

Schworer, Artur, to Peri-Werk Artur-Schworer KG. Formwork panel for concrete walls. 4,316,594, Cl. 249-18.000.

Scifres, Donald R.; Connell, Neville; and Streifer, William, to Xerox Corporation. Passivation and reflector structure for electroluminescent devices. 4,317,086, Cl. 372-49.000.

Scifres, Donald R.: See—
Burnham, Robert D.; Scifres, Donald R.; and Streifer, William, 4,317,085, Cl. 372-50.000.

Scott, James E.: See—
Bentley, W. Ferrel; Luedtke, Arthur; and Scott, James E., 4,317,120, Cl. 343-120.000.

Scott, John W.: See—
Batcho, Andrew D.; Hengartner, Urs O.; Leimgruber, Willy; Scott, John W.; and Valentine, Donald, Jr., 4,316,847, Cl. 260-326.460.

Scott, Lawrence M.: See—
Wolf, Irving W.; Stafford, Michael K.; Kahan, Hillard M.; Acebo, William F.; Scott, Lawrence M.; and Lee, Yu C., 4,316,738, Cl. 75-0.5BA.

Scott, Lewis A.; and Gibson, Duane M., to Omark Industries, Inc. Chain saw. 4,316,327, Cl. 30-386.000.

Seaford, F. Leo, to Wil-Mat Corporation. Swivel caster assembly. 4,316,305, Cl. 16-21.000.

Sedalis, Patrick A., to Honeywell, Inc. Error detecting and correcting RAM assembly. 4,317,201, Cl. 371-38.000.

Seegmiller, Emma T.: See—
Sander, Robert K.; Balog, George; and Seegmiller, Emma T., 4,317,087, Cl. 372-57.000.

Seger, Charles C.: See—
Goodman, Robert B.; and Seger, Charles C., 4,316,597, Cl. 251-58.000.

Seifert, Karl G.: See—
Paszhory, Emmerich; Seifert, Karl G.; Zimmermann, Vincenz; and Nestler, Hans J., 4,316,993, Cl. 568-637.000.

Seita, Toru; Sato, Takao; and Kikuchi, Mitsuo, to Toyo Soda Manufacturing Co., Ltd. Method for electrolyzing alkali metal halide. 4,316,781, Cl. 204-98.000.

Sekiya, Mituru: See—
Koyama, Hiroaki; Shimizu, Shigeo; and Sekiya, Mituru, 4,316,969, Cl. 525-145.000.

Sele, Thorleif, to Ardal og Sunndal Verk a.s. Arrangement for compensating detrimental magnetic influence between two or more rows of longitudinally oriented electrolytic reduction cells, for aluminum. 4,316,788, Cl. 204-243.00M.

Select Laboratories, Inc.: See—
Peterson, Walter L., 4,316,464, Cl. 128-253.000.

Senturia, Stephen D.; and Togashi, Kou, to Massachusetts Institute of Technology. Oscillator that includes a charge-flow transistor. 4,317,084, Cl. 331-57.000.

Serber, Stephen L.: See—
Mueller, Dale A.; Ruminsky, Robert T.; Serber, Stephen L.; and Wolfgram, Rodger C., 4,316,365, Cl. 62-151.000.

Serini, Volker: See—
Idel, Karsten; Serini, Volker; Freitag, Dieter; and Fengler, Gerd, 4,316,980, Cl. 528-199.000.

Seshimoto, Osamu: See—
Namiki, Tomizo; Seshimoto, Osamu; Shinozaki, Fumiaki; Nahara, Akira; and Ikeda, Tomoaki, 4,317,123, Cl. 346-135.100.

Severin, Stanford L. Intraocular lens structure. 4,316,291, Cl. 3-13.000.

Sexton, Peter; and DeCristofaro, Nicholas J., to Allied Corporation. Homogeneous, ductile brazing foils. 4,316,572, Cl. 228-263.00R.

Shaanan, Gad: See—
Smith, Morley L.; and Shaanan, Gad, 4,316,301, Cl. 15-230.110.

Shaffer, Donnavon D.: See—
Royce, Martin R.; and Shaffer, Donnavon D., 4,316,816, Cl. 252-301.60S.

Shannon, E. Paul. Rate of turn indicator. 4,316,389, Cl. 73-504.000.

Sharp Kabushiki Kaisha: See—
Onishi, Soichi; and Kitano, Shigeru, 4,317,141, Cl. 360-60.000.

Shaw, Pern; and Groves, Stanley E., to Motorola, Inc. High speed synchronization circuit. 4,317,053, Cl. 307-269.000.

Shell Oil Company: See—
Hughes, Patrick M., 4,316,970, Cl. 525-240.000.

Shell, Thomas E.: See—
Taylor, Robert W.; and Shell, Thomas E., 4,316,921, Cl. 427-249.000.

Shelyazhenko, Svetlana V.: See—
Fialkov, Yuri A.; and Shelyazhenko, Svetlana V., 4,316,989, Cl. 568-433.000.

Shen, Jian-Kuo: See—
Panepinto, William, Jr.; Miu, Ming T.; Nibby, Chester M., Jr.; and Shen, Jian-Kuo, 4,317,169, Cl. 364-200.000.

Shibasaki, Ichiro: See—
Ohmura, Kaoru; Shibasaki, Ichiro; and Kimura, Takeo, 4,316,974, Cl. 525-422.000.

Shibata, Kiyoshi: See—
Motomura, Minoru; Shibata, Kiyoshi; and Watanabe, Toshio, 4,316,719, Cl. 432-60.000.

Shibata, Tutomu: See—
Sato, Ken; Saitou, Sinichi; Kato, Toshikazu; Watanabe, Seizo; Nishiyama, Toyoo; Shimoda, Misao; Shibata, Tutomu; and Kimura, Kenji, 4,316,590, Cl. 242-199.000.

Shimazaki, Masao: See—
Ueda, Hiroshi; Shimazaki, Masao; and Kuwazuru, Yasumitsu, 4,316,834, Cl. 260-38.000.

Shimizu, Shigeo: See—
Koyama, Hiroaki; Shimizu, Shigeo; and Sekiya, Mituru, 4,316,969, Cl. 525-145.000.

Shimizu, Tomohiro; and Muranaga, Yoshinobu, to Casio Computer Co., Ltd. Unused program number indicating system for a small program type electronic calculator. 4,317,183, Cl. 364-900.000.

Shimizu, Yoshiyuki, to Nippon Kogaku K.K. Condenser optical system for a microscope. 4,316,653, Cl. 350-465.000.

Shimoda, Misao: See—
Sato, Ken; Saitou, Sinichi; Kato, Toshikazu; Watanabe, Seizo; Nishiyama, Toyoo; Shimoda, Misao; Shibata, Tutomu; and Kimura, Kenji, 4,316,590, Cl. 242-199.000.

Shimokawa, Takatsutsu: See—
Saida, Toyoyasu; Shimokawa, Takatsutsu; Yanagisawa, Yuzuru; Nagahama, Takashi; and Ishida, Koji, 4,316,767, Cl. 159-47.0UA.

Shinozaki, Fumiaki: See—
Namiki, Tomizo; Seshimoto, Osamu; Shinozaki, Fumiaki; Nahara, Akira; and Ikeda, Tomoaki, 4,317,123, Cl. 346-135.100.

Shintaku, Yoshishige, to Ibuki Kogyo Co., Ltd. Coldproof reflex horn speaker. 4,317,009, Cl. 179-115.50H.

Shipko, Frederick J.; and Norman, Robert D., to Coratomic, Inc. Organ stimulating apparatus with sealing setscrew. 4,316,471, Cl. 128-419.00P.

Shirai, Hideo: See—
Kawai, Mituo; Fujita, Takashi; Shirai, Hideo; Nakagawa, Masatoshi; and Abe, Hiroshi, 4,316,743, Cl. 75-124.000.

Shirasaki, Yuichi: See—
Yamamura, Kazuomi; Fukui, Takasuke; Iwamoto, Yoshinao; Shirasaki, Yuichi; and Fujise, Masayuki, 4,317,079, Cl. 324-326.000.

Shirato, Yoshiaki; Takatori, Yasushi; Hara, Toshitami; Nishimura, Yukuo; and Takahashi, Michiko, to Canon Kabushiki Kaisha. Ink jet recording apparatus. 4,317,124, Cl. 346-140.00R.

Shlykov, Gennady N.; Zhestkov, Vitaly I.; Tikhonov, Valentin N.; Dyachkov, Vasily M.; and Kudelin, Alexandr K. Pressure roll of a drafting device for a textile machine. 4,316,314, Cl. 29-123.000.

Shoaf, Myron B.: See—
Adams, Joan M.; Shoaf, Myron B.; Bochmann, Carl E.; and Basile, Peter A., 4,316,409, Cl. 99-275.000.

Shomura, Takashi: See—
Omoto, Shoji; Itoh, Jiro; Niwa, Tomizo; Shomura, Takashi; Niizato, Tetsutaro; and Inouye, Shigeharu, 4,316,894, Cl. 424-116.000.

Shoup, Thomas E., to TRW Inc. Apparatus for conducting smut-free welding. 4,317,020, Cl. 219-98.000.

Shriver, Joe E.: See—
Osborne, Donald L.; and Shriver, Joe E., 4,316,601, Cl. 254-86.00R.

Sibley, Lincoln L., Jr.: See—
Kirkpatrick, Robert G.; Snyder, Ronald R.; and Sibley, Lincoln L., Jr., 4,316,403, Cl. 89-12.000.

Sid Richardson Carbon & Gasoline Co.: See—
Pobst, David F., Jr.; and Bailey, Jesse M., Jr., 4,316,881, Cl. 423-456.000.

Sida, Shozo, to Sansho Kabushiki Kaisha. Blending equipment. 4,316,681, Cl. 406-162.000.

Sidwell, Shawn R., to Astes Components, Ltd. Spray painting shield. 4,316,429, Cl. 118-504.000.

Siebens, Larry N., to Amerace Corporation. Laterally flexible electrical connector assembly. 4,316,646, Cl. 339-7.000.

Sieber, Peter: See—
Kamber, Bruno; Rink, Hans; and Sieber, Peter, 4,316,890, Cl. 424-177.000.

Siemens Aktiengesellschaft: See—
Kloeber, Peter; and Schroeter, Heinz, 4,317,219, Cl. 455-56.000.

Kunde, Gerhard; Schoen, Siegfried; and Trimmel, Herwig, 4,317,233, Cl. 455-606.000.

Kunde, Gerhard; and Schoen, Siegfried, 4,317,234, Cl. 455-606.000.

Markwitz, Wernhard, 4,317,202, Cl. 371-43.000.

Romandi, Denes, 4,317,039, Cl. 250-418.000.

Schwab, Rolf, 4,316,692, Cl. 414-27.000.

Siemens-Albis AG: See—
Neher, Karl, 4,317,224, Cl. 455-128.000.

Siewert, Herbert G., to Tecumseh Products Company. Housing assembly for split crankcase radial compressor. 4,316,705, Cl. 417-273.000.

Sifniades, Stylianos: See—
Tunick, Allen A.; Largman, Theodore; and Sifniades, Stylianos, 4,316,877, Cl. 423-10.000.

SIG-Schweizerische Industrie-Gesellschaft: See—
Loewenthal, Horst, 4,316,354, Cl. 53-538.000.

Silberman, Ira J., to Diversified Products Corporation. Bench mounted weight lifting exerciser. 4,316,609, Cl. 272-118.000.

Silkman, William D.: See—
Messina, Benedicte U.; and Silkman, William D., 4,317,168, Cl. 364-200.000.

Siloam, Inc.: See—
Baker, John W., 4,316,462, Cl. 128-218.00N.

Silver, David A.; Lukac, Rudolf G.; and Rubinstein, Solomon, to Pirelli Cable Corp. Irradiation cross-linked polymeric insulated electric cable. 4,317,001, Cl. 174-102.0SC.

Silverman, Irving: See—
Varon, David S.; and Silverman, Irving, 4,316,546, Cl. 211-105.100.

Simjian, Luther G. Subscriber check accepting and issuing apparatus. 4,317,028, Cl. 235-380.000.

Simmons, Kirk A., to Stauffer Chemical Company. Preparation of arylphosphinic acids. 4,316,858, Cl. 260-502.40R.

Simon-Barron Limited: See—
Trickett, Stanley, 4,316,713, Cl. 425-331.000.

Singer Company, The: See—
Ackerman, Morris, 4,316,720, Cl. 434-224.000.

Davidson, Donald R.; and Peterson, Wesley R., 4,316,562, Cl. 223-102.000.

Ketterer, Stanley J., 4,316,421, Cl. 112-184.000.

Sinha, Brajnanandan; and Tiberg, Sven-Erik, to Sinha, Brajnanandan. Condition indicating device for wheeled vehicle shock absorbers. 4,317,105, Cl. 340-52.00R.

Sinkovitz, Gloria D.; and Dixon, Kenneth W., to Calgon Corporation. Water-insensitive electroconductive article comprising a substrate coated with polymers of diallyldimethylammonium chloride and N-methylolacrylamide and method of coating. 4,316,943, Cl. 428-475.800.

Skach, Allen G.; Childress, David L.; and Hayes, William V., to Dow Chemical Company, The. Machine for continuously molding solid pellets from a mud composition. 4,316,708, Cl. 425-73.000.

Skarvada, Thomas, to Crane Co. Multiple wheel memory selection device for brake control system. 4,317,173, Cl. 364-426.000.

Skerlos, Peter C., to Zenith Radio Corporation. Multi-mode automatic channel frequency synthesis system. 4,317,227, Cl. 455-180.000.

Skidmore Engineering Div. Buckeye Gear Company: See—
Skidmore, Ray C.; and Skidmore, Richard H., 4,316,397, Cl. 81-483.000.

Skidmore, Ray C.; and Skidmore, Richard H., to Skidmore Engineering Div. Buckeye Gear Company. Torque wrench. 4,316,397, Cl. 81-483.000.

Skidmore, Richard H.: See—
Skidmore, Ray C.; and Skidmore, Richard H., 4,316,397, Cl. 81-483.000.

Sladkovich, Vladlen F.: See—
Zelenov, Petr I.; Usachev, Petr A.; Davydov, Jury V.; Lyakhov, Vyacheslav P.; Zelenova, Irina M.; Aleinikov, Nikolai A.; Sladkovich, Vladlen F.; and Titov, Viktor I., 4,316,542, Cl. 209-39.000.

Slusarczuk, George M. J.; and Brooks, Ronald E., to General Electric Company. High density carbon adsorbent composite. 4,316,938, Cl. 428-403.000.

Small World Exchange, Inc.: See—
Harrison, John M., 4,317,007, Cl. 179-18.0BC.

Smith, Alvin H. Portable solar garden. 4,316,347, Cl. 47-17.000.

Smith, Morley L.; and Shaanan, Gad, to T. S. Simms & Co. Limited. Paint roller assembly. 4,316,301, Cl. 15-230.110.

Smith, Randel P., to Steiner Corporation. System for dispensing fluids. 4,316,555, Cl. 222-83.500.

Snijders, Wilfred A. M.: See—
Van Gerwen, Petrus J.; and Snijders, Wilfred A. M., 4,317,212, Cl. 375-113.000.

Snok, Roy E.; and Esders, Theodore W., to Eastman Kodak Company. Assay for neuraminic acids. 4,316,954, Cl. 435-4.000.

- Snyder, Ronald R.: See—
Kirkpatrick, Robert G.; Snyder, Ronald R.; and Sibley, Lincoln L., Jr., 4,316,403, Cl. 89-12,000.
- Sobukawa, Hideo: See—
Fujitani, Yoshiyasu; Muraki, Hideaki; Kondoh, Shiroh; Tomita, Makoto; Yokota, Kouji; Sobukawa, Hideo; and Nakamura, Tamotsu, 4,316,822, Cl. 252-462,000.
- Societe Alsacienne de Constructions Mechaniques: See—
Le Chatelier, Jacques, 4,316,357, Cl. 57-95,000.
- Societe Anonyme Automobiles Citroen: See—
Zaccariotto, Moise, 4,316,633, Cl. 297-331,000.
- Societe Anonyme dite: Transacompagnie pour le Developpement des Transactions Automatiques: See—
Buys, Henri; and Carisey, Camille, 4,316,606, Cl. 271-10,000.
- Societe d'Assistance Technique pour Produits Nestle S.A.: See—
Adamer, Siegfried, 4,316,916, Cl. 426-329,000.
- Societe Nationale d'Etude et de Construction de Moteurs d'Aviation, "S.N.E.C.M.A.": See—
Melicque, Gaston E. E., 4,316,675, Cl. 403-22,000.
- Sohn, Stephen W.: See—
Tu, Hosheng; and Sohn, Stephen W., 4,316,819, Cl. 252-430,000.
- Solar Unlimited, Inc.: See—
Bowden, Donald R.; and Novell, Bruce J., 4,316,501, Cl. 165-70,000.
- Solco Basel AG.: See—
de Schrijver, Marc, 4,316,883, Cl. 424-1,000.
- Solypa, Joseph: Implement for collecting pet manure, 4,316,627, Cl. 294-1,08A.
- Somos, Andras; Turi, Istvan; Zatyko, Ferenc; Gyuro, Janos; and Borsody, Laszlo, to Kerteszi Egyetem: Process and apparatus for the utilization of solar and geothermal energy in double wall structures, 4,316,450, Cl. 126-432,000.
- Sonder, Richard: See—
Russo, Joseph L.; and Sonder, Richard, 4,316,298, Cl. 5-465,000.
- Song, Hu-Kuo: Washing machine for dishes, 4,316,477, Cl. 134-96,000.
- Sontek Industries, Inc.: See—
Bodai, Conrad A., 4,316,580, Cl. 239-466,000.
- Sony Corporation: See—
Kimura, Shigeo; and Yamada, Toshihiko, 4,316,927, Cl. 428-216,000.
- Tatara, Shokichi, 4,317,191, Cl. 369-147,000.
- Spauschus, Hans O.: Vapor compression refrigerant system monitor, 4,316,364, Cl. 62-129,000.
- Spector, George: See—
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- Speer, Spencer J., to General Dynamics, Pomona Division: Mixing device for simultaneously dispensing two-part liquid compounds from packaging kit, 4,316,673, Cl. 366-337,000.
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- Spenceley, Gene D., to British Steel Corporation: Continuous casting of metal strip, 4,316,496, Cl. 164-477,000.
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- Spicer, Lyndon R., to International Standard Electric Corporation: Multi-core power cable, 4,317,002, Cl. 174-105,000.
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- Stoneback, W. Keith, to American Hospital Supply Corporation: Surgical drape system, 4,316,456, Cl. 128-132,000D.
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- Suzuki, Kiyoshi; and Kawashima, Hirokuni, to Canon Kabushiki Kaisha: Cadmium sulfide for electrophotography, 4,316,947, Cl. 430-94,000.
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- Corporation: Oxide superconductor Josephson junction and fabrication method therefor, 4,316,785, Cl. 204-192,00S.
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Widmer, Hans: See—
Collonge, Jacques H.; and Widmer, Hans, 4,316,996, Cl. 568-784.000.

Wieder, Wolfgang; and Witte, Josef, to Bayer AG. Catalyst, preparation thereof and use thereof in the preparation of telomeric polybutadiene homo- or co-polymers. 4,316,820, Cl. 252-431.00N.

Wien, Arve. Devices adapted for use on ski poles. 4,316,620, Cl. 280-824.000.

Wiersma, Steve J.: See—
Cheng, Dah Y.; and Wiersma, Steve J., 4,316,772, Cl. 202-163.000.

Wight, David R.: See—
Hughes, Brian T.; Vokes, John C.; and Wight, David R., 4,317,125, Cl. 357-15.000.

Wil-Mat Corporation: See—
Seaford, F. Leo, 4,316,305, Cl. 16-21.000.

Willette, Norval K. Picnic beach cart. 4,316,615, Cl. 280-47.260.

Willis, Donald H.: See—
Fernsler, Ronald E.; and Willis, Donald H., 4,317,133, Cl. 358-158.000.

Wilson, Arthur G.: See—
Bryan, T. James; Hartman, George W.; and Wilson, Arthur G., 4,317,138, Cl. 358-291.000.

Wilson, Robert J., to GFF, Inc. Method for bonding a pocket blank to a garment portion. 4,316,756, Cl. 156-227.000.

Wiltzbach, Bernard L.: See—
Edwards, Earl G.; Robinson, Jerry T.; and Wiltzbach, Bernard L., 4,316,667, Cl. 355-3.05H.

Windmoller & Holscher: See—
Decker, Werner, 4,316,723, Cl. 493-419.000.

Wine, Charles M., to RCA Corporation. User control arrangement for controlling a plurality of functions. 4,317,050, Cl. 307-541.000.

Wine, Charles M.: See—
Henderson, John G. N.; and Wine, Charles M., 4,317,225, Cl. 455-158.000.

Wingrave, James A., to Conoco Inc. Preparation of polyvinyl halide with quaternary salt of cellulose sulfate. 4,316,976, Cl. 526-200.000.

Winkler, Guenter H.: See—
Corzine, Robert G.; and Winkler, Guenter H., 4,317,118, Cl. 343-100.00R.

Winkler, Jiri; Cibulka, Josef; Bryski, Jan; Jelinek, Richard; Krtel, Jan; Mickal, Vladimir; Hlousek, Jaroslav; and Kondr, Milan, to CKD Praha, oborovy podnik. Circuit arrangement for self-commutated inverters. 4,317,166, Cl. 363-138.000.

Winkler, Uwe: See—
Hanus, Helfried; Winkler, Uwe; and Kemmel, Patrice J., 4,317,032, Cl. 250-231.05E.

Winslow, Alan K., to Tektronix, Inc. Diagnostic extender test apparatus. 4,317,199, Cl. 371-16.000.

Wintermantel, Erich: See—
Braun, Karl; and Wintermantel, Erich, 4,316,470, Cl. 128-346.000.

Wirth, Kenneth H., to Copolymer Rubber & Chemical Corp. High green strength rubbers. 4,316,825, Cl. 260-5.000.

Wischoff, Donald F.: See—
Turner, Gerald D.; and Wischoff, Donald F., 4,316,563, Cl. 225-41.000.

Witte, Josef: See—
Wieder, Wolfgang; and Witte, Josef, 4,316,820, Cl. 252-431.00N.

Witzel, Bruce E.: See—
Grier, Nathaniel; Dybas, Richard A.; and Witzel, Bruce E., 4,316,903, Cl. 424-267.000.

Wolf, Irving W.; Stafford, Michael K.; Kahan, Hillard M.; Acebo, William F.; Scott, Lawrence M.; and Lee, Yu C., to Ampex Corporation. Economical process for producing metal particles for magnetic recording. 4,316,738, Cl. 75-0.5BA.

Wolfgang, Rodger C.: See—
Mueller, Dale A.; Ruminsky, Robert T.; Serber, Stephen L.; and Wolfgang, Rodger C., 4,316,365, Cl. 62-151.000.

Woo, Nea-Yea; and Lee, Teh-Hsuang, to Eastman Kodak Company. Method and apparatus for pattern noise correction. 4,317,134, Cl. 358-213.000.

Woodford Manufacturing Company: See—
Fillman, Russell L., 4,316,481, Cl. 137-302.000.

Woodruff, Terry A., to Hewlett-Packard Company. Modulated detector. 4,316,381, Cl. 73-27.00R.

Woodruff, Terry A., to Hewlett-Packard Company. Detector with intermittent flow. 4,316,382, Cl. 73-27.00R.

Wortmann, Hans: See—
Gehlen, Jakob; and Wortmann, Hans, 4,316,530, Cl. 188-73.390.

Wray, William R., to Polaroid Corporation. Electronic gain and noise control for recording of analog information. 4,317,142, Cl. 360-67.000.

Wu, Tai T.: See—
Ward, Michael A. V.; and Wu, Tai T., 4,317,068, Cl. 315-209.0CD.

Wuerflein, Don E., to Pennwalt Corporation. Low ripple regulated X-ray tube power supply filament transformer. 4,317,040, Cl. 250-421.000.

Wyoming Mineral Corp.: See—
Stana, Regis R.; and Tiepel, Erich W., 4,316,800, Cl. 210-651.000.

Wyss, Pierre-Charles: See—
Bollag, Werner; and Wyss, Pierre-Charles, 4,316,983, Cl. 536-4.000.

Xerox Corporation: See—
Burnham, Robert D.; Scifres, Donald R.; and Streifer, William, 4,317,085, Cl. 372-50.000.

Ceelen, Theodorus M., 4,316,666, Cl. 355-3.0TR.

Hammond, Thomas J.; and Northrup, Karl A., 4,317,066, Cl. 313-493.000.

Miller, William G., 4,316,668, Cl. 355-55.000.

Scifres, Donald R.; Connell, Neville; and Streifer, William, 4,317,086, Cl. 372-49.000.

Yacono, Charles: See—
Atlani, Martial; Loutaty, Roben; Wakselman, Claude; and Yacono, Charles, 4,316,796, Cl. 208-313.000.

Yaeger, Ronald J.; and Keller, Gerald W. Heat recovery and hot water circulation system. 4,316,367, Cl. 62-238.600.

Yahalom, Joseph, to Bell Telephone Laboratories, Incorporated. Process for electroplating palladium on articles comprising copper. 4,316,779, Cl. 204-29.000.

Yamachi, Yasuhiro: See—
Ninomiya, Satoshi; Yamachi, Yasuhiro; Hisano, Katsukuni; Arie, Ryosuke; Kashiwahara, Katsuto; and Kuwashima, Hidesumi, 4,316,362, Cl. 60-646.000.

Yamada, Hiromichi: See—
Suzuki, Atsushi; Urabe, Koichi; Yamada, Hiromichi; and Kohno, Hideki, 4,317,037, Cl. 250-367.000.

Yamada, Tomisabro: See—
Masui, Takeshi; Masui, Yoshiro; Hiramatu, Teruo; and Yamada, Tomisabro, 4,316,376, Cl. 72-161.000.

Yamada, Toshihiko: See—
Kimura, Shigeo; and Yamada, Toshihiko, 4,316,927, Cl. 428-216.000.

Yamada, Yoshiaki: See—
Suzuki, Shunichi; Koba, Yoshinori; Yamada, Yoshiaki; Aoto, Teruaki; Kuno, Yoriyoshi; and Yokota, Masanobu, 4,316,758, Cl. 156-351.000.

Yamaguchi, Hiroaki; Hattori, Tadashi; and Ootsuka, Yoshinori, to Nippon Soken, Inc. Knock detecting apparatus for internal combustion engine. 4,316,440, Cl. 123-428.000.

Yamamoto, Hitoshi; Watanabe, Masaki; and Koizumi, Shinichi, to Honda Giken Kogyo Kabushiki Kaisha. Unilateral rear-drive type three-wheeled vehicle. 4,316,520, Cl. 180-215.000.

Yamamura, Kazuomi; Fukui, Takasuke; Iwamoto, Yoshinao; Shirasaki, Yuichi; and Fujise, Masayuki, to Kokusai Denshin Denwa Co. Ltd. Buried cable locating system. 4,317,079, Cl. 324-326.000.

Yamato Iron Works Co., Ltd.: See—
Mineo, Kinji, 4,316,318, Cl. 29-512.000.

Yanagawa, Ichiro; Kurita, Tokio; and Nakasu, Kei, to Toyota Jidosha Kogyo Kabushiki Kaisha. Brake booster. 4,316,529, Cl. 188-1.110.

Yanagisawa, Yuzuru: See—
Saida, Toyoyasu; Shimokawa, Takatatsu; Yanagisawa, Yuzuru; Nagahama, Takashi; and Ishida, Koji, 4,316,767, Cl. 159-47.0UA.

Yeaton, Arthur B.; and Yeaton, Seth A. Stylus for writing braille. 4,316,326, Cl. 30-366.000.

Yeaton, Seth A.: See—
Yeaton, Arthur B.; and Yeaton, Seth A., 4,316,326, Cl. 30-366.000.

Yigdall, Jeffrey S.: See—
Lawton, Robert A.; and Yigdall, Jeffrey S., 4,316,733, Cl. 65-99.00A.

Yokota, Kouji: See—
Fujitani, Yoshiyasu; Muraki, Hideaki; Kondoh, Shiroh; Tomita, Makoto; Yokota, Kouji; Sobukawa, Hideo; and Nakamura, Tamotsu, 4,316,822, Cl. 252-462.000.

Yokota, Masanobu: See—
Suzuki, Shunichi; Koba, Yoshinori; Yamada, Yoshiaki; Aoto, Teruaki; Kuno, Yoriyoshi; and Yokota, Masanobu, 4,316,758, Cl. 156-351.000.

Yokoyama, Masao, to Kabushiki Kaisha Komatsu Seisakusho. Front-loading hydraulic excavator. 4,316,697, Cl. 414-694.000.

Yoshida, Isao; Nagata, Minoru; Ochi, Shikayuki; and Katto, Hisao, to Hitachi, Ltd. High-voltage circuit for insulated gate field-effect transistor. 4,317,055, Cl. 307-304.000.

Yoshida, Kohichi; Miyashita, Teruo; and Sano, Hiroshi, to Nippon Light Metal Company Limited. Method of producing color-anodized aluminum articles. 4,316,780, Cl. 204-35.00N.

Yoshioka, Masamichi: See—
Kudo, Bosshi; and Yoshioka, Masamichi, 4,316,764, Cl. 156-617.00H.

Young, Brian W.: See—
Coffee, Ronald A.; Young, Brian W.; and Middleton, Michael R., 4,316,914, Cl. 424-305.000.

Young, Ernst H., Jr., to Bell Telephone Laboratories, Incorporated. Clock generator (buffer) circuit. 4,317,051, Cl. 307-246.000.

Young, Gary C.: See—
Evans, John W.; and Young, Gary C., 4,316,749, Cl. 127-55.000.

Yu, Conrad M.; and Illige, John D., to United States of America, Energy. Apparatus for electroplating particles of small dimension. 4,316,786, Cl. 204-223.000.

Yu, Ruey J.; and Van Scott, Eugene J. Therapeutic compositions and vehicles for topical pharmaceuticals. 4,316,902, Cl. 424-266.000.

Zaccariotto, Moise, to Automobiles Peugeot; and Societe Anonyme Automobiles Citroen. Convertible automobile seat structure provided with a safety belt hooking device. 4,316,633, Cl. 297-331.000.

Zachry, Clyde L.; and McCutchen, William C., to Burroughs Corporation. Magnet mounting tool. 4,316,605, Cl. 269-43.000.

Zaidan Hojin Handotai Kenkyu Shinkokai: See—
Nishizawa, Jun-ichi, 4,317,127, Cl. 357-42.000.

Zangiacomi, Fernand: See—
Huot-Marchand, Daniel; and Zangiacomi, Fernand, 4,317,187, Cl. 368-88.000.

Zarr, Wesley E.: See—
Petrellis, Pano C.; Lien, Larry A.; and Zarr, Wesley E., 4,316,949, Cl. 430-159.000.

Zatyko, Ferenc: See—
Somos, Andras; Turi, Istvan; Zatyko, Ferenc; Gyuros, Janos; and Borsody, Laszlo, 4,316,450, Cl. 126-432.000.

Zelenov, Petr I.; Usachev, Petr A.; Davydov, Jury V.; Lyakhov, Vyacheslav P.; Zelenova, Irina M.; Aleinikov, Nikolai A.; Sladkovich, Vladlen F.; and Titov, Viktor I. Electromagnetic separator. 4,316,542, Cl. 209-39.000.

- Zelenova, Irina M.: See—
 Zelenov, Petr I.; Usachev, Petr A.; Davydov, Jury V.; Lyakhov, Vyacheslav P.; Zelenova, Irina M.; Aleinikov, Nikolai A.; Sladkovich, Vladlen F.; and Titov, Viktor I., 4,316,542, Cl. 209-39.000.
- Zenith Radio Corporation: See—
 Dougherty, Lawrence W., 4,317,064, Cl. 313-406.000.
 Hendrickson, Melvin C., 4,317,228, Cl. 455-183.000.
 Skerlos, Peter C., 4,317,227, Cl. 455-180.000.
- Zestermann, Mary J.: See—
 Molt, Kenneth R.; and Zestermann, Mary J., 4,316,837, Cl. 260-45.80N.
- Zhestkov, Vitaly I.: See—
 Shlykov, Gennady N.; Zhestkov, Vitaly I.; Tikhonov, Valentin N.; Dyachkov, Vasily M.; and Kudelin, Alexandr K., 4,316,314, Cl. 29-123.000.
- Zieg, Benjamin S.: See—
 Allen, William P., Jr.; and Zieg, Benjamin S., 4,317,121, Cl. 343-712.000.
- Zielinski, Jozef Z.: See—
 Flaum, Stephen S.; and Zielinski, Jozef Z., 4,316,428, Cl. 118-203.000.
- Zilges, Franz-Josef; and Kutz, Heinrich. Method and apparatus for the extrusion of tubes of easily oxidized materials. 4,316,373, Cl. 72-45.000.
- Zimmerman, Robert L.: See—
 Speranza, George P.; Cuscurida, Michael; and Zimmerman, Robert L., 4,316,991, Cl. 568-609.000.
- Zimmermann, Vincenz: See—
 Paszthory, Emmerich; Seifert, Karl G.; Zimmermann, Vincenz; and Nestler, Hans J., 4,316,993, Cl. 568-637.000.
- Zink, Leonard: See—
 Braverman, Milton; and Zink, Leonard, 4,316,541, Cl. 206-532.000.
- Zito, Ronald R.: See—
 Schultz, Stephen J.; Zito, Ronald R.; Wehner, George O.; and Newcamp, George C., 4,316,735, Cl. 65-164.000.
- Zwarts, Cornelis M. G., to Canadian Patents & Development Limited. Transducer for measuring the velocity or displacement or both of ferromagnetic material. 4,317,077, Cl. 324-179.000.

LIST OF REISSUE PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 23RD DAY OF FEBRUARY, 1982

NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- Coach and Car Equipment Corporation: See—
 Harder, Arthur J., Jr., Re. 30,871, Cl. 297-451.000.
- Harder, Arthur J., Jr., to Coach and Car Equipment Corporation. Cantilevered supporting shell for seat. Re. 30,871, Cl. 297-451.000.
- Honjo, Tahiko: See—
 Sonoyama, Takayasu; Kageyama, Bunji; and Honjo, Tahiko, Re. 30,872, Cl. 435-138.000.
- Inoue, Kiyoshi. Electromagnetic fluidics system and method. Re. 30,870, Cl. 137-13.000.
- Kageyama, Bunji: See—
 Sonoyama, Takayasu; Kageyama, Bunji; and Honjo, Tahiko, Re. 30,872, Cl. 435-138.000.
- Schibbye, Lauritz B., to Svenska Rotor Maskiner Aktiebolag. Method of operating a refrigeration plant and a plant for performing the method. Re. 30,869, Cl. 62-192.000.
- Shionogi & Co., Ltd.: See—
 Sonoyama, Takayasu; Kageyama, Bunji; and Honjo, Tahiko, Re. 30,872, Cl. 435-138.000.
- Sonoyama, Takayasu; Kageyama, Bunji; and Honjo, Tahiko, to Shionogi & Co., Ltd. Process for producing 2-keto-L-gulononic acid. Re. 30,872, Cl. 435-138.000.
- Svenska Rotor Maskiner Aktiebolag: See—
 Schibbye, Lauritz B., Re. 30,869, Cl. 62-192.000.

LIST OF REEXAMINATION PATENTEEES

TO WHOM

CERTIFICATES WERE ISSUED

- Borg-Warner Corporation: See—
 Holdeman, John William, B1 4,103,753, Cl. 180-247.
- Holdeman, John William to Borg-Warner Corporation. Manually shiftable planetary gearset. B1 4,103,753, Cl. 180-247.

LIST OF DESIGN PATENTEEES

- Adams, Lloyd M. Guitar body. 263,148, 2-23-82, Cl. D17-20.000.
- Ajax Industries, Inc.: See—
 Poole, Benjamin C., 263,097, Cl. D6-4.000.
- Alton Box Board Company: See—
 Bonezyk, Bruno C., 263,122, Cl. D9-433.000.
- American Cyanamid Company: See—
 Hadtke, Frederick B.; and Grip, John A., 263,123, Cl. D9-445.000.
- American Home Products Corporation: See—
 Mack, Frank J., 263,117, Cl. D9-337.000.
- Anzai, Shiro; and Suwa, Kaname, to Canon Kabushiki Kaisha. Desk top electronic calculator. 263,150, 2-23-82, Cl. D18-7.000.
- Arthur Guinness Son & Company (Dublin) Limited: See—
 Hildebrand, Peter C. R., 263,107, Cl. D7-99.000.
- Atari, Inc.: See—
 Nishi, Roy; and Farnell, Russell W., 263,142, Cl. D14-111.000.
- Baker, Allister L., to Keuffel & Esser Company. Controlled lettering scribe. 263,153, 2-23-82, Cl. D19-41.000.
- Barnett, Thomas, to Findlay Products Division of Rexcorp Management Ltd. Stove. 263,164, 2-23-82, Cl. D23-97.000.
- Bayliner Marine Corporation: See—
 Watson, Daryl G., 263,133, Cl. D12-315.000.
- Watson, Daryl G., 263,134, Cl. D12-315.000.
- Bergerioux, Jean-Marcel, to Hotchkiss-Brandt Sogeme H.B.S. (Societe Anonyme). Postal coding machine. 263,152, 2-23-82, Cl. D18-13.000.
- Berkline Corporation, The: See—
 Long, Stapleton, 263,098, Cl. D6-37.000.
- Besenbruch, Alex, to CTA Manufacturing Corporation. Chain-type pipe cutter. 263,111, 2-23-82, Cl. D8-60.000.
- Bettencourt, Darryl G.; and Dietz, Charles F., to Blackwelders. Front dump refuse compactor. 263,174, 2-23-82, Cl. D34-3.000.
- Bidwell, Robert E.: See—
 Kurtz, Leonard D.; and Bidwell, Robert E., 263,168, Cl. D24-51.000.
- Blackmon, Charles V. Physical exerciser. 263,160, 2-23-82, Cl. D21-195.000.
- Blackwelders: See—
 Bettencourt, Darryl G.; and Dietz, Charles F., 263,174, Cl. D34-3.000.
- Boeing Company, The: See—
 Friebe, Gottfried O.; and Kulfan, Robert M., 263,135, Cl. D12-341.000.
- Bonezyk, Bruno C., to Alton Box Board Company. Carton blank. 263,122, 2-23-82, Cl. D9-433.000.
- Booth, Richard C. Racquetball helmet. 263,091, 2-23-82, Cl. D2-231.000.
- Boyajian, Alfred Z. Combined wire and bolt pliers. 263,110, 2-23-82, Cl. D8-52.000.
- Bushman, John A., to Ferraris Development and Engineering Company Limited. Mouthpiece. 263,166, 2-23-82, Cl. D24-17.000.
- Cain, Jason S. Packaging container. 263,116, 2-23-82, Cl. D9-327.000.
- California R & D Center: See—
 Ishikawa, Paul J., 263,156, Cl. D21-13.000.
- Canon Kabushiki Kaisha: See—
 Anzai, Shiro; and Suwa, Kaname, 263,150, Cl. D18-7.000.
- Hirata, Takashi; Yomo, Takashi; and Motoyoshi, Junichi, 263,151, Cl. D18-7.000.
- CBS Inc.: See—
 Wilson, Gregg, 263,149, Cl. D17-20.000.
- Celluloid S.A.: See—
 Wachtel, Jean L., 263,096, Cl. D4-35.000.
- Cercone, Richard S. Support unit for cleaning and electroplating equipment or the like. 263,145, 2-23-82, Cl. D15-141.000.
- Certified Chemicals, Inc.: See—
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- Clairol Incorporated: See—
 Wistrand, John, 263,173, Cl. D28-13.000.
- Combi Co., Ltd.: See—
 Nakao, Shinroku; Ishii, Yoshiyasu; Hanashima, Tairo; and Ishige, Yukio, 263,159, Cl. D21-134.000.
- Craig, Peter M., to Peter Pan Playthings Limited. Educational toy desk. 263,158, 2-23-82, Cl. D21-59.000.
- CTA Manufacturing Corporation: See—
 Besenbruch, Alex, 263,111, Cl. D8-60.000.

- Dadura, Edward J., Sr.: *See—*
Glover, Donald W., Jr.; and Dadura, Edward J., Sr., 263,128, Cl. D34-31.000.
- Day, Gary H. Fireplace insert ash can. 263,165, 2-23-82, Cl. D23-131.000.
- Dennis, Richard E. Digital clock case. 263,124, 2-23-82, Cl. D10-1.000.
- Dietz, Charles F.: *See—*
Bettencourt, Darryl G.; and Dietz, Charles F., 263,174, Cl. D34-3.000.
- Digiandomenico, Shirley H.; Gilmore, Mary P. S., deceased; and by Gilmore, Thomas L., administrator. Juvenile dress. 263,090, 2-23-82, Cl. D2-81.000.
- Emerson Electric Co.: *See—*
Martin, Richard J.; and Mittendorf, Richard J., 263,144, Cl. D15-127.000.
- Farnell, Russell W.: *See—*
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- Fay, William L., to Visor-Trac, Inc. Visored headgear. 263,092, 2-23-82, Cl. D2-241.000.
- Ferraris Development and Engineering Company Limited: *See—*
Bushman, John A., 263,166, Cl. D24-17.000.
- Fetty, Harold D.: *See—*
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- Findlay Products Division of Rexcorp Management Ltd.: *See—*
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- Fossella, Gregory; Mercandante, Michael J.; and MacDonald, John B., to Certified Chemicals, Inc. Powder dispenser. 263,120, 2-23-82, Cl. D9-366.000.
- Friebel, Gottfried O.; and Kulfan, Robert M., to Boeing Company, The. Airplane. 263,135, 2-23-82, Cl. D12-341.000.
- Gasowski, Chester J.: *See—*
Loeffler, Ronald L.; Kolowski, Michael A.; Gasowski, Chester J.; Lindner, Daniel J.; Smithkey, John C.; and Fetty, Harold D., 263,129, Cl. D12-146.000.
- Gehrke, George E. Fly tying vise. 263,113, 2-23-82, Cl. D8-74.000.
- General Electric Company: *See—*
Huntington, Robert R.; and Vendelso, Hans J., 263,143, Cl. D14-95.000.
- George, J. Rembrandt; and Schuyler, William L. Combined telephone booth and advertising display unit. 263,101, 2-23-82, Cl. D6-157.000.
- George, J. Rembrandt; and Schuyler, William L. Combined telephone booth and advertising display unit. 263,102, 2-23-82, Cl. D6-157.000.
- George Koch Sons, Inc.: *See—*
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- Gilmore, Mary P. S., deceased: *See—*
Digiandomenico, Shirley H.; Gilmore, Mary P. S., deceased; and Gilmore, Thomas L., administrator, 263,090, Cl. D2-81.000.
- Gilmore, Thomas L., administrator: *See—*
Digiandomenico, Shirley H.; Gilmore, Mary P. S., deceased; and Gilmore, Thomas L., administrator, 263,090, Cl. D2-81.000.
- Glover, Donald W., Jr.; and Dadura, Edward J., Sr., to Philmont Steel Products, Inc. Floor jack. 263,128, 2-23-82, Cl. D34-31.000.
- Goodyear Tire & Rubber Company, The: *See—*
Loeffler, Ronald L.; Kolowski, Michael A.; Gasowski, Chester J.; Lindner, Daniel J.; Smithkey, John C.; and Fetty, Harold D., 263,129, Cl. D12-146.000.
- Stalter, Robert J., Sr., 263,104, Cl. D6-201.000.
- Gore, Fred, to Jatex, Inc. Equipment console. 263,136, 2-23-82, Cl. D14-1.000.
- Grip, John A.: *See—*
Hadtkie, Frederick B.; and Grip, John A., 263,123, Cl. D9-445.000.
- Hadtkie, Frederick B.; and Grip, John A., to American Cyanamid Company. Cap for a container. 263,123, 2-23-82, Cl. D9-445.000.
- Hanashima, Tairo: *See—*
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- Handy Andy Industries, Inc.: *See—*
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- Hildebrand, Peter C. R., to Arthur Guinness Son & Company (Dublin) Limited. Syringe. 263,107, 2-23-82, Cl. D7-99.000.
- Hiraki, Takayuki, to Universal Pioneer Kabushiki Kaisha. Videodisc player. 263,137, 2-23-82, Cl. D14-1.000.
- Hirata, Takashi; Yomo, Takashi; and Motoyoshi, Junichi, to Canon Kabushiki Kaisha. Desk top electronic calculator. 263,151, 2-23-82, Cl. D18-7.000.
- Hotchkiss-Brandt Sogeme H.B.S. (Societe Anonyme): *See—*
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- Ishii, Yoshiyasu: *See—*
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- Ishikawa, Paul J., to California R & D Center. Electronic game housing. 263,156, 2-23-82, Cl. D21-13.000.
- Iwasaki, Osamu, to Slik Tripod Co., Ltd. Tripod. 263,147, 2-23-82, Cl. D16-45.000.
- Jatex, Inc.: *See—*
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- Juracsik, Charles A. Cooking utensil support for a gas range. 263,108, 2-23-82, Cl. D7-136.000.
- Kabushikigaisha OMCO: *See—*
Okazaki, Yasukichi; and Okazaki, Tatsuo, 263,105, Cl. D7-62.000.
- Ketcham & McDougall, Inc.: *See—*
Laughlin, Clayton A., 263,154, Cl. D19-84.000.
- Macowski, William, 263,155, Cl. D19-99.000.
- Keuffel & Esser Company: *See—*
Baker, Allister L., 263,153, Cl. D19-41.000.
- Kolowski, Michael A.: *See—*
Loeffler, Ronald L.; Kolowski, Michael A.; Gasowski, Chester J.; Lindner, Daniel J.; Smithkey, John C.; and Fetty, Harold D., 263,129, Cl. D12-146.000.
- Konopka, Tom. Rack for mounting sound reinforcement systems or the like. 263,141, 2-23-82, Cl. D14-38.000.
- Kulfan, Robert M.: *See—*
Friebel, Gottfried O.; and Kulfan, Robert M., 263,135, Cl. D12-341.000.
- Kurtz, Leonard D.; and Bidwell, Robert E. Portable drainage device. 263,168, 2-23-82, Cl. D24-51.000.
- Larko, Christina I. E., to Molnlycke AB. Incontinence pad for men. 263,169, 2-23-82, Cl. D24-51.000.
- Laughlin, Clayton A., to Ketcham & McDougall, Inc. Base for a desk set. 263,154, 2-23-82, Cl. D19-84.000.
- Lee, Connie M. Filter ash tray. 263,171, 2-23-82, Cl. D27-16.000.
- Lee, Ngai S., to Tat Ming Electronics Limited. Combined record player, tuner and amplifier. 263,140, 2-23-82, Cl. D14-20.000.
- Leeds, Doris J.: *See—*
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- Lindner, Daniel J.: *See—*
Loeffler, Ronald L.; Kolowski, Michael A.; Gasowski, Chester J.; Lindner, Daniel J.; Smithkey, John C.; and Fetty, Harold D., 263,129, Cl. D12-146.000.
- Loeffler, Ronald L.; Kolowski, Michael A.; Gasowski, Chester J.; Lindner, Daniel J.; Smithkey, John C.; and Fetty, Harold D., to Goodyear Tire & Rubber Company, The. Tire. 263,129, 2-23-82, Cl. D12-146.000.
- Long, Stapleton, to Berklene Corporation, The. Armchair or similar article. 263,098, 2-23-82, Cl. D6-37.000.
- Lonnstedt, Bo G. Support for an ear protector. 263,093, 2-23-82, Cl. D2-259.000.
- Lowry, Wilma J. Display box. 263,121, 2-23-82, Cl. D9-432.000.
- MacDonald, John B.: *See—*
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- Mack, Frank J., to American Home Products Corporation. Combined bottle and squeegee package. 263,117, 2-23-82, Cl. D9-337.000.
- Macowski, William, to Ketcham & McDougall, Inc. Base for a desk set. 263,155, 2-23-82, Cl. D19-99.000.
- Maglica, Anthony. Flashlight. 263,170, 2-23-82, Cl. D26-49.000.
- Marco Mfg., Inc.: *See—*
Mitchell, Mark T., 263,131, Cl. D12-203.000.
- Mitchell, Mark T., 263,132, Cl. D12-203.000.
- Martin, Richard J.; and Mittendorf, Richard J., to Emerson Electric Co. Portable power drive. 263,144, 2-23-82, Cl. D15-127.000.
- Mauzy, Daniel P. Mobile serving unit. 263,126, 2-23-82, Cl. D34-14.000.
- Mazabras, Jean, to Societe des Chaussures Seducta Charles Jourdan & Fils. Heel for ladies' shoe. 263,094, 2-23-82, Cl. D2-324.000.
- Mercandante, Michael J.: *See—*
Fossella, Gregory; Mercandante, Michael J.; and MacDonald, John B., 263,120, Cl. D9-366.000.
- Mitchell, Mark T., to Marco Mfg., Inc. Portable detachable step for mounting on bumpers of vehicles. 263,131, 2-23-82, Cl. D12-203.000.
- Mitchell, Mark T., to Marco Mfg., Inc. Portable detachable step for connecting to the front bumper of a vehicle. 263,132, 2-23-82, Cl. D12-203.000.
- Mittendorf, Richard J.: *See—*
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- Molnlycke AB: *See—*
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- Motoyoshi, Junichi: *See—*
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- Muellner, James M., to Smarte Carte, Inc. Luggage cart with adult seat. 263,127, 2-23-82, Cl. D34-18.000.
- Nakao, Shinroku; Ishii, Yoshiyasu; Hanashima, Tairo; and Ishige, Yukio, to Combi Co., Ltd. Pushing toy vehicle. 263,159, 2-23-82, Cl. D21-134.000.
- Nishi, Roy; and Farnell, Russell W., to Atari, Inc. Printer housing. 263,142, 2-23-82, Cl. D14-111.000.
- Norton, Robert D., to Handy Andy Industries, Inc. Shielded nut-cracker. 263,106, 2-23-82, Cl. D7-98.000.
- Ohmori, Shigeshi, to Suntory Limited. Bottle or the like. 263,115, 2-23-82, Cl. D9-320.000.
- Okazaki, Tatsuo: *See—*
Okazaki, Yasukichi; and Okazaki, Tatsuo, 263,105, Cl. D7-62.000.
- Okazaki, Yasukichi; and Okazaki, Tatsuo, to Kabushikigaisha OMCO. Electric beverage maker. 263,105, 2-23-82, Cl. D7-62.000.
- Olde, Jarl R. Outlet fitting for a pipe. 263,163, 2-23-82, Cl. D23-40.000.
- Oshita, Koji, to Societe d'Assistance Technique pour Produits Nestle S.A. Combined bottle and cap. 263,119, 2-23-82, Cl. D9-352.000.
- Owens-Illinois, Inc.: *See—*
Weckman, Richard L., 263,118, Cl. D9-341.000.
- Payne, Kenneth J., to Pfizer Inc. Pharmaceutical tablet. 263,172, 2-23-82, Cl. D28-2.000.

- Peter Pan Playthings Limited: *See—*
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- Peterson, Thomas D. Bag holder. 263,109, 2-23-82, Cl. D34-6.000.
- Petrie, Ross J., to Leeds, Doris J. Combined radio transmitter and cassette player for a one-way private channel communications system. 263,139, 2-23-82, Cl. D14-5.000.
- Pfizer Inc.: *See—*
Payne, Kenneth J., 263,172, Cl. D28-2.000.
- Philmont Steel Products, Inc.: *See—*
Glover, Donald W., Jr.; and Dadura, Edward J., Sr., 263,128, Cl. D34-31.000.
- Poole, Benjamin C., to Ajax Industries, Inc. Combined table and ottoman. 263,097, 2-23-82, Cl. D6-4.000.
- Quinones, Jose L. Basketball backboard. 263,161, 2-23-82, Cl. D21-201.000.
- Ressel, Arthur J. Throwing hawk. 263,112, 2-23-82, Cl. D8-81.000.
- Ricoh Company, Ltd.: *See—*
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- Schuyler, William L.: *See—*
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- George, J. Rembrandt; and Schuyler, William L., 263,102, Cl. D6-157.000.
- Sette, Edward F. Adjustable shelf support. 263,114, 2-23-82, Cl. D8-381.000.
- Slik Tripod Co., Ltd.: *See—*
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- Smarte Carte, Inc.: *See—*
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- Smithkey, John C.: *See—*
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- Societe d'Assistance Technique pour Produits Nestle S.A.: *See—*
Oshita, Koji, 263,119, Cl. D9-352.000.
- Societe des Chaussures Seducta Charles Jourdan & Fils: *See—*
Mazabras, Jean, 263,094, Cl. D2-324.000.
- Stalter, Robert J., Sr., to Goodyear Tire & Rubber Company, The. Foam mattress core. 263,104, 2-23-82, Cl. D6-201.000.
- Stewart, William R., to Victor United, Inc. Archery bow handle. 263,162, 2-23-82, Cl. D22-5.000.
- Stone, Robert D. Electrocardiogram lead terminal. 263,167, 2-23-82, Cl. D24-29.000.
- Suntory Limited: *See—*
Ohmori, Shigeshi, 263,115, Cl. D9-320.000.
- Suwa, Kaname: *See—*
Anzai, Shiro; and Suwa, Kaname, 263,150, Cl. D18-7.000.
- Takagi, Masao, to Takatoku Toys Company, Limited. Electronic game housing. 263,157, 2-23-82, Cl. D21-13.000.
- Takatoku Toys Company, Limited: *See—*
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- Tat Ming Electronics Limited: *See—*
Lee, Ngai S., 263,140, Cl. D14-20.000.
- Taylor, Julian S. Housing for a pressure detecting probe having a digital readout. 263,125, 2-23-82, Cl. D10-85.000.
- Thompson, Bruce R., to UPL Group Limited. Towel rack. 263,099, 2-23-82, Cl. D6-99.000.
- Thompson, Bruce R., to UPL Group Limited. Lockable drawer unit. 263,100, 2-23-82, Cl. D6-129.000.
- Uchiyama, Rikio, to Victor Company of Japan, Limited. Disk player for video/audio pre-recorded cartridges, or similar article. 263,138, 2-23-82, Cl. D14-1.000.
- Universal Pioneer Kabushiki Kaisha: *See—*
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- UPL Group Limited: *See—*
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- Thompson, Bruce R., 263,100, Cl. D6-129.000.
- Vendelso, Hans J.: *See—*
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- Victor Company of Japan, Limited: *See—*
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- Victor United, Inc.: *See—*
Stewart, William R., 263,162, Cl. D22-5.000.
- Visor-Trac, Inc.: *See—*
Fay, William L., 263,092, Cl. D2-241.000.
- Vitaloni, Alberto, to Vitaloni S.p.A. Rear view mirror. 263,130, 2-23-82, Cl. D12-187.000.
- Vitaloni S.p.A.: *See—*
Vitaloni, Alberto, 263,130, Cl. D12-187.000.
- Wachtel, Jean L., to Celluloid S.A. Hair brush. 263,096, 2-23-82, Cl. D4-35.000.
- Wajs, Helene: *See—*
Wajs, Michel; and Wajs, Helene, 263,095, Cl. D3-52.000.
- Wajs, Michel; and Wajs, Helene. Carrying case for documents or the like. 263,095, 2-23-82, Cl. D3-52.000.
- Watson, Daryl G., to Bayliner Marine Corporation. Motor boat. 263,133, 2-23-82, Cl. D12-315.000.
- Watson, Daryl G., to Bayliner Marine Corporation. Motor boat. 263,134, 2-23-82, Cl. D12-315.000.
- Weckman, Richard L., to Owens-Illinois, Inc. Dual compartment bottle. 263,118, 2-23-82, Cl. D9-341.000.
- Williams, Stanley E., to George Koch Sons, Inc. Collapsible floral basket support. 263,103, 2-23-82, Cl. D6-183.000.
- Wilson, Gregg, to CBS Inc. Nut for guitars. 263,149, 2-23-82, Cl. D17-20.000.
- Wistrand, John, to Clairol Incorporated. Hair dryer. 263,173, 2-23-82, Cl. D28-13.000.
- Yamamoto, Toshio, to Ricoh Company, Ltd. Electrostatic copier. 263,146, 2-23-82, Cl. D16-31.000.
- Yomo, Takashi: *See—*
Hirata, Takashi; Yomo, Takashi; and Motoyoshi, Junichi, 263,151, Cl. D18-7.000.

LIST OF PLANT PATENTEES

- Dutton, James M. Pomegranate tree. 4,826, 2-23-82, Cl. 33.000.
- Takanishi, Yutaka T. Peach tree. 4,827, 2-23-82, Cl. 43.000.

CLASSIFICATION OF PATENTS

ISSUED FEBRUARY 23, 1982

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2		CLASS 43		76		4,316,384		725		4,316,430		CLASS 144		215		4,316,520					
2.5	4,316,286	42.24	4,316,343	104	4,316,385	151	4,316,386	CLASS 119		39		4,316,491		247		B1 4,103,753					
69.5	4,316,287	114	4,316,344	190 H	4,316,387	356	4,316,388	3		4,316,431		CLASS 148		114		4,316,521					
88	4,316,288	CLASS 44		504	4,316,389	620	4,316,390	22		4,316,432		6.15 Z		4,316,751		224		4,316,522			
191	4,316,289	56	4,316,724	861.25	4,316,391	861.83	4,316,392	158		4,316,433		6.16		4,316,752		226		4,316,523			
423	4,316,290	CLASS 46		864.45	4,316,393	CLASS 74		CLASS 122		20 B		4,316,434		CLASS 150		93		4,316,524			
CLASS 3		1 R	4,316,345	CLASS 47		5.46	4,316,394	235 F		4,316,435		35		4,316,492		106		4,316,525			
13	4,316,291	212	4,316,346	CLASS 49		866	4,316,395	451 S		4,316,436		CLASS 156		135		4,316,526		CLASS 182			
CLASS 4		17	4,316,347	CLASS 51		CLASS 75		CLASS 123		90.18		205		4,316,755		CLASS 187		8.71		4,316,527	
538	4,316,294	462	4,316,348	CLASS 52		0.5 BA	4,316,738	198 F		4,316,437		227		4,316,756		9 E		4,316,528			
612	4,316,295	CLASS 55		CLASS 53		40	4,316,739	246		4,316,438		286		4,316,757		CLASS 188		1.11		4,316,529	
630	4,316,296	135 R	4,316,349	CLASS 54		42	4,316,740	428		4,316,439		351		4,316,758		73.39		4,316,530			
CLASS 5		420	4,316,297	CLASS 55		40	4,316,741	502		4,316,440		387		4,316,759		CLASS 192		114 R		4,316,531	
465	4,316,298	157	4,316,350	CLASS 56		76	4,316,742	546		4,316,442		468		4,316,760		CLASS 194		1 N		4,316,532	
485	4,316,299	309.9	4,316,351	CLASS 57		124	4,316,743	CLASS 124		35 A		472		4,316,761		4 C		4,316,533			
CLASS 9		656	4,316,352	CLASS 58		61	4,316,396	CLASS 126		77		477		4,316,762		CLASS 198		345		4,316,534	
307	4,316,300	CLASS 59		CLASS 59		483	4,316,397	CLASS 127		200		479		4,316,763		CLASS 200		347		4,316,535	
CLASS 15		384	4,316,353	CLASS 60		CLASS 81		CLASS 128		369		519		4,316,764		CLASS 202		473		4,316,536	
230.11	4,316,301	538	4,316,354	CLASS 61		CLASS 82		CLASS 129		424		519		4,316,765		CLASS 203		699		4,316,537	
235.4	4,316,302	CLASS 62		CLASS 62		2.7	4,316,398	CLASS 130		429		448		4,316,766		CLASS 204		731		4,316,538	
250.3	4,316,303	41	4,316,725	CLASS 63		CLASS 83		CLASS 131		432		448		4,316,767		CLASS 205		5 A		4,317,011	
339	4,316,304	89	4,316,726	CLASS 64		CLASS 84		CLASS 132		432		448		4,316,768		CLASS 206		5 A		4,317,012	
CLASS 16		107	4,316,727	CLASS 65		CLASS 85		CLASS 133		440		448		4,316,769		CLASS 207		61.62		4,317,013	
21	4,316,305	226	4,316,728	CLASS 66		CLASS 86		CLASS 134		450		448		4,316,770		CLASS 208		153 J		4,317,014	
CLASS 17		459 R	4,316,729	CLASS 67		CLASS 87		CLASS 135		37		448		4,316,771		CLASS 209		163		4,316,772	
52	4,316,306	524	4,316,730	CLASS 68		CLASS 88		CLASS 136		55		448		4,316,772		CLASS 210		263		4,316,773	
CLASS 24		11.3	4,316,355	CLASS 69		CLASS 89		CLASS 137		1.3		448		4,316,773		CLASS 211		41		4,316,774	
31 R	4,316,307	16.2	4,316,356	CLASS 70		CLASS 90		CLASS 138		77		448		4,316,774		CLASS 212		13		4,316,775	
335	4,316,308	CLASS 71		CLASS 71		CLASS 91		CLASS 139		132 D		448		4,316,775		CLASS 213		43		4,316,776	
CLASS 26		95	4,316,357	CLASS 72		CLASS 92		CLASS 140		156		448		4,316,776		CLASS 214		11		4,316,777	
93	4,316,309	286	4,316,358	CLASS 73		CLASS 93		CLASS 141		205.24		448		4,316,777		CLASS 215		43		4,316,778	
CLASS 28		212	4,316,359	CLASS 74		CLASS 94		CLASS 142		207.17		448		4,316,778		CLASS 216		11		4,316,779	
149	4,316,310	275	4,316,360	CLASS 75		CLASS 95		CLASS 143		214 R		448		4,316,779		CLASS 217		11		4,316,780	
248	4,316,311	398	4,316,361	CLASS 76		CLASS 96		CLASS 144		218 F		448		4,316,780		CLASS 218		1.5		4,316,781	
255	4,316,312	646	4,316,362	CLASS 77		CLASS 97		CLASS 145		218 N		448		4,316,781		CLASS 219		2.1		4,316,782	
CLASS 29		89	4,316,363	CLASS 78		CLASS 98		CLASS 146		253		448		4,316,782		CLASS 220		5		4,316,783	
25.18	4,316,313	129	4,316,364	CLASS 79		CLASS 99		CLASS 147		276		448		4,316,783		CLASS 221		29		4,316,784	
123	4,316,314	151	4,316,365	CLASS 80		CLASS 100		CLASS 148		278		448		4,316,784		CLASS 222		35 N		4,316,785	
229	4,316,315	192	4,316,366	CLASS 81		CLASS 101		CLASS 149		303.1		448		4,316,785		CLASS 223		98		4,316,786	
426.1	4,316,316	200	4,316,367	CLASS 82		CLASS 102		CLASS 150		325		448		4,316,786		CLASS 224		129		4,316,787	
468	4,316,317	238.6	4,316,368	CLASS 83		CLASS 103		CLASS 151		334 R		448		4,316,787		CLASS 225		159.18		4,316,788	
512	4,316,318	542	4,316,369	CLASS 84		CLASS 104		CLASS 152		346		448		4,316,788		CLASS 226		181 C		4,316,789	
577 C	4,316,319	CLASS 85		CLASS 85		CLASS 105		CLASS 153		419 D		448		4,316,789		CLASS 227		192 S		4,316,790	
839	4,316,320	5	4,316,731	CLASS 86		CLASS 106		CLASS 154		419 P		448		4,316,790		CLASS 228		223		4,316,791	
845	4,316,321	27	4,316,732	CLASS 87		CLASS 107		CLASS 155		763		448		4,316,791		CLASS 229		242		4,316,792	
852	4,316,322	99 A	4,316,733	CLASS 88		CLASS 108		CLASS 156		804		448		4,316,792		CLASS 230		243 M		4,316,793	
CLASS 30		135	4,316,734	CLASS 89		CLASS 109		CLASS 157		340		448		4,316,793		CLASS 231		296		4,316,794	
124	4,316,323	164	4,316,735	CLASS 90		CLASS 110		CLASS 158		CLASS 131		448		4,316,794		CLASS 232		298		4,316,795	
162	4,316,324	CLASS 91		CLASS 91		CLASS 111		CLASS 159		CLASS 132		448		4,316,795		CLASS 233		216		4,316,796	
276	4,316,325	81	4,316,369	CLASS 92		CLASS 112		CLASS 160		CLASS 133		448		4,316,796		CLASS 234		307		4,316,797	
366	4,316,326	CLASS 93		CLASS 93		CLASS 113		CLASS 161		CLASS 134		448		4,316,797		CLASS 235		507		4,316,798	
386	4,316,327	CLASS 94		CLASS 94		CLASS 114		CLASS 162		CLASS 135		448		4,316,798		CLASS 236		532		4,316,799	
389	4,316,328	CLASS 95		CLASS 95		CLASS 115		CLASS 163		CLASS 136		448		4,316,799		CLASS 237		216		4,316,800	
CLASS 33		5 D	4,316,370	CLASS 96		CLASS 116		CLASS 164		CLASS 137		448		4,316,800		CLASS 238		307		4,316,801	
169 C	4,316,329	417	4,316,371	CLASS 97		CLASS 117		CLASS 165		CLASS 138		448		4,316,801		CLASS 239		507		4,316,802	
488	4,316,330	CLASS 98		CLASS 98		CLASS 118		CLASS 166		CLASS 139		448		4,316,802		CLASS 240		532		4,316,803	
CLASS 34		59	4,316,736	CLASS 99		CLASS 119		CLASS 167		CLASS 140		448		4,316,803		CLASS 241		216		4,316,804	
17	4,316,331	88	4,316,737	CLASS 100		CLASS 120		CLASS 168		CLASS 141		448		4,316,804		CLASS 242		307		4,316,805	
CLASS 36		4	4,316,372	CLASS 101		CLASS 121		CLASS 169		CLASS 142		448		4,316,805		CLASS 243		507		4,316,806	
28	4,316,332	45	4,316,373	CLASS 102		CLASS 122		CLASS 170		CLASS 143		448		4,316,806		CLASS 244		532		4,316,807	
50	4,316,333	91	4,316,374	CLASS 103		CLASS 123		CLASS 171		CLASS 144		448		4,316,807		CLASS 245		216		4,316,808	
91	4,316,334	105	4,316,375	CLASS 104		CLASS 124		CLASS 172		CLASS 145		448		4,316,808		CLASS 246		307		4,316,809	
129	4,316,335	161	4,316,376	CLASS 105		CLASS 125		CLASS 173		CLASS 146		448		4,316,809		CLASS 247		507		4,316,810	
CLASS 37		189	4,316,377	CLASS 106		CLASS 126		CLASS 174		CLASS 147		448		4,316,810		CLASS 248		532		4,316,811	
67	4,316,336	268	4,316,378	CLASS 107		CLASS 127		CLASS 175		CLASS 148		448		4,316,811		CLASS 249		216		4,316,812	
564	4,316,337	351	4,316,379	CLASS 108		CLASS 128		CLASS 176		CLASS 149		448		4,316,812		CLASS 250		307		4,316,813	
CLASS 42		CLASS 73		CLASS 109		CLASS 129		CLASS 177		CLASS 150		448		4,316,813		CLASS 251		507		4,316,814	
1 G	4,316,338	23	4,316,380	CLASS 110		CLASS 130		CLASS 178		CLASS 151		448		4,316,814		CLASS 252		532		4,316,815	
59	4,316,339	27 R	4,316,381	CLASS 111		CLASS 131		CLASS 179		CLASS 152		448		4,316,815		CLASS 253		216		4,316,816	
66	4,316,340	55	4,316,382	CLASS 112		CLASS 132		CLASS 180		CLASS 153		448		4,316,816		CLASS 254		307		4,316,817	
70 F	4,316,341	CLASS 74		CLASS 113		CLASS 133		CLASS 181		CLASS 154		448		4,316,817		CLASS 255		507		4,316,818	
74	4,316,342	CLASS 75		CLASS 114		CLASS 134		CLASS 182		CLASS 155		448		4,316,818		CLASS 256		532		4,316,819	
CLASS 43		CLASS 76		CLASS 115		CLASS 135		CLASS 183		CLASS 156		448		4,316,819		CLASS 257		216		4,316,820	
CLASS 44		CLASS 77		CLASS 116		CLASS 136		CLASS 184		CLASS 157		448		4,316,820		CLASS 258		307		4,316,821	
CLASS 45		CLASS 78		CLASS 117		CLASS 137		CLASS 185		CLASS 158		448		4,316,821		CLASS 259		507		4,316,822	
CLASS 46		CLASS 79		CLASS 118		CLASS 138		CLASS 186		CLASS 159		448		4,316,822		CLASS 260		532		4,316,823	
CLASS 47		CLASS 80		CLASS 119		CLASS 139		CLASS 187		CLASS 160</											

CLASSIFICATION OF PATENTS

708	4,316,806	250	4,316,593	493	4,317,066	234	4,316,661	CLASS 370	
CLASS 211	18	CLASS 249	64.19	4,316,604	CLASS 315	241	4,316,662	54	4,317,193
5	4,316,544	18	4,316,594	150	4,317,067	299	4,316,663	94	4,317,195
60 T	4,316,545	94	4,316,595	209 CD	4,317,068	321	4,316,664	112	4,317,196
105.1	4,316,546	43	4,316,605	227 R	4,317,069	1	4,316,665	121	4,317,197
	4,316,547	203 R	4,317,031	241 P	4,317,070	3 SH	4,316,667	121	4,317,198
CLASS 212	231 SE	4,317,032	10	4,316,606	312	4,317,071	3 TR	121	4,317,199
196	4,316,548	253	4,317,033	151	4,316,607	55	4,316,668	16	4,317,199
CLASS 213	262	4,317,034	117	4,316,608	138	4,317,072	91	25	4,317,200
127	4,316,549	272	4,317,035	118	4,317,073	483	4,317,074	38	4,317,201
CLASS 215	274	4,317,036	137	4,316,609	808	4,317,074	349	43	4,317,202
360	4,316,550	367	4,317,037	53	4,317,075	15	4,317,125	60	4,317,203
CLASS 219	385	4,317,038	85 D	4,316,611	CLASS 323	26	4,317,126	49	4,317,086
10.49 R	4,317,016	418	4,317,039	210	4,317,076	42	4,317,127	50	4,317,085
10.55 E	4,317,017	421	4,317,040	179	4,317,077	46	4,317,128	57	4,317,087
69 M	4,317,019	435	4,317,041	208	4,317,078	13	4,317,129	58	4,317,090
98	4,317,020	493	4,317,042	326	4,317,079	108	4,317,130	92	4,317,088
121 EU	4,317,022	554	4,317,045	151	4,317,080	128.5	4,317,131	94	4,317,089
121 LG	4,317,021	58	4,316,596	268	4,317,081	142	4,317,132	1	4,317,204
121 LN	4,317,023	63	4,316,597	288	4,317,082	158	4,317,133	7	4,317,205
144	4,317,024	129	4,316,599	296	4,317,083	213	4,317,134	10	4,317,206
202	4,317,025	245	4,316,600	57	4,317,084	227	4,317,135	19	4,317,207
216	4,317,026	8.5 A	4,316,807	107 R	4,317,091	256	4,317,136	27	4,317,208
553	4,317,027	8.55 D	4,316,808	165	4,317,092	286	4,317,137	62	4,317,209
CLASS 220	1 R	8.55 R	4,316,809	187	4,317,093	291	4,317,138	76	4,317,210
19	4,316,552	88	4,316,810	13	4,317,094	300	4,317,139	87	4,317,211
CLASS 221	88	99	4,316,811	149	4,317,095	10	4,317,140	113	4,317,212
167	4,316,553	189	4,316,812	13	4,317,094	60	4,317,141	175	4,316,770
232	4,316,554	301.18	4,316,813	149	4,317,095	67	4,317,142	415	4,316,771
CLASS 222	301.22	301.6 S	4,316,815	70	4,317,096	74.1	4,317,143	458	4,316,997
83.5	4,316,555	429 B	4,316,818	89	4,317,097	76	4,317,144	478	4,316,674
95	4,316,556	430	4,316,819	113	4,317,098	96.6	4,317,145	22	4,316,675
129.1	4,316,557	431 N	4,316,820	170	4,317,099	98	4,317,146	259	4,316,678
181	4,316,558	461	4,316,821	347	4,317,100	113	4,317,147	260	4,316,676
225	4,316,559	462	4,316,822	21	4,317,101	119	4,317,148	49	4,316,680
567	4,316,560	465	4,316,823	160	4,317,102	126	4,317,149	162	4,316,681
606	4,316,561	551	4,316,824	330	4,317,104	135	4,317,150	187	4,316,682
CLASS 223	633	551	4,316,824	CLASS 337	4,317,105	339	4,317,160	CLASS 408	4,316,683
102	4,316,562	285	4,316,626	89	4,317,097	103	4,317,161	219	4,316,683
CLASS 225	86 R	113	4,317,098	170	4,317,099	106	4,317,162	236	4,316,684
41	4,316,563	170	4,317,099	347	4,317,100	362	4,317,163	182	4,316,685
77	4,316,564	21	4,317,101	21	4,317,101	41	4,317,165	12	4,316,686
99	4,316,565	25	4,317,102	160	4,317,103	138	4,317,166	92	4,316,687
CLASS 226	5	330	4,317,104	330	4,317,104	171	4,317,156	102	4,316,688
2	4,316,566	CLASS 339	4,317,105	7	4,316,646	172	4,317,157	149	4,316,680
74	4,316,567	CLASS 340	4,317,106	91 R	4,316,647	272	4,317,158	42	4,316,681
118	4,316,568	CLASS 343	4,317,117	52 F	4,317,106	318	4,317,159	187	4,316,682
158	4,316,569	64	4,317,108	52 R	4,317,107	339	4,317,160	CLASS 409	4,316,685
176	4,316,570	146.3 AC	4,317,109	64	4,317,108	CLASS 362	4,317,161	219	4,316,683
CLASS 228	33.6 PQ	347 DD	4,317,111	146.3 AC	4,317,109	103	4,317,161	236	4,316,684
173 C	4,316,571	568	4,317,112	347 DD	4,317,111	106	4,317,162	182	4,316,685
263 R	4,316,572	630	4,317,113	52 F	4,317,106	362	4,317,163	CLASS 410	4,316,686
CLASS 229	4,316,573	721	4,317,114	52 R	4,317,107	432	4,317,166	102	4,316,688
62.5	4,316,574	784	4,317,115	64	4,317,108	185	4,317,167	CLASS 411	4,316,689
CLASS 232	35	825.91	4,317,116	146.3 AC	4,317,109	200	4,317,168	57	4,316,689
CLASS 233	26	870.39	4,317,116	347 DD	4,317,111	CLASS 364	4,317,169	377	4,316,690
380	4,317,028	CLASS 343	4,317,117	568	4,317,112	185	4,317,167	CLASS 414	4,317,171
454	4,317,029	6 ND	4,317,117	630	4,317,113	200	4,317,168	24.5	4,316,691
489	4,317,030	100 R	4,317,118	721	4,317,114	426	4,317,173	27	4,316,692
CLASS 236	408	112 CA	4,317,119	784	4,317,115	432	4,317,174	59	4,316,693
46 R	4,316,577	474	4,317,176	825.91	4,317,116	464	4,317,175	120	4,316,694
CLASS 238	429.7	483	4,317,177	870.39	4,317,116	474	4,317,176	517	4,316,695
283	4,316,578	510	4,317,178	CLASS 346	4,317,117	515	4,317,179	542	4,316,696
CLASS 239	453.1	707	4,317,180	135.1	4,317,123	515	4,317,179	694	4,316,697
123	4,316,579	734	4,317,182	140 R	4,317,124	707	4,317,180	CLASS 416	4,316,698
466	4,316,580	900	4,317,183	6.6	4,316,648	11	4,317,181	11	4,316,698
682	4,316,581	CLASS 350	4,317,184	16	4,316,649	139	4,317,182	139	4,316,699
692	4,316,582	CLASS 351	4,317,185	67	4,316,650	226	4,317,183	226	4,316,700
CLASS 241	543 F	CLASS 352	4,317,186	99	4,316,651	CLASS 366	4,316,671	CLASS 417	4,316,701
1	4,316,583	CLASS 353	4,317,187	276 R	4,316,652	192	4,316,672	12	4,316,702
38	4,316,584	CLASS 354	4,317,188	465	4,316,653	212	4,316,673	66	4,316,703
211	4,316,585	CLASS 355	4,317,189	155	4,316,654	337	4,316,674	100	4,316,704
CLASS 242	86	CLASS 356	4,317,190	166	4,316,655	CLASS 367	4,317,184	273	4,316,705
65	4,316,586	CLASS 357	4,317,191	172	4,316,656	13	4,317,184	CLASS 418	4,316,706
75.53	4,316,587	CLASS 358	4,317,192	23 D	4,316,657	15	4,317,185	16	4,316,706
129.62	4,316,588	CLASS 359	4,317,193	27	4,316,658	127	4,317,186	60	4,316,707
197	4,316,589	CLASS 360	4,317,194	42	4,316,659	88	4,317,187	CLASS 422	4,316,708
199	4,316,590	CLASS 361	4,317,195	50	4,316,660	293	4,317,188	26	4,316,709
CLASS 248	296	CLASS 362	4,317,196			CLASS 368	4,317,189	102	4,316,710
97	4,316,591	CLASS 363	4,317,197			CLASS 369	4,317,190	112	4,316,711
187	4,316,592	CLASS 364	4,317,198			13	4,317,191	126	4,316,712
		CLASS 365	4,317,199			15	4,317,192	136	4,316,713
		CLASS 366	4,317,200			17	4,317,193	151	4,316,714
		CLASS 367	4,317,201			19	4,317,194	186.3	4,317,205
		CLASS 368	4,317,202			21	4,317,195		
		CLASS 369	4,317,203			23	4,317,196		
		CLASS 370	4,317,204			25	4,317,197		
		CLASS 371	4,317,205			27	4,317,198		
		CLASS 372	4,317,206			29	4,317,199		
		CLASS 373	4,317,207			31	4,317,200		
		CLASS 374	4,317,208			33	4,317,201		
		CLASS 375	4,317,209			35	4,317,202		
		CLASS 376	4,317,210			37	4,317,203		
		CLASS 377	4,317,211			39	4,317,204		
		CLASS 378	4,317,212			41	4,317,205		
		CLASS 379	4,317,213			43	4,317,206		
		CLASS 380	4,317,214			45	4,317,207		
		CLASS 381	4,317,215			47	4,317,208		
		CLASS 382	4,317,216			49	4,317,209		
		CLASS 383	4,317,217			51	4,317,210		
		CLASS 384	4,317,218			53	4,317,211		
		CLASS 385	4,317,219			55	4,317,212		
		CLASS 386	4,317,220			57	4,317,213		
		CLASS 387	4,317,221			59	4,317,214		
		CLASS 388	4,317,222			61	4,317,215		
		CLASS 389	4,317,223			63	4,317,216		
		CLASS 390	4,317,224			65	4,317,217		
		CLASS 391	4,317,225			67	4,317,218		
		CLASS 392	4,317,226			69	4,317,219		
		CLASS 393	4,317,227			71	4,317,220		
		CLASS 394	4,317,228			73	4,317,221		
		CLASS 395	4,317,229			75	4,317,222		
		CLASS 396	4,317,230			77	4,317,223		
		CLASS 397	4,317,231			79	4,317,224		
		CLASS 398	4,317,232			81	4,317,225		
		CLASS 399	4,317,233			83	4,317,226		
		CLASS 400	4,317,234			85	4,317,227		
		CLASS 401	4,317,235			87	4,317,228		
		CLASS 402	4,317,236			89	4,317,229		
		CLASS 403	4,317,237			91	4,317,230		
		CLASS 404	4,317,238			93	4,317,231		
		CLASS 405	4,317,239			95	4,317,232		
		CLASS 406	4,317,240			97	4,317,233		
		CLASS 407	4,317,241			99	4,317,234		
		CLASS 408	4,317,242			101	4,3		

CLASSIFICATION OF PATENTS

CLASS 423		275	4,316,907	137	4,316,926	60	4,316,719	180	4,317,227	348.7	4,316,978
10	4,316,877	277	4,316,908	216	4,316,927	CLASS 434		183	4,317,228	CLASS 528	
235	4,316,878	279	4,316,909	229	4,316,928	224	4,316,720	277	4,317,229	109	4,316,979
265	4,316,879	298	4,316,910	262	4,316,929	CLASS 435		319	4,317,230	199	4,316,980
415 A	4,316,880	300	4,316,911	266	4,316,930	4	4,316,954	330	4,317,231	4,316,981	
456	4,316,881	304	4,316,912	267	4,316,931	47	4,316,955	606	4,317,232	CLASS 536	
CLASS 424		305	4,316,913	294	4,316,932	96	4,316,956	607	4,317,233	4	4,316,983
1	4,316,883	CLASS 425		304.4	4,316,933	119	4,316,957	608	4,317,234	88	4,316,982
9	4,316,882	72 S	4,316,716	325	4,316,936	122	4,316,958	CLASS 493		165	4,316,984
19	4,316,884	73.8 E	4,316,708	376	4,316,937	137	4,316,959	419	4,316,723	CLASS 546	
80	4,316,886	174	4,316,709	403	4,316,938	138	4,316,960	CLASS 501		39	4,316,985
81	4,316,887	186	4,316,710	413	4,316,939	167	Re. 30,872	105	4,316,963	CLASS 549	
116	4,316,894	198	4,316,711	421	4,316,940	241	4,316,961	112	4,316,964	184	4,316,986
122	4,316,885	292	4,316,712	432	4,316,942	CLASS 440		199	4,316,965	199	4,316,987
127	4,316,888	331	4,316,713	475.8	4,316,943	47	4,316,721	53	4,316,966	433	4,316,988
177	4,316,889	382.2	4,316,714	CLASS 429		74	4,316,722	111	4,316,967	CLASS 560	
	4,316,890	456	4,316,715	44	4,316,944	CLASS 435		135	4,316,968	CLASS 564	
	4,316,891	CLASS 426		222	4,316,945	1	4,317,213	145	4,316,969	CLASS 568	
	4,316,892	5	4,316,915	CLASS 430		5	4,317,214	240	4,316,970	461	4,316,989
	4,316,895	329	4,316,916	9	4,316,946	16	4,317,215	310	4,316,971	609	4,316,990
180	4,316,893	540	4,316,917	94	4,316,947	24	4,317,216	335	4,316,972	621	4,316,991
200	4,316,896	603	4,316,918	159	4,316,948	54	4,317,217	365	4,316,973	637	4,316,992
244	4,316,897	CLASS 427		221	4,316,949	58	4,317,218	422	4,316,974	780	4,316,994
246	4,316,898	96	4,316,920	253	4,316,950	76	4,317,219	CLASS 525		784	4,316,995
250	4,316,899	249	4,316,921	285	4,316,952	77	4,317,220	142	4,316,975	CLASS 585	
251	4,316,900	CLASS 428		569	4,316,953	115	4,317,221	200	4,316,976	712	4,316,998
266	4,316,901	35	4,316,922	CLASS 432		128	4,317,222	272	4,316,977		
267	4,316,902	68	4,316,923	8	4,316,717	158	4,317,223				
269	4,316,903	89	4,316,924	58	4,316,718	174	4,317,226				
	4,316,904	105	4,316,925								
274	4,316,906										

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

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Arkansas	5	Massachusetts	25	South Carolina	45
California	6	Michigan	26	South Dakota	46
Canal Zone	7	Minnesota	27	Tennessee	47
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Delaware	10	Montana	30	Vermont	50
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Georgia	13	New Hampshire	33	Washington	53
Guam	14	New Jersey	34	West Virginia	54
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PATENTS

01 : 4,316,324	4,316,649	4,316,682	4,316,756	4,316,617	4,317,049
4,316,359	4,316,651	4,317,018	4,317,025	4,316,643	4,317,068
4,316,389	4,316,655	4,317,044	4,317,120	4,316,778	4,317,084
4,316,501	4,316,666	4,317,177	4,317,121	4,316,842	4,317,094
4,316,609	4,316,673	4,317,203	4,316,333	4,316,845	4,317,096
4,317,088	4,316,688	4,316,420	Re. 30,871	4,316,942	4,317,142
4,317,135	4,316,703	4,316,427	4,316,302	4,316,955	4,317,148
4,317,154	4,316,738	4,316,521	4,316,323	4,316,959	4,317,162
4,316,394	4,316,745	4,316,584	4,316,345	4,316,988	4,317,169
4,316,415	4,316,749	4,316,597	4,316,377	4,317,133	4,317,175
4,316,436	4,316,772	4,316,774	4,316,451	4,317,152	4,316,286
4,316,523	4,316,782	4,316,805	4,316,455	4,317,192	4,316,295
4,316,629	4,316,786	4,316,859	4,316,456	4,317,223	4,316,296
4,316,700	4,316,808	4,316,915	4,316,459	4,316,297	4,316,303
4,317,042	4,316,888	4,316,919	4,316,460	4,316,348	4,316,348
4,317,062	4,316,891	4,316,944	4,316,479	4,316,423	4,316,399
4,317,126	4,316,893	4,316,960	4,316,545	4,316,608	4,316,442
4,317,147	4,316,918	4,316,971	4,316,546	4,316,691	4,316,500
05 : 4,316,433	4,316,921	4,317,021	4,316,547	4,316,695	4,316,535
4,316,715	4,316,923	4,317,117	4,316,555	4,317,232	4,316,638
4,316,291	4,316,925	4,317,136	4,316,567	4,316,465	4,316,678
4,316,293	4,316,964	4,317,160	4,316,598	4,316,364	4,316,683
4,316,307	4,316,997	4,316,381	4,316,622	4,316,614	4,316,699
4,316,310	4,317,015	4,316,382	4,316,647	4,316,635	4,316,712
4,316,322	4,317,027	4,316,744	4,316,663	4,316,674	4,316,751
4,316,338	4,317,030	4,316,836	4,316,690	4,317,229	4,316,901
4,316,339	4,317,040	4,316,911	4,316,696	4,316,506	4,316,992
4,316,341	4,317,048	4,316,940	4,316,750	4,316,524	4,317,073
4,316,347	4,317,069	4,316,986	4,316,769	4,316,526	4,317,161
4,316,361	4,317,071	4,316,740	4,316,770	4,316,624	4,316,321
4,316,391	4,317,082	4,316,332	4,316,795	4,316,825	4,316,360
4,316,407	4,317,085	4,316,335	4,316,802	4,316,871	4,316,365
4,316,410	4,317,086	4,316,356	4,316,819	4,317,000	4,316,379
4,316,453	4,317,089	4,316,414	4,316,846	4,316,311	4,316,384
4,316,463	4,317,092	4,316,449	4,316,892	4,316,325	4,316,473
4,316,468	4,317,095	4,316,480	4,316,961	4,316,472	4,316,577
4,316,478	4,317,114	4,316,509	4,317,011	4,316,576	4,316,833
4,316,492	4,317,118	4,316,593	4,317,013	4,316,685	4,316,949
4,316,497	4,317,119	4,316,626	4,317,064	4,316,720	4,316,952
4,316,504	4,317,131	4,316,714	4,317,099	4,316,807	4,316,984
4,316,540	4,317,146	4,316,728	4,317,130	4,317,176	4,317,023
4,316,557	4,317,149	4,316,800	4,317,217	4,317,209	4,316,595
4,316,568	4,317,150	4,316,935	4,317,222	4,316,326	4,316,612
4,316,578	4,317,173	4,317,028	4,317,227	4,316,435	4,316,532
4,316,579	4,317,194	4,317,080	4,317,228	4,316,446	4,316,757
4,316,580	4,317,205	4,317,137	4,316,287	4,316,452	4,316,342
4,316,591	4,317,210	4,317,138	4,316,349	4,316,461	4,316,289
4,316,591	4,317,211	4,317,204	4,316,355	4,316,615	4,316,811
4,316,605	4,317,213	4,316,464	4,316,401	4,316,777	4,316,304
4,316,630	4,316,481	4,316,502	4,316,485	4,316,868	4,316,600
4,316,634	4,316,592	4,316,508	4,316,519	4,316,946	4,316,328
4,316,644	4,316,618	4,316,533	4,316,539	4,316,950	4,316,329
4,316,648	4,316,667	4,316,686	4,316,613	4,317,017	4,316,560

34 : 4,317,007	4,317,050	4,317,036	40 : 4,317,165	4,316,902	4,317,029
4,317,052	4,317,110	4,317,043	4,316,429	4,316,920	4,317,034
4,316,299	4,317,122	4,317,046	4,316,443	4,316,943	4,317,053
4,316,334	4,317,140	4,317,061	4,316,559	4,316,963	4,317,054
4,316,409	4,317,193	4,317,066	4,316,596	4,316,968	4,317,174
4,316,411	4,317,206	4,317,101	4,316,797	4,316,979	4,317,180
4,316,421	4,317,225	4,317,107	4,316,809	4,317,006	4,317,181
4,316,462	4,316,412	4,317,134	4,316,810	4,317,051	4,317,185
4,316,516	4,317,031	4,317,139	4,316,818	4,317,065	4,317,198
4,316,556	4,317,087	4,317,153	4,316,876	4,317,074	4,316,294
4,316,572	4,316,298	4,317,164	4,316,976	4,317,083	4,316,489
4,316,573	4,316,313	4,317,168	4,316,998	4,317,108	4,316,490
4,316,623	4,316,319	4,317,184	4,317,003	4,317,178	4,316,787
4,316,646	4,316,340	4,317,216	4,317,024	4,317,201	4,316,403
4,316,677	4,316,344	4,316,288	4,317,058	4,317,236	4,317,158
4,316,701	4,316,366	4,316,305	4,316,327	4,316,290	4,317,159
4,316,704	4,316,385	4,316,739	4,316,445	4,316,309	4,316,312
4,316,742	4,316,387	4,316,393	4,316,552	4,316,098	4,316,330
4,316,765	4,316,405	4,316,343	4,316,575	4,317,100	4,316,375
4,316,779	4,316,408	4,316,397	4,316,650	4,316,370	4,316,454
4,316,792	4,316,417	4,316,498	4,317,199	4,316,316	4,316,637
4,316,793	4,316,428	4,316,531	4,316,531	4,316,611	4,316,534
4,316,794	4,316,434	4,316,566	4,316,351	4,316,928	4,316,640
4,316,806	4,316,493	4,316,570	4,316,388	4,316,776	4,316,711
4,316,813	4,316,522	4,316,571	4,316,418	4,316,867	4,316,716
4,316,827	4,316,538	4,316,574	4,316,430	4,316,929	4,317,102
4,316,828	4,316,549	4,316,670	4,316,471	4,316,306	4,317,218
4,316,830	4,316,625	4,316,705	4,316,484	4,316,350	4,316,402
4,316,835	4,316,645	4,316,710	4,316,513	4,316,352	4,316,439
4,316,847	4,316,652	4,316,717	4,316,541	4,316,367	4,316,466
4,316,850	4,316,654	4,316,731	4,316,544	4,316,400	4,316,554
4,316,853	4,316,658	4,316,732	4,316,561	4,316,448	4,316,693
4,316,855	4,316,659	4,316,734	4,316,563	4,316,447	4,316,695
4,316,875	4,316,668	4,316,824	4,316,569	4,316,483	4,316,603
4,316,877	4,316,724	4,316,829	4,316,601	4,316,515	4,316,444
4,316,879	4,316,747	4,316,837	4,316,636	4,316,676	4,316,467
4,316,896	4,316,748	4,316,855	4,316,694	4,316,702	4,316,528
4,316,900	4,316,752	4,316,856	4,316,698	4,316,726	4,316,548
4,316,903	4,316,755	4,316,870	4,316,698	4,316,733	4,316,551
4,316,904	4,316,801	4,316,884	4,316,726	4,316,735	4,316,558
4,316,905	4,316,817	4,316,930	4,316,729	4,316,784	4,316,610
4,316,906	4,316,858	4,316,967	4,316,735	4,316,866	4,316,722
4,316,917	4,316,882	4,316,973	4,316,784	4,316,881	4,316,768
4,316,926	4,316,938	4,316,978	4,316,816	4,316,922	4,316,843
4,316,951	4,316,954	4,317,020	4,316,831	4,316,970	4,316,844
4,316,995	4,316,981	4,317,076	4,316,840	4,316,991	4,317,067
4,317,001	4,316,987	4,317,078	4,316,841		
4,317,035	4,317,004	4,317,093	4,316,863		

DESIGN PATENTS

01 : 263,097	263,156	263,139	29 : 263,112	39 : 263,168	42 : 263,128
04 : 263,131	263,165	263,162	263,126	263,104	263,145
263,132	263,167	263,170	263,114	263,118	263,111
05 : 263,106	263,170	263,122	263,108	263,129	263,136
06 : 263,110	263,174	263,127	263,117	263,141	263,143
263,116	08 : 263,113	263,090	263,123	263,144	263,133
263,124	09 : 263,121	263,092	263,153	263,161	263,134
263,142	263,172	263,120	263,155	263,171	263,135
263,148	12 : 263,173	263,127	263,101		
263,149	263,091	263,154	263,102		

PLANT PATENTS

06 : 4,826	4,827				
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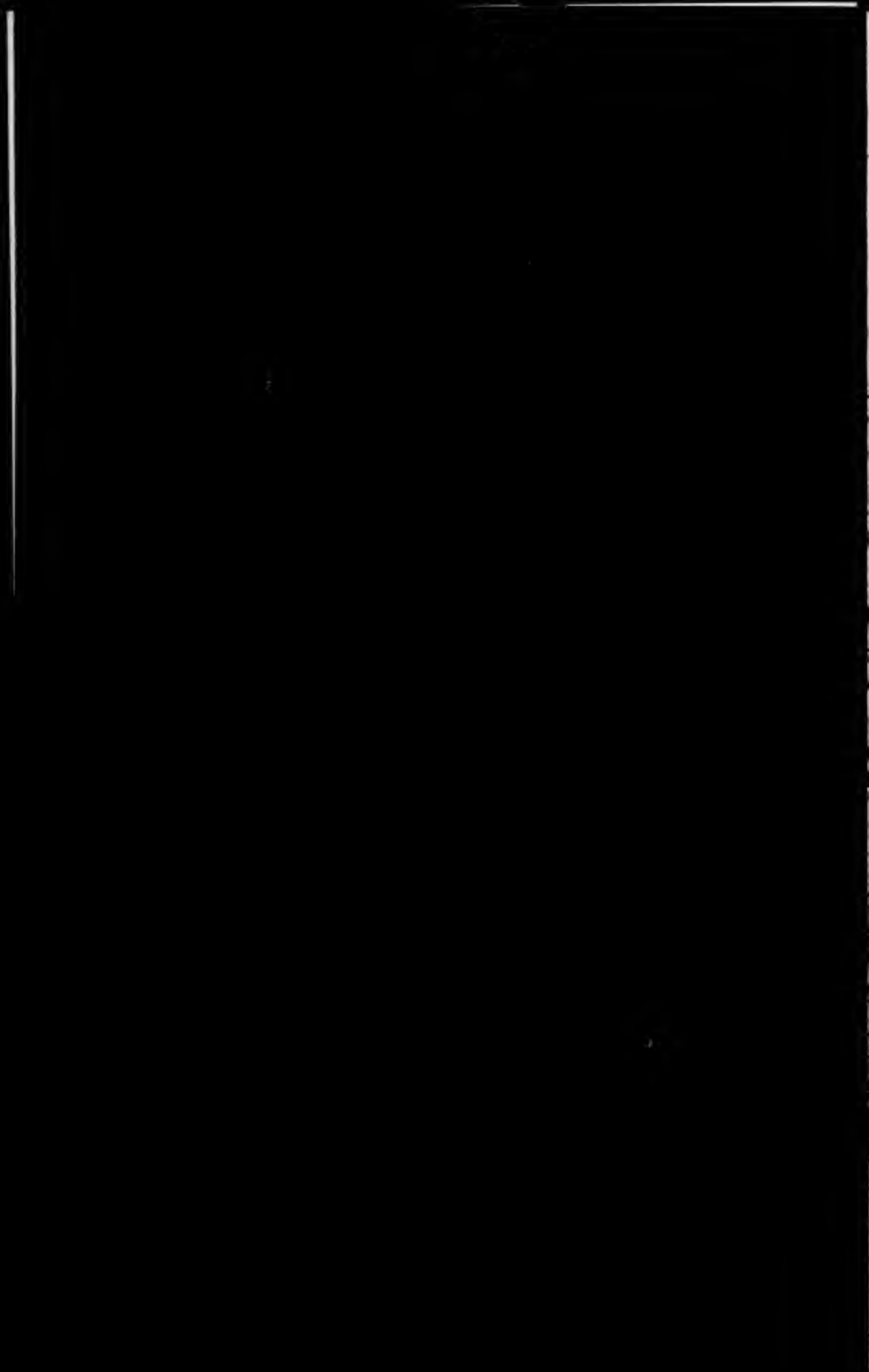
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